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

ENGLISH LANGUAGE TEMPLATE FOR CAFO PERMIT APPLICATIONS

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by the TCEQ Public Participation Plan and Language Access Plan. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

1. Applicant's Name: - BOUMA, MAIKO HESSEL
2. Enter Customer Number: CN601231814
3. Name of facility: BOUMA DAIRY FARM
4. Enter Regulated Entity Number: RN102334539
5. Provide your permit Number: WQ0005477000
6. Facility Business: DAIRY MILK PRODUCTION. THIS FACILITY CONFINES 999 HEAD DAIRY CATTLE, OF WHICH 999 HEAD ARE MILKING COWS. THE FACILITY PRODUCTION AREA IS LOCATED 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100. THE DAIRY FACILITY HAS 9 LAND MANAGEMENT UNITS (LMUS) WITH THE FOLLOWING ACREAGE: LMU #1 - 75, LMU # LMU #2 - 44, LMU #3 - 39, LMU #4 - 64, LMU #5 - 30, LMU #5 - 30, LMU #6 - 41, LMU #7 - 38, LMU #8 - 37, AND LMU #9 - 101, AND 2 RETENTION CONTROL STRUCTURES (RCSS), AND A CONCRETE SETTLING BASINS. THE RCSS TOTAL REQUIRED CAPACITIES WITHOUT FREEBOARD (ACRE-FEET) ARE RCS #1 - 5.56 AND RCS #2 - 6.92. THERE ARE ONSITE 3 WATER WELLS (WELLS #1- #3). THE FACILITY IS LOCATED IN THE DRAINAGE AREA OF SEGMENT NO. 0514 OF BIG SANDY CREEK
7. Facility Location: 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100
8. Application Type: NEW
9. Description of your request: APPLYING FOR A NEW IP
10. Potential pollutant sources at the facility include (list the pollutant sources): Manure, Wastewater, Dust, lubricants, Feed, Fuel Storage, Medicines, Cleaning Chemicals
11. The following best management practices will be implemented at the site to manage pollutants from the listed pollutant sources (describe the best management practices that are used): MANURE WILL BE STORED WITHIN THE DRAINAGE AREA OF RCS #1. WASTEWATER WILL BE STORED IN RCS #1, AND RCS #2. UNTIL PROPERLY IRRIGATED THROUGH A DRAGHOSE SYSTEM IRRIGATION SYSTEMS. MANURE WILL BE HAULED TO THE APPROPRIATE LMUS, OFFSITE, IN ACCORDANCE WITH THE NUTRIENT MANAGEMENT PLAN. RCS #1, AND RCS #2 ARE DESIGNED TO STORE AND MAINTAIN THE SLUDGE AND 25YR-24HR RAINFALL. ALL OTHER CLEANERS, LUBRICANTS, FUELS AND MEDICINES WILL BE MAINTAINED AND ALL MANUFACTURERS' DIRECTIONS FOLLOWED. DEAD COWS WILL BE BURIED WITHIN 72 HOURS

Unless otherwise limited, manure, sludge, or wastewater will not be discharged from a land management unit (LMU) or a retention control structure (RCS) into or adjacent to water in the state from a CAFO except resulting from any of the following conditions:

1) a discharge of manure, sludge, or wastewater that the permittee cannot reasonably prevent or control resulting from a catastrophic condition other than a rainfall event;

2) overflow of manure, sludge, or wastewater from a RCS resulting from a chronic/catastrophic rainfall event; or

3) a chronic/catastrophic rainfall discharge from a LMU that occurs because the permittee takes measures to de-water the RCS if the RCS is in danger of imminent overflow.

PLANTILLA DE IDIOMA ESPAÑOL PARA SOLICITUDES DE PERMISO CAFO

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Plan de Participación Pública y el Plan de Acceso al Idioma de la TCEQ. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación federal exigible de la solicitud de permiso.

1. Nombre del Solicitante: BOUMA, MAIKO HESSEL
2. Introduzca el Número de Cliente: CN601231814
3. Nombre de la Instalación: BOUMA DAIRY FARM
4. Introduzca el Número de Entidad Regulada: RN102334539.
5. Proporcione su Número de Permiso: WQ0005477000
6. Negocio de Instalación: PRODUCCIÓN DE LECHE. ESTA INSTALACIÓN CONFINA 999 CABEZAS DE GANADO LECHERO, DE LAS CUALES 999 CABEZAS SON VACAS DE ORDEÑO. EL ÁREA DE PRODUCCIÓN DE LA INSTALACIÓN ESTÁ UBICADA EN 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100. LA INSTALACIÓN LÁCTEA TIENE 9 UNIDADES DE GESTIÓN DE TIERRAS (LMUS) CON LA SIGUIENTE SUPERFICIE: LMU N.º 1 - 75, LMU N.º 2 - 44, LMU N.º 3 - 39, LMU N.º 4 - 64, LMU N.º 5 - 30, LMU N.º 5 - 30, LMU N.º 6 - 41, LMU N.º 7 - 38, LMU N.º 8 - 37 Y LMU N.º 9 - 101, Y 2 ESTRUCTURAS DE CONTROL DE RETENCIÓN (RCSS) Y CUENCAS DE SEDIMENTACIÓN DE CONCRETO. LAS CAPACIDADES TOTALES REQUERIDAS POR RCSS SIN FRANCOBORDO (ACRE-PIES) SON RCS N.° 1: 5,56 Y RCS N.° 2: 6,92. HAY 3 POZOS DE AGUA EN EL LUGAR (POZOS N.° 1 A N.° 3). LA INSTALACIÓN ESTÁ UBICADA EN EL ÁREA DE DRENAJE DEL SEGMENTO N.° 0514 DE BIG SANDY CREEK
7. Ubicación de la Instalación: 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100.
8. Tipo de Solicitud: NUEVO
9. Descripción de su solicitud: SOLICITUD DE NUEVA IP
10. Las fuentes potenciales de contaminantes en la instalación incluyen (liste las fuentes contaminantes): ESTIÉRCOL, AGUAS RESIDUALES, POLVO, LUBRICANTES, PIENSOS, ALMACENAMIENTO DE COMBUSTIBLE, MEDICAMENTOS, PRODUCTOS QUÍMICOS DE LIMPIEZA
11. Las siguientes mejores prácticas de gestión se implementarán en el sitio para gestionar los contaminantes de las fuentes contaminantes listadas (describa las mejores prácticas de gestión que se utilizan): EL ESTIÉRCOL SE ALMACENARÁ DENTRO DEL ÁREA DE DRENAJE DE RCS #1, Y RCS #2. LAS AGUAS RESIDUALES SE ALMACENARAN EN RCS #1 Y RCS #2 HASTA QUE SE RIGUEN CORRECTAMENTE A TRAVÉS DE UN SISTEMA DE RIEGO DE PIVOTE CENTRAL Y DE ARRASTRE. EL ESTÉRICO SERÁ TRANSPORTADO A LOS LMUS APROPIADOS, FUERA DEL SITIO, DE ACUERDO CON EL PLAN DE MANEJO DE NUTRIENTES. Los RCS #1 y RCS #2 ESTARÁN DISEÑADOS PARA ALMACENAR Y MANTENER LOS LODOS Y LAS LLUVIAS DE 25 A 24 HORAS. TODOS LOS DEMÁS LIMPIADORES, LUBRICANTES, COMBUSTIBLES Y

MEDICAMENTOS SE MANTENDRÁN Y SE SEGUIRÁN TODAS LAS INSTRUCCIONES DEL FABRICANTE. LAS VACAS MUERTAS SERÁN ENTERRADAS EN 72 HORASMEDICAMENTOS SE MANTENDRÁN Y SE SEGUIRÁN TODAS LAS INSTRUCCIONES DEL FABRICANTE. LAS VACAS MUERTAS SERÁN ENTERRADAS EN 72 HORASA

A menos que se limite lo contrario, el estiércol, los lodos o las aguas residuales no se descargarán de una unidad de gestión de la tierra (LMU, por sus siglas en inglés) o una estructura de control de retención (RCS, por sus siglas en inglés) hacia o adyacente al agua en el estado de una CAFO, excepto como resultado de cualquiera de las siguientes condiciones:

1) una descarga de estiércol, lodos o aguas residuales que el permisionario no pueda prevenir o controlar razonablemente como resultado de una condición catastrófica que no sea un evento de lluvia;

2) desbordamiento de estiércol, lodo o aguas residuales de un RCS como resultado de un evento de lluvia crónico/catastrófico; o

3) una descarga de lluvia crónica/catastrófica de una LMU que ocurre porque el permisionario toma medidas para desaguar el RCS si el RCS está en peligro de desbordamiento inminente.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PROPOSED PERMIT NO. WQ0005477000

APPLICATION. Maiko Hessel Bouma, 4252 County Road 2408, Winnsboro, Texas 75494, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Wastewater Permit No. WQ0005477000 for a Concentrated Animal Feeding Operation (CAFO) to authorize the operation of a 999 head count dairy facility. The facility is located at 4252 County Road 2408, near the city of Winnsboro, in Hopkins County, Texas 75494. TCEQ received this application on December 31, 2024. The permit application will be available for viewing and copying at Texas A&M AgriLife Extension Service, 1200 West Houston Street, Sulphur Springs, 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/cafo-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=-95.32861,32.980555&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.
El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-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 Maiko Hessel Bouma at the address stated above or by calling Mr. Maiko Bouma, Owner, at 903-855- 2748.

Issuance Date: February 13, 2025

Comisión de Calidad Ambiental del Estado de Texas

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

PERMISO NO. WQ0005477000

SOLICITUD. Maiko Hessel Bouma, 4252 County Road 2408, Winnsboro, Texas 75494, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) la propuesta de Permiso de Aguas Residuales No. WQ0005477000 para una Operación de limentación Concentrada de Animales (CAFO) para autorizar la operación de una instalación lechera con 999 cabezas de ganado. La instalación está ubicada en 4252 County Road 2408, cerca de la ciudad de Winnsboro, en el condado de Hopkins, Texas 75494. La TCEQ recibió esta solicitud el 31 de diciembre de 2024. La solicitud de permiso estará disponible para ver y copiar en Texas A&M AgriLife Extension Service, 1200 West Houston Street, Sulphur Springs, 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/cafo-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o instalación se proporciona como cortesía pública y no forma parte de la solicitud o aviso. Para conocer la ubicación exacta, consulte la aplicación**.** https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.

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

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el

Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

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

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

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de

derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.

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

CONTACTOS E INFORMACIÓN DE LA TCEQ. Todos los comentarios escritos del público y los para pedidos una reunión deben ser presentados a la Oficina del Secretario Principal, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 o por el internet at www.tceq.texas.gov/about/comments.html. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Si necesita más información en Español sobre esta solicitud para un permiso o el proceso del permiso, por favor llame a El Programa de Educación Pública de la TCEQ, sin cobro, al 1-800-687-4040. La información general sobre la TCEQ puede ser encontrada en nuestro sitio de la red: www.tceq.texas.gov.

También se puede obtener más información de Maiko Hessel Bouma en la dirección indicada anteriormente o llamando al Sr. Maiko Bouma, propietario, al 903-855-2748.

Fecha de emisión not isssued 13 de febrero de 2025

Responses to comments for WQ0005477000 (EPA I.D. No. TXG920057)
Applicant Name: Maiko Hessel Bouma (CN601231814) Site Name: Bouma Dairy Farm (RN102334539)

1. CAFO Application (TCEQ-00728) Section 3, Item D
The customer is an individual type, not a Sole Proprietorship (DBA). Please provide a revised page to indicate the customer type as individual and complete and provide Attachment 1 –Individual Information.

See attachment

2. CAFO Application (TCEQ-00728) Section 12 – Affected Landowner Information
 The affected landowner maps do not clearly show and label the applicant's property boundaries, including onsite and offsite LMUs; and the property boundaries of all landowners within 500 feet of the applicant's property. Please provide an affected landowner map that clearly outlines and labels all applicant property boundaries, the 500-foot radius of their property boundaries, and all adjacent properties.
 Please provide the affected landowner list formatted for mailing labels (Avery 5160) in a Microsoft Word document.

See attachment

3. CAFO Application (TCEQ-00728) Section 13; Technical Information (TCEQ-00760) – Attachments.
The maps in the application, including the USGS, SPIF, vicinity, site, runoff control, floodplain, soil, and LMU maps are not legible. Please provide a legible and full color electronic copy of each map that clearly shows and labels all required items.

See attachment

4. Section I, item 2 & 3 on page 1, Thank you for addressing this item. However, as per Section 3, item B on page 2 of the application the CN number is indicated CN601231814 and the applicant's name is Maiko Hessel Bouma, we used this information to create the permit, and the regulated entity name 'Bouma Dairy Farm and the RN number is RN102334539. Please update the CDF and the application. Please update the CDF and the application accordingly.

See attachment

5. Section III, item 23, of the Core Data Form (CDF): Thank you for addressing this item. However, the facility location address is in correct and does not consistent with PLS English and Spanish. Please update this item.

See attachment

6. Section 9, item D on page 6 of the application: thank you for addressing this item. However, the county name is not indicated. Please update and submit a revised page.

See attachment

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

APPLICATION. Maiko Hessel Bouma, 19008 Farm-to-Market Road 3079, Chandler, Texas 75758, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Wastewater Permit No. WQ0005477000 (EPA I.D. No. TXG920057) for a Concentrated Animal Feeding Operation (CAFO) to authorize the operation of a 999 head count dairy facility. The facility is located at 4252 County Road 2408, near the city of Chandler, in Hopkins County, Texas 75494. TCEQ received this application on December 31, 2024. The permit application will be available for viewing and copying at Texas A&M AgriLife extension Service, 1200 West Houston, Sulphur Springs, in Hopkins 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/cafoapplications.
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=-95.32861,32.980555&level=18 Further information may also be obtained from Maiko Hessel Bouma at the address stated above or by calling Mr. Maiko Bouma, OWNER, at 903-855- 2748.

Chandler should be changed to Winnsboro.

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

The NOTI is correct see attachment

9. Please provide an electronic copy of the complete application in a single PDF file. The electronic copy may be submitted via email to WQ-ARPTeam@tceq.texas.gov (25MB size file or smaller) or via TCEQs file transfer protocol (FTP) server using the following steps.

a. Sign in and upload your application as a single PDF file using the TCEQ FTP server:

https://ftps.tceq.texas.gov/index.php.
b. Share the uploaded file to the email address: WQDeCopy@tceq.texas.gov.
For complete instructions on using the TCEQ FTP server, please visit:
https://ftps.tceq.texas.gov/help/. For other questions about the submittal of electronic copies,
please view the frequently asked questions .

Attachment 1
Individual Information

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

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

Full Legal Name, including middle name: MAIKO HESSEL BOUMA

Driver's License or State Identification Number: XXXXXX

State that Issued the License or Identification Number: Texas

Date of Birth: XXXXX

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: na

E-mail Address: boumadairy@hotmail.com

For TCEQ Use Only

Customer Number _____
Regulated Entity Number _____
Permit Number _____

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: na

E-mail Address: boumadairy@hotmail.com

D. Indicate the type of customer:

- ☒ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☐ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify: Click here to enter text

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☒ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

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

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: Click here to enter text

What is the Charter Filing Number issued by the Texas Secretary of State: Click here to enter text

SECTION 4. CO-APPLICANT INFORMATION

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

A. What is the legal name of the co-applicant?

Click here to enter text

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN Click here to enter text

C. What is the contact information for the co-applicant?

Mailing Address: Click here to enter text

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

Phone Number: Fax Number: Click here to enter text

E-mail Address: Click here to enter text

HOPKINS COUNTY APPRAISAL DISTRICT

Home Return to Search Print

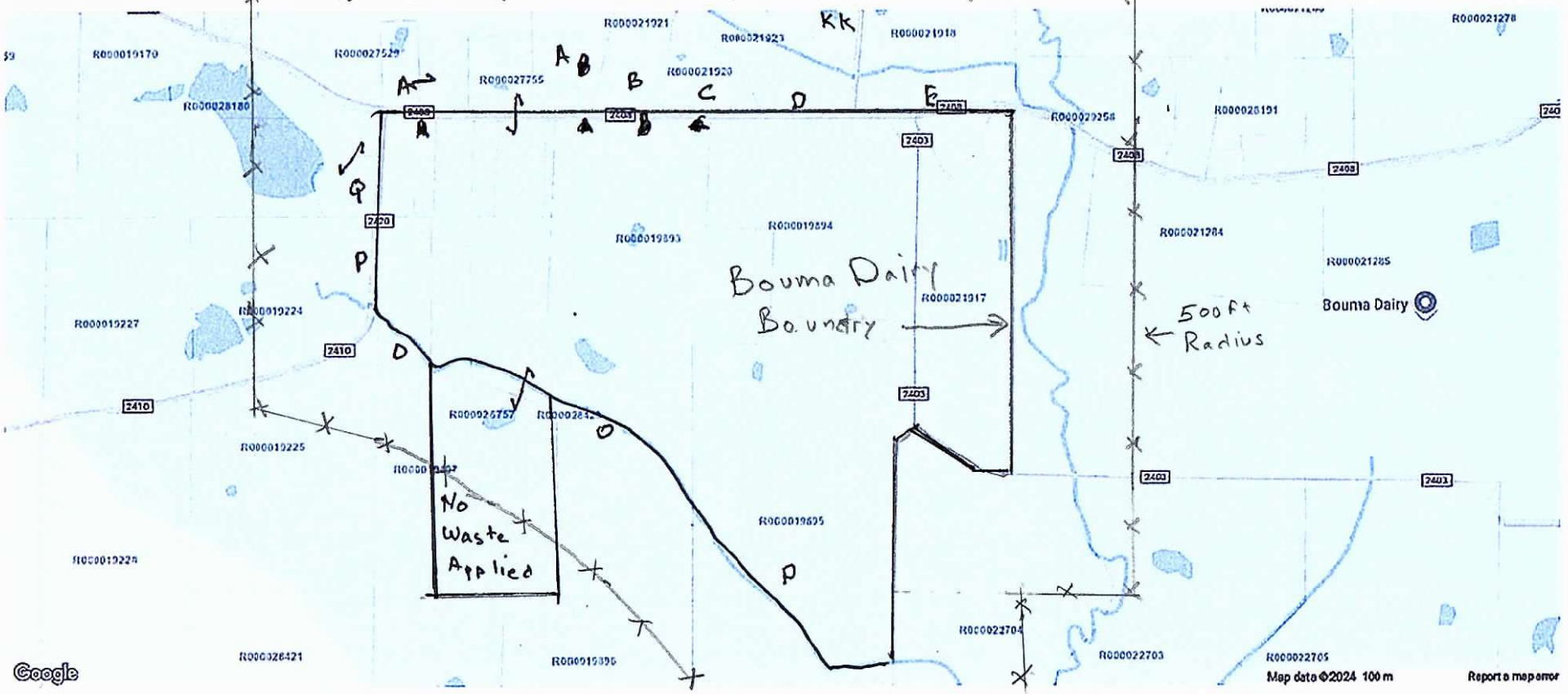
Property Year 2024 Map/GIS

Property ID: R000013309 Geo ID: 65.0307.000.013.01

Information Updated 10/23/2024

< Previous Property | 12 / 27 Next Property >

MAP A



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MAP F
↓

MAP A ↑

HOPKINS COUNTY

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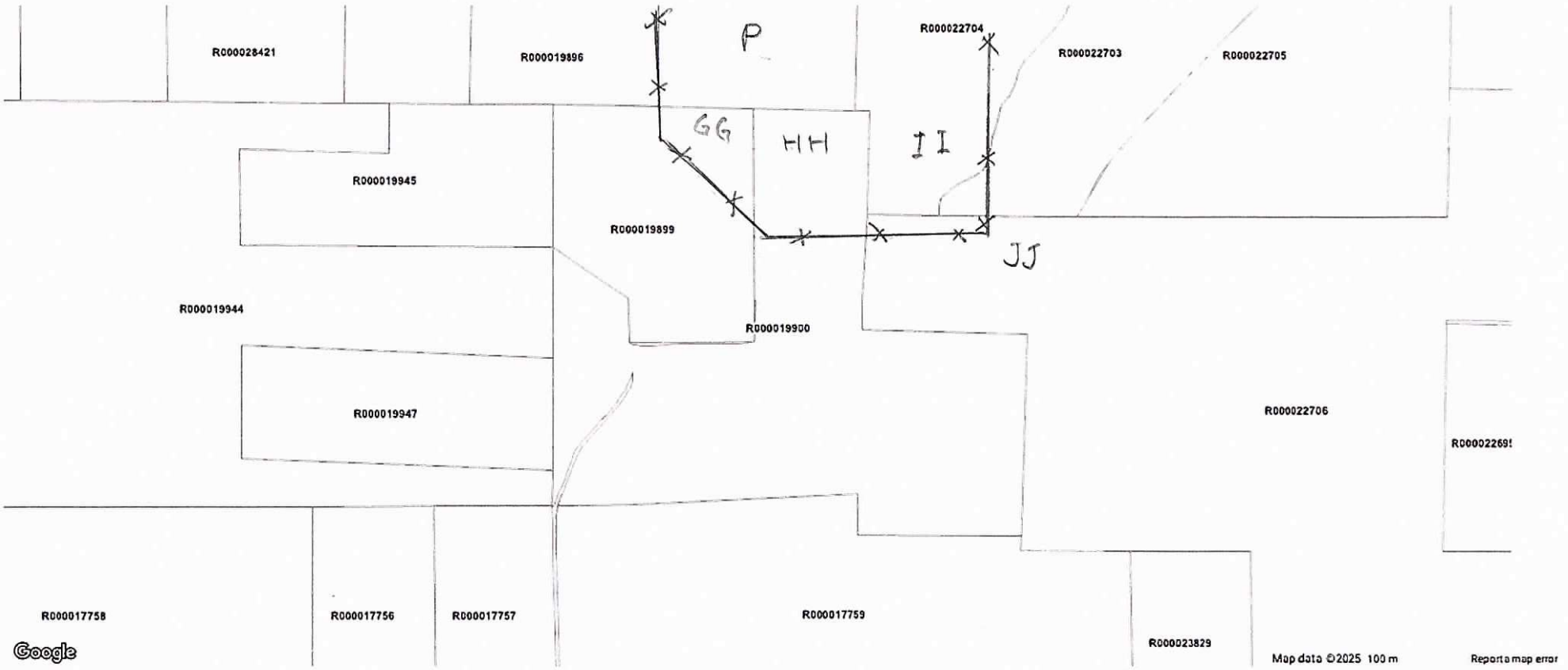
MAP F

Property Year 2024 Map/GIS

Property ID: R000015062 Geo ID: 65.0459.000.002.02

Information Updated 2/3/2025

< Previous Property 14 / 27 Next Property >



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MAPA ↑

HOPKINS COUNTY

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MAP G

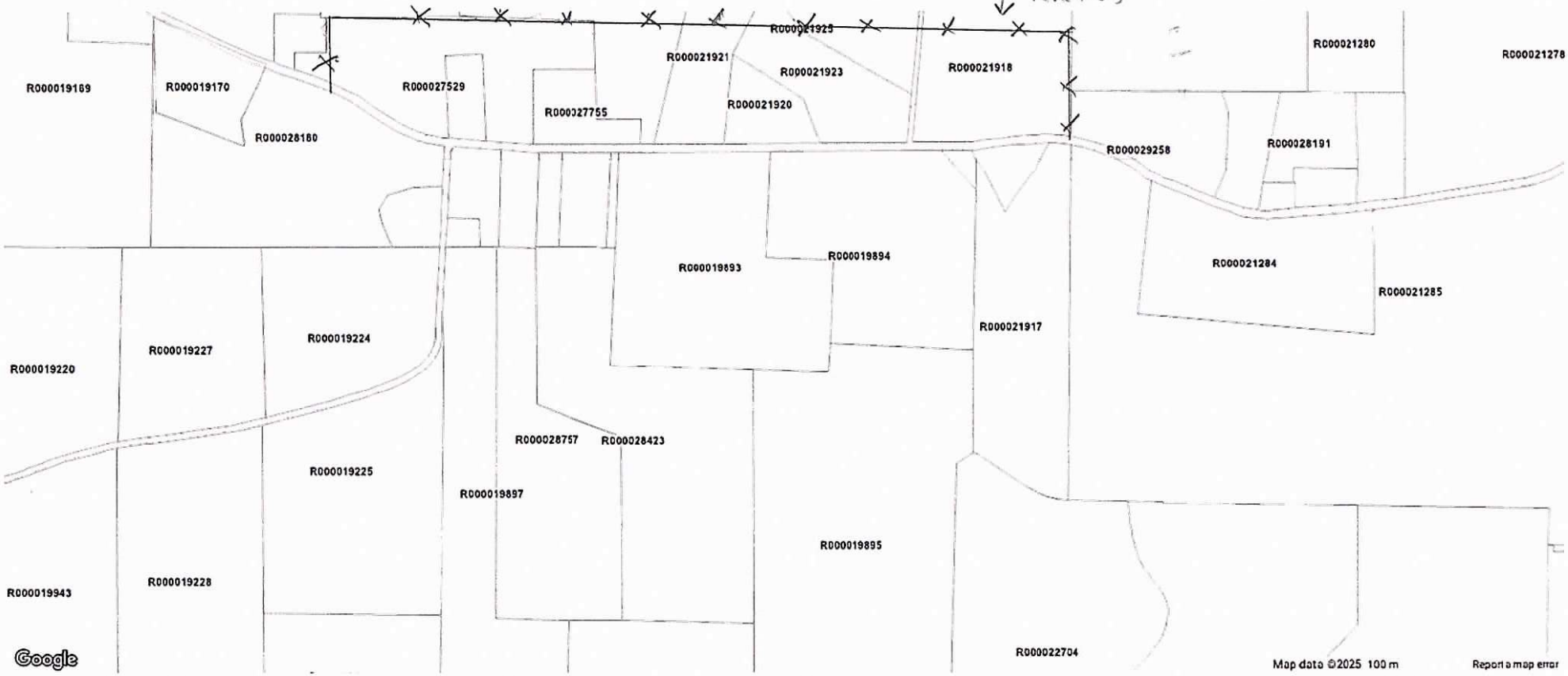
Property Year 2024 Map/GIS

Property ID: R000015062 Geo ID: 65.0459.000.002.02

Information Updated 2/3/2025

< Previous Property 14 / 27 Next Property >

500 ft Radius



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APPRAISAL DISTRICT

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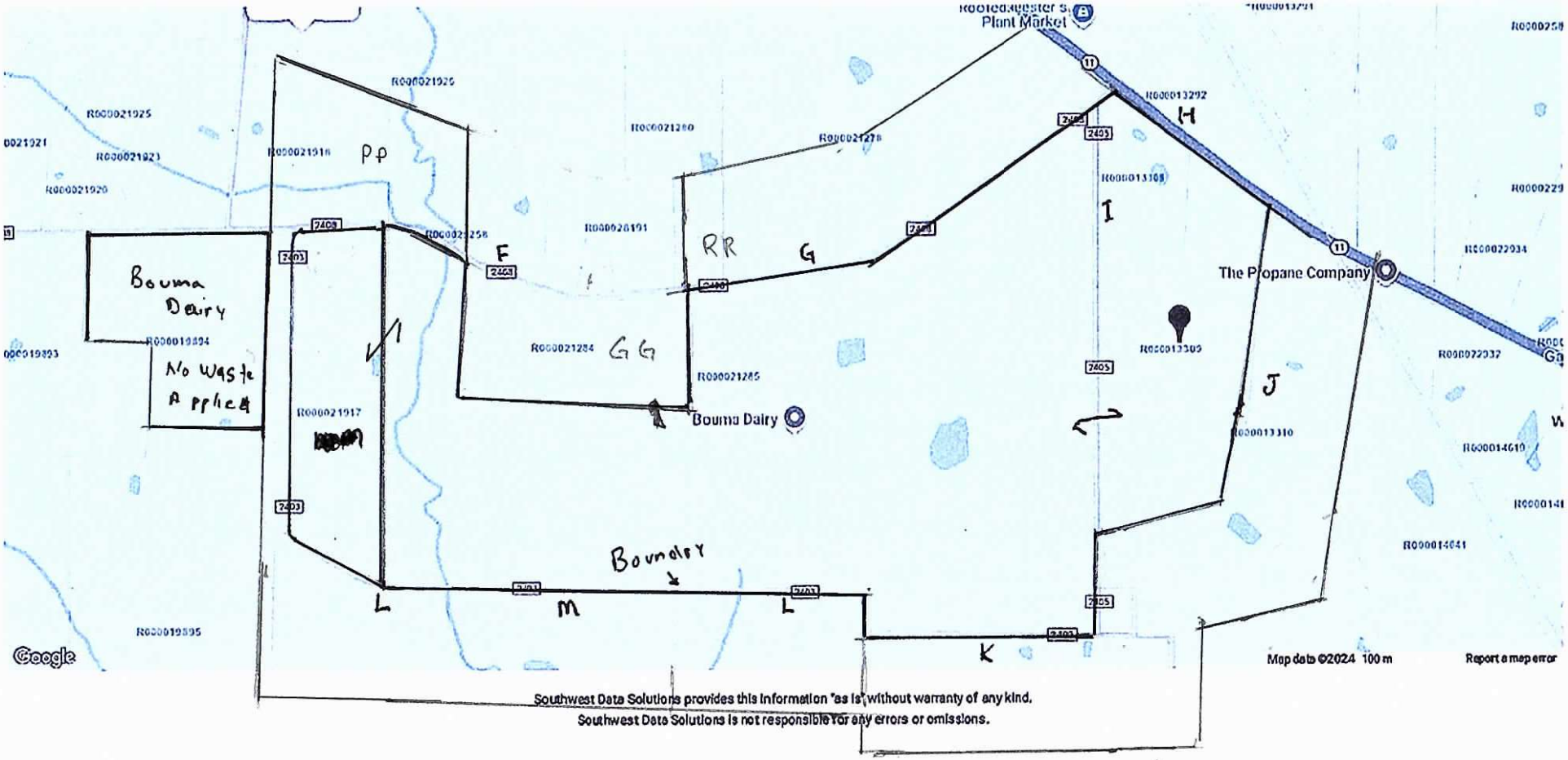
Property Year 2024 Map/GIS
Property ID: R000013309 Geo ID: 65.0307.000.013.01

MAP B

Information Updated 10/23/2024
◂ Previous Property 12 / 27 | Next Property ▸



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HOPKINS COUNTY
APPRAISAL DISTRICT

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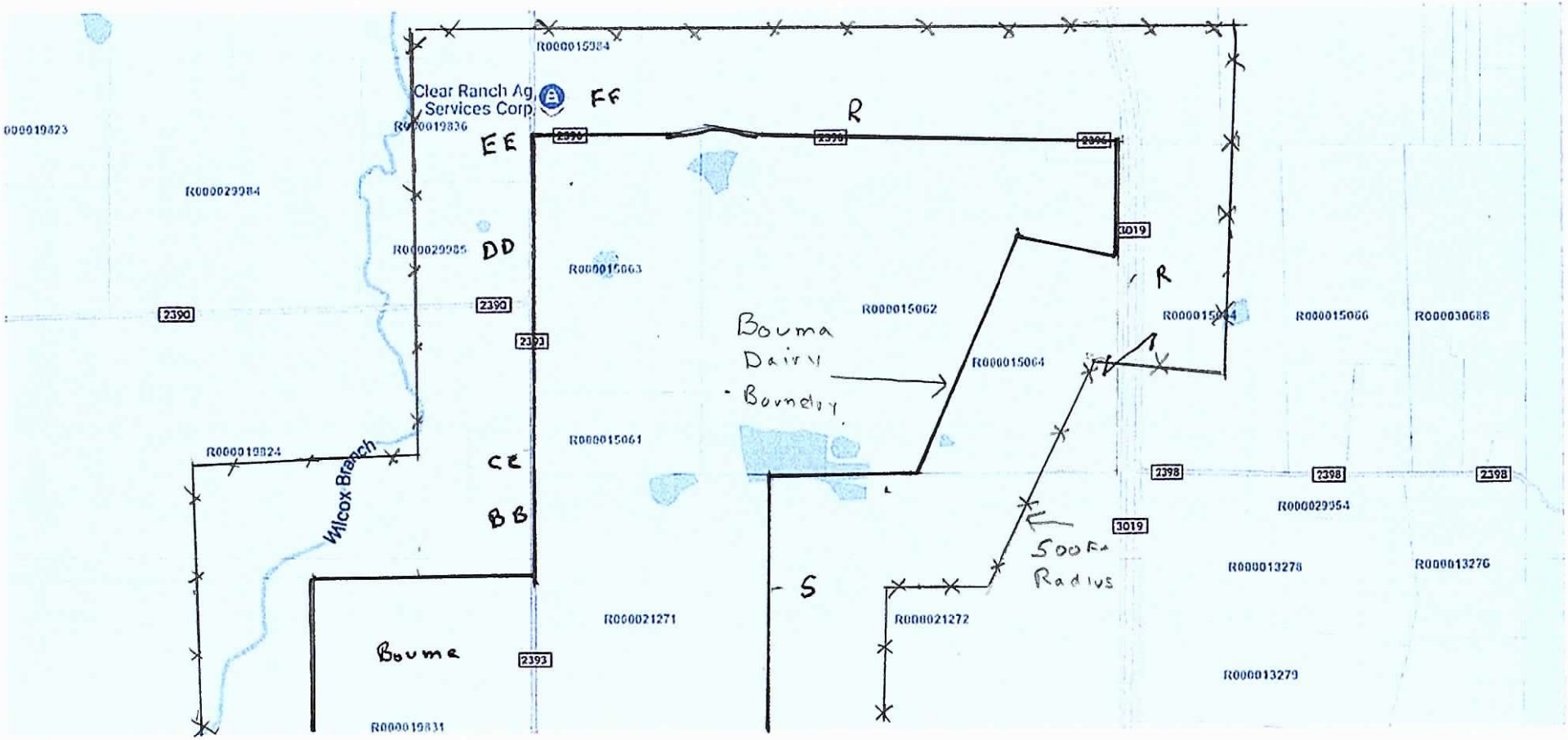
MAP D

Property Year 2024 Map/GIS
Property ID: R000021285 Geo ID: 65.0898.000.005.01

Information Updated 10/24/2024
< Previous Property | 19 / 27 | Next Property >



Google

Map data ©2024 100 m Report a map error

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MAP E ↓

MAP D ↑

HOPKINS COUNTY
APPRAISAL DISTRICT

Home Return to Search Print

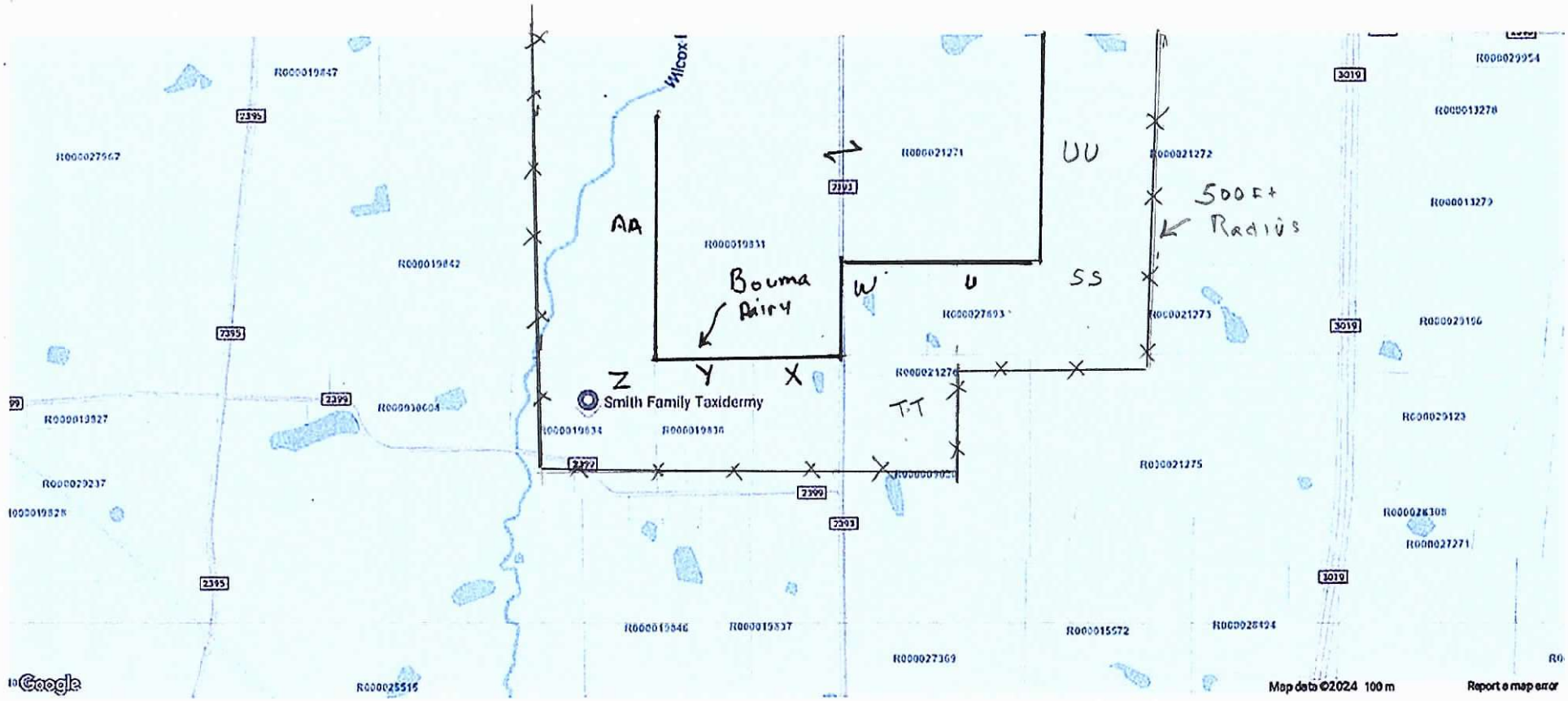
MAP E

Property Year 2024 Map/GIS

Property ID: R000021285 Geo ID: 65.0898.000.005.01

Information Updated 10/24/2024

« Previous Property 19 / 27 | Next Property »



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Bouma Dary Land Owners Map

A	R000027529 R000019171	AISE J & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
B	R000021921	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
C	R000021920	MISTY GAYLE & JEFFERY ALAN ETAL MCBRIDE 3259 CR 2408 WINNSBORO, TX 75494
D	R000021923	SHANE NICHOLS 2745 CR 2403 WINNSBORO, TX 75494
E	R000021918	CARL & KATHERINE KASTNER 1195 CR 2403 WINNSBORO, TX 75494
F	R000021279	JODY W & ROSE M RIOJAS 3999 CR 2408 WINNSBORO, TX 75494
G	R000021278	JOHN P & LESLIE A MOORE P O BOX 724 WINNSBORO, TX 75494
H	R000013292	GEORGE JAMES PIERCE 20343 HWY 11 E WINNSBORO, TX 7549
I	R000013308	LAUZON PETER G & SHEILA M REVOCABLE LIVING TRUST PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES 20262 HWY 11 E WINNSBORO, TX 75494
J	R000013310	PHILLIP GILBREATH 7750 LYNDON B JOHNSON FWY 201 DALLAS, TX 75251
K	R000022685	BLAKE C & REGINA BAIN 4360 CR 2310 SULPHUR SPRINGS, TX 75482
L II	R000022705 R000022704	DENNIS RAY & SHERRY G NICHOLS 2342 CR 2403 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

M	R000022703	ROYCE EUGENE & VERA LEE CARTER P O BOX 941 VAN ALSTYNE, TX 75495
N HH	R000019900 R000019900	RAGSDALE LAND COMPANY LLC PO BOX 822 WINNSBORO, TX 75494
O	R000028423 R000019895 R000019897	AISE & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
P	R000019224	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
Q	R000028089 R000028180	SHIRLEY JACKSON MAY 2822 CR 2408 WINNSBORO, TX 75494-4136
R	R000015060 R000015064 R000015064	TEMPLEMAN LIVING TUST TRUSTEE IRIS ANNETTE TEMPLEMAN 1901 WISTERIA WAY MCKINNEY, TX 75071
S	R000021272	RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS 1205 CEDARWOOD DR FLOWER MOUND, TX 75028
U	R000027893	KARI GAYE NOLEN 1577 CR 2393 WINNSBORO, TX 75494
W	R000021274	CHARLESTON DAVID GREEN 203 E CEDAR ST WINNSBORO, TX 75494
X	R000027089	JOHN DAVID & ANNA LAURISSA STONE 1923 CR 2399 WINNSBORO, TX 75494-4241
Y	R000019838	AMELIA ANN L/E GREEN LAQUITA RACHELLE SAVAGE 1801 CR 2399 WINNSBORO, TX 7549
Z	R000019834	RICHARD & TAMMY SMITH 1671 CR 2399 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

AA	R000019842	ANTHONY TY & TAMMY LYNNE MARLER 1179 CR 2399 WINNSBORO, TX 75494
BB	R000019824	ANTHONY TY & TAMMY LYNNE MARLER 1179 CR 2399 WINNSBORO, TX 75494
CC	R000026415	PHUONG LAN T TRAN 1394 CR 2393 WINNSBORO, TX 75494
DD	R000029985	WIEPIE & JENNIFER SANDLIN JONGSMA 4705 CR 2390 WINNSBORO, TX 75494
EE	R000019836	ANASTASIA & MATTHEW PERRY PO BOX 917 WINNSBORO, TX 75494
FF	R000015984	RAMONA L LONG 1143 CR 2393 WINNSBORO, TX 75494

MABRY JOHN MATTHEW ETAL
20657 HWY 11 E
WINNSBORO, TX 75494-9407

POAG L DWAYNE
1186 CR 2403
WINNSBORO, TX 75494

VAQUEZ-JACOBO GENARO & MARIA AGUSTINA
HERNANDEZ CONCEPCION
585 COUNTY ROAD 2405
WINNSBORO, TX 7549

KASTNER CARL & KATHERINE
1195 CR 2403
WINNSBORO, TX 7549

BUI TAN DINH
3776 CR 2408
WINNSBORO, TX 75494

RIOJAS JODY W & ROSE M
3999 CR 2408
WINNSBORO, TX 75494

LOVE RICHARD RAY II
137 CR 3103
GREENVILLE, TX 75402

GRUBBS RIDDLES ELLEN & GARY NEAL GRUBBS
1205 CEDARWOOD DR
FLOWER MOUND, TX 75028

AISE J & CHARLOTTE BOUMA
902 MAIN ST
HALSTEAD, KS 67056

SHANE NICHOLS
2745 CR 2403
WINNSBORO, TX 75494

JOHN P & LESLIE A MOORE
P O BOX 724
WINNSBORO, TX 75494

PHILLIP GILBREATH
7750 LYNDON B JOHNSON FWY 201
DALLAS, TX 75251

ROYCE EUGENE & VERA LEE CARTER
P O BOX 941
VAN ALSTYNE, TX 75495

RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS
1205 CEDARWOOD DR
FLOWER MOUND, TX 75028

JOHN DAVID & ANNA LAURISSA STONE
1923 CR 2399
WINNSBORO, TX 75494-4241

ANTHONY TY & TAMMY LYNNE MARLER
1179 CR 2399
WINNSBORO, TX 75494

WIEPIE & JENNIFER SANDLIN JONGSMA
4705 CR 2390
WINNSBORO, TX 75494

RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

DUSTIN BRODY ALLEN
2430 CR 2410
WINNSBORO, TX 75494

CARL & KATHERINE KASTNER
1195 CR 2403
WINNSBORO, TX 75494

GEORGE JAMES PIERCE
20343 HWY 11 E
WINNSBORO, TX 7549

BLAKE C & REGINA BAIN
4360 CR 2310
SULPHUR SPRINGS, TX 75482

RAGSDALE LAND COMPANY LLC
PO BOX 822
WINNSBORO, TX 75494

SHIRLEY JACKSON MAY
2822 CR 2408
WINNSBORO, TX 75494-4136

KARI GAYE NOLEN
1577 CR 2393
WINNSBORO, TX 75494

AMELIA ANN L/E GREEN
LAQUITA RACHELLE SAVAGE
1801 CR 2399
WINNSBORO, TX 7549

ANASTASIA & MATTHEW PERRY
PO BOX 917
WINNSBORO, TX 75494

PATRICK JOHN
417 W BROADWAY
WINNSBORO, TX 75494

MISTY GAYLE & JEFFERY ALAN ETAL MCBRIDE
3259 CR 2408
WINNSBORO, TX 75494

JODY W & ROSE M RIOJAS
3999 CR 2408
WINNSBORO, TX 75494

PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES
20262 HWY 11 E
WINNSBORO, TX 75494

DENNIS RAY & SHERRY G NICHOLS
2342 CR 2403
WINNSBORO, TX 75494

RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

TEMPLEMAN LIVING TUST
TRUSTEE IRIS ANNETTE TEMPLEMAN
1901 WISTERIA WAY
MCKINNEY, TX 75071

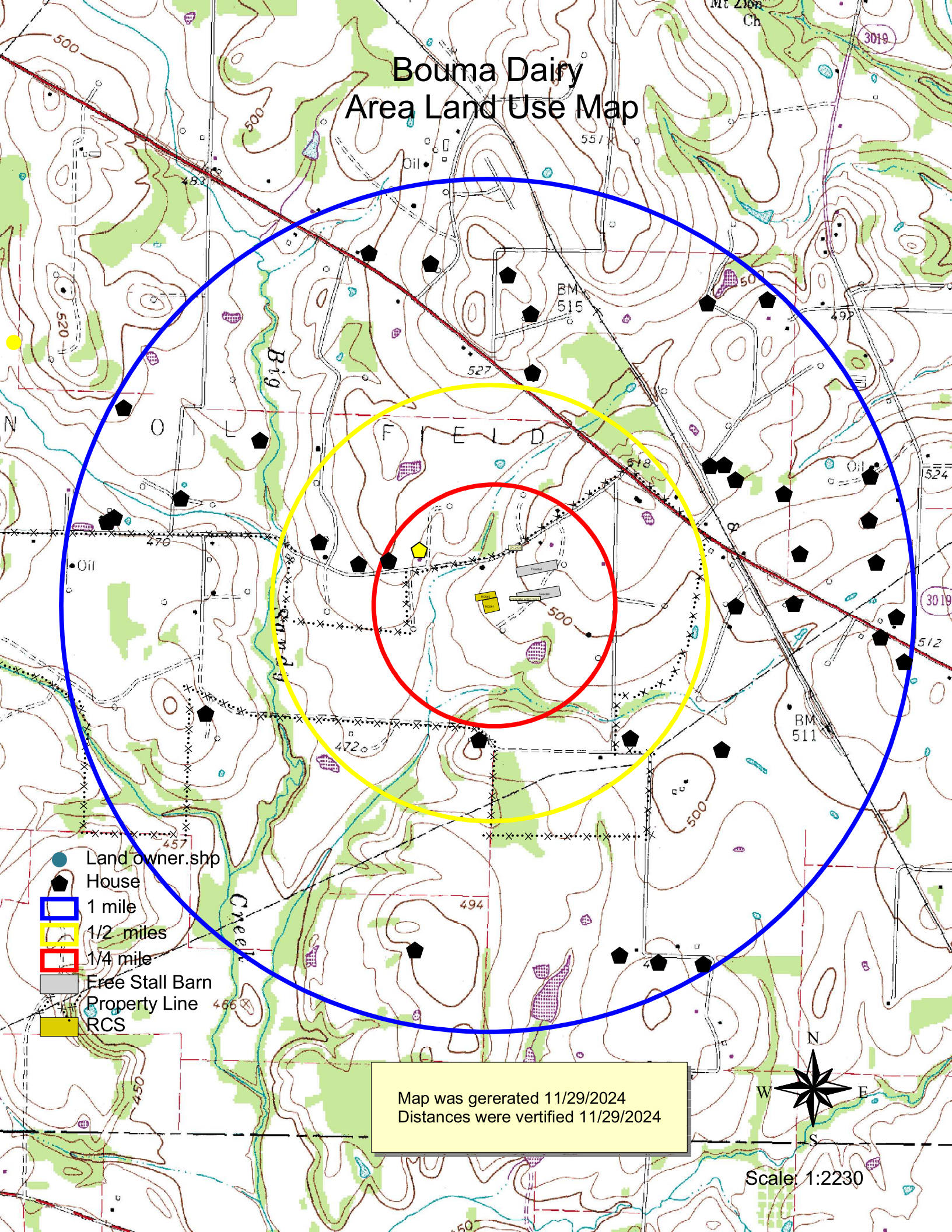
CHARLESTON DAVID GREEN
203 E CEDAR ST
WINNSBORO, TX 75494

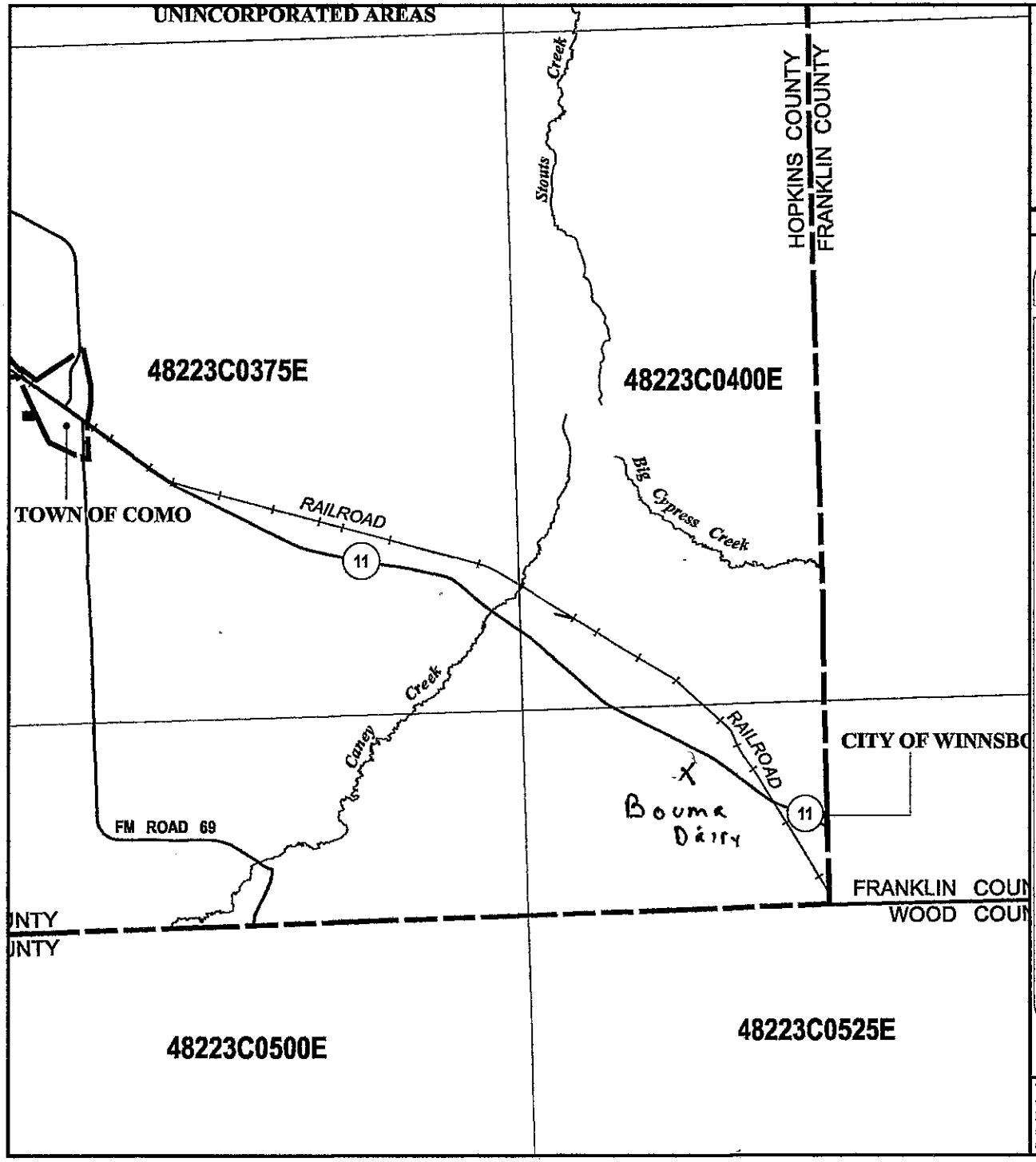
RICHARD & TAMMY SMITH
1671 CR 2399
WINNSBORO, TX 75494

PHUONG LAN T TRAN
1394 CR 2393
WINNSBORO, TX 75494

RAGSDALE LAND COMPANY LLC
PO BOX 822
WINNSBORO, TX 75494

Bouma Dairy
Area Land Use Map





NFIP

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

HOPKINS COUNTY, TEXAS AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

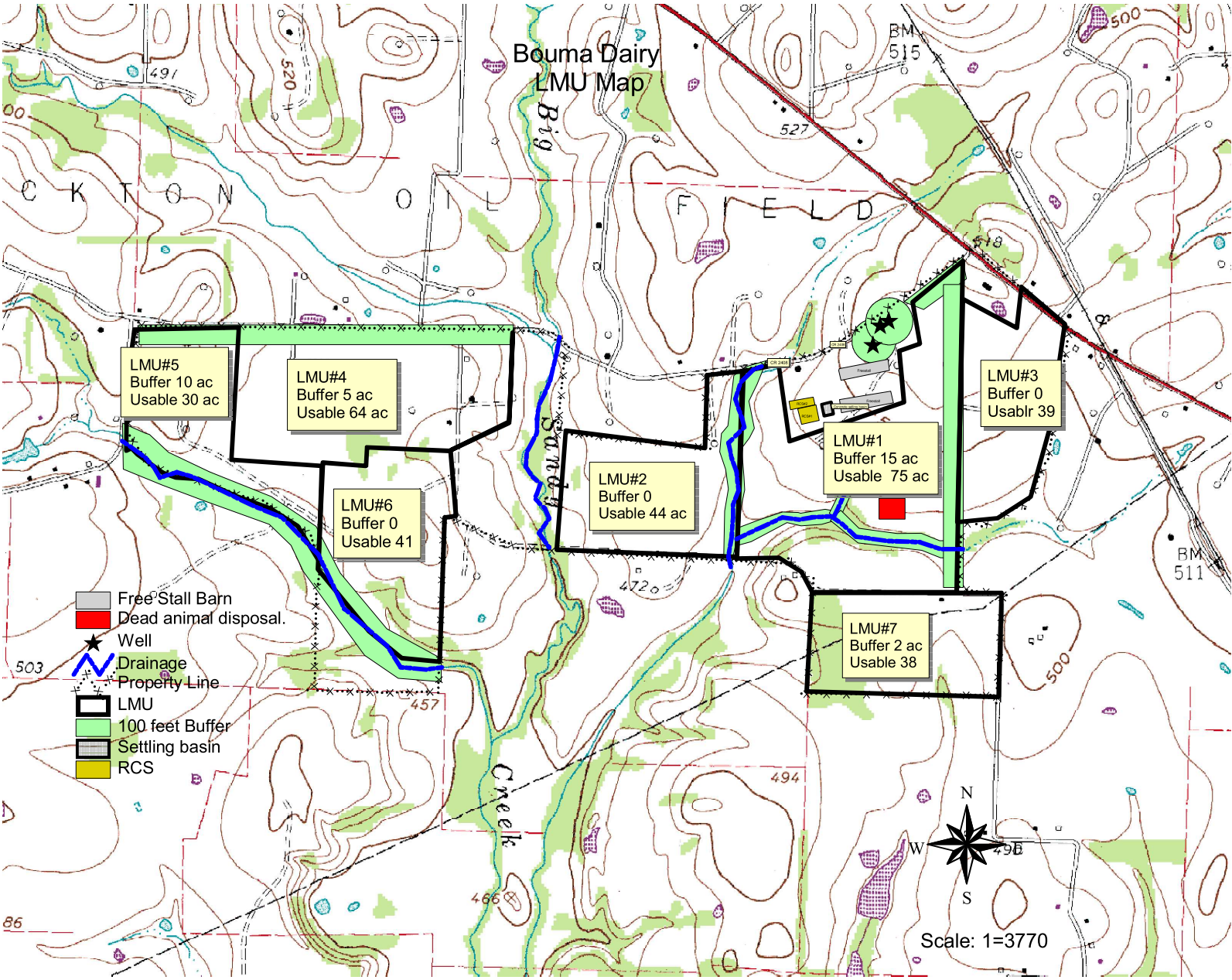
PANELS PRINTED: 50, 75, 100, 125, 150, 175, 200, 215, 225, 250, 275, 300, 325, 330, 350, 375, 400, 425, 450, 475, 500, 525

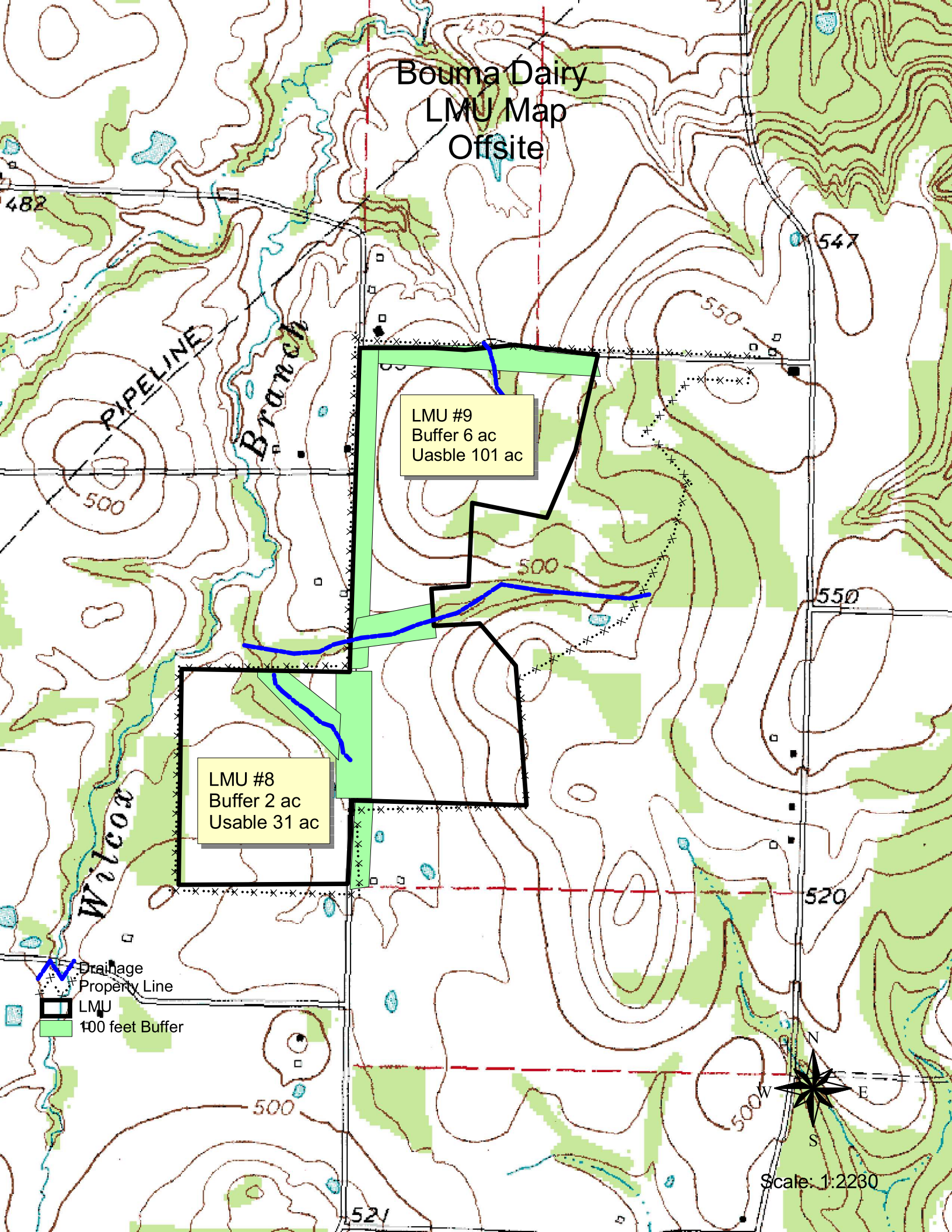
MAP NUMBER
48223CIND0A

EFFECTIVE DATE
MARCH 17, 2011

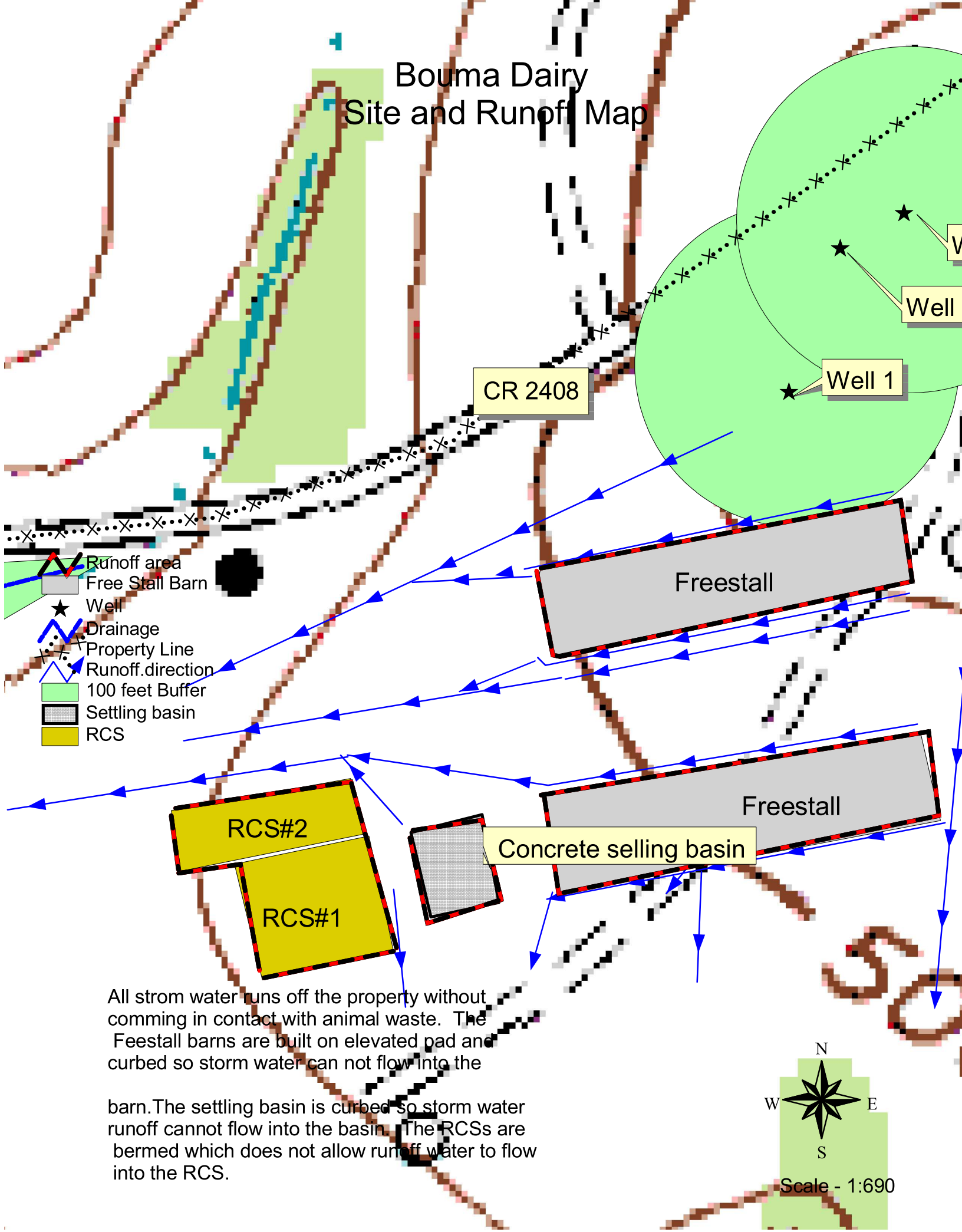
Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.


Bouma Dairy
LMU Map
LMU#5
Buffer 10 ac
Usable 30 ac
LMU#4
Buffer 5 ac
Usable 64 ac
LMU#6
Buffer 0
Usable 41
LMU#2
Buffer 0
Usable 44 ac
LMU#1
Buffer 15 ac
Usable 75 ac
LMU#3
Buffer 0
Usablr 39
LMU#7
Buffer 2 ac
Usable 38
Free Stall Barn
Dead animal disposal.
Well
Drainage
Property Line
LMU
100 feet Buffer
Settling basin
RCS
Big Sioux
Creek
N
W
S
Scale: 1=3770


Bouma Dairy
LMU Map
Offsite
LMU #9
Buffer 6 ac
Uasble 101 ac
LMU #8
Buffer 2 ac
Usable 31 ac
Pipeline
Branch
Wilcox
450
482
547
550
500
520
521
Drainage
Property Line
LMU
100 feet Buffer
N
W
E
S
Scale: 1:2230

Bouma Dairy
Site and Runoff Map



All strom water runs off the property without comming in contact with animal waste. The Feestall barns are built on elevated pad and curbed so storm water can not flow into the

barn.The settling basin is curbed so storm water runoff cannot flow into the basin. The RCSs are bermed which does not allow runoff water to flow into the RCS.

Scale - 1:690

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hopkins and Rains Counties, Texas

Bouma Dairy



August 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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FrB—Freestone fine sandy loam, 1 to 3 percent slopes.....14
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes.....16
Na—Nahatche soils, frequently flooded.....17
W—Water.....18
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes.....19
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

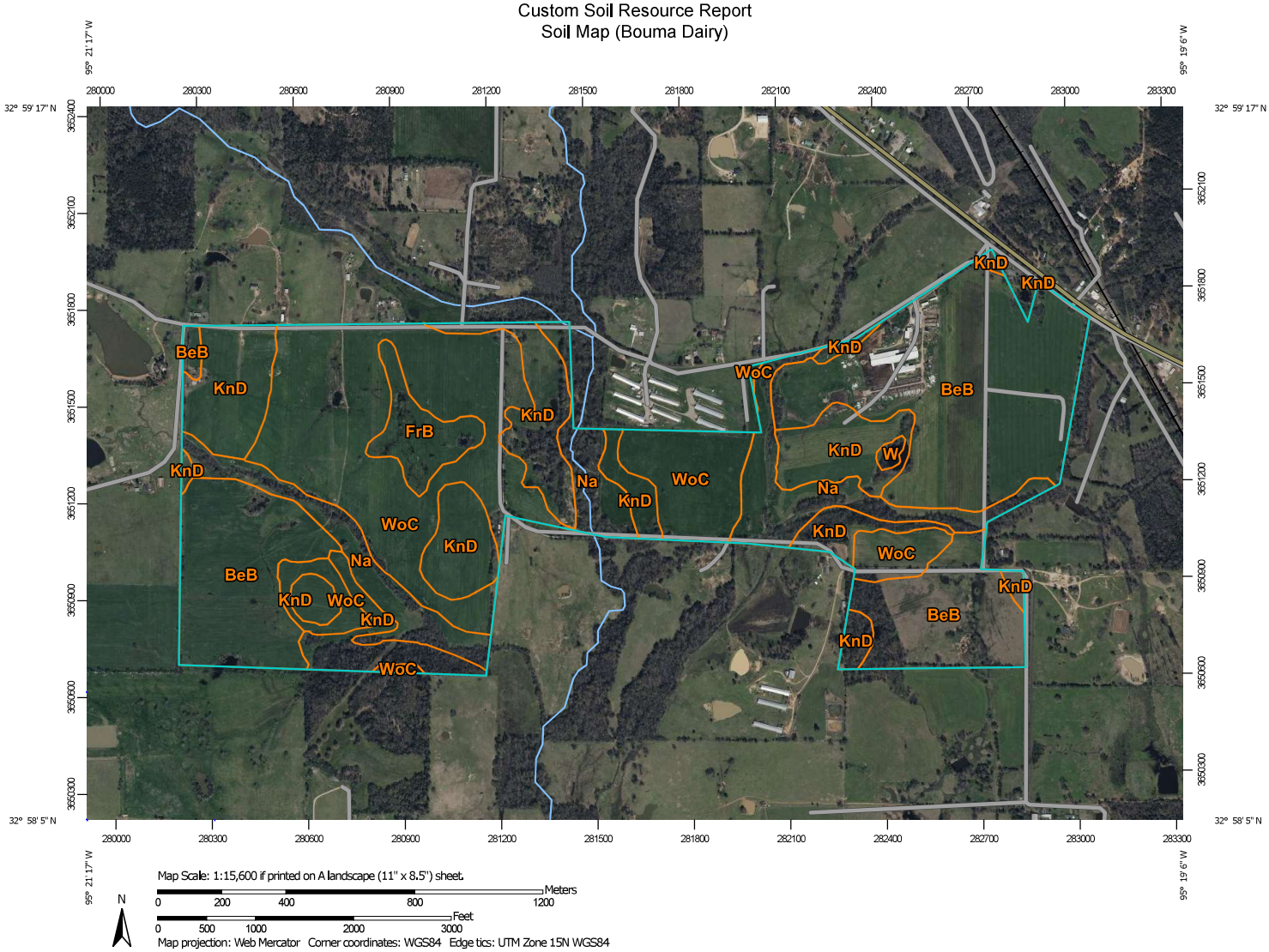
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Bouma Dairy)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hopkins and Rains Counties, Texas
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 19, 2023—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Bouma Dairy)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Bernaldo fine sandy loam, 1 to 3 percent slopes	203.2	36.0%
FrB	Freestone fine sandy loam, 1 to 3 percent slopes	16.1	2.9%
KnD	Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	122.5	21.7%
Na	Nahatche soils, frequently flooded	67.5	12.0%
W	Water	1.5	0.3%
WoC	Wolfpen loamy fine sand, 2 to 5 percent slopes	153.3	27.2%
Totals for Area of Interest		**564.2**	**100.0%**

Map Unit Descriptions (Bouma Dairy)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hopkins and Rains Counties, Texas

BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tf44
Elevation: 200 to 720 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 240 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernaldo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernaldo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 47 inches: sandy clay loam
Bt/E - 47 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 42 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

FrB—Freestone fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wg9c
Elevation: 140 to 790 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 218 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Freestone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freestone

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy alluvium derived from shale and siltstone

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 11 inches: fine sandy loam
Bt - 11 to 20 inches: sandy clay loam

B/Et1 - 20 to 28 inches: clay loam
B/Et2 - 28 to 44 inches: clay
B't - 44 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Minor Components

Raino

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

Woodtell

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tlk3
Elevation: 230 to 630 feet
Mean annual precipitation: 42 to 49 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 195 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Kirvin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
E - 4 to 12 inches: gravelly fine sandy loam
Bt - 12 to 31 inches: clay
BCt - 31 to 43 inches: clay loam
C - 43 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Bowie
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Na—Nahatche soils, frequently flooded

Map Unit Setting
National map unit symbol: dklg
Elevation: 100 to 400 feet
Mean annual precipitation: 40 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 235 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Nahatche and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nahatche

Setting
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium of holocene age

Typical profile
H1 - 0 to 7 inches: clay loam
H2 - 7 to 65 inches: loam

H3 - 65 to 80 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R087BY007TX - Loamy Bottomland
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tcnz
Elevation: 210 to 570 feet
Mean annual precipitation: 41 to 51 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 204 to 236 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolfpen and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolfpen

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand
E - 6 to 27 inches: loamy fine sand
Bt - 27 to 55 inches: sandy clay loam
Bt/E - 55 to 70 inches: sandy clay loam
B't - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Minor Components

Oakwood

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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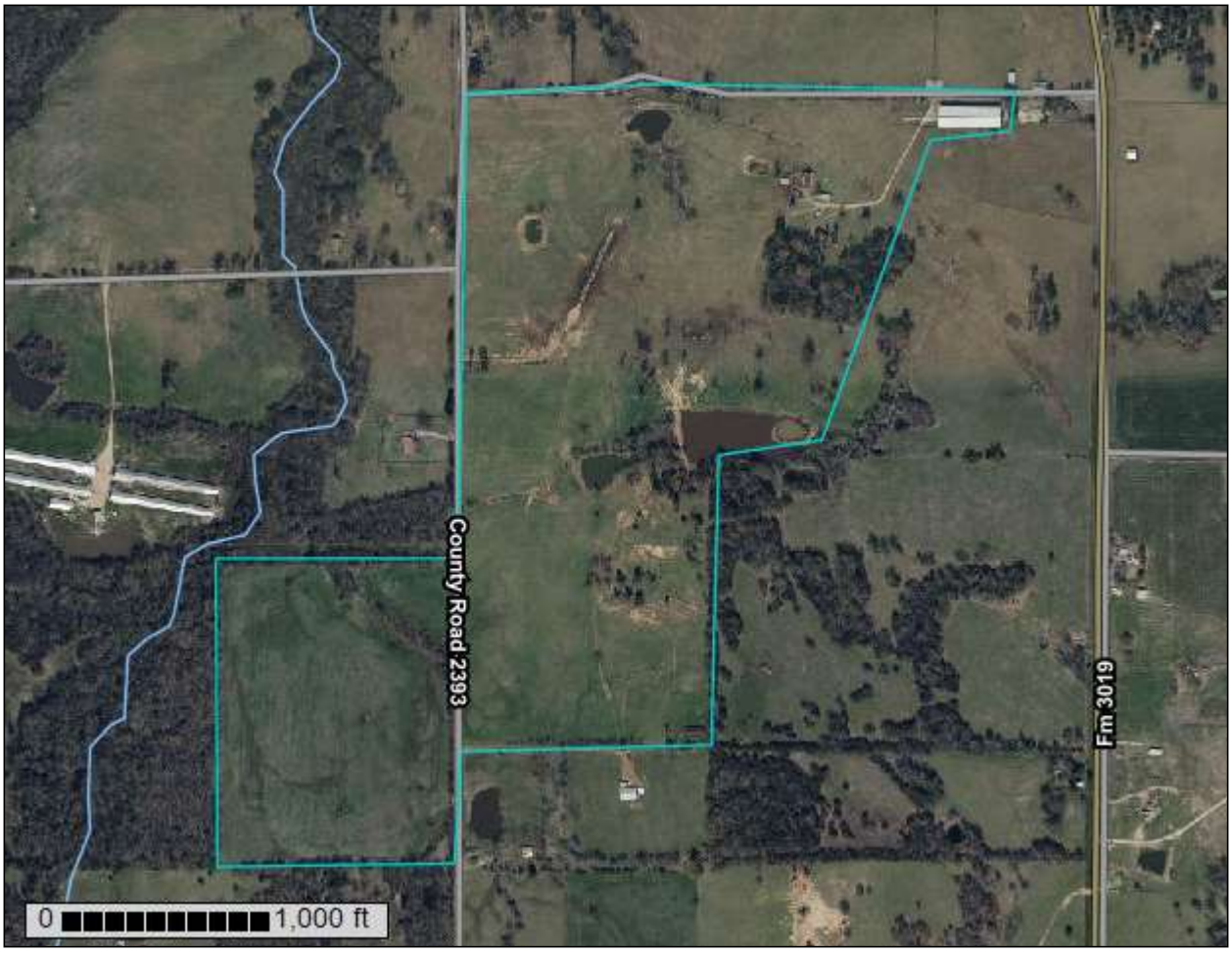
Custom Soil Resource Report for Hopkins and Rains Counties, Texas



August 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

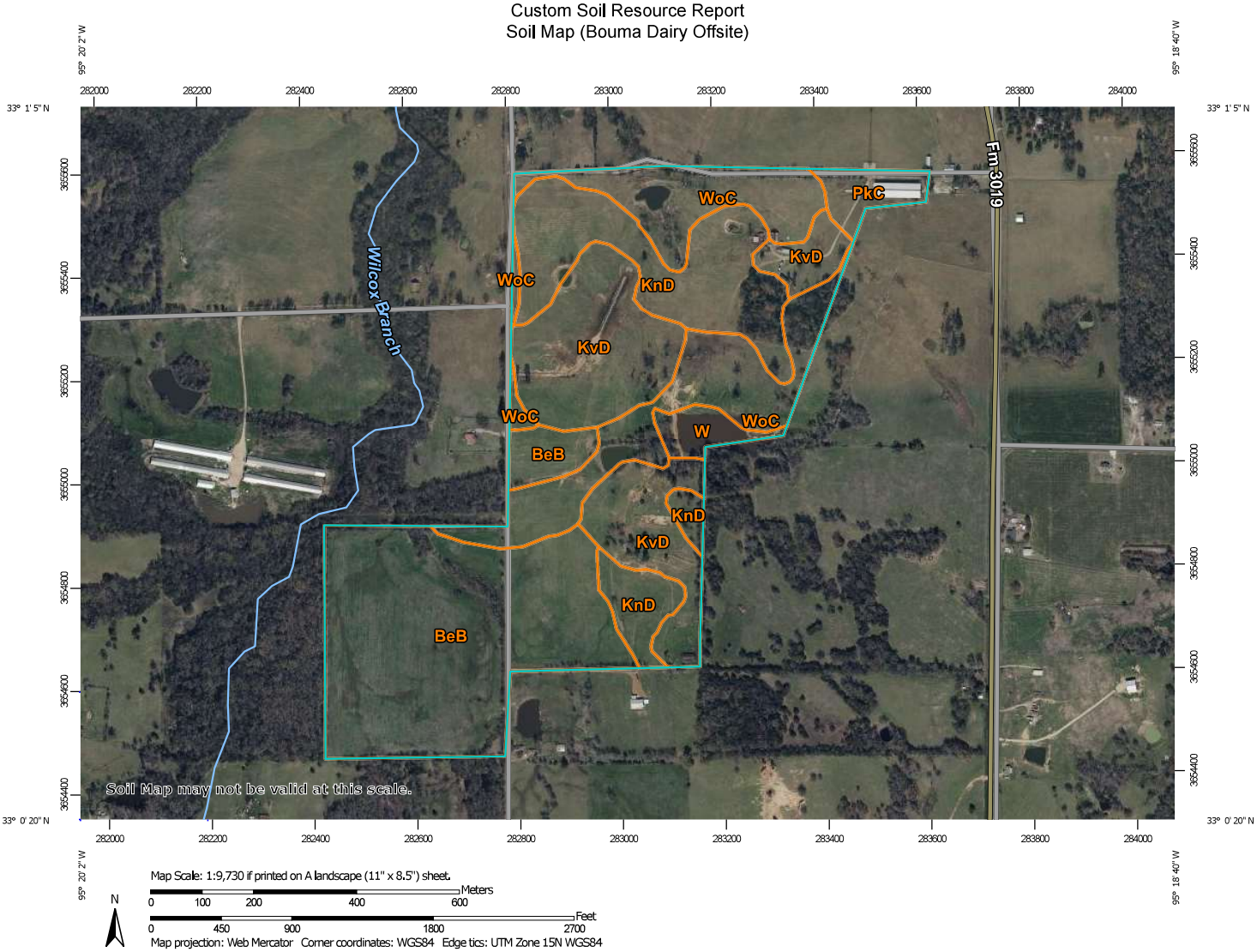
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Bouma Dairy Offsite)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hopkins and Rains Counties, Texas
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 30, 2021—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Bouma Dairy Offsite)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Bernaldo fine sandy loam, 1 to 3 percent slopes	55.2	33.7%
KnD	Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	29.9	18.2%
KvD	Kirvin soils, 3 to 8 percent slopes	36.5	22.3%
PkC	Pickton loamy fine sand, 2 to 5 percent slopes	4.3	2.6%
W	Water	3.5	2.1%
WoC	Wolfpen loamy fine sand, 2 to 5 percent slopes	34.5	21.1%
Totals for Area of Interest		**163.8**	**100.0%**

Map Unit Descriptions (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hopkins and Rains Counties, Texas

BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tf44
Elevation: 200 to 720 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 240 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernaldo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernaldo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 47 inches: sandy clay loam
Bt/E - 47 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 42 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tlk3
Elevation: 230 to 630 feet
Mean annual precipitation: 42 to 49 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 195 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Kirvin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
E - 4 to 12 inches: gravelly fine sandy loam

Bt - 12 to 31 inches: clay
BCt - 31 to 43 inches: clay loam
C - 43 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Bowie

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

KvD—Kirvin soils, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: dklb

Elevation: 400 to 650 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 235 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Kirvin and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting
Landform: Interfluves
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from sandstone and shale

Typical profile
H1 - 0 to 4 inches: sandy clay loam
H2 - 4 to 37 inches: clay
H3 - 37 to 64 inches: clay loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2tf4k
Elevation: 220 to 670 feet
Mean annual precipitation: 43 to 50 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 228 to 239 days
Farmland classification: Not prime farmland

Map Unit Composition

Pickton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pickton

Setting

Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 8 inches: loamy fine sand
E - 8 to 54 inches: loamy fine sand
Bt1 - 54 to 63 inches: sandy clay loam
Bt2 - 63 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 56 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F133BY008TX - Northern Deep Sandy Upland
Hydric soil rating: No

Minor Components

Tonkawa

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY010TX - Very Deep Sandy Upland
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Ridges

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tcnz
Elevation: 210 to 570 feet
Mean annual precipitation: 41 to 51 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 204 to 236 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolfpen and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolfpen

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand

E - 6 to 27 inches: loamy fine sand
Bt - 27 to 55 inches: sandy clay loam
Bt/E - 55 to 70 inches: sandy clay loam
B't - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Minor Components

Oakwood

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Map Unit Description (Brief) (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The component descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit. A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the associated soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas (components) for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Description (Brief)" report gives a brief, general description of the soil components that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area

data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief) (Bouma Dairy Offsite)

Hopkins and Rains Counties, Texas

Map Unit: KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Description Category: PHG

8C - LOAMY UPLAND - Moderately deep to very deep uplands with loamy surfaces and friable loamy subsoils; slopes 0 to 8 percent; medium natural fertility; medium to high water holding capacity with good plant-soil-moisture relationship; medium to high production potential.

Description Category: WSG

4f2 - Rock fragments cause seedling mortality to increase during dry periods. Erosion hazards increase with slope. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 70. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle rule) per acre per year. Native species important to wildlife include red oak, post oak, American beautyberry, and tickclover. High value grasses and forbs used by livestock include pinehill bluestem, big bluestem, longleaf uniola, indiangrass, and sedge. Stocking rates depend on canopy density and range from 6-40 acres per animal unit.

Map Unit: KvD—Kirvin soils, 3 to 8 percent slopes

Description Category: WSG

4f2 - Rock fragments cause seedling mortality to increase during dry periods. Erosion hazards increase with slope. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 70. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle rule) per acre per year. Native species important to wildlife include red oak, post oak, American beautyberry, and tickclover. High value grasses and forbs used by livestock include pinehill bluestem, big bluestem, longleaf uniola, indiangrass, and sedge. Stocking rates depend on canopy density and range from 6-40 acres per animal unit.

Map Unit: PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Description Category: PHG

9B - DEEP SANDY UPLAND - Deep and very deep, sandy uplands with sandy surfaces greater than 40 inches; low natural fertility; low water holding capacity with good plant-soil-moisture relationship; low to medium production potential.

Description Category: WSG

3s2 - Sandy texture may cause moderate equipment limitations and seedling mortality. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 80. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 230 board feet (Doyle rule) per acre per year. Native species important to wildlife include post oak, dogwood, and yaupon. High value grasses and forbs used by livestock include pinehill bluestem, little bluestem, longleaf uniola, and indiangrass. Stocking rates depend on canopy density and range from 8-40 acres per animal unit.

Map Unit: WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Description Category: PHG

9A - SANDY UPLAND - Deep and very deep, sandy uplands with clayey or loamy subsoils within 40 inches; low natural fertility; low to medium water holding capacity with good plant-soil-moisture relationship; medium to high production potential.

Description Category: WSG

3s2 - Sandy texture may cause moderate equipment limitations and seedling mortality. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 80. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 230 board feet (Doyle rule) per acre per year. Native species important to wildlife include post oak, dogwood, and yaupon. High value grasses and forbs used by livestock include pinehill bluestem, little bluestem, longleaf uniola, and indiangrass. Stocking rates depend on canopy density and range from 8-40 acres per animal unit.

Map Unit Description (Brief, Generated) (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic

class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated) (Bouma Dairy Offsite)

Hopkins and Rains Counties, Texas

Map Unit: BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Component: Bernaldo (90%)

The Bernaldo component makes up 90 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on coastal plains. The parent material consists of loamy alluvium. 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 low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 47 inches during January, February, November, December. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY013TX Terrace ecological site. Nonirrigated land capability classification is 2e. Irrigated 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: Freestone (5%)

Generated brief soil descriptions are created for major soil components. The Freestone soil is a minor component.

Component: Wolfpen (5%)

Generated brief soil descriptions are created for major soil components. The Wolfpen soil is a minor component.

Map Unit: KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Component: Kirvin (90%)

The Kirvin component makes up 90 percent of the map unit. Slopes are 2 to 8 percent. This component is on interfluves on coastal plains. The parent material consists of clayey fluviomarine deposits. 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 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 F133BY003TX Loamy Over Clayey Upland ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Briley (5%)

Generated brief soil descriptions are created for major soil components. The Briley soil is a minor component.

Component: Bowie (5%)

Generated brief soil descriptions are created for major soil components. The Bowie soil is a minor component.

Map Unit: KvD—Kirvin soils, 3 to 8 percent slopes

Component: Kirvin (100%)

The Kirvin component makes up 100 percent of the map unit. Slopes are 3 to 8 percent. This component is on interfluves on coastal plains. The parent material consists of clayey residuum weathered from sandstone and shale. Depth to a root restrictive layer, bedrock, densic, 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 low. 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 F133BY003TX Loamy Over Clayey Upland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Component: Pickton (90%)

The Pickton component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on interfluves on coastal plains. The parent material consists of sandy and loamy fluviomarine deposits. 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 low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 54 inches during January, February, March, April. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY008TX Northern Deep Sandy Upland ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Tonkawa (5%)

Generated brief soil descriptions are created for major soil components. The Tonkawa soil is a minor component.

Component: Wolfpen (5%)

Generated brief soil descriptions are created for major soil components. The Wolfpen soil is a minor component.

Map Unit: W—Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Map Unit: WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Component: Wolfpen (90%)

The Wolfpen component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on interfluves on coastal plains. The parent material consists of sandy and loamy fluviomarine deposits. 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. A seasonal zone of water saturation is at 55 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY006TX Northern Sandy Loam Upland ecological site. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Oakwood (10%)

Generated brief soil descriptions are created for major soil components. The Oakwood soil is a minor component.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Physical Soil Properties (Bouma Dairy Offsite)

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each

soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Physical Soil Properties–Hopkins and Rains Counties, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes														
Bernaldo	0-4	55-69- 73	15-22- 30	3- 9- 15	1.48-1.49	14.00-42.00	0.12-0.16	0.0-1.0	0.5-2.0	.28	.28	5	3	86
	4-12	55-69- 73	15-22- 30	3- 9- 15	1.58-1.67	14.00-42.00	0.11-0.15	0.0-1.0	0.1-1.0	.37	.37			
	12-47	47-61- 65	15-17- 25	18-22- 30	1.44-1.61	4.00-14.00	0.16-0.20	0.9-1.7	0.1-0.3	.28	.28			
	47-80	47-62- 65	15-17- 25	18-21- 30	1.44-1.61	4.00-14.00	0.16-0.20	0.9-1.8	0.0-0.3	.28	.28			
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes														
Kirvin	0-4	53-65- 73	12-27- 40	2- 9- 15	1.49-1.52	14.00-42.00	0.07-0.11	0.0-2.9	0.5-2.0	.15	.32	4	5	56
	4-12	53-65- 73	12-27- 40	2- 9- 15	1.57-1.62	14.00-42.00	0.07-0.11	0.0-2.9	0.3-1.0	.15	.32			
	12-31	21-23- 55	5-29- 44	35-48- 59	1.29-1.63	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.20	.20			
	31-43	20-30- 55	10-35- 39	25-35- 50	1.43-1.64	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.28	.28			
	43-80	20-35- 44	20-33- 45	28-33- 39	1.63-1.75	1.40-4.00	0.08-0.14	3.0-5.9	0.1-1.0	.32	.32			
KvD—Kirvin soils, 3 to 8 percent slopes														
Kirvin	0-4	-56-	-15-	20-30- 40	1.20-1.40	1.40-4.00	0.12-0.15	3.0-5.9	0.5-1.0	.20	.20	4	5	56
	4-37	-23-	-29-	35-48- 60	1.30-1.45	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.20	.20			
	37-64	-35-	-33-	28-33- 40	1.40-1.60	0.42-1.40	0.08-0.14	3.0-5.9	0.1-1.0	.32	.32			

Physical Soil Properties–Hopkins and Rains Counties, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
PkC—Pickton loamy fine sand, 2 to 5 percent slopes														
Pickton	0-8	71-85-87	5-7-24	4-8-12	1.30-1.60	42.00-141.00	0.07-0.11	0.0-2.9	0.5-1.0	.15	.15	5	2	134
	8-54	71-86-90	5-7-24	3-8-12	1.30-1.60	42.00-141.00	0.07-0.11	0.0-2.9	0.1-0.8	.15	.15			
	54-63	42-58-65	10-18-28	18-24-30	1.30-1.65	4.00-14.00	0.12-0.17	0.0-2.9	0.1-0.4	.24	.24			
	63-80	42-58-65	10-18-28	18-24-30	1.30-1.65	4.00-14.00	0.12-0.17	0.0-2.9	0.1-0.3	.24	.24			
W—Water														
Water	—	—	—	—	—	—	—	—	—					
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes														
Wolfpen	0-6	70-86-90	0-7-27	3-8-12	1.30-1.60	42.00-141.00	0.06-0.09	0.0-2.9	0.5-2.0	.17	.17	5	2	134
	6-27	70-86-90	0-7-27	3-8-12	1.30-1.65	42.00-141.00	0.05-0.09	0.0-2.9	0.2-0.5	.15	.15			
	27-55	40-58-75	5-18-30	18-24-30	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.2-0.3	.24	.24			
	55-70	40-57-75	5-18-30	15-25-35	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.1-0.2	.24	.24			
	70-80	40-57-75	5-18-30	15-25-35	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.0-0.2	.24	.24			

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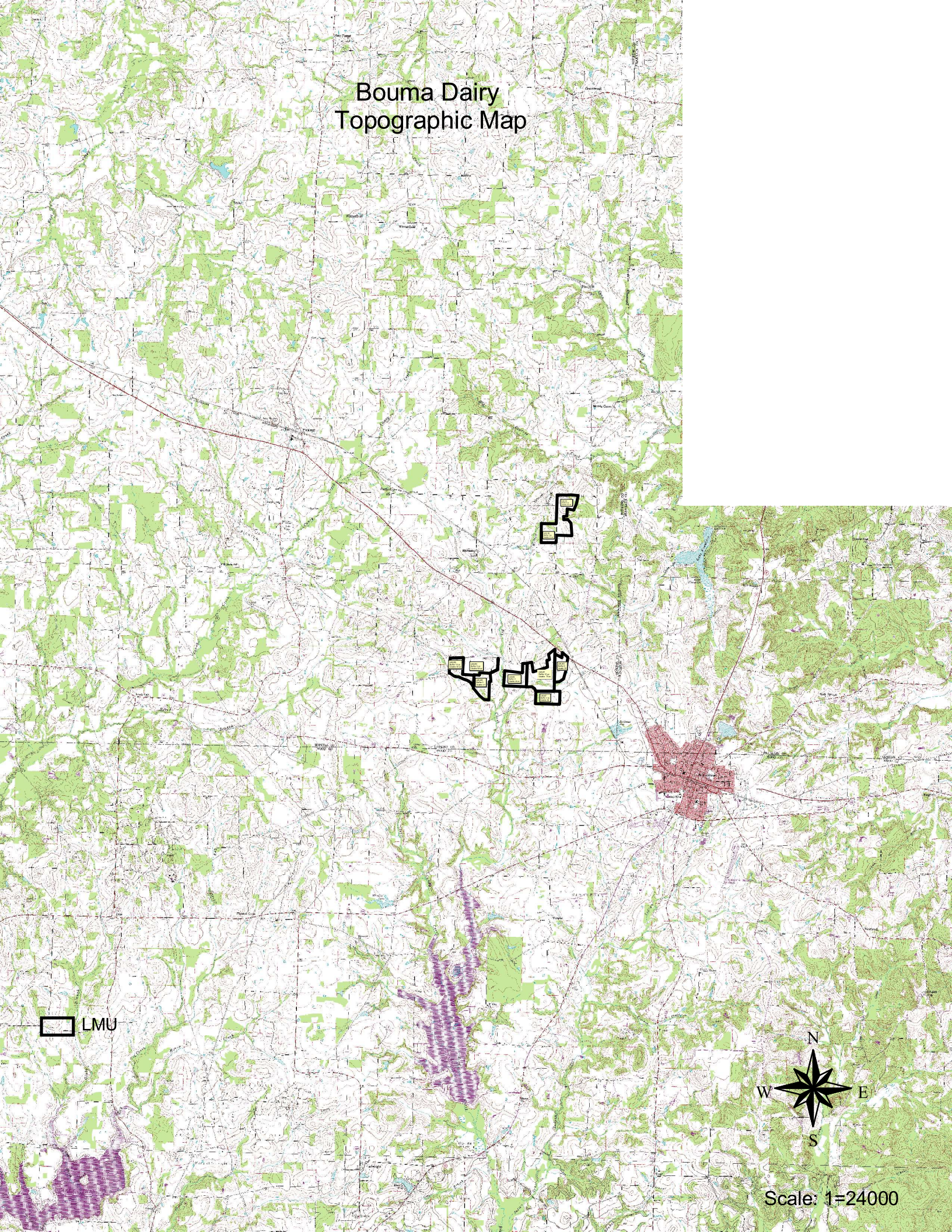
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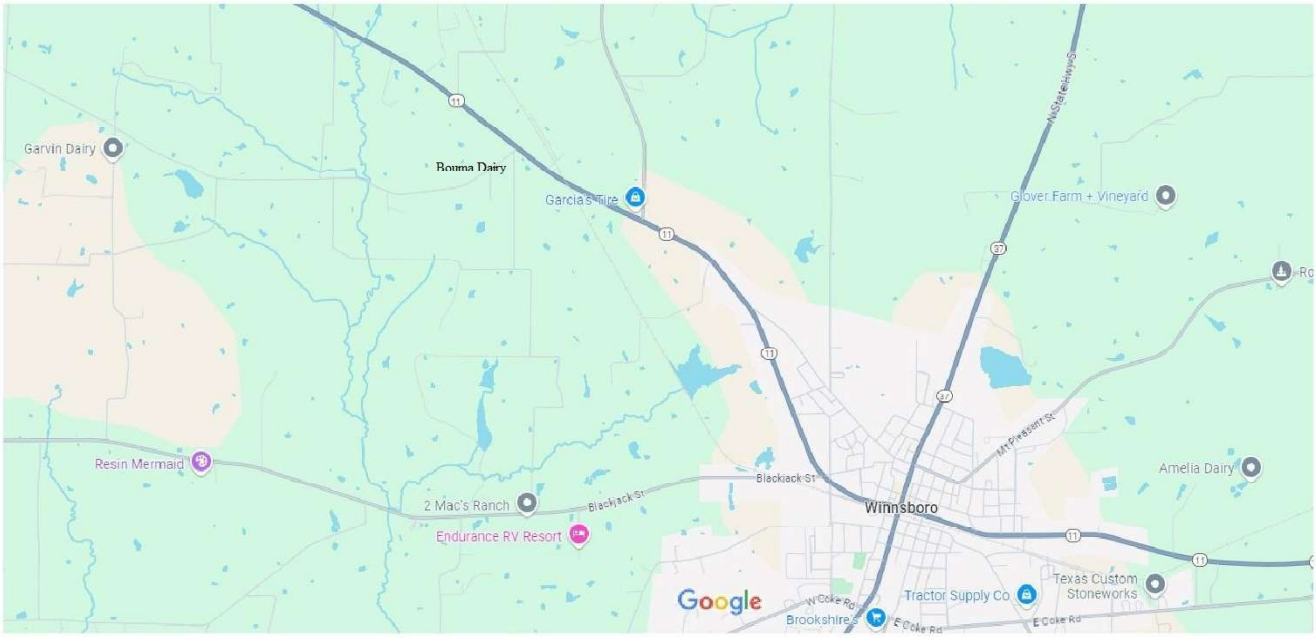

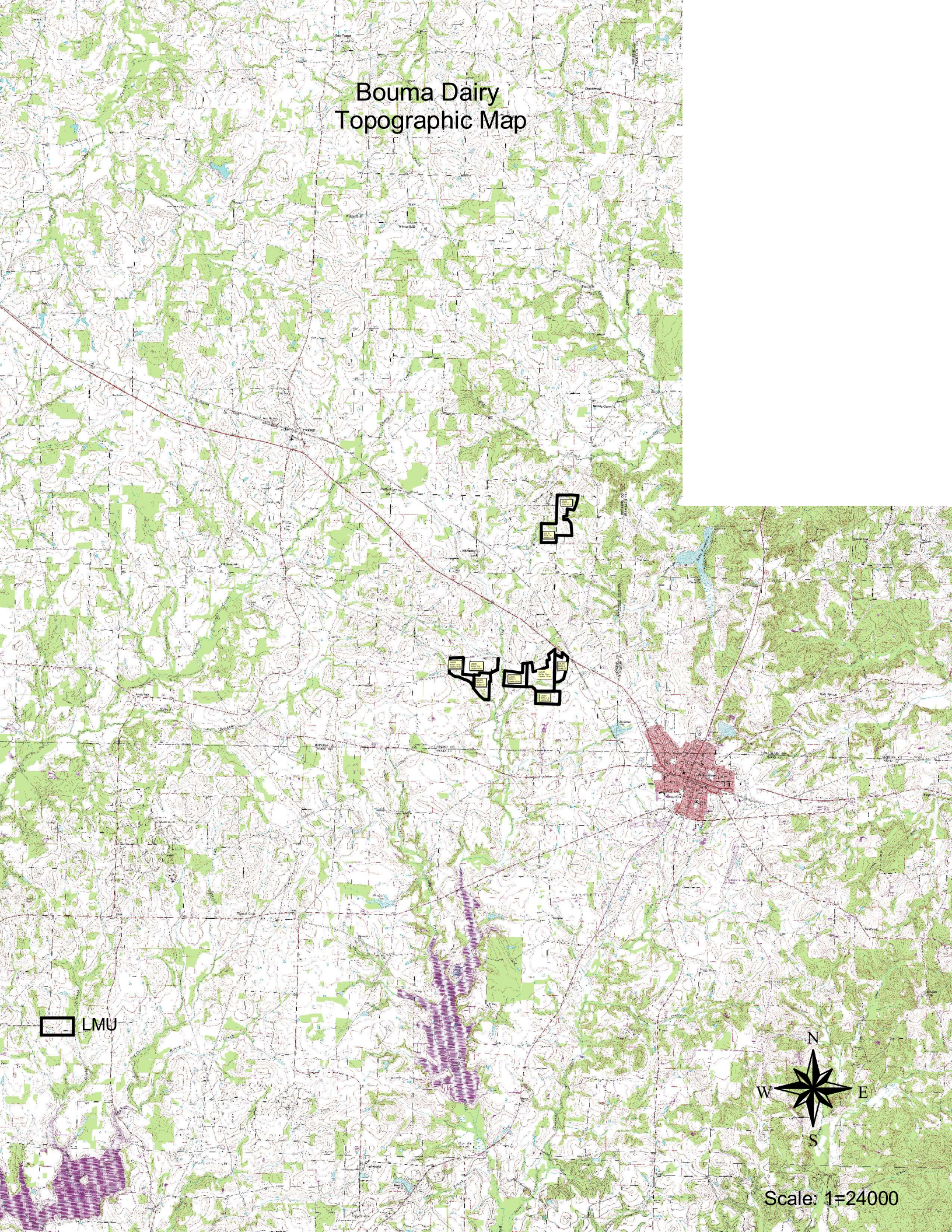
Bouma Dairy
Topographic Map
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contacting the bilingual/ESL coordinator at the nearest elementary or middle school.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?
Yes ☒ No ☐

(**If No**, alternative language notice publication is not required; skip to Section 10. Regulated Entity (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 ☒

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

6. Complete the CAFO Plain Language Summary Template (English) for CAFO Permit Applications for a new, renewal, major or minor amendment and submit with this application.

If a bilingual education program is required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility, also complete the CAFO Plain Language Summary Template (Spanish) or provide a translated copy of the completed English plain language summary in the appropriate alternative language if different from Spanish.

F. **Public Involvement Plan Form**

Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit.

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name as known by the local community: BOUMA DAIRY FARM

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 102334539

C. Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Item 1.

If the site does not have a physical address, provide a location description in Item 2. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Item 1: Physical Address of Project or Site:

Street Number and Name: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO TX 75494

Item 2: Site Location Description:

Location description: Click here to enter text.

City where the site is located or, if not in a city, what is the nearest city: Click here to enter text.

Zip Code where the site is located: 754494

D. County or counties if more than 1: Hopkins

E. Latitude: 32.980666 Longitude: -95.328666

F. Animal Type:

- ☒ Dairy-0241
- ☐ Beef Cattle- 0211
- ☐ Swine-0213
- ☐ Broiler-0251
- ☐ Laying Hens-0252
- ☐ Sheep/Goats-0214
- ☐ Auction-5154
- ☐ Other, specify: Click here to enter text.

G. Existing Maximum Number of Animals: 1200

Proposed Maximum Number of Animals: 999

H. What is the total LMU acreage? 463

SECTION 11. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.

C. Is the production area located within the protection zone of a sole source drinking water supply? Yes ☐ No ☒

D. Is any permanent school fund land affected by this application? Yes ☐ No ☒

If yes, provide the location and foreseeable impacts and effects this application has on the land(s). Click here to enter text.

E. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☒

Do you owe any penalties to the TCEQ? Yes ☐ No ☒

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number.
Click here to enter text.

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 601231814		RN 102334539

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	9/3/2024

☐ 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:*
MAIKO HESSEL BOMUA	

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

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☒ Sole Proprietorship ☐ Other:

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

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

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

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

15. Mailing Address:	4252 COUNTY ROAD 2408						
	City	WINNSBORO	**State**	TX	**ZIP**	75494	**ZIP + 4**	4100

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(903) 855-2748		( ) -

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.)*

BOUMA DAIRY FARM

23. Street Address of the Regulated Entity: *(No PO Boxes)*	4252 COUNTY ROAD 2408								
	City	WINNSBORO	State	TX	ZIP	75494		ZIP + 4	4100
24. County	HOPKINS								

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

25. Description to Physical Location:			
26. Nearest City		State	Nearest ZIP Code
WINNSBORO		TX	75494

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:	32.980666		28. Longitude (W) In Decimal:	-95.328666	
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)
0241			

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

MILK PRODUCTION

34. Mailing Address:	4252 COUNTY ROAD 2408								
	City	WINNSBORO	State	TX	ZIP	75494		ZIP + 4	4100
35. E-Mail Address:	boumadairy@hotmail.com								

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(903) 855-2748		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Jim C. Wyrick	41. Title:	Consultant

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(903) 521-3095		( ) -	wyrick@suddenlink.net

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:	East Texas Environmental Services	Job Title:	Consultant
Name *(In Print)*:	Jim C, Wyrick	Phone:	(903) 243- [illegible]
Signature:	Jim C. Wyrick	Date:	8/3/2024

City, State and Zip Code: WINNSBORO TX 75494

Item 2: Site Location Description:

Location description: Click here to enter text.

City where the site is located or, if not in a city, what is the nearest city: Click here to enter text.

Zip Code where the site is located: 754494

D. County or counties if more than 1: Hopkins

E. Latitude: 32.980666 Longitude: -95.328666

F. Animal Type:

- ☒ Dairy-0241
- ☐ Beef Cattle- 0211
- ☐ Swine-0213
- ☐ Broiler-0251
- ☐ Laying Hens-0252
- ☐ Sheep/Goats-0214
- ☐ Auction-5154
- ☐ Other, specify: Click here to enter text.

G. Existing Maximum Number of Animals: 1200

Proposed Maximum Number of Animals: 999

H. What is the total LMU acreage? 463

SECTION 11. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.

C. Is the production area located within the protection zone of a sole source drinking water supply? Yes ☐ No ☒

D. Is any permanent school fund land affected by this application? Yes ☐ No ☒

If yes, provide the location and foreseeable impacts and effects this application has on the land(s). Click here to enter text.

E. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☒

Do you owe any penalties to the TCEQ? Yes ☐ No ☒

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number.
Click here to enter text.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

ELECTRONIC WAIVER REQUEST FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

A Large CAFO, as defined in the CAFO rules at 30 TAC 321.32(14)(A), must request a waiver from e-reporting requirements codified in 40 Code of Federal Regulations §127.15 OR be required to submit CAFO annual reports electronically.

Are you requesting a waiver from e-reporting requirements?

☒ Yes, Indicate the type of waiver below.

☒ Temporary Waiver

☐ Permanent Waiver (available to facilities and entities owned or operated by members of religious communities that choose not to use certain modern technologies (e.g., computers, electricity))

☐ No, you must submit your application electronically through TCEQ ePermits system (STEERS) at https://www3.tceq.texas.gov/steers/index.cfm. Check How to Apply through STEERS.

If an electronic waiver request is granted, the Applicant(s) seeking authorization, or an authorized permittee(s) may continue to submit CAFO annual reports to TCEQ in a paper format.

Note:

- An approved waiver is not transferrable.
- Each Owner or Operator must request his own waiver.
- Temporary waiver will not extend beyond five years. However, permittees may re-apply for a new temporary waiver, if needed.

State Only CAFOs are exempt from this requirement.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDIVIDUAL PERMIT APPLICATION FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

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

SECTION 1. APPLICATION FEE

Minor Amendment - $150.00
Renewal - $315.00
New or Major Amendment - $350.00

Mailed — Check/Money Order Number: 24665
Check/Money Order Amount: $350.00
Name Printed on Check: Maiko Bouma DBA Bouma Dairy

EPAY — Voucher Number: Click here to enter text
Copy of Payment Voucher enclosed? Yes ☐

SECTION 2. TYPE OF APPLICATION

A. Coverage: State Only ☐ TPDES ☒

B. Media Type: Water Quality ☐ Air and Water Quality ☒

C. Application Type: New ☒ Major Amendment ☐
Renewal ☐ Minor Amendment ☐

D. For amendments, describe the proposed changes: Click here to enter text

E. For existing permits:
What is the permit number? Click here to enter text
What is the EPA I.D. Number? TX Click here to enter text

SECTION 3. FACILITY OWNER (APPLICANT) INFORMATION

A. What is the legal name of the facility owner?
BOUMA, MAIKO HESSEL

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN 601231814

C. What is the contact information for the owner?

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: na

E-mail Address: boumadairy@hotmail.com

D. Indicate the type of customer:

- ☒ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☐ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify: Click here to enter text

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☒ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

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

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: Click here to enter text

What is the Charter Filing Number issued by the Texas Secretary of State: Click here to enter text

SECTION 4. CO-APPLICANT INFORMATION

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

A. What is the legal name of the co-applicant?

Click here to enter text

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN Click here to enter text

C. What is the contact information for the co-applicant?

Mailing Address: Click here to enter text

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

Phone Number: Fax Number: Click here to enter text

E-mail Address: Click here to enter text

D. Indicate the type of customer:

- ☐ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☐ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify: Click here to enter text

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☐ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

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

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: Click here to enter text

What is the Charter Filing Number issued by the Texas Secretary of State: Click here to enter text

SECTION 5. APPLICATION CONTACT INFORMATION

This is the person TCEQ will contact if additional information is needed about this application.

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

Application Contact First and Last Name: Jim Wyrick

Title: Consultant Credentials: Professional Geoscientist

Company Name: East Texas Environmental Services

Mailing Address: 317 Highland Dr,

City, State and Zip Code: Sulphur Springs, TX 75482

Phone Number: 903 243-0400 Fax Number: Click here to enter text

E-mail Address: wyrick@suddenlink.net

SECTION 6. PERMIT CONTACT INFORMATION

Provide two names of individuals that TCEQ can contact during the term of the permit.

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

Permit Contact First and Last Name: Jim Wyrick

Title: Consultant Credentials: PG

Company Name: East Texas Environmental Services

Mailing Address: 317 Highland Dr.

City, State and Zip Code: Sulphur Springs, TX 75482

Phone Number: 903-243-0400 Fax Number: na E-mail Address: wyrick@suddenlink.net

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

Permit Contact First and Last Name: MAIKO BOUMA

Title: Owner Credentials: Click here to enter text.

Company Name: BOUMA DAIRY

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: Click here to enter text. E-mail Address: boumadairy@hotmail.com

SECTION 7. ANNUAL BILLING CONTACT INFORMATION

Please identify the individual for receiving the annual fee invoices.

Is the billing contact and contact information the same as the Owner or the Co-Applicant identified in Section 3) or Section 4) above?

☒ Yes, specify which applicant on the line below and go to Section 8)

MAIKO HESSEL BOUMA

☐ No, complete this section

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

First and Last Name: Click here to enter text.

Title: Click here to enter text. Credentials: Click here to enter text.

Company Name: Click here to enter text.

Mailing Address: Click here to enter text.

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

Phone Number: Click here to enter text. Fax Number: Click here to enter text. E-mail Address: Click here to enter text.

SECTION 8. LANDOWNER INFORMATION

A. Landowner where the production area is or will be located

Landowner Name: MAIKO HESSEL BOUMA

B. Landowner of the land management units (LMUs)

Landowner Name: MAIKO HESSEL BOUMA

SECTION 9. PUBLIC NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Mr. First and Last Name: JIM WYRICK

Title: Consultant Credentials: PG

Company Name: EAST TEXAS ENVIRONMENTAL SERVICES

Mailing Address: 317 HIGHLAND DR.

City, State and Zip Code: SULPHUR SPRINGS, TX 75482

Phone Number: 903-243-0400 Fax Number: Click here to enter text. E-mail Address: wyrick@suddenlink.net

B. Method for receiving the notice package for the Notice of Receipt and Intent

☐ E-mail: Click here to enter text.

☐ Fax Number: Click here to enter text.

☒ Regular Mail:

Mailing Address: 317 Highland Dr.

City, State and Zip Code: Sulphur Springs, TX 75482

C. Contact person to be listed in the notice

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

First and Last Name: MAIKO BOUMA

Title: OWNER Credentials: Click here to enter text.

Company Name: BOUMA DAIRY

Phone Number: 903 855 2748

D. Public viewing location

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

Public Building Name: Click here to enter text.

Physical Address of Building: Click here to enter text.

City: Click here to enter text. County: Click here to enter text.

Phone Number: Click here to enter text.

E. Bilingual Notice Requirement

For new, major amendment, and renewal applications. This information can be obtained by

contacting the bilingual/ESL coordinator at the nearest elementary or middle school.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?
Yes ☒ No ☐

(**If No**, alternative language notice publication is not required; skip to Section 10. Regulated Entity (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 ☒

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

6. Complete the CAFO Plain Language Summary Template (English) for CAFO Permit Applications for a new, renewal, major or minor amendment and submit with this application.

If a bilingual education program is required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility, also complete the CAFO Plain Language Summary Template (Spanish) or provide a translated copy of the completed English plain language summary in the appropriate alternative language if different from Spanish.

F. **Public Involvement Plan Form**

Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit.

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name as known by the local community: Bouma Dairy

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 102334539

C. Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Item 1.

If the site does not have a physical address, provide a location description in Item 2. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Item 1: Physical Address of Project or Site:

Street Number and Name: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO TX 75494 4100

Item 2: Site Location Description:

Location description: Click here to enter text.

City where the site is located or, if not in a city, what is the nearest city: Click here to enter text.

Zip Code where the site is located: Click here to enter text.

D. County or counties if more than 1: Hopkins Co.

E. Latitude: 32.980666 Longitude: -95.328666

F. Animal Type:

- ☒ Dairy-0241
- ☐ Beef Cattle- 0211
- ☐ Swine-0213
- ☐ Broiler-0251
- ☐ Laying Hens-0252
- ☐ Sheep/Goats-0214
- ☐ Auction-5154
- ☐ Other, specify: Click here to enter text.

G. Existing Maximum Number of Animals: 1200

Proposed Maximum Number of Animals: 999

H. What is the total LMU acreage? 463

SECTION 11. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.

C. Is the production area located within the protection zone of a sole source drinking water supply? Yes ☐ No ☒

D. Is any permanent school fund land affected by this application? Yes ☐ No ☒

If yes, provide the location and foreseeable impacts and effects this application has on the land(s). Click here to enter text.

E. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☒

Do you owe any penalties to the TCEQ? Yes ☐ No ☒

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number.
Click here to enter text.

SECTION 12. AFFECTED LANDOWNER INFORMATION

This section must be completed if the application type is new or major amendment. If the application type is renewal or minor amendment, skip to Section 13.

A. Landowner map. Attach a landowner map or drawing, with scale, that includes the following. Each landowner should be designated by a letter or number on both the list and the map.

- The applicant's property boundaries, including onsite and offsite LMUs; and
- The property boundaries of all landowners within 500 feet of the applicant's property.

B. Landowner list. Attach a separate list of the landowners' names and mailing addresses. The list must be cross-referenced to the landowners map.

C. Landowner list media. Indicate the format of the landowners list.

☐ Read/Writeable CD

☒ 4 sets of mailing labels

D. Landowner data source. Provide the source of the landowners' names and mailing addresses.

Click here to enter text.

SECTION 13. ATTACHMENTS

A. All applications

- Supplemental Permit Information Form, if required by instructions on that form
- Current copy of tax records or deed showing ownership of the land
- Lease agreement, if LMUs are not owned by the applicant or co-applicant

B. New, Major amendment, or Renewal

- Completed Technical Information Packet (TCEQ-00760).

C. New and Major amendment

- Public Involvement Plan Form (TCEQ-20960)

D. Minor Amendment

Attach the following items if applicable:

- Current vicinity map, site map, runoff control map, and LMU map
- RCS design calculations
- Nutrient Management Plan or Land application rate calculations
- Other technical documents affected by the proposed amendment

SIGNATURE PAGE

If co-applicants are required, each co-applicant must submit an original, separate signature

page.

Permit Number: Click here to enter text.

Applicant: Click here to enter text.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code

§305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory Name: Click here to enter text.

Title: Click here to enter text.

Signature: _____Date: _____

SUBSCRIBED AND SWORN to before me by the said _____on

this_____day of_____, 20_____

My commission expires on the_____day of_____, 20_____

(Seal)

_____
Notary Public

_____
County, Texas

Attachment 1
Individual Information

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

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

Full Legal Name, including middle name: Click here to enter text.

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

State that Issued the License or Identification Number: Click here to enter text.

Date of Birth: Click here to enter text.

Mailing Address: Click here to enter text.

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

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

E-mail Address: Click here to enter text.

For TCEQ Use Only

Customer Number _____
Regulated Entity Number _____
Permit Number _____

TCEQ USE ONLY

Application type: Renewal Major Amendment Minor Amendment New County: _____ Admin Complete Date: _____ Agency Receiving SPIF: Texas Historical Commission U.S. Fish and Wildlife Texas Parks and Wildlife Army Corps of Engineers

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form is required for all TPDES applications

1. Applicant: Click here to enter text.
2. Permit Number: Click here to enter text. EPA ID Number: Click here to enter text.
3. Address of the project (location description that includes street/highway, city/vicinity, and county). Click here to enter text.
4. Provide the name, address, telephone and fax number of an individual that can be contacted to answer specific questions about the property.

   First and Last Name: Jim Wyrick

   Company Name: East Texas Environmental Services

   Mailing Address: 317 Highland Dr.

   City, State, and Zip Code: 75482

   Phone Number: 903-243-0400 Fax Number: Click here to enter text.
5. County where the facility is located: Click here to enter text.
6. If the property is publicly owned and the owner is different than the permittee/applicant, please identify the owner. Click here to enter text.
7. Identify the name of the water body (receiving waters) and TCEQ segment number that will receive the discharge. Click here to enter text.
8. Provide a 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. (This map is required in addition to the map in the administrative report.)
9. Provide photographs of any structures 50 years or older on the property.
10. Does your project involve any of the following? Select all that apply.
    - ☐ Proposed access roads, utility lines, and construction easements
    - ☐ Visual effects that could damage or detract from a historic property's integrity
    - ☐ Vibration effects during construction or as a result of project design
    - ☐ Additional phases of development that are planned for the future
    - ☐ Sealing of caves, fractures, sinkholes, or other karst features
    - ☐ Disturbance of vegetation or wetlands
11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves or other karst features): none
12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances):

Aeriation of hayland, no-till of winter pasture, plowing and seeding

The following applies to New TPDES and Major Amendment to TPDES Permits:

13. List construction dates of any buildings or structures on the property: unknown
14. Provide a brief history of the property, and name of the architect/builder, if known: unknown

The following applies to New, Amended and Renewal TPDES applications:

15. List each Retention Control Structure and its required capacity (Acre Feet). SP-.65, RCS1-5.56 AND RCS#2-6.92
16. Provide the location and number of acres where wastewater and manure are land applied: LMU#1-75, LMU#2-44, LMU#3-39, LMU#4-64, LMU#5-30, LMU#6-41, LMU#7-38, LMU#8-31 AND LMU#9-101
17. List the maximum number of head to be permitted. 999

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit you APPLICATION FEE, if you are mailing your payment.

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

Mail this form and your check to:

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

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: WQP Wastewater Permit Number: WQ000not issued

1. Check / Money Order Number: 24665
2. Amount of Check/Money Order: $350.00
3. Date of Check or Money Order: 12/16/24
4. Name on Check or Money Order: Maiko Bouma DBA Bouma Dairy
5. APPLICATION INFORMATION

   If the check is for more than one application, attach a list of each Project/Site (RE) Name and Physical Address exactly as provided on the application.
   Project/Site (RE) Name: Bouma Dairy

   Project/Site (RE) Physical Address: 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100

Staple Check in This Space

TCEQ - 20134

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 601231814		RN 102334539

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	9/3/2024

☐ 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:*
MAIKO HESSEL BOMUA	

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

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

12. Number of Employees	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
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant
☐ Other:

15. Mailing Address:	4252 COUNTY ROAD 2408						
	City	WINNSBORO	State	TX	ZIP	75494	ZIP + 4	4100

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(903) 855-2748		( ) -

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.)*

BOUMA DAIRY FARM

23. Street Address of the Regulated Entity: *(No PO Boxes)*	4252 COUNTY ROAD 2408								
	City	WINNSBORO	State	TX	ZIP	75494		ZIP + 4	4100
24. County	HOPKINS								

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

25. Description to Physical Location:			
26. Nearest City		State	Nearest ZIP Code
WINNSBORO		TX	75494

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:	32.980666		28. Longitude (W) In Decimal:	-95.328666	
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)
0241			

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

MILK PRODUCTION

34. Mailing Address:	4252 COUNTY ROAD 2408								
	City	WINNSBORO	State	TX	ZIP	75494		ZIP + 4	4100
35. E-Mail Address:	boumadairy@hotmail.com								

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(903) 855-2748		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Jim C. Wyrick	41. Title:	Consultant

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(903) 521-3095		( ) -	wyrick@suddenlink.net

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:	East Texas Environmental Services	Job Title:	Consultant
Name *(In Print)*:	Jim C, Wyrick	Phone:	(903) 243- [illegible]
Signature:	Jim C. Wyrick	Date:	8/3/2024

MABRY JOHN MATTHEW ETAL
20657 HWY 11 E
WINNSBORO, TX 75494-9407

POAG L DWAYNE
1186 CR 2403
WINNSBORO, TX 75494

VAQUEZ-JACOBO GENARO & MARIA AGUSTINA
HERNANDEZ CONCEPCION
585 COUNTY ROAD 2405
WINNSBORO, TX 7549

KASTNER CARL & KATHERINE
1195 CR 2403
WINNSBORO, TX 7549

BUI TAN DINH
3776 CR 2408
WINNSBORO, TX 75494

RIOJAS JODY W & ROSE M
3999 CR 2408
WINNSBORO, TX 75494

LOVE RICHARD RAY II
137 CR 3103
GREENVILLE, TX 75402

GRUBBS RIDDLES ELLEN & GARY NEAL GRUBBS
1205 CEDARWOOD DR
FLOWER MOUND, TX 75028

AISE J & CHARLOTTE BOUMA
902 MAIN ST
HALSTEAD, KS 67056

SHANE NICHOLS
2745 CR 2403
WINNSBORO, TX 75494

JOHN P & LESLIE A MOORE
P O BOX 724
WINNSBORO, TX 75494

PHILLIP GILBREATH
7750 LYNDON B JOHNSON FWY 201
DALLAS, TX 75251

ROYCE EUGENE & VERA LEE CARTER
P O BOX 941
VAN ALSTYNE, TX 75495

RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS
1205 CEDARWOOD DR
FLOWER MOUND, TX 75028

JOHN DAVID & ANNA LAURISSA STONE
1923 CR 2399
WINNSBORO, TX 75494-4241

ANTHONY TY & TAMMY LYNNE MARLER
1179 CR 2399
WINNSBORO, TX 75494

WIEPIE & JENNIFER SANDLIN JONGSMA
4705 CR 2390
WINNSBORO, TX 75494

RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

DUSTIN BRODY ALLEN
2430 CR 2410
WINNSBORO, TX 75494

CARL & KATHERINE KASTNER
1195 CR 2403
WINNSBORO, TX 75494

GEORGE JAMES PIERCE
20343 HWY 11 E
WINNSBORO, TX 7549

BLAKE C & REGINA BAIN
4360 CR 2310
SULPHUR SPRINGS, TX 75482

RAGSDALE LAND COMPANY LLC
PO BOX 822
WINNSBORO, TX 75494

SHIRLEY JACKSON MAY
2822 CR 2408
WINNSBORO, TX 75494-4136

KARI GAYE NOLEN
1577 CR 2393
WINNSBORO, TX 75494

AMELIA ANN L/E GREEN
LAQUITA RACHELLE SAVAGE
1801 CR 2399
WINNSBORO, TX 7549

ANASTASIA & MATTHEW PERRY
PO BOX 917
WINNSBORO, TX 75494

PATRICK JOHN
417 W BROADWAY
WINNSBORO, TX 75494

MISTY GAYLE & JEFFERY ALAN ETAL MCBRIDE
3259 CR 2408
WINNSBORO, TX 75494

JODY W & ROSE M RIOJAS
3999 CR 2408
WINNSBORO, TX 75494

PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES
20262 HWY 11 E
WINNSBORO, TX 75494

DENNIS RAY & SHERRY G NICHOLS
2342 CR 2403
WINNSBORO, TX 75494

RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

TEMPLEMAN LIVING TUST
TRUSTEE IRIS ANNETTE TEMPLEMAN
1901 WISTERIA WAY
MCKINNEY, TX 75071

CHARLESTON DAVID GREEN
203 E CEDAR ST
WINNSBORO, TX 75494

RICHARD & TAMMY SMITH
1671 CR 2399
WINNSBORO, TX 75494

PHUONG LAN T TRAN
1394 CR 2393
WINNSBORO, TX 75494

RAGSDALE LAND COMPANY LLC
PO BOX 822
WINNSBORO, TX 75494

HOPKINS COUNTY APPRAISAL DISTRICT

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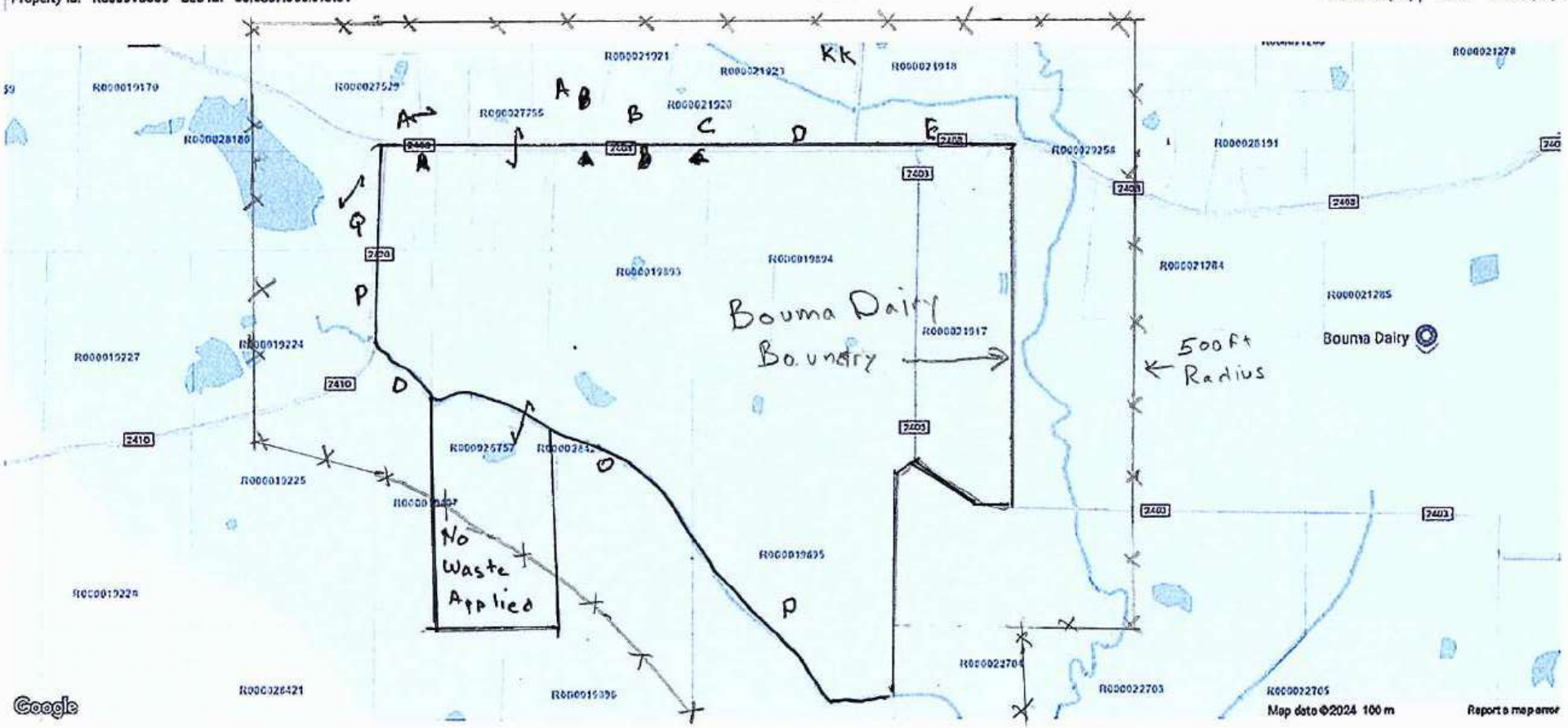
Property Year 2024 Map/GIS

Property ID: R000013309 Geo ID: 65.0307.000.013.01

MAP A

Information Updated 10/23/2024

< Previous Property | 12 /27 Next Property >



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MAP F

↓

MAPA ↑

HOPKINS COUNTY

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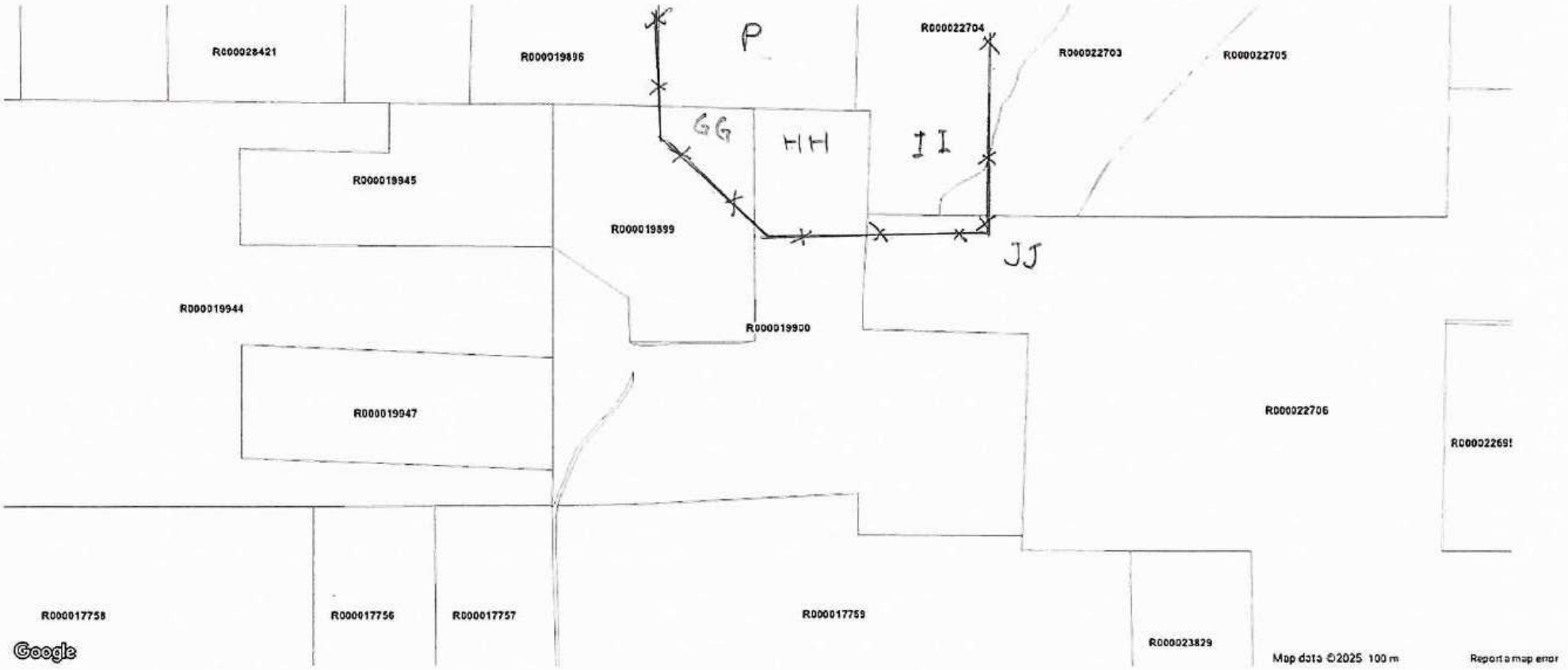
MAP F

Property Year 2024 Map/GIS

Property ID: R000015062 Geo ID: 65.0459.000.002.02

Information Updated 2/3/2025

< Previous Property 14 / 27 Next Property >



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MAPA ↑

HOPKINS COUNTY

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MAP G

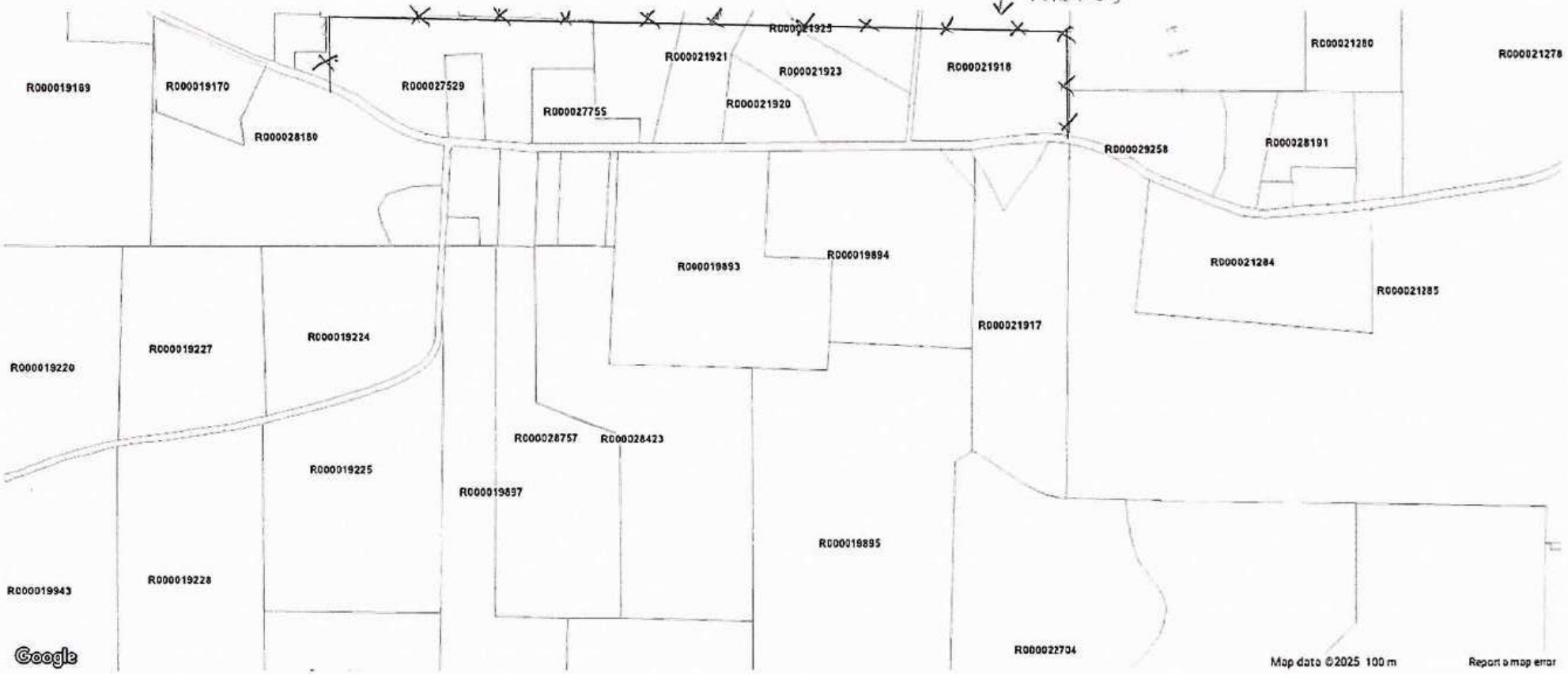
Property Year 2024 Map/GIS

Property ID: R000015062 Geo ID: 65.0459.000.002.02

Information Updated 2/3/2025

< Previous Property 14 / 27 Next Property >

500 Ft Radius



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HOPKINS COUNTY APPRAISAL DISTRICT

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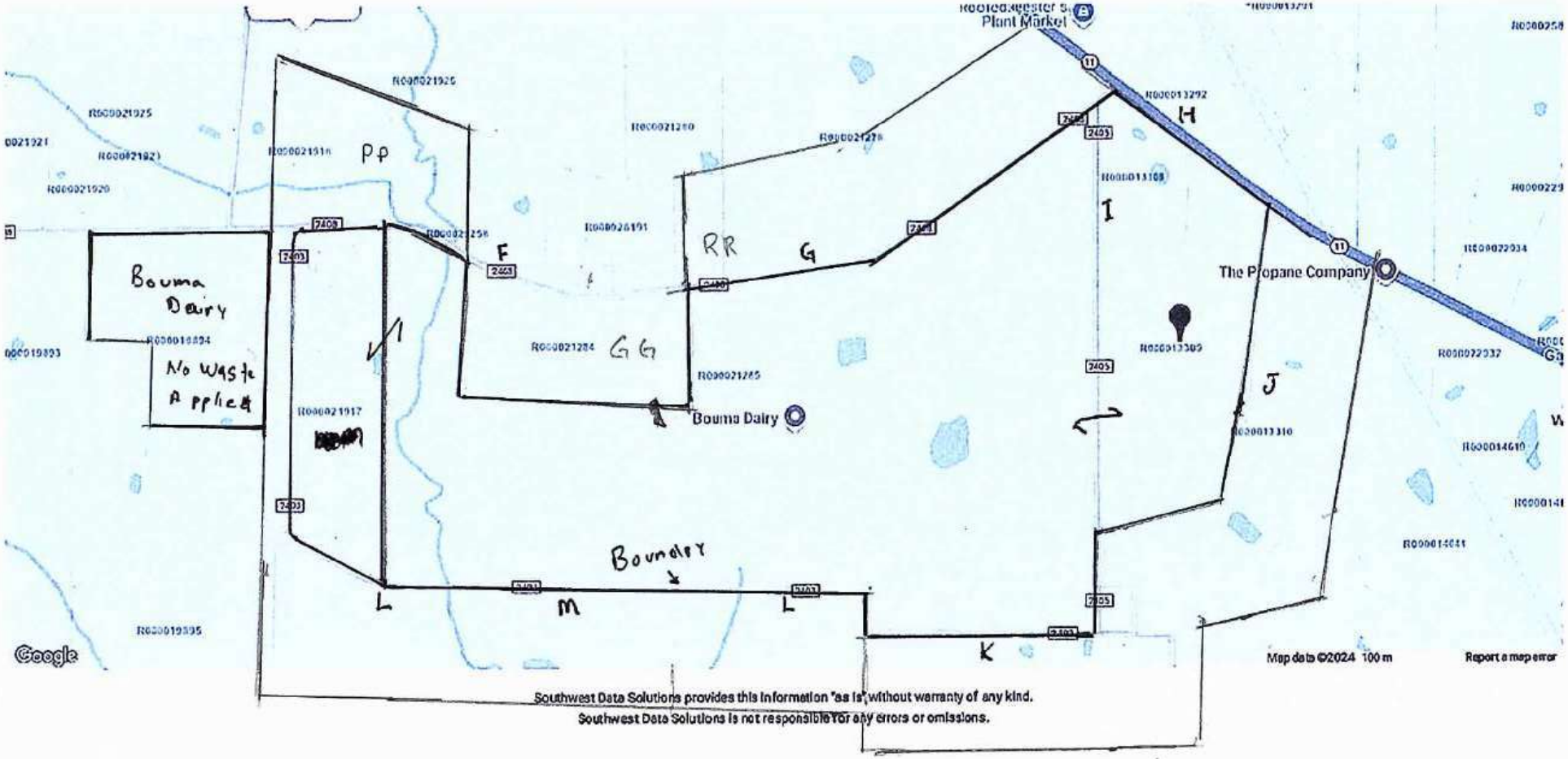
Property Year 2024 Map/GIS

Property ID: R000013309 Geo ID: 65.0307.000.013.01

MAP B

Information Updated 10/23/2024

< Previous Property 12 / 27 | Next Property >



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HOPKINS COUNTY
APPRAISAL DISTRICT

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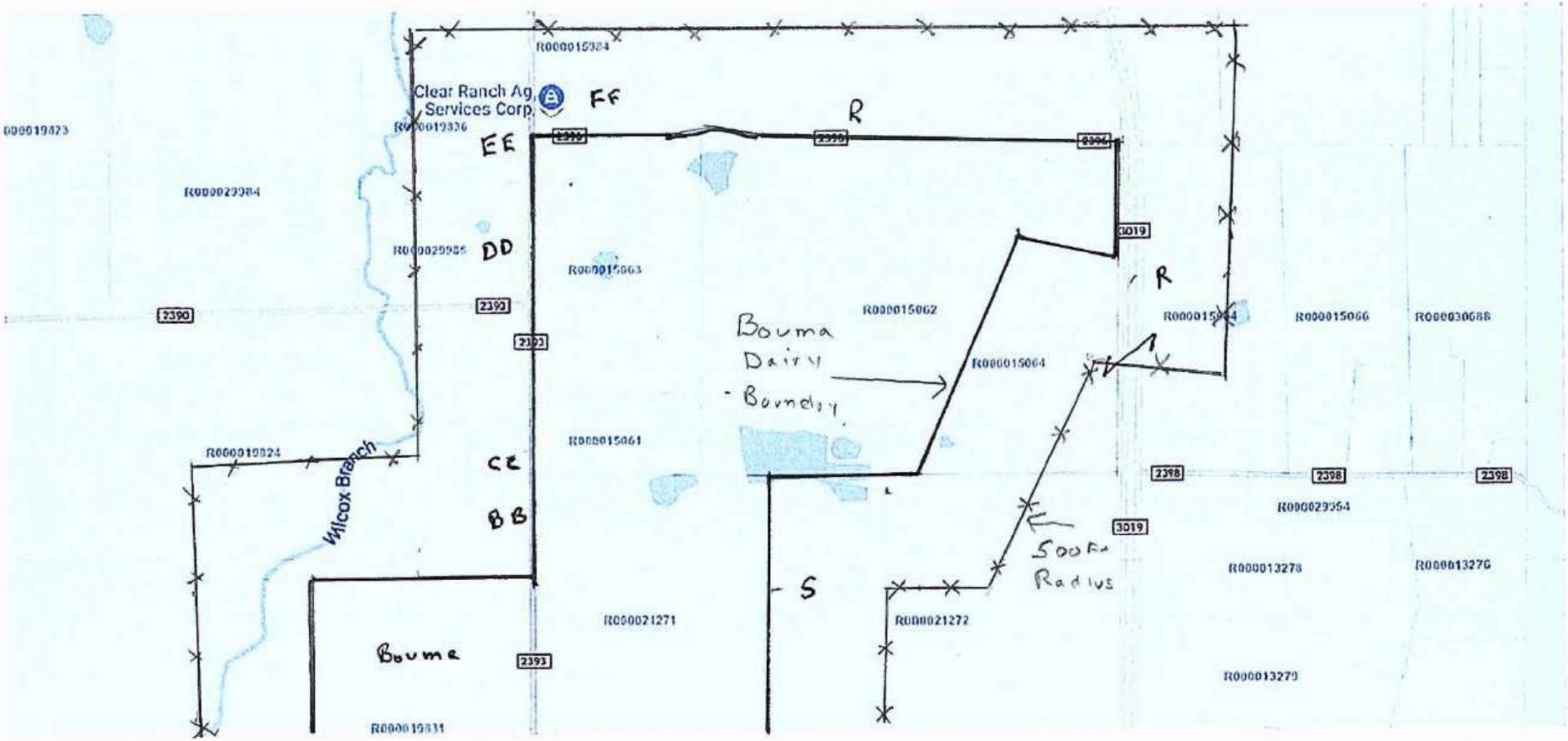
MAP D

Property Year 2024 Map/GIS
Property ID: R000021285 Geo ID: 65.0898.000.005.01

Information Updated 10/24/2024
< Previous Property 19 / 27 Next Property >



Google Map data ©2024 100 m Report a map error

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MAP E ↓

MAP D ↑

HOPKINS COUNTY
APPRAISAL DISTRICT

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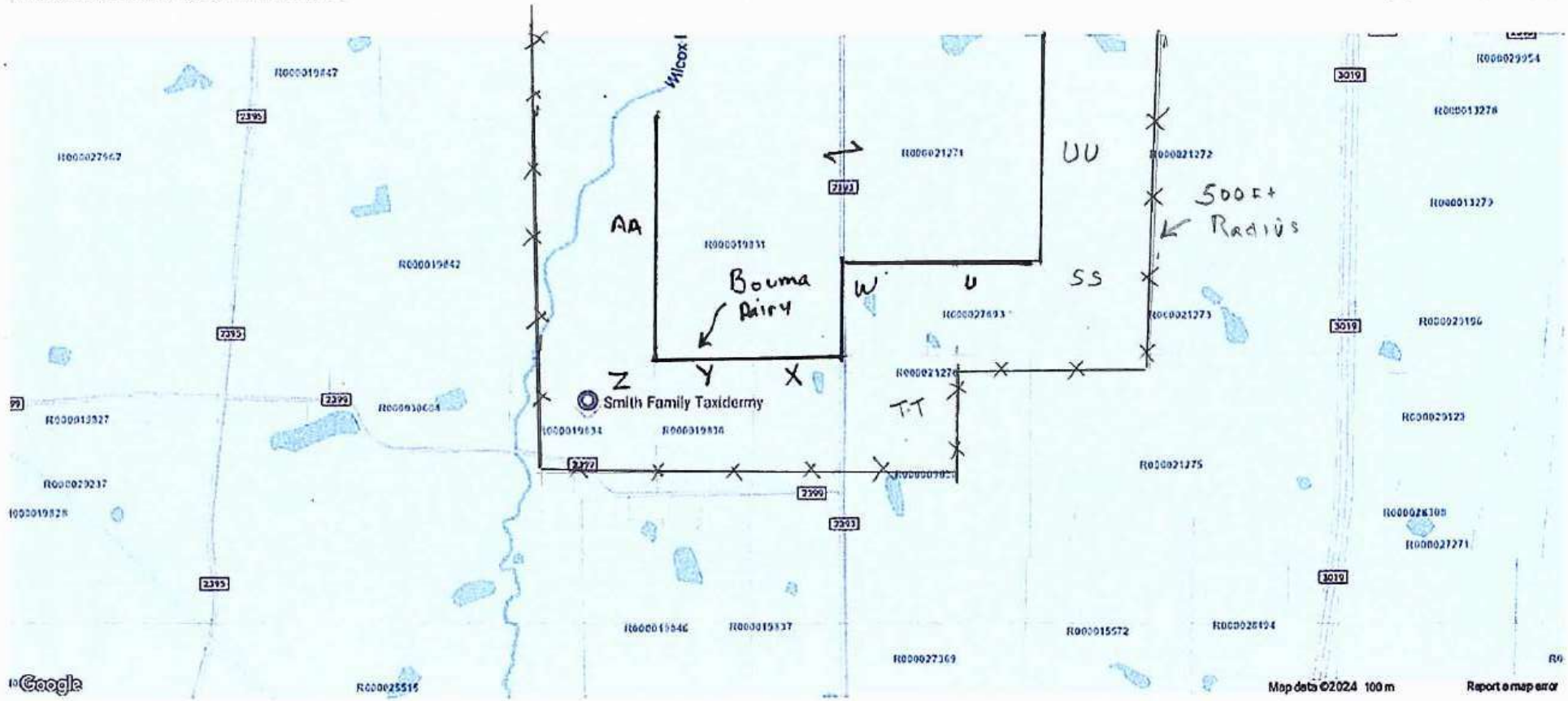
MAP E

Property Year 2024 Map/GIS
Property ID: R000021285 Geo ID: 65.0898.000.005.01

Information Updated 10/24/2024
« Previous Property 10 / 27 | Next Property »



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Bouma Dary Land Owners Map

A	R000027529 R000019171	AISE J & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
B	R000021921	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
C	R000021920	MISTY GAYLE & JEFFERY ALAN ETAL MCBRIDE 3259 CR 2408 WINNSBORO, TX 75494
D	R000021923	SHANE NICHOLS 2745 CR 2403 WINNSBORO, TX 75494
E	R000021918	CARL & KATHERINE KASTNER 1195 CR 2403 WINNSBORO, TX 75494
F	R000021279	JODY W & ROSE M RIOJAS 3999 CR 2408 WINNSBORO, TX 75494
G	R000021278	JOHN P & LESLIE A MOORE P O BOX 724 WINNSBORO, TX 75494
H	R000013292	GEORGE JAMES PIERCE 20343 HWY 11 E WINNSBORO, TX 7549
I	R000013308	LAUZON PETER G & SHEILA M REVOCABLE LIVING TRUST PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES 20262 HWY 11 E WINNSBORO, TX 75494
J	R000013310	PHILLIP GILBREATH 7750 LYNDON B JOHNSON FWY 201 DALLAS, TX 75251
K	R000022685	BLAKE C & REGINA BAIN 4360 CR 2310 SULPHUR SPRINGS, TX 75482
L II	R000022705 R000022704	DENNIS RAY & SHERRY G NICHOLS 2342 CR 2403 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

M	R000022703	ROYCE EUGENE & VERA LEE CARTER P O BOX 941 VAN ALSTYNE, TX 75495
N HH	R000019900 R000019900	RAGSDALE LAND COMPANY LLC PO BOX 822 WINNSBORO, TX 75494
O	R000028423 R000019895 R000019897	AISE & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
P	R000019224	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
Q	R000028089 R000028180	SHIRLEY JACKSON MAY 2822 CR 2408 WINNSBORO, TX 75494-4136
R	R000015060 R000015064 R000015064	TEMPLEMAN LIVING TUST TRUSTEE IRIS ANNETTE TEMPLEMAN 1901 WISTERIA WAY MCKINNEY, TX 75071
S	R000021272	RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS 1205 CEDARWOOD DR FLOWER MOUND, TX 75028
U	R000027893	KARI GAYE NOLEN 1577 CR 2393 WINNSBORO, TX 75494
W	R000021274	CHARLESTON DAVID GREEN 203 E CEDAR ST WINNSBORO, TX 75494
X	R000027089	JOHN DAVID & ANNA LAURISSA STONE 1923 CR 2399 WINNSBORO, TX 75494-4241
Y	R000019838	AMELIA ANN L/E GREEN LAQUITA RACHELLE SAVAGE 1801 CR 2399 WINNSBORO, TX 7549
Z	R000019834	RICHARD & TAMMY SMITH 1671 CR 2399 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

AA	R000019842	ANTHONY TY & TAMMY LYNNE MARLER 1179 CR 2399 WINNSBORO, TX 75494
BB	R000019824	ANTHONY TY & TAMMY LYNNE MARLER 1179 CR 2399 WINNSBORO, TX 75494
CC	R000026415	PHUONG LAN T TRAN 1394 CR 2393 WINNSBORO, TX 75494
DD	R000029985	WIEPIE & JENNIFER SANDLIN JONGSMA 4705 CR 2390 WINNSBORO, TX 75494
EE	R000019836	ANASTASIA & MATTHEW PERRY PO BOX 917 WINNSBORO, TX 75494
FF	R000015984	RAMONA L LONG 1143 CR 2393 WINNSBORO, TX 75494

Comisión de Calidad Ambiental del Estado de Texas

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

PERMISO NO. WQoo05477000

SOLICITUD. _ MAIKO HESSEL BOUMA 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100 *[Applicant name, street address, city, state, zip code]* ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQoo05477000 que autoriza al solicitante a operar un nuevo operación de lecheras *[choose animal type:* ganado vacuno (beef cattle), lecheras (dairy), puerco (swine), avícola (poultry)] en un capacidad máxima de 999 *[maximum head count]* animales.

El sitio de aplicación al suelo está ubicado en Winnsboro, TX *[location from a major intersection or community]* en el Condado de Hopkins, *[County]* Texas. 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. [Insert web link from English notice]

La TCEQ recibió esta solicitud el día 01/13/2024 *[date application received by TCEQ]*. La solicitud para el permiso está disponible para leer y copiar en 1200 West Houston Street *[street address of public place where application is available in the county]*. La solicitud (cualquier actualización y aviso inclusive) está disponible electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.

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

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

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

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

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

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

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

CONTACTOS E INFORMACIÓN DE LA TCEQ. Todos los comentarios escritos del público y los para pedidos una reunión deben ser presentados a la Oficina del Secretario Principal, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 o por el internet at www.tceq.texas.gov/about/comments.html. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Si necesita más información en Español sobre esta solicitud para un permiso o el proceso del permiso, por favor llame a El Programa de Educación Pública de la TCEQ, sin cobro, al 1-800-687-4040. La información general sobre la TCEQ puede ser encontrada en nuestro sitio de la red: www.tceq.texas.gov.

También se puede obtener información adicional del MAIKO HESSEL BOUMA *[name of applicant]* a la dirección indicada arriba o llamando a Jim Wyrick *[name of applicant's representative]* al 903-243-0400 *[applicant's telephone number]*.

Fecha de emisión not isssued *[Date notice issued]*

Table 5: Soil Limiting Characteristics and Best Management Practices

Soil Types	Limiting Characteristics	Best Management Practices
BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes	Too acid	Permanent Vegetation: High residue crop
FrB—Freestone fine sandy loam, 1 to 3 percent slopes	Depth to saturated zone	Permanent Vegetation: High residue crop
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	Slow water movement, Too steep for surface application, too acid	Permanent Vegetation: High residue crop
KvD—Kirvin soils, 3 to 8 percent slopes	Slow water movement, Too steep for surface application, too acid	Permanent Vegetation: High residue crop
Lr—Lufkin-Raino complex		Permanent Vegetation: High residue crop
Na—Nahatche soils, frequently flooded	Flooding	Permanent Vegetation: High residue crop
PkC—Pickton loamy fine sand, 2 to 5 percent slopes	Filtering capacity	Permanent Vegetation: High residue crop
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes	Filtering capacity	Permanent Vegetation: High residue crop
WtC—Woodtell loam, 2 to 5 percent slopes	Slow water movement	Permanent Vegetation: High residue crop

TECHNICAL INFORMATION PACKET FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS)

Submit this Form with your Individual Permit Application (TCEQ – 000728)

Name of Site: BOUMA DAIRY

TCEQ Permit Number, if assigned: WQ000 Click here to enter text.

Date Prepared: 11/14/24

SECTION 1. POLLUTANT SOURCES MANAGEMENT

For each potential pollutant source listed in the table below, provide the management practices utilized or enter "Not Applicable". Management practices should address the collection, storage and final disposition of each potential pollutant source. You may attach your list.

Table 1: Potential Pollutant Sources and Best Management Practices

Potential Pollutant Source	Best Management Practices
Manure and Manure Stockpiles	Manure generated in the freestalls is flushed into the settling basin then into RCS #1 and irrigated to the LMUs with the irrigation water. Very limited amount will be stockpiled at end of the freestalls and hauled to LMUs.
Wastewater	All wastewater gravity flows from the freestalls into the settling basin then into the RCS#1. Where it is stored until there is a crop demand for water and nutrients, and then applied to LMUs at an agronomic rate.
Sludge	Sludge will be cleaned from the RCSs before the sludge volume reaches the designed capacity. A system of irrigation and vacuum tanks will be used to with the sludge from the RCSs
Compost	NA
Feed and Bedding	Feed when spoiled, will be applied to LMUs. When applied it will be applied at a rate similar to that of manure.
Silage stockpiles	Most of the silage is stored under plastic. The plastic will be removed and disposed of in the appropriate waste containers. If the silage is not covered, any ruined silage will be land applied
Dead animals	All dead animals are collected within 24-hours and properly buried within 72 hours of death following TCEQ guidelines.
Dust	Water will be applied to the until the conductions for dust have passed.
Lubricants	All oil and lubricant products will be stored in a covered storage area in covered, waterproof container. Empty containers are to be disposed of following all precautionary guidelines on the container or placing in a commercial garbage

Potential Pollutant Source	Best Management Practices
Pesticides	All pesticides and herbicides application is contracted to an applicator and no chemicals are stored on the property. All pesticides will be used and disposed in accordance with the label rules
Bulk cleaning chemicals	Use and disposal of empty containers will be according to direction on the product label.
Inorganic fertilizers	NA
Fuel storage tanks	All fuels are stored in a properly maintained storage tank, away from wells. Care will be so spills do not occur when equipment is being filled. If a spill occurs, it will be immediately cleaned up and not allowed to flow from the tank area
Other, specify: Click here to enter text.	NA

SECTION 2. RETENTION CONTROL STRUCTURE DESIGN

A. Design Summary

1) Design Standards, Characteristic, and Values Sources Used

- ☒ Natural Resource Conservation Service
- ☐ American Society of Agricultural and Biological Engineers
- ☐ Other; specify: Click here to enter text.

2) Total Number of Animals:
In Open Lots: 999 In Buildings: 999

3) Animal Housing Location, hours/day:
Open Lots: 7 Buildings: 17

4) Average Liveweight, pounds per head: 1400

5) Volatile Solids Removed by Separator System: NA

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: NA

7) Spilled Drinking Water, gallons/day: 4995

8) Water for Cleanup, gallons/day: 4995

9) Water for Manure Removal, gallons/day: 14563

10) Recycled Wastewater, gallons/day: 58252

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 8.00

2) Design Rainfall Event:

☒ 25-year, 24 hour

☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model

☐ 25-year, 10 day

☐ Other; specify: Click here to enter text.

C. Retention Control Structure(s) (RCS) Volume Allocations

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
RCS#1	.85	2.36	0	2.25	.10	5.56	5.56
RCS#2	.86	0	0	1.16	4.90	6.92	6.92

Indicate which RCSs are in-series: RCS#1 and RCS#2 are in series

D. RCS Liner or Lack of Hydrologic Connection Certification

Table 3: RCS Hydrologic Connection

RCS Name	Construction Date	Type of Hydrologic Connection Certification
RCS#1	1/6/2000	In-situ Soils – certified 3/1/2007
RCS#2	To be constructed	After completion of RCS

E. Playa Lakes

Are any playa lakes used for RCSs? Yes ☐ No ☒

SECTION 3. MANURE, SLUDGE, AND WASTEWATER HANDLING

A. Manure:

1) Use or Disposal Method:
   - ☒ Land Application to LMUs
   - ☐ Transfer to other persons
   - ☐ Third Party Fields
   - ☐ Other; specify: Click here to enter text.

2) Land Application Location:
   - ☒ Onsite ☒ Offsite ☐ Not Applicable

3) Composting Location:
   - ☐ Onsite ☐ Offsite ☒ Not Applicable

B. Sludge:

1) Use or Disposal Method:
   - ☒ Land Application to LMUs
   - ☐ Transfer to other persons
   - ☐ Third Party Fields
   - ☐ Other; specify: Click here to enter text.

2) Land Application Location:
   - ☒ Onsite ☒ Offsite ☐ Not Applicable

C. Wastewater:

1) Use or Disposal Method:

☒ Land Application to LMUs

☐ Total Evaporation

☐ Third Party Fields

☐ Other; specify: Click here to enter text.

2) Land Application Location:

☒ Onsite ☐ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

For each Land Management Unit (LMU), provide the name, acre, crops/yield goals and application rates on Table 4 below. Add rows if needed or attach additional pages.

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
LMU#1	75	Coastal graze 1 AU/1 ac, SG mod graze	14.0 Ac-ft/Ac/Year
LMU#2	44	Coastal graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#3	39	Coastal Hay 4 cut, RG mod Graze	16.3 Ac-ft/Ac/Year
LMU#4	64	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#5	30	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#6	41	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#7	38	Common graze 1 AU/1 ac, SG mod graze	4308.5 Tons/Ac/Year
LMU#8	31	Common graze 1 AU/1 ac, SG mod graze	11782.2 Tons/Ac/Year
LMU#9	101	Common graze 1 AU/1 ac, SG mod graze	11782.2 Tons/Ac/Year

1) Wastewater production, ac-in/year: 43.17
2) Estimated Wastewater application, ac-in/year: 43.17
3) Manure production, tons/year: 3752
4) Estimated manure application, tons/year: 0 as dry manure. 3752 in draghose irrigation
5) Estimated manure transferred to other persons, tons/year: 0

E. Floodplain Information

1) Is any part of the production area within a 100-year floodplain? Yes ☐ No ☒

If YES, describe management practices to protect the sites. Click here to enter text.

2) Is land application or temporary storage of manure in a 100-year floodplain or near a water course? Yes ☐ No ☒

If YES, describe management practices. Click here to enter text.

F. Soil Limitations

Table 5: Soil Limiting Characteristics and Best Management Practices

Soil Types	Limiting Characteristics	Best Management Practices
	SEE ATTACHMENT	

G. Well Protection

Table 6: Water Well Status and Protective Measures

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
#1	Domestic	Producing	Cased	Maintain 150' Buffer
#2	Domestic	Producing	Cased	Maintain 150' Buffer
#3	Domestic	Producing	Cased	Maintain 150' Buffer

SECTION 4. AIR AUTHORIZATION SUMMARY

A. Type of Air Authorization

☐ Air Standard Permit in 30 TAC § 321.43

☒ Permit By Rule in 30 TAC Chapter 106 Subchapter F

☐ Individual Air Quality Permit

If Air Standard Permit is selected, then complete Sections B and C below.

B. Indicate the AFO Status and Buffer Option.

☒ Operation started after August 19, 1998:
- ☐ ½ mile buffer*
- ☒ ¼ mile buffer* and an odor control plan

☐ Operation started on or before August 19, 1998:
- ☐ ¼ mile buffer*
- ☐ odor control plan

*A written letter of consent from an affected landowner may be used in lieu of meeting the buffer distances specified.

C. Odor Receptors

Identify the number of occupied residences or business structures, schools (including associated recreational areas), places of worship, or public parks located within the following distances from permanent odor sources as defined in 30 TAC §321.32(43):

0 - ¼ mile: 2

¼ - ½ mile: 4

½ - 1 mile: 32

SECTION 5. ATTACHMENTS

A. Maps

1) Site Map
2) Land Management Unit Map
3) Vicinity Map
4) Original United States Geological Survey 7.5 Minute Quadrangle Map
5) 100 Year Floodplain Map (if applicable)
6) Runoff Control Map
7) Natural Resource Conservation Service (NRCS) Soil Survey Map

B. Professional Certifications

1) Recharge Feature Certification Statement and Supporting Documents
2) RCS Design Calculations (Water Nutr, Animal Waste Management (AWM), or equivalent)
3) RCS As-Built Capacity Certifications (if constructed)
4) RCS Hydrologic Connection Certifications (if constructed)

C. Land Application

1) Nutrient Management Plan
2) Nutrient Utilization Plan. If the NUP is already approved, include the approval letter.
3) Copy of Annual Soil Sampling Analyses (used for the NMP that was submitted with the application)

4) Copy of Annual Manure and Wastewater Analyses (used for the NMP that was submitted with the application

D. Air Standard Permit Documentation (if required)

1) Area Land Use Map,
2) Odor Control Plan, if applicable
3) Written Consent Letters, if applicable

E. Groundwater Monitoring (if required)

1) Groundwater Monitoring Plan
2) Groundwater Monitoring Analyses

RECHARGE FEATURE CERTIFICATION STATEMENT

I certify that potential recharge features, as defined in 30 Texas Administrative Code 321, Subchapter B, ☒ EXIST ☐ DO NOT EXIST on properties used in this application. All information presented on this page and the attached supporting documents is true and accurate to the best of my knowledge.

Certification Signature:_____ Seal and Date:_____

INSTRUCTIONS FOR TECHNICAL INFORMATION PACKET

Section 1. Pollutant Sources Management

For each potential pollutant source identified, describe the best management practices that you will use or are using to reduce the potential impact of the pollutant on the environment. If a pollutant source does not apply to your facility enter "Not Applicable".

Section 2. Retention Control Structure Design

A. Identify the design criteria used to calculate the required size of the control facilities (collection ditches, conduits, and swales for the collection of manure, sludge, or wastewater, and all retention control structures (RCS)). Information for completing the section will be found in the design calculations provided by a licensed Texas Professional Engineer.

B. Provide the design rainfall event amount, (inches), and the design rainfall event based on the location of the facility, animal type, and margin of safety (if required). Identify the source of the design rainfall event.

C. Provide the volume allocations for each RCS. This table is a summary of the specific volumes allocated to the sources of inputs to the RCS system. Information to complete this table will be found in the design calculations provided by a licensed Texas Professional Engineer.

   If applicable, identify which RCSs act in-series (i.e. an RCS that has a natural or artificial method of overflowing into another RCS).

D. For each RCS, provide the date that it was constructed and the type of hydrologic connection certification (i.e. liner certification or certification that no hydrologic connection exists).

E. Indicate if playa lakes are used for RCSs. Use of playas as RCSs for operations that were in existence prior to July 10, 1991, and that meet other conditions.

Section 3. Manure, Sludge and Wastewater Handling

A. Provide the method used to manage manure. If land application is used, indicate the location of the land application areas (i.e. on-site or off-site). Off-site is considered to be land that is owned, operated, controlled, rented or leased by the applicant that is detached from the production area. If composting is used, indicate the location of the compost facility.

B. Provide the method used to manage sludge. If land application is used, indicate the location of the land application areas (i.e. on-site or off-site). Off-site is considered to be land that is owned, operated, controlled, rented or leased by the applicant that is detached from the production area.

C. Provide the method used to manage wastewater. If land application is used, indicate the location of the land application areas (i.e. on-site or off-site). Off-site is considered to be land that is owned, operated, controlled, rented or leased by the applicant that is detached from the production area.

D. Complete this section using information from the nutrient management plan (NMP) that was submitted with the application. Provide the acreage, crop, yield goal, and estimated application rate for each land management unit (LMU).

   Provide the estimated amount of wastewater and manure produced, land applied and transferred annually to other persons, including third-party fields. These values should be taken from the RCS design calculations and NMP. The tons of manure generated, land applied and transferred must be represented either in wet or dry basis.

E. Indicate if part of the production area is in a 100-year floodplain. If yes, describe the best management practices used to protect the site from inundation and provide certification by a licensed Texas Professional Engineer that the facility is protected from inundation during a 100-year flood.

   Indicate if land application or temporary storage of solids is in a 100-year floodplain or near a water course. If yes, describe the best management practices used to minimize an impact to water in the state.

F. For each soil type that has limitations to land application of manure or wastewater, provide the name of the soil type, the characteristics of those soils that may limit land application of manure or wastewater, and the best management practice used to mitigate the limitation. Limiting characteristics include, but are not limited to, texture, permeability, depth to high water table, ponding, slope, depth to bedrock, depth to cemented pan, sodium adsorption ratio, flooding, stoniness, and soil pH. For more information on soil limitations, consult the NRCS National Soil Survey Handbook, Part 620.

G. For each on-site well, provide an identification number and the type of well (drinking water, irrigation water, oil, etc.). Indicate if the well is producing or non-producing; open, cased, or plugged; and the best management practice used to minimize impacts to groundwater.

Section 4. Air Authorization Summary

A. Indicate the type of air authorization this facility is seeking. All facilities must have air authorization. To determine if your facility qualifies for the Air Standard Permit, refer to 30 TAC §321.43.

B. If you selected Air Standard Permit, identify when the AFO started or plans to start operations, then select one option for meeting the buffer requirement of the Air Standard Permit.

C. Identify the number of odor receptors within each distance of permanent odor sources at the facility. Those odor sources that may emit odors 24 hours per day. Permanent odor sources include, but are not limited to, pens, confinement buildings, lagoons, retention control structures, manure stockpile areas, and solid separators. Permanent odor sources **do not** include any feed handling facilities, land application equipment, or land management units.

Section 5. Attachments

The following items must be attached to the Technical Information Packet prior to submittal to the TCEQ.

A. Maps

1) Site map. This map must show the layout of the production area and the location of all wells, water in the state, and required buffer zones in the production area.

2) Land Management Unit map. This map must show the location of all LMUs in relation to the production area. Identify the location of all wells, water in the state, and required buffer zones in the LMUs. Indicate the LMU number and the number of acres available for land application in each LMU. The map must show topographical features, such as waterways and roads.

3) Vicinity map. This map must be a general highway map that shows the location of the CAFO in relation to the nearest town or to the nearest intersection of two major (non-county) roads. All roads should be labeled.

4) Original United States Geological Survey 7.5-minute Quadrangle map. This map must show the location of the production area and LMUs in relation to topographic features within 1 mile of the property boundary.

5) 100-year floodplain map. This is a Federal Emergency Management Agency (FEMA) map which shows the extent of a 100-year flood in relation to the production area. If a FEMA map is not available, a licensed Professional Engineer may be required to certify that the production area is not located in or is protected from a 100-year flood.

6) Runoff Control map. This map must show the direction of runoff flow in the production area and how stormwater is diverted from the production area. The runoff flow may be shown in conjunction with the site map.

7) Natural Resource Conservation Service Soil Survey Map. This map must show the location of the production area and LMUs in relation to the soil types located on the facility. This map may be included as part of the Recharge Feature Certification supporting documents.

B. Professional Certifications. The Recharge Feature Certification Statement, RCS Design Calculations, RCS as-built capacity, and RCS hydrologic connection certifications must be certified by a licensed Texas professional engineer or licensed Texas professional geoscientist, in accordance with the 30 TAC 321, Subchapter B.

C. Land Application

1) Nutrient Management Plan (NMP) – Submit a NMP with this application. A plan based on the NRCS Practice Standard Nutrient Management Code 590, to address the amount (rate), source, placement (method of application), and timing of the application of plant nutrients and soil amendments. The NMP must be developed and certified by a Certified Nutrient Management Specialist or other approved person as listed in 30 TAC 321, Subchapter B. This plan must be developed using the NRCS 590 software.

2) Nutrient Utilization Plan (NUP) - A NMP to evaluate and address site specific characteristics of a LMU to ensure that the beneficial use of manure, sludge, or wastewater is conducted in a manner to prevent adverse impacts on water quality. It is required when the soil phosphorus level exceeds 200 ppm phosphorus in zone 1 of an LMU. If a NUP has already been approved by the TCEQ, attach the approval letter only. A NUP must be developed and certified by a Certified Nutrient

Management Specialist or other approved person as listed in 30 TAC 321, Subchapter B. This plan must be developed using the NRCS 590 software.

3) Provide a copy of the annual soil sampling analyses for each LMU that were used to calculate the application rates.

4) Provide a copy of the annual manure and wastewater analyses used to calculate the application rates.

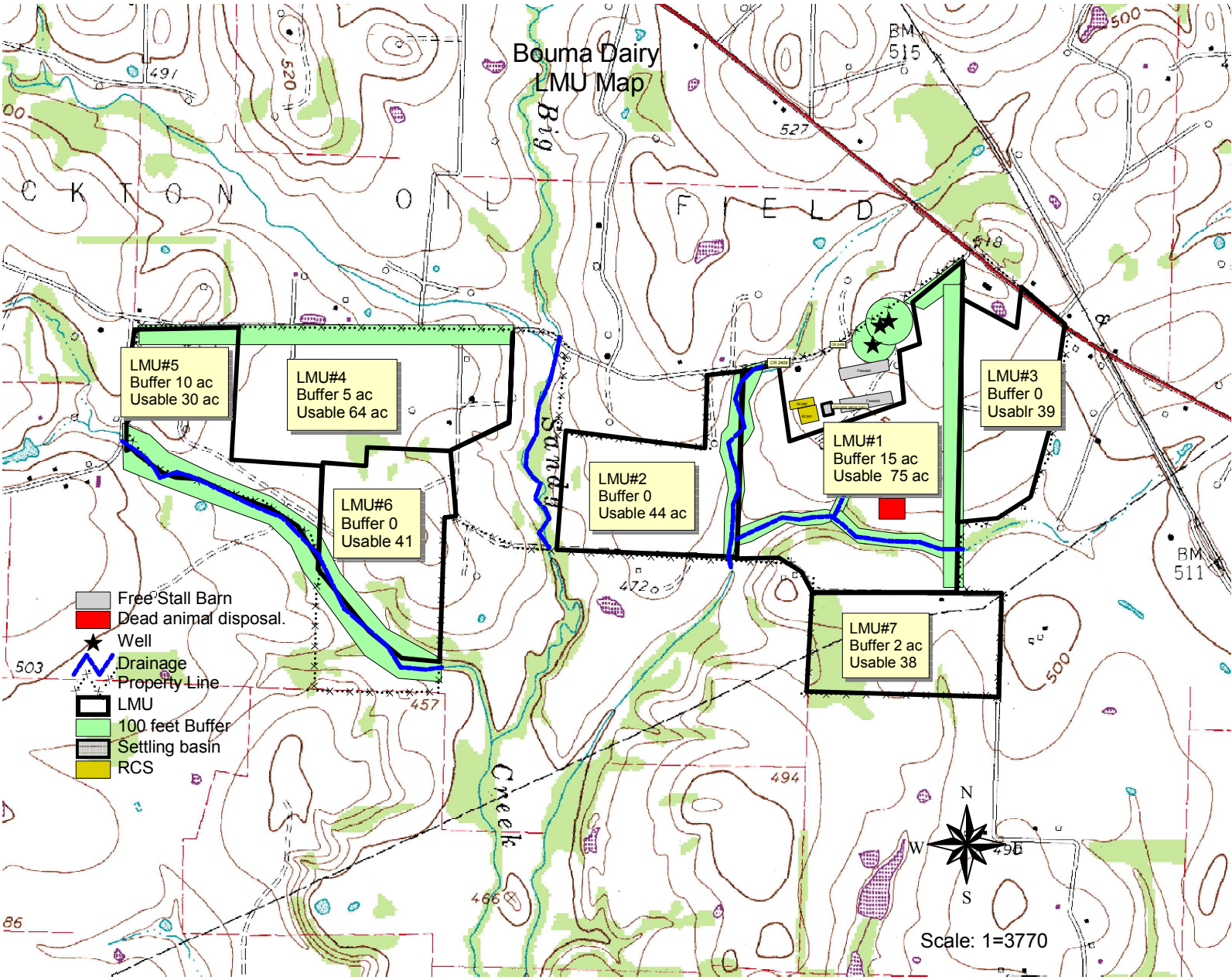
D. Air Standard Permit Documentation. This attachment is only required if you are requesting air authorization under the Air Standard Permit. To determine if you qualify for the Air Standard Permit, refer to 30 TAC 321.43.

1) Area Land Use map. A map that identifies property lines, permanent odor sources, and distances and direction to any occupied residence or business structure, school (including associated recreational areas), permanent structure containing a place of worship, or public park within a one-mile radius of the permanent odor sources at the AFO. The map must include a north arrow, scale of map, buffer zones, and the date the map was generated and the date the distances were verified.

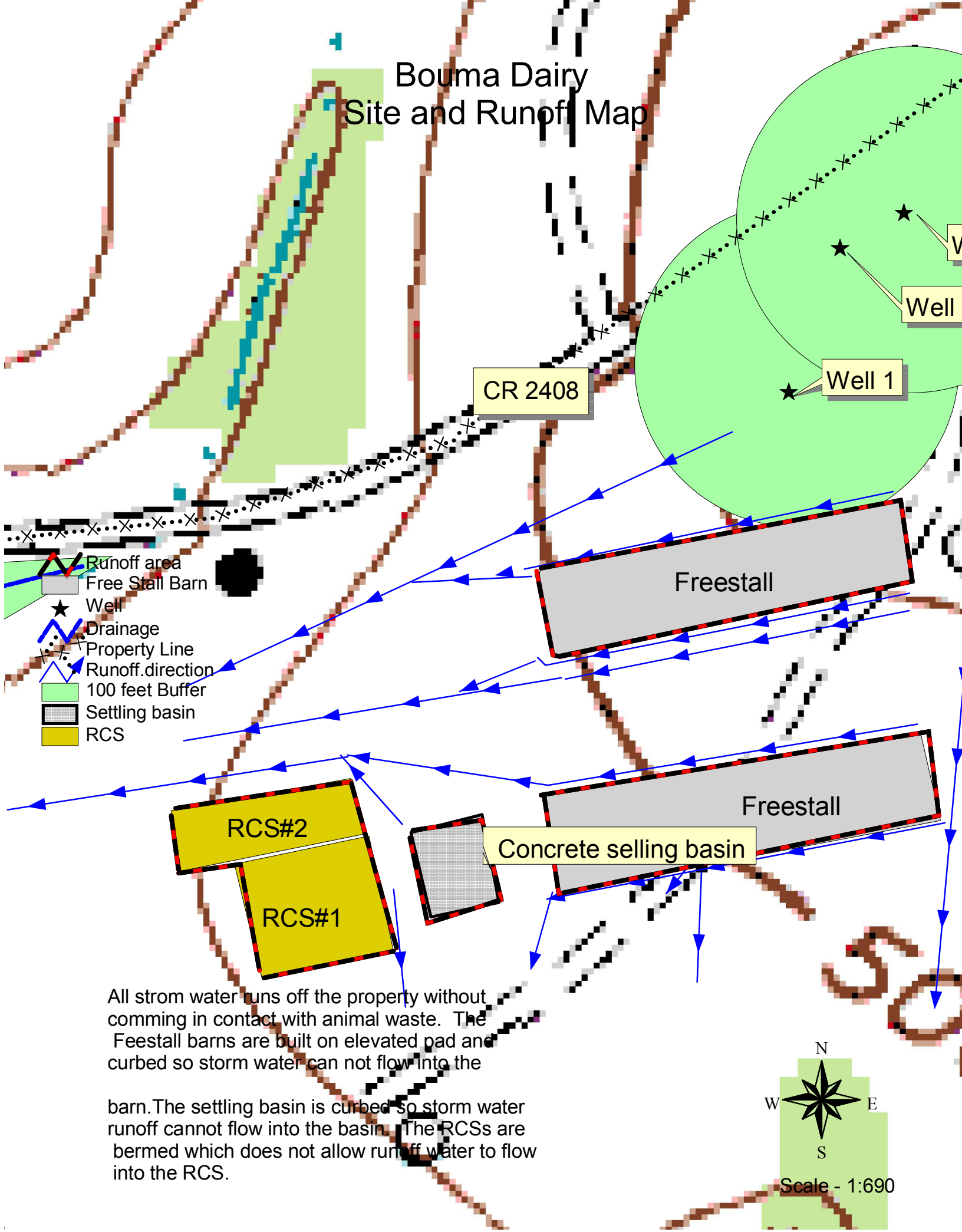
2) Odor Control Plan. This plan identifies best management practices used by the CAFO to minimize odors and nuisance conditions. It is only required if you choose a buffer option that includes an odor control plan.

3) Written Consent Letters. These letters may be used in lieu of the buffer requirements, in accordance with 30 TAC 321.43.

E. Groundwater Monitoring. If groundwater monitoring is required in the existing authorization, attach the groundwater monitoring plan and the previous year's groundwater sampling analyses.


Bouma Dairy
LMU Map
LMU#5
Buffer 10 ac
Usable 30 ac
LMU#4
Buffer 5 ac
Usable 64 ac
LMU#6
Buffer 0
Usable 41
LMU#2
Buffer 0
Usable 44 ac
LMU#1
Buffer 15 ac
Usable 75 ac
LMU#3
Buffer 0
Usablr 39
LMU#7
Buffer 2 ac
Usable 38
Free Stall Barn
Dead animal disposal.
Well
Drainage
Property Line
LMU
100 feet Buffer
Settling basin
RCS
Big Sioux
Creek
N
W
S
Scale: 1=3770

Bouma Dairy
Site and Runoff Map



All strom water runs off the property without comming in contact with animal waste. The Feestall barns are built on elevated pad and curbed so storm water can not flow into the

barn.The settling basin is curbed so storm water runoff cannot flow into the basin. The RCSs are bermed which does not allow runoff water to flow into the RCS.

Scale - 1:690

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hopkins and Rains Counties, Texas

Bouma Dairy



August 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Hopkins and Rains Counties, Texas.....13
BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes.....13
FrB—Freestone fine sandy loam, 1 to 3 percent slopes.....14
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes.....16
Na—Nahatche soils, frequently flooded.....17
W—Water.....18
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes.....19
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

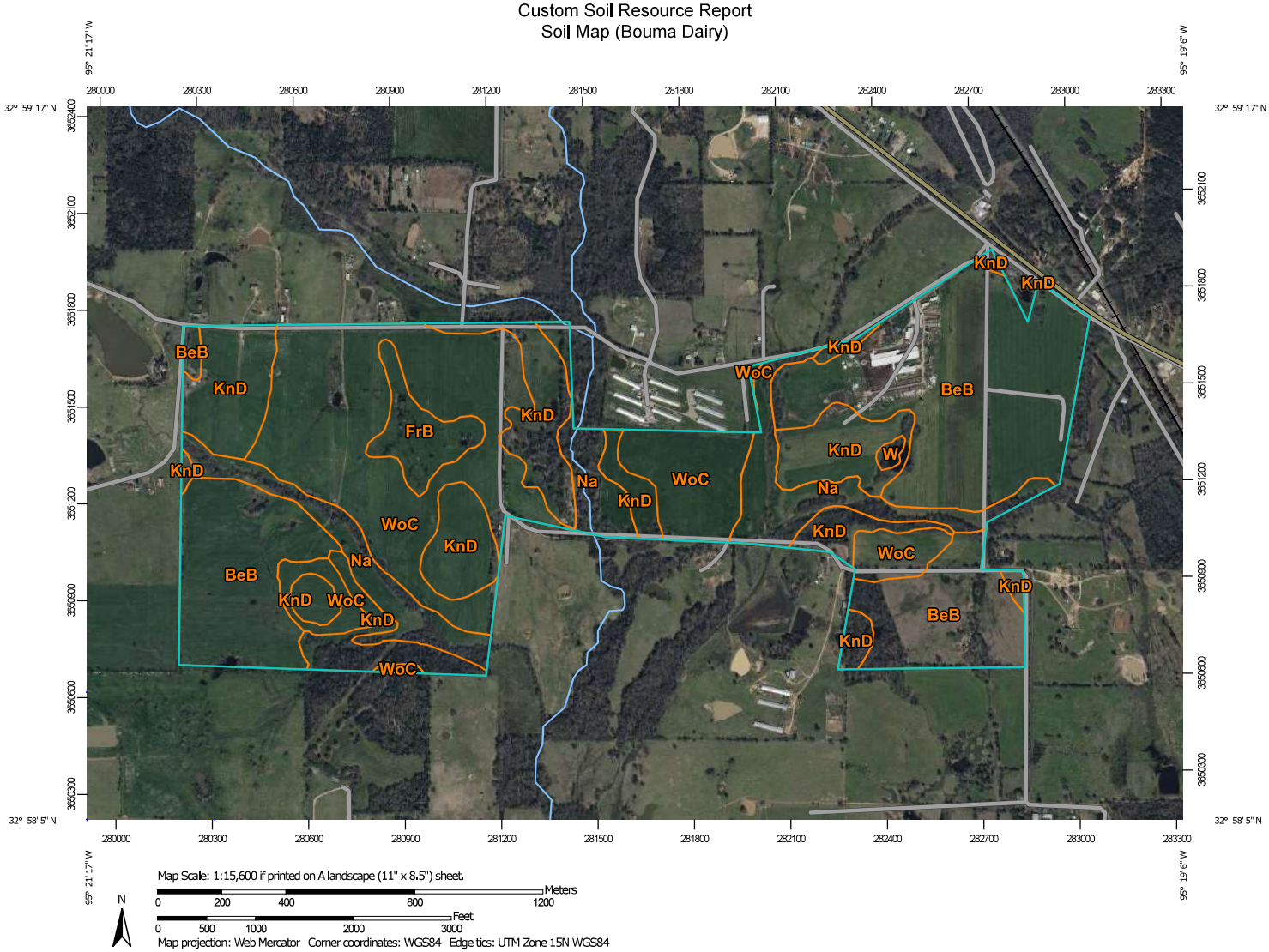
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Bouma Dairy)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hopkins and Rains Counties, Texas
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 19, 2023—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Bouma Dairy)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Bernaldo fine sandy loam, 1 to 3 percent slopes	203.2	36.0%
FrB	Freestone fine sandy loam, 1 to 3 percent slopes	16.1	2.9%
KnD	Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	122.5	21.7%
Na	Nahatche soils, frequently flooded	67.5	12.0%
W	Water	1.5	0.3%
WoC	Wolfpen loamy fine sand, 2 to 5 percent slopes	153.3	27.2%
Totals for Area of Interest		**564.2**	**100.0%**

Map Unit Descriptions (Bouma Dairy)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hopkins and Rains Counties, Texas

BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tf44
Elevation: 200 to 720 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 240 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernaldo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernaldo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 47 inches: sandy clay loam
Bt/E - 47 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 42 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

FrB—Freestone fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wg9c
Elevation: 140 to 790 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 218 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Freestone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freestone

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy alluvium derived from shale and siltstone

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 11 inches: fine sandy loam
Bt - 11 to 20 inches: sandy clay loam

B/Et1 - 20 to 28 inches: clay loam
B/Et2 - 28 to 44 inches: clay
B't - 44 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Minor Components

Raino

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

Woodtell

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tlk3
Elevation: 230 to 630 feet
Mean annual precipitation: 42 to 49 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 195 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Kirvin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
E - 4 to 12 inches: gravelly fine sandy loam
Bt - 12 to 31 inches: clay
BCt - 31 to 43 inches: clay loam
C - 43 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Bowie
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Na—Nahatche soils, frequently flooded

Map Unit Setting
National map unit symbol: dklg
Elevation: 100 to 400 feet
Mean annual precipitation: 40 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 235 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Nahatche and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nahatche

Setting
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium of holocene age

Typical profile
H1 - 0 to 7 inches: clay loam
H2 - 7 to 65 inches: loam

H3 - 65 to 80 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R087BY007TX - Loamy Bottomland
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tcnz
Elevation: 210 to 570 feet
Mean annual precipitation: 41 to 51 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 204 to 236 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolfpen and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolfpen

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand
E - 6 to 27 inches: loamy fine sand
Bt - 27 to 55 inches: sandy clay loam
Bt/E - 55 to 70 inches: sandy clay loam
B't - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Minor Components

Oakwood

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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Custom Soil Resource Report for Hopkins and Rains Counties, Texas



August 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

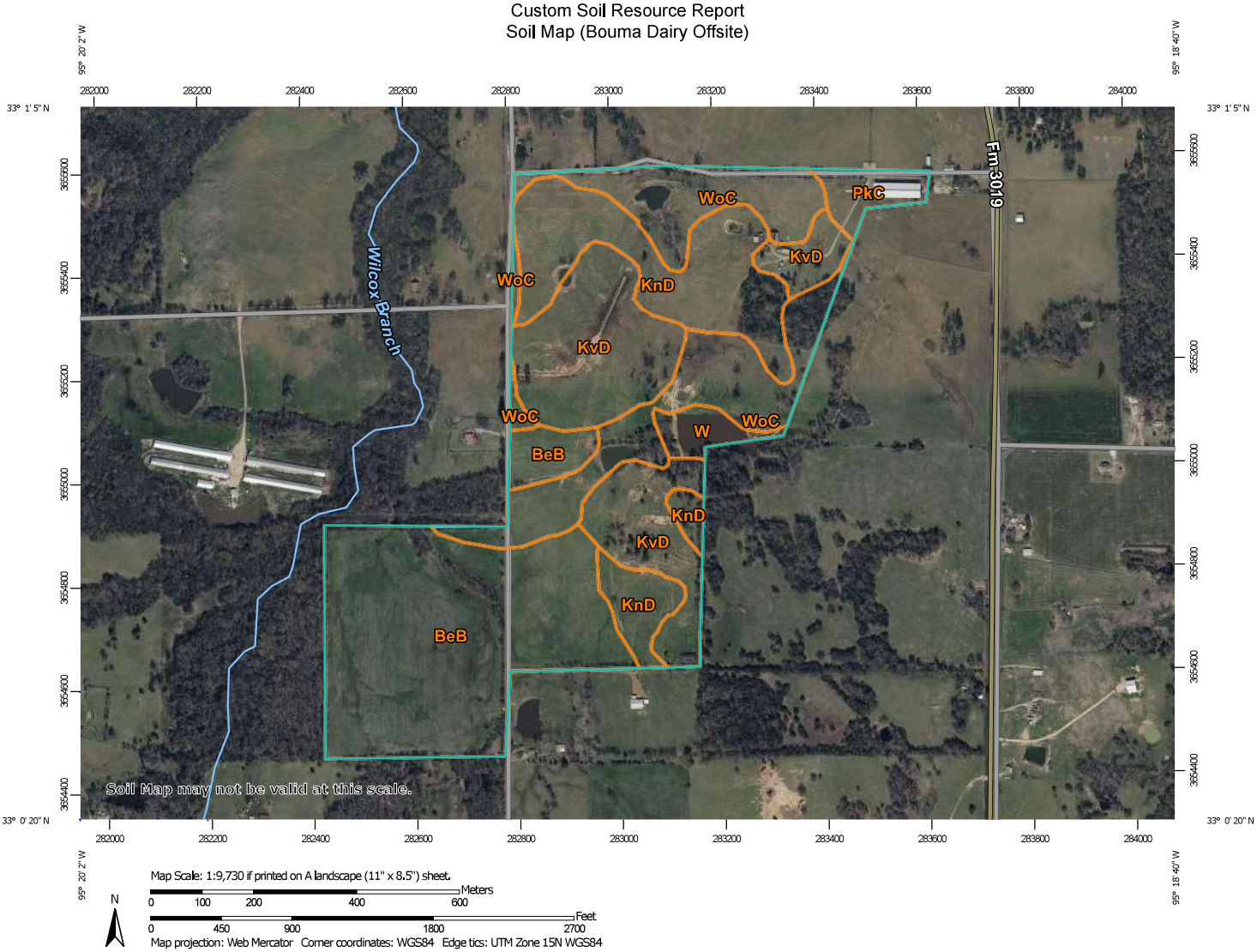
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Bouma Dairy Offsite)



Map Scale: 1:9,730 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hopkins and Rains Counties, Texas
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 30, 2021—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Bouma Dairy Offsite)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Bernaldo fine sandy loam, 1 to 3 percent slopes	55.2	33.7%
KnD	Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	29.9	18.2%
KvD	Kirvin soils, 3 to 8 percent slopes	36.5	22.3%
PkC	Pickton loamy fine sand, 2 to 5 percent slopes	4.3	2.6%
W	Water	3.5	2.1%
WoC	Wolfpen loamy fine sand, 2 to 5 percent slopes	34.5	21.1%
Totals for Area of Interest		**163.8**	**100.0%**

Map Unit Descriptions (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hopkins and Rains Counties, Texas

BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tf44
Elevation: 200 to 720 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 240 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernaldo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernaldo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 47 inches: sandy clay loam
Bt/E - 47 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 42 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tlk3
Elevation: 230 to 630 feet
Mean annual precipitation: 42 to 49 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 195 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Kirvin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
E - 4 to 12 inches: gravelly fine sandy loam

Bt - 12 to 31 inches: clay
BCt - 31 to 43 inches: clay loam
C - 43 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Bowie

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

KvD—Kirvin soils, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: dklb

Elevation: 400 to 650 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 235 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Kirvin and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting
Landform: Interfluves
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from sandstone and shale

Typical profile
H1 - 0 to 4 inches: sandy clay loam
H2 - 4 to 37 inches: clay
H3 - 37 to 64 inches: clay loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2tf4k
Elevation: 220 to 670 feet
Mean annual precipitation: 43 to 50 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 228 to 239 days
Farmland classification: Not prime farmland

Map Unit Composition

Pickton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pickton

Setting

Landform: Interfluves
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 8 inches: loamy fine sand
E - 8 to 54 inches: loamy fine sand
Bt1 - 54 to 63 inches: sandy clay loam
Bt2 - 63 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 56 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F133BY008TX - Northern Deep Sandy Upland
Hydric soil rating: No

Minor Components

Tonkawa

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY010TX - Very Deep Sandy Upland
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Ridges

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tcnz
Elevation: 210 to 570 feet
Mean annual precipitation: 41 to 51 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 204 to 236 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolfpen and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolfpen

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand

E - 6 to 27 inches: loamy fine sand
Bt - 27 to 55 inches: sandy clay loam
Bt/E - 55 to 70 inches: sandy clay loam
B't - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Minor Components

Oakwood

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Map Unit Description (Brief) (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The component descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit. A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the associated soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas (components) for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Description (Brief)" report gives a brief, general description of the soil components that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area

data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief) (Bouma Dairy Offsite)

Hopkins and Rains Counties, Texas

Map Unit: KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Description Category: PHG

8C - LOAMY UPLAND - Moderately deep to very deep uplands with loamy surfaces and friable loamy subsoils; slopes 0 to 8 percent; medium natural fertility; medium to high water holding capacity with good plant-soil-moisture relationship; medium to high production potential.

Description Category: WSG

4f2 - Rock fragments cause seedling mortality to increase during dry periods. Erosion hazards increase with slope. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 70. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle rule) per acre per year. Native species important to wildlife include red oak, post oak, American beautyberry, and tickclover. High value grasses and forbs used by livestock include pinehill bluestem, big bluestem, longleaf uniola, indiangrass, and sedge. Stocking rates depend on canopy density and range from 6-40 acres per animal unit.

Map Unit: KvD—Kirvin soils, 3 to 8 percent slopes

Description Category: WSG

4f2 - Rock fragments cause seedling mortality to increase during dry periods. Erosion hazards increase with slope. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 70. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle rule) per acre per year. Native species important to wildlife include red oak, post oak, American beautyberry, and tickclover. High value grasses and forbs used by livestock include pinehill bluestem, big bluestem, longleaf uniola, indiangrass, and sedge. Stocking rates depend on canopy density and range from 6-40 acres per animal unit.

Map Unit: PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Description Category: PHG

9B - DEEP SANDY UPLAND - Deep and very deep, sandy uplands with sandy surfaces greater than 40 inches; low natural fertility; low water holding capacity with good plant-soil-moisture relationship; low to medium production potential.

Description Category: WSG

3s2 - Sandy texture may cause moderate equipment limitations and seedling mortality. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 80. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 230 board feet (Doyle rule) per acre per year. Native species important to wildlife include post oak, dogwood, and yaupon. High value grasses and forbs used by livestock include pinehill bluestem, little bluestem, longleaf uniola, and indiangrass. Stocking rates depend on canopy density and range from 8-40 acres per animal unit.

Map Unit: WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Description Category: PHG

9A - SANDY UPLAND - Deep and very deep, sandy uplands with clayey or loamy subsoils within 40 inches; low natural fertility; low to medium water holding capacity with good plant-soil-moisture relationship; medium to high production potential.

Description Category: WSG

3s2 - Sandy texture may cause moderate equipment limitations and seedling mortality. Important commercial tree species include loblolly pine, shortleaf pine, and longleaf pine. These soils are suited for pines, and the site index for loblolly pine is 80. The yield from an unmanaged stand of loblolly pine over a 50-year period is approximately 230 board feet (Doyle rule) per acre per year. Native species important to wildlife include post oak, dogwood, and yaupon. High value grasses and forbs used by livestock include pinehill bluestem, little bluestem, longleaf uniola, and indiangrass. Stocking rates depend on canopy density and range from 8-40 acres per animal unit.

Map Unit Description (Brief, Generated) (Bouma Dairy Offsite)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic

class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated) (Bouma Dairy Offsite)

Hopkins and Rains Counties, Texas

Map Unit: BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Component: Bernaldo (90%)

The Bernaldo component makes up 90 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on coastal plains. The parent material consists of loamy alluvium. 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 low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 47 inches during January, February, November, December. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY013TX Terrace ecological site. Nonirrigated land capability classification is 2e. Irrigated 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: Freestone (5%)

Generated brief soil descriptions are created for major soil components. The Freestone soil is a minor component.

Component: Wolfpen (5%)

Generated brief soil descriptions are created for major soil components. The Wolfpen soil is a minor component.

Map Unit: KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Component: Kirvin (90%)

The Kirvin component makes up 90 percent of the map unit. Slopes are 2 to 8 percent. This component is on interfluves on coastal plains. The parent material consists of clayey fluviomarine deposits. 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 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 F133BY003TX Loamy Over Clayey Upland ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Briley (5%)

Generated brief soil descriptions are created for major soil components. The Briley soil is a minor component.

Component: Bowie (5%)

Generated brief soil descriptions are created for major soil components. The Bowie soil is a minor component.

Map Unit: KvD—Kirvin soils, 3 to 8 percent slopes

Component: Kirvin (100%)

The Kirvin component makes up 100 percent of the map unit. Slopes are 3 to 8 percent. This component is on interfluves on coastal plains. The parent material consists of clayey residuum weathered from sandstone and shale. Depth to a root restrictive layer, bedrock, densic, 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 low. 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 F133BY003TX Loamy Over Clayey Upland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: PkC—Pickton loamy fine sand, 2 to 5 percent slopes

Component: Pickton (90%)

The Pickton component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on interfluves on coastal plains. The parent material consists of sandy and loamy fluviomarine deposits. 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 low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 54 inches during January, February, March, April. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY008TX Northern Deep Sandy Upland ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Tonkawa (5%)

Generated brief soil descriptions are created for major soil components. The Tonkawa soil is a minor component.

Component: Wolfpen (5%)

Generated brief soil descriptions are created for major soil components. The Wolfpen soil is a minor component.

Map Unit: W—Water

Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Map Unit: WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Component: Wolfpen (90%)

The Wolfpen component makes up 90 percent of the map unit. Slopes are 2 to 5 percent. This component is on interfluves on coastal plains. The parent material consists of sandy and loamy fluviomarine deposits. 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. A seasonal zone of water saturation is at 55 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 1 percent. This component is in the F133BY006TX Northern Sandy Loam Upland ecological site. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Oakwood (10%)

Generated brief soil descriptions are created for major soil components. The Oakwood soil is a minor component.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Physical Soil Properties (Bouma Dairy Offsite)

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each

soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Physical Soil Properties–Hopkins and Rains Counties, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes														
Bernaldo	0-4	55-69- 73	15-22- 30	3- 9- 15	1.48-1.49	14.00-42.00	0.12-0.16	0.0-1.0	0.5-2.0	.28	.28	5	3	86
	4-12	55-69- 73	15-22- 30	3- 9- 15	1.58-1.67	14.00-42.00	0.11-0.15	0.0-1.0	0.1-1.0	.37	.37			
	12-47	47-61- 65	15-17- 25	18-22- 30	1.44-1.61	4.00-14.00	0.16-0.20	0.9-1.7	0.1-0.3	.28	.28			
	47-80	47-62- 65	15-17- 25	18-21- 30	1.44-1.61	4.00-14.00	0.16-0.20	0.9-1.8	0.0-0.3	.28	.28			
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes														
Kirvin	0-4	53-65- 73	12-27- 40	2- 9- 15	1.49-1.52	14.00-42.00	0.07-0.11	0.0-2.9	0.5-2.0	.15	.32	4	5	56
	4-12	53-65- 73	12-27- 40	2- 9- 15	1.57-1.62	14.00-42.00	0.07-0.11	0.0-2.9	0.3-1.0	.15	.32			
	12-31	21-23- 55	5-29- 44	35-48- 59	1.29-1.63	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.20	.20			
	31-43	20-30- 55	10-35- 39	25-35- 50	1.43-1.64	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.28	.28			
	43-80	20-35- 44	20-33- 45	28-33- 39	1.63-1.75	1.40-4.00	0.08-0.14	3.0-5.9	0.1-1.0	.32	.32			
KvD—Kirvin soils, 3 to 8 percent slopes														
Kirvin	0-4	-56-	-15-	20-30- 40	1.20-1.40	1.40-4.00	0.12-0.15	3.0-5.9	0.5-1.0	.20	.20	4	5	56
	4-37	-23-	-29-	35-48- 60	1.30-1.45	1.40-4.00	0.11-0.15	3.0-5.9	0.1-1.0	.20	.20			
	37-64	-35-	-33-	28-33- 40	1.40-1.60	0.42-1.40	0.08-0.14	3.0-5.9	0.1-1.0	.32	.32			

Physical Soil Properties–Hopkins and Rains Counties, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
PkC—Pickton loamy fine sand, 2 to 5 percent slopes														
Pickton	0-8	71-85- 87	5- 7- 24	4- 8- 12	1.30-1.60	42.00-141.00	0.07-0.11	0.0-2.9	0.5-1.0	.15	.15	5	2	134
	8-54	71-86- 90	5- 7- 24	3- 8- 12	1.30-1.60	42.00-141.00	0.07-0.11	0.0-2.9	0.1-0.8	.15	.15			
	54-63	42-58- 65	10-18- 28	18-24- 30	1.30-1.65	4.00-14.00	0.12-0.17	0.0-2.9	0.1-0.4	.24	.24			
	63-80	42-58- 65	10-18- 28	18-24- 30	1.30-1.65	4.00-14.00	0.12-0.17	0.0-2.9	0.1-0.3	.24	.24			
W—Water														
Water	—	—	—	—	—	—	—	—	—					
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes														
Wolfpen	0-6	70-86- 90	0- 7- 27	3- 8- 12	1.30-1.60	42.00-141.00	0.06-0.09	0.0-2.9	0.5-2.0	.17	.17	5	2	134
	6-27	70-86- 90	0- 7- 27	3- 8- 12	1.30-1.65	42.00-141.00	0.05-0.09	0.0-2.9	0.2-0.5	.15	.15			
	27-55	40-58- 75	5-18- 30	18-24- 30	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.2-0.3	.24	.24			
	55-70	40-57- 75	5-18- 30	15-25- 35	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.1-0.2	.24	.24			
	70-80	40-57- 75	5-18- 30	15-25- 35	1.30-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.0-0.2	.24	.24			

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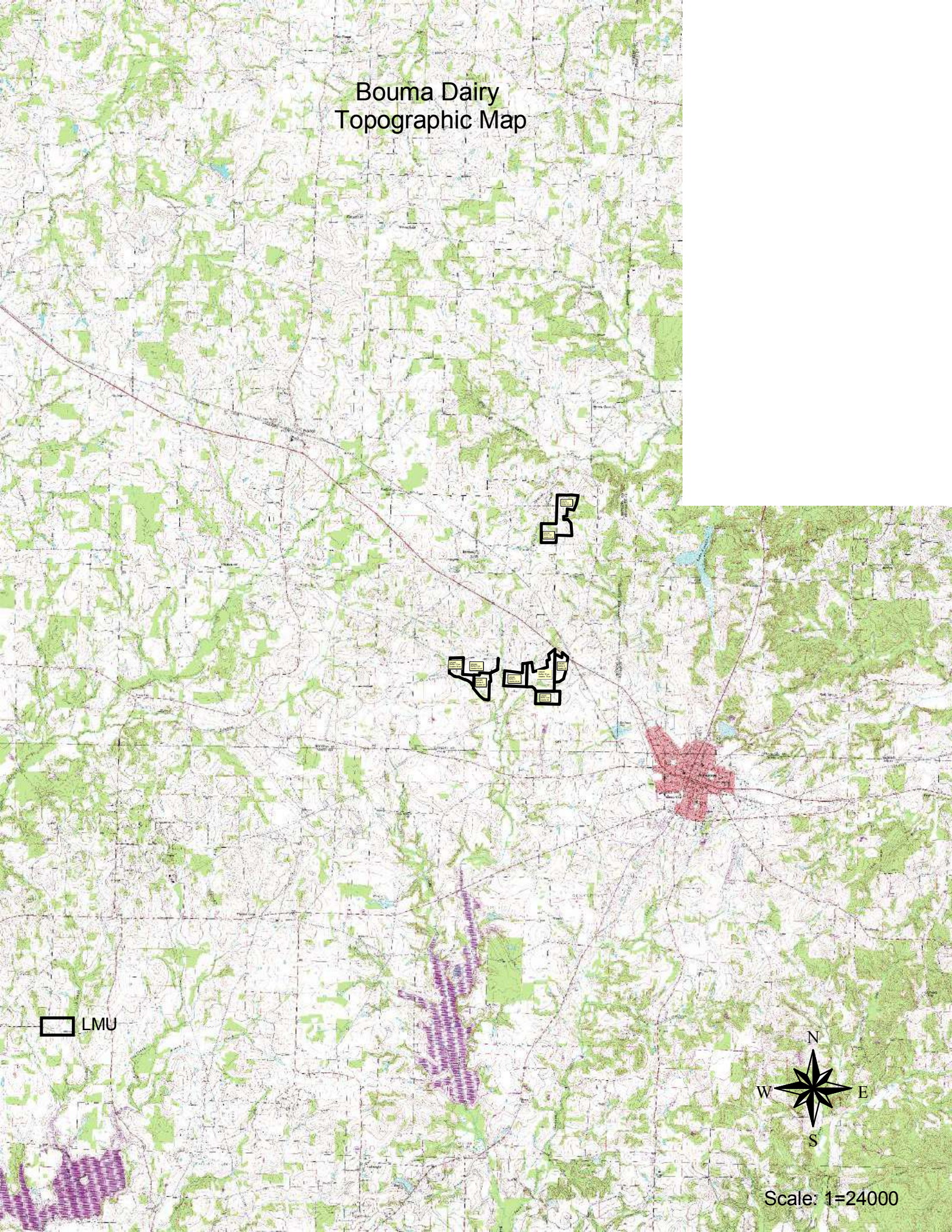
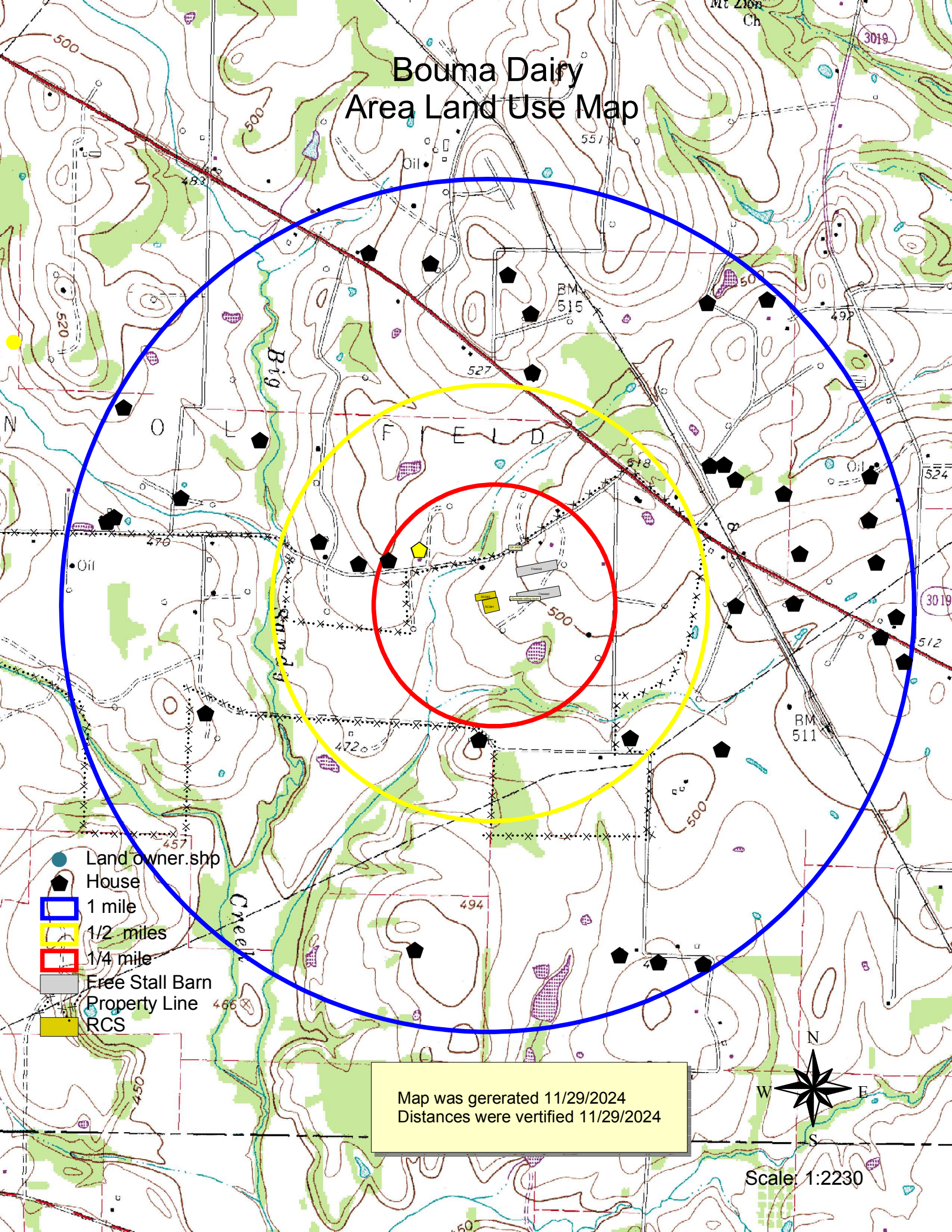
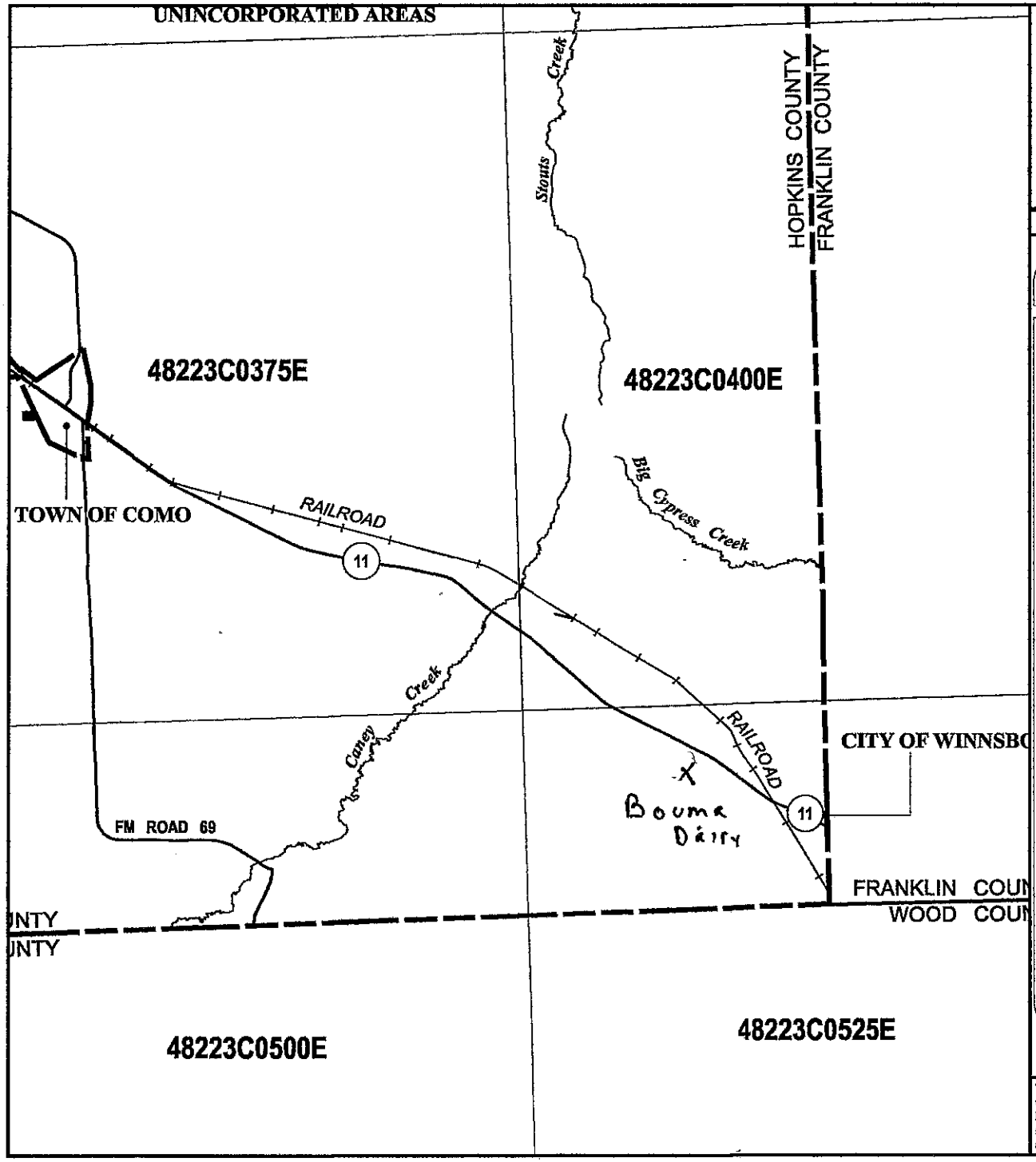

Bouma Dairy
Topographic Map
LMU
N
W
E
S
Scale: 1=24000

Bouma Dairy
Area Land Use Map





NFIP

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

HOPKINS COUNTY, TEXAS AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

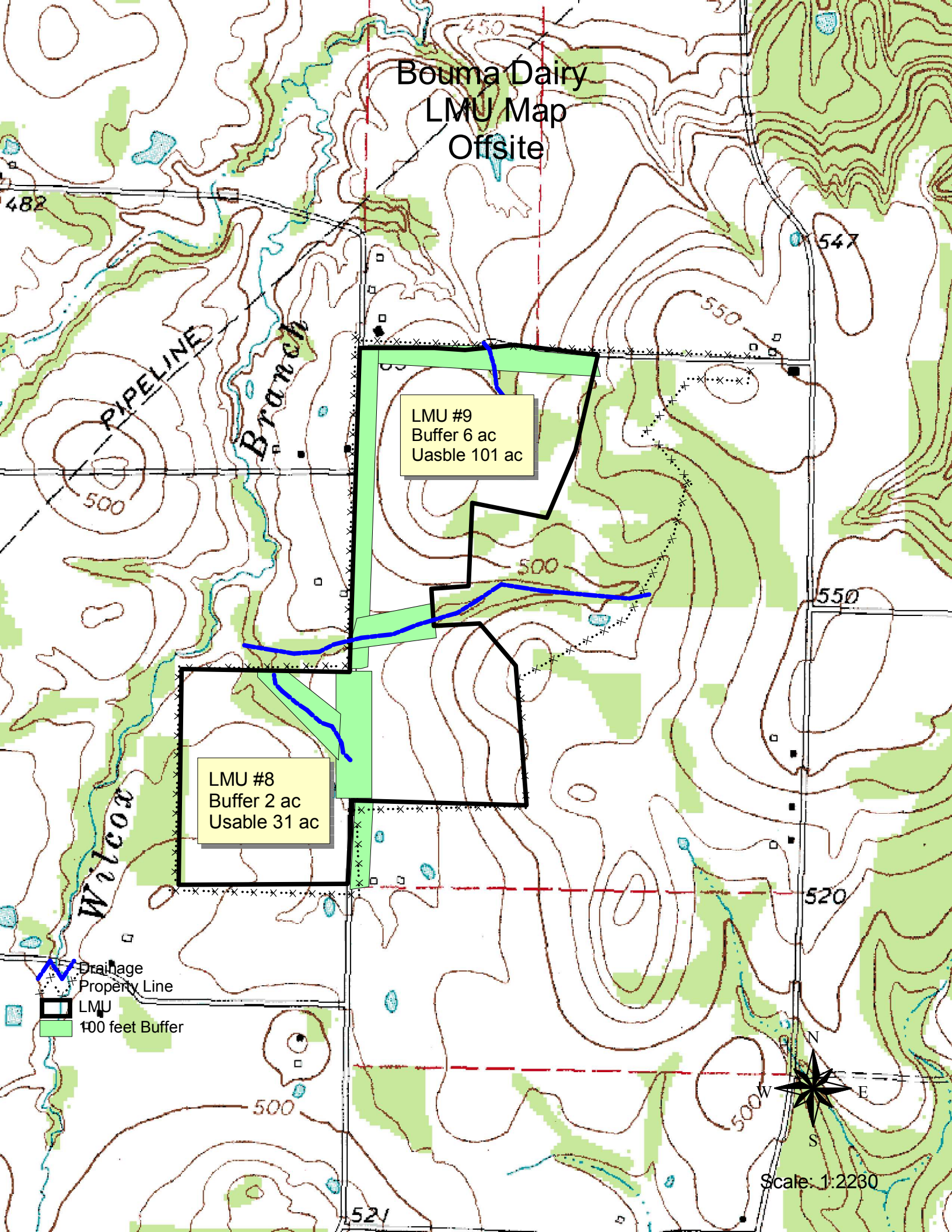
PANELS PRINTED: 50, 75, 100, 125, 150, 175, 200, 215, 225, 250, 275, 300, 325, 330, 350, 375, 400, 425, 450, 475, 500, 525

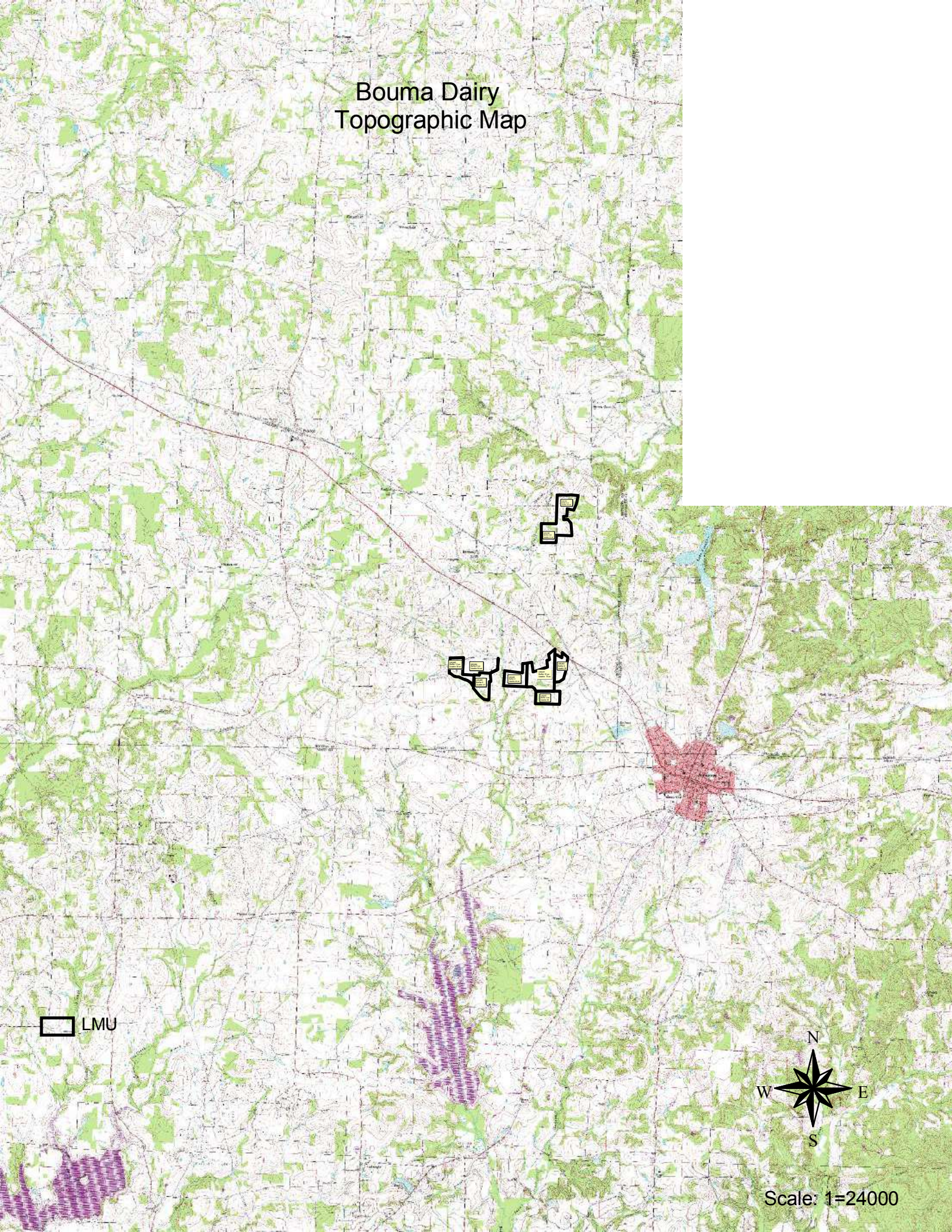
MAP NUMBER
48223CIND0A

EFFECTIVE DATE
MARCH 17, 2011

Federal Emergency Management Agency

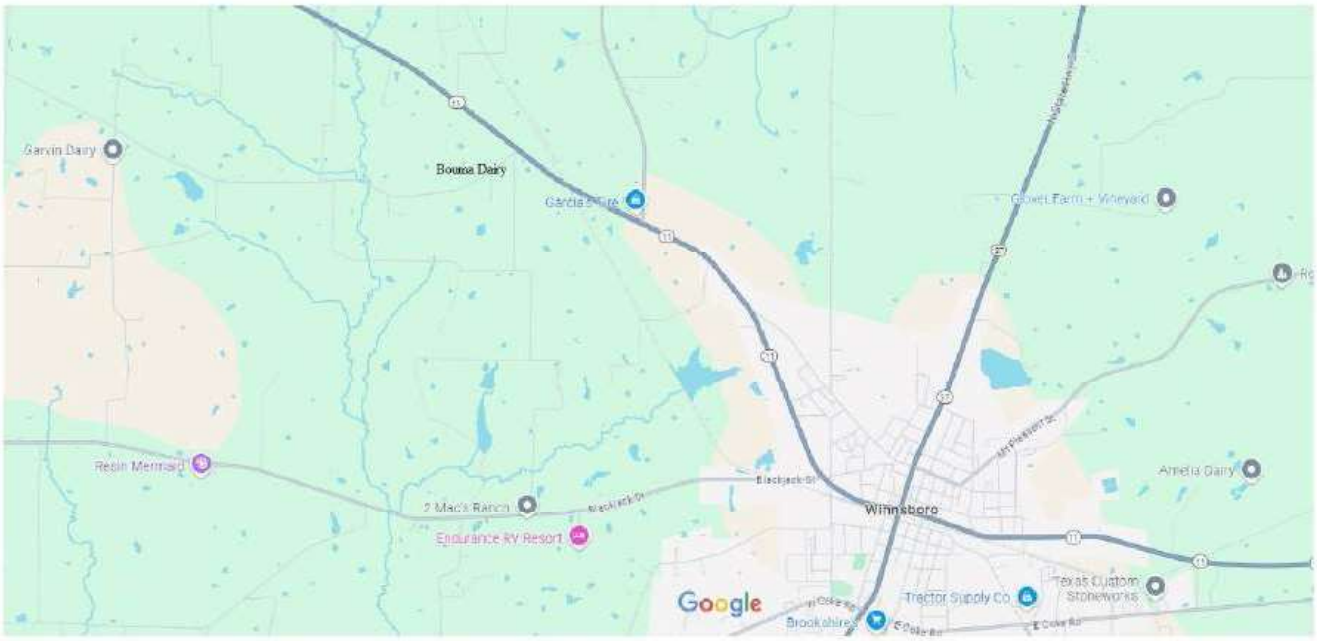
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.


Bouma Dairy
LMU Map
Offsite
LMU #9
Buffer 6 ac
Uasble 101 ac
LMU #8
Buffer 2 ac
Usable 31 ac
Pipeline
Branch
Wilcox
Drainage
Property Line
LMU
100 feet Buffer
N
W
E
S
Scale: 1:2230

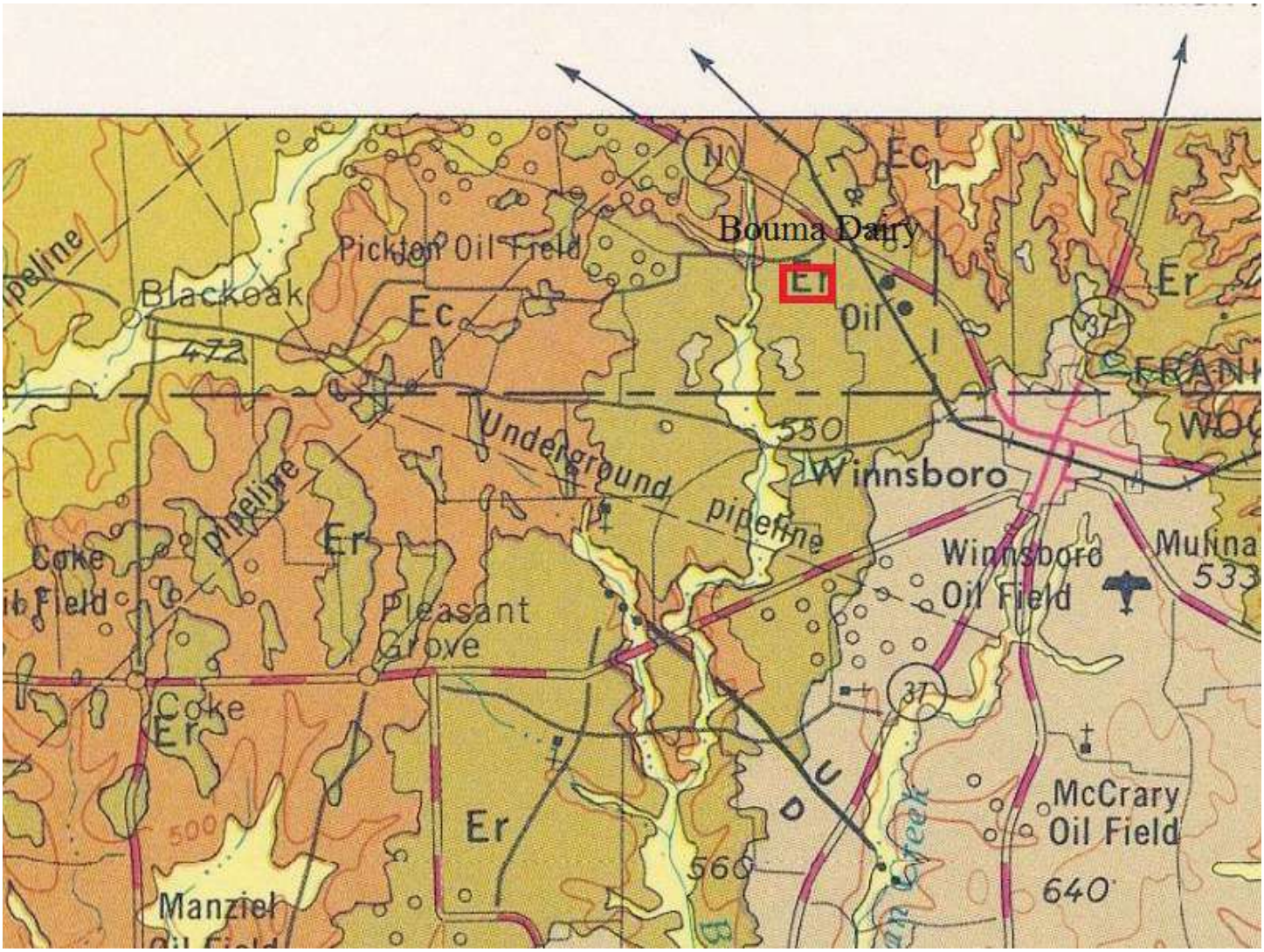

Bouma Dairy
Topographic Map
LMU
N
W
E
S
Scale: 1=24000

Google Maps

Bouma Dairy
Vicinity Map

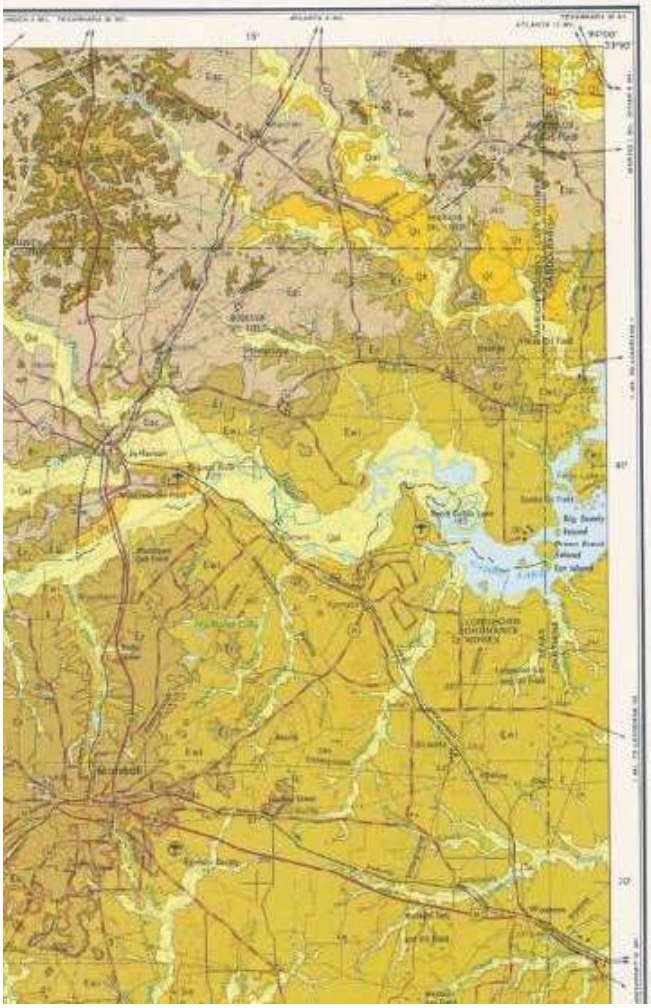


Map data ©2024 2000 ft



Bouma Dairy
Pickton Oil Field
Blackoak
Ec
Er
Oil
472
550
Underground pipeline
Winnsboro
Winnsboro Oil Field
Mulina
533
Coke
Pleasant Grove
Coke
Er
500
560
Manziel
McCrary Oil Field
640
37

GEOLOGIC ATLAS OF TEXAS
TYLER SHEET



EXPLANATION

SEDIMENTARY ROCKS

QUATERNARY

Pleistocene Recent

Qal

Alluvium

Flood-plain deposits

Qt

Fluviatile terrace deposits undivided

TERTIARY

Eocene

Eqs

Sparta Sand

Quartz sand, fine to medium grained, light gray to cinnamon gray, slightly cohesive from silt and clay matrix, massive, locally cross-bedded, interbeds of sandy clay more abundant upward, locally carbonaceous; weathers various shades of light gray, at base hard, brown, ferruginous sandstone; lower part 1700 feet thick, upper part shaved. Locally includes Pyor Greensand Member, Eta, quartz-glauconite greensand, grayish green, tomatoe, locally cross-bedded; weathers dark reddish brown, abundant ironstone concretions.

Ew

Weches Formation

Glauconite and quartz sand, grayish green to grayish olive green, thin bedded, locally cross-bedded to lenticular, clay interbeds light brown to moderate light gray, silty, micaceous, thin bedded; weathers moderate to dark reddish brown, locally forms limonite and siderite iron ore and clay ironstone concretions; marine megafossils in southern part; 50-[illegible] feet thick, range 5-10 feet.

Eqc

Queen City Sand

Quartz sand, fine grained to locally medium grained, light gray to brownish gray, locally carbonaceous and clay, gray to brown, silty, slightly lignitic, sand most abundant to west; weathers red and white mottled, ironstone concretions and lodges common; local beds of glauconite-quartz greensand, cross-bedded, weathers to ferruginous lodges and rubble; 100-250 feet thick, thins southeastward.

Er

Reklaw Formation

Upper 100-[illegible] feet, clay, brownish black to brownish gray, silty, micaceous, carbonaceous, laminated, interbeds of moderate reddish-brown clay; weathers light brown, ironstone concretions common; a few marine fossils. Lower [illegible] feet, quartz sand, fine to very fine grained, grayish green, glauconitic, argillaceous, massive, locally cross-bedded; weathers moderate brown to dark yellowish orange with clay ironstone lodges and rubble, fossils, clay ironstone, and clay decrease southward.

Ec

Carrizo Sand

Upper part, very fine sand, silt, clayey silt, silty clay, medium to dark gray, carbonaceous; weathers moderate yellowish brown to dark reddish brown, indurated lodges of dark brownish-gray ironstone common. Lower part, quartz sand, fine to medium grained, light brownish gray, weakly cohesive, massive, locally cross-bedded; weathers light gray to various shades of red. Thickness 20-100 feet.

Ewi

Wilcox Group undivided

Mostly silts and sandy clay, various shades of gray, local beds of clay, lignite, silt, and quartz sand, in part carbonaceous, laminated to massive, locally cross-bedded, weathers to various shades of gray, brown, yellow, and red. Calcareous siltstone and ironstone concretions common; abundant plant fossils, a few marine fossils in southeastern part; 400-1,000 feet thick.

EPE

Eocene and Paleocene rocks undivided

Reklaw Formation, Carrizo Sand, Wilcox Group, and Midway Group on Rocks down not separately shown.

PEwp

Wills Point Formation

Clay, medium-bluish gray, greenish gray, grayish green, brownish gray, silt increases upward, laminated to locally massive, glauconitic near base, rough, calcareous siltstone concretions common in upper part, locally lignitic to upper part, thin bed of locally limestone near middle; weathers medium gray to

Paleocene

RECHARGE FEATURE CERTIFICATION
FOR
BOUMA DAIRY

GENERAL REMARKS:

Mr. Bouma is applying for a TCEQ Individual Permit for a concentrated animal feeding operation. He will be reducing the herd size to 999 animals of which 999 are milking cows and will be kept in confinement. This recharge feature evaluation and associated certification was conducted at the request of Miako Bouma of Bouma Dairy. Jim C. Wyrick, Professional Geoscientist, compiled the findings and recommendations, contained herein.

PURPOSE OF REPORT:

The purpose of this report is to determine if the subject property has any natural or artificial features, either on or beneath the ground surface, which would provide a significant pathway for wastewater from the retention control structure or land application site into the underlying aquifer as according to GPTXG920000 requirements. The following records and/or maps from the following entities/agencies were reviewed to locate any recharge features: (a) Texas Railroad Commission, (b) well driller, (c) TCEQ, (d) Natural Resource Conservation Service, (e) owner of site, and (f) an on-site inspection. There are no previous landowners available to contact.

AREA OF EVALUATION

The site under evaluation consists of a retention control structure (RCS#1) and (RCS#2) to be constructed. The wastewater application area LMU#1, LMU#2, LMU#3, LMU#4, LMU#5, LMU#6, LMU#7, LMU#8 and LMU#9. The property is located on the side of CR 2408, .29 miles W of intersection Hwy 11 and CR 2408 in Hopkins County. Latitude: 32.980666 º N and Longitude: 95.328666º W. This property consists of approximately 477 acres located on Abstract 307, Tract 5-01, and Thomas B. Smith Survey in Hopkins, Texas. The facility is a dairy operation using a freestall system. The facility is located on a topographic ridge with uncontaminated surface runoff generally draining via overland flow and shallow concentrated flows west into unnamed drain and then into Big sandy Creek. The elevation of the dairy property ranges from approximately 460 to 520 feet above mean sea level (AMSL). The current land use of the property is agricultural (pasture and forage crops). All waste application areas are located on the property, and off-site manure application areas will be used by this facility.

SITE DESCRIPTIONS

The existing RCS is located west and down slope of the dairy barn. The RCS was constructed in 1999. Inland Engineering and Surveying certified the size of RCS#1 as having a capacity of 5.56 acre-feet. RCS#2 will be constructed north of the existing RCS will be built to a capacity of 6.92 ac ft. The RCSs will catch and contain all wastewater and manure generated from the dairy barn and 2 free stallbarns. Wastewater flows from the dairy barn and freestall barns into a concrete settling basin then though a six-inch PVC pipe into RCS#1 and then into RCS#2. The RCSs will be dewatered using a drag hose system attached to the back of a tractor. The wastewater application area is on 331acres, LMU#1, LMU#2, LMU#3, LMU#4, LMU#5 LMU#6 and LMU#7 The fields generally drain via overland flow and shallow concentrated flows south into unnamed creek then into Big Sandy Creek.

DEFINITION OF RECHARGE ZONE FEATURE

For the purpose of this report, the definition of "recharge feature" shall be the same as the definition presented in TXG920000 Part 1. Recharge feature is defined as those natural or artificial features either on or beneath the ground surface at the site under evaluation that provide or create significant hydrologic connections between the ground surface and the underlying groundwater within an aquifer.

Significant artificial features include, but are not limited to wells and excavation or material pits. Significant natural hydrologic connection includes, but are not limited to: faults; fractures; sinkholes or other macro pores that allow direct surface infiltration; a permeable or a shallow soil material that overlies an aquifer; exposed geologic formations that are identified as an aquifer; or a water course bisecting an aquifer

LOCAL GEOLOGY

The site is located in the northern part of the East Texas Basin. Geologic units near the site crop out in bands running generally in an east-west direction. The fine sandy loams and loams of the Bernaldo Freestone, Nahatche, Kirvin and Wolfpen soils are immediately underlain by the Relaw Formation (Er) which consists of a layer of dark silty shale typically 30' to 40' thick over a layer of dark gray to green, very fine glauconitic silty sand typically 20' to 30' thick for a total formation thickness of 50' to 70', but is up to 130' thick in certain areas. The shale layer is important in that it provides an impermeable separation between the Queen City Formation and the Carrizo Formation. The Formation is not considered a source of water for water wells. Formations in descending order include The Carrizo Formation (Ec) which consists largely of white to light gray, fine to medium quartz sand. However, small amounts of silt and clay are present in the upper part of the formation. The Carrizo yields small to moderate quantities of water to wells. Typical thickness of the Carrizo is 50' to 100', but is up to 150' thick in some places and in other places is mostly shale so as to not be detectable. Wilcox Group Undivided (Ewi) which consists mostly of silty and sandy clay, very thinly bedded to massive, locally cross-bedded, in part carbonaceous, calcareous siltstone and ironstone concretions common various shades of gray; local beds of clay, lignite, silt, and quartz sand; weathers various shades of gray, brown, yellow, and red; abundant plant fossils; thickness 700 feet. Midway Group which includes the Wills Point Formation (Ewp) and Kincaid Formation (Ek). Wills Point Formation is mostly clay, upper part silty, locally liginitic, some calcareous siltstone concretions, thin bed of rosette limestone near middle, glauconitic near base thin bedded to locally massive, various shades of gray; weathers medium gray to yellowish gray; marine megafossils; thickness ±450 feet. Kincaid Formation is mostly clays calcareous, glauconitic, selenitic, in part silty and sandy locally phosphatic near base, some thin beds of hard gray limestone in upper part, various shades of gray; weathers medium gray: marine megafossils thickness ±150 feet. Navarro Group Undivided (Kna) Upper part mostly clay, salty, in part sandy, sand increases downward, calcareous, glauconitic, calcareous concretions common, some cone-in-cone, medium gray to bluish gray; weather light yellowish gray and medium greenish gray; marine mega fossils scarce. Lower part is mostly sand, fine grained, salty, clayey, weakly coherent, light to medium gray; weathers light yellowish gray; marine mega fossils abundant locally. Indistinctly to thinly bedded. Thickness ranges from 500-775 feet. Neylandville Formation (Kne) consists of clay, calcareous, silty, sandy, medium gray; weathers light gray, forms somewhat irregular topography; scattered marine megafossils; thickness ±75 feet. Marlbrook Marl (Kmb) is marl, slightly glauconitic in upper part, highly plastic when wet, strikingly uniform throughout, medium bluish gray to yellowish gray; weathers light gray to white, forms smooth, rolling topography; marine megafossils scarce; thickness 150-450 feet, thins eastward. (Barnes and others 1966).

GROUND WATER

The Wilcox Group undivided is a multi-aquifer system, composed of fluvial channel sand distributed within the lower permeability interchannel sands and clays. (Kaiser, 1990). These two are considered to be one aquifer in this area. They are considerate the primary and most productive aquifer in the area. These aquifers are tapped by most of the local moderate to large-capacity wells. Locally, this aquifer is tapped by wells between about 240 and 1,250 feet deep. The aquifers are recharged as part of the precipitation that falls on the outcrops infiltrates the soil layers and percolates to the generally shallow water table. Water also moves between overlying alluvial and terrace aquifers according to

hydraulic head differences. Recharge to the deeper sands is generally is limited to areas where these sands outcrop. In other areas, movement of groundwater into the deeper portions of the Wilcox Aquifer is insignificant because of the very low vertical permeability of the interbedded clay layers found in the Wilcox Group (Hall Southwest, 1990b). Water level fluctuations are mostly seasonal.

EVALUATIONS OF LOCAL RECHARGE POTIENTAL

Recharge from Precipitation

According to the National Weather Service (NOAA), the average annual precipitation rate in Hopkins County is about 38.1 inches per year. A significant amount of water that infiltrates to the water table moves slowly down the local hydraulic gradient and discharges through evapotranispiration or via seeps and springs into the surface drainage system. This rejected recharge supplies a major fraction of the base flow for streams in the area. The balance of the water is available to move downdip into the confined portions of the Wilcox Aquifer.

Retention Control Structures (RCS)

The USDA-NRCS Web Soil Survey for Hopkins-Rains Counties indicates the RCS was constructed in BeB - Bernaldo fine sandy loam. 1 to 3 percent slopes See Soil Interpretation Tables for detail information on theses soil. A Texas Licensed Professional Geoscientist certified the pond liner in the RCS. (See liner certification documents) as meeting the minimum requirements considered protective of groundwater as established by the TCEQ. An on-site evaluation was done on the RCSs. Mr. Bouma owner indicated there had not been any digging equipment in the RCS#1 since it was constructed. During the inspection no evidence was found to show any mechanical or structural damage to the liner. The RSC is being be properly maintained and there was no indication of seepage or leakage. The embankments are free of trash, brushes or trees and walls are stabilized and no erosion or deterioration has taken place. Based on these facts, there is little or no potential for hydraulic connection between the RCS and the underlying aquifer.

Wastewater Application Area

The USDA-NRCS Web Soil Survey for Hopkins-Rains Counties, Texas indicates that soils occurring on the wastewater application areas are: KnD - Kirvin gravelly fine sandy loam, 3 to 8 percent slopes, BeB - Bernaldo fine sandy loam. 1 to 3 percent slopes, Na - Nahatche soils, FrB - Freestone fine sandy loam, 1 to 3 percent slopes, and WoC - Wolfpen loamy fine sand, 1 to 5 percent slopes. Bernaldo, Nahatche and Wolfpen soils have a seasonal highwater table and Wolfpen soil has excessive permeability. See Soil Interpretation Tables for detail information on these soils. Sustaining and maintaining the bermuda grass cover and applying wastewater at agronomic rates will prevent nutrient build-up in the soil profile.

ARTIFICIAL RECHARGE FEATURE EVALUATION

Texas Railroad Commission Records

An inventory of oil and gas wells located on the property was conducted for this report. Texas Rail Road Commission records show there are fourteen abandoned or operating oil or gas wells located within a one-mile radius of the site.

Local Water District

Hopkins County does not have a local groundwater district. The rural water supply company for the area surrounding Bouma Dairy is in the Brinker Springs Water Supply Corporation. According to the Water Supply office, no public water supply wells are known to exist on the subject property.

Texas Water Development Board

Texas Water Development Board Water Data Interactive (TWDB WDI). was reviewed for registered wells within a 1-mile radius of the faculty site. There are no registered public

wells within the site.

Current and Previous Landowners

Mr. Bouma stated there are no abandoned or operating oil or gas wells are located on or near the facility. Three private water wells are located on the facility. A certified well driller constructed the wells. Surface completion was in accordance with a Specified Surface Slab (Rule 287.44 (2) (A). The wells are 100 feet deep and surface casing was cemented to a depth of 60 feet below ground level. The previous landowner is not available to be contacted to locate any artificial recharge features. The water wells are identified Site Map

USDA Natural Resources Conservation Service (Hopkins County)

An inquiry was made to the USDA-NRCS office in Sulphur Springs relating to artificial or natural recharge features, which may be present on the site. They were not aware of any additional features.

On-Site Inspection

The property comprising Bouma Dairy was inspected by ground reconnaissance on the dairy property for signs or features that could be adversely affected due to the operation of the facility. Other than the areas identified within the attached maps, no other suspect areas were observed.

METHODS USED

Natural and artificial recharge features were identified by the following techniques: on-site inspection of the dairy site, interviews with the landowner, review of Texas Railroad Commission records, review of published maps and reports (refer to bibliography), review of Soil Survey of Hopkins and Rains Counties, Texas, NRCS information, review of Texas Water Development Board maps, well driller's logs, the Geologic Atlas of Texas Texarkana and personal knowledge of the area. The previous owner was not available for interview regarding recharge features**.**

CONCLUSIONS

1) The Wilcox Aquifer is the major water-bearing unit beneath the area. Deep Wilcox sand aquifers (greater than 100 feet deep) provide an important source groundwater to the area. It is highly unlikely that operations at the dairy will affect these deeper aquifers because of file presence of frequent low permeability clay beds in the Wilcox Group

2) The site is located in an area where shallow Wilcox sand bodies exist. These sand bodies have sufficient permeability and capacity to serve as local aquifers for domestic purposes. Because they are typically of limited lateral extent, they do not constitute a major source of groundwater in the area. The shallow aquifers are partially recharged by precipitation where the sand units crop out at or near ground surface.

3) The shallow fine-grained sand units present at the site do not represent a classic recharge feature for the regional aquifer system. A significant pathway between ground surface and the regional aquifers does not appear to exist at the site; however, a percentage of the annual precipitation will infiltrate through the unsaturated zone to the shallow aquifers underlying the site. Therefore, protective measures as Best Management Practices (BMPs) should be carried out to prevent any potential negative impacts to the underlying aquifer.

4) There are three private water wells located on the facility. A records search and on-site inspection were made and no other wells were found. Other water wells not identified during this investigation could be near the site.

5) The existing RCS was constructed prior to this application and meets GPTXG920000

requirements for in-situ soil material pond liner. The RCSs are designed to hold all runoff water from the facility, including a 25-Year - 24-hour rainfall event.

RECOMMENDATIONS

Since a percentage of the annual precipitation will infiltrate through the unsaturated zone to the shallow, local aquifers underlying the site, the facility will employ BMPs, which are protective of the local aquifer underlying the site. These protective measures will be taken to prevent the possible migration of contaminants from, RCSs and the wastewater application areas to the underlying groundwater. As a minimum, these protective measures will include the following BMPs:

- Operations in and around the RCS will take care not to damage the in-suite clay liners. If the ponds are cleaned by a dragline, front-end loader or the waste storage pond liner disturbed, the dairy operator will request the pond liner be inspected and certified by a Texas Licensed Professional Engineer or Texas Licensed Professional Geoscientists
- The operator will prohibit livestock entry into the RCSs.
- Land application of wastewater in the recharge areas of the shallow, local aquifer will take place on designated application areas and at agronomic rates as an organic fertilizer. Wastewater application rates will not exceed the infiltration rates of the soil.
- Over watering of wastewater will be avoided to prevent leaching of nutrients below the crop root zone.
- Wastewater will not be applied when the ground is frozen or saturated or during rainfall events.
- Irrigation practices will be managed to minimize ponding and puddling of wastewater
- Wastewater and manure will be applied at agronomic rates and not allowed to runoff. Diversions or terraces will be constructed if necessary, to prevent wastewater from leaving the application areas.
- Wastewater will not be applied closer than 150 feet from any active water well. Wastewater will not be applied closer than 100 feet to waters of Texas. In addition, a vegetative buffer strip will be maintained between all waste application areas and waters of Texas.
- Dead animals will be properly buried in the designated burial area as identified on LMU Map. According to 30 TAC subchapter B: §§321.31-321.47 requirements.
- Pesticides and other chemicals will not be stored near the water wells or disposed of in the waste storage pond.
- Soils in the waste application areas will be sampled annually in accordance with TCEQ requirements.
- Thorough inspections of the RCSs, transport, treatment and disposal system will take place on regular intervals. If problems are encountered during these inspections, corrective action plans will be developed to address the specific problems encountered
- Any abandoned wells encountered will be reported, inspected and properly sealed to prevent possible point source contamination to the underlying aquifer.
- A 150-foot buffer zone will be maintained between any future water supply wells drilled and the waste storage facilities and other potential pollutants. The water wells will be properly cemented, cased and protected from inundation.
- If public water well is drilled on the dairy site, a 500 feet buffer will be maintained around the well and waste application areas.

CERTIFICATION

The undersigned hereby certifies that natural recharge features and three potential artificial recharge features exist as defined in 30 TAC subchapter B: §§321.31-321.47 Part I on tracts operated or controlled by Bouma Dairy and utilized under this application. See Aquifer Protection Plan for the natural and artificial recharge features impact on the Aquifer.

_____ _____

Jim C. Wyrick Date

Professional Geoscientist, License Number 770

REFERENCES

Ashworth J. B., and J. Hopkins, 1995. *Aquifers of Texas*. Texas Water Development Board, Report 345.

Barnes V. E., 1979, Bureau of Economic Geology Report. *Geologic Atlas of Texas Texarkana Sheet, Bureau of Economic Geology Report*, The University of Texas at Austin.

Hall Southwest Water Consultants, Inc. (Southwest), 1990a. *Geology Description, Monticello-Winfield and Monticello-Thermo Mines, Titus and Hopkins Counties, Texas*. Report Prepared for Texas Utilities Mining Co. April 30.

Kaiser, W. R., 1990, *The Wilcox Group (Paleocene-Eocene) in the Sabine Uplift area, Texas: Depositional systems and deep-basin lignite*: The University of Texas at Austin, Bureau of Economic Geology Special Publication

Soil Survey of Hopkins County, Texas. USDA Soil Conservation Service Web Soil Survey

Parsons Engineering Science, Inc. *Groundwater Availability Model for the Northern Carrizo-Wilcox Aquifer Draft Report*, Prepared for: Texas Water Development Board Prepared September 2002

Personal interview with USDA Natural Resources Conservation Service personnel in Sulphur Springs.

Sellards E.H, Adkins, A. D. Plummer, F.B, 1954, *The Geology of Texas, Volume I, Stratigraphy* The University of Texas at Austin, Bureau of Economic Geology Bulletin No. 3232. pages 612-620.

Record of Wells and Test Holes Hopkins County, June 7, 2000, Texas Water Development Ground Water Database Report, page 1- 8

Texas Basin. *The University of Texas at Austin, Bureau of Economic Geology Report. Report of Investigations No.127.*

The Texas Water Development Board Well Location Report Submission and Retrieval System Website.

AQUIFER PROTECTION PLAN

The artificial recharge features are three private water wells. They are used exclusively for private water supply. The wells locations are shown on the Site and Runoff Map.

Well #1 is about 80 feet north of the commodity barn. Well #2 is about 75 feet west of the commodity barn and 140 feet north of the milking parlor. All runoff water from the commodity barns flows to the south away from the wells. The wastewater generated in the milking parlor flows south over a concrete lane and a pipeline into the RCS. Wastewater from the commodity or milking parlor could not enter the wells. The surrounding ground slopes away from the wells. Well #3 is about 110 feet north of the freestall barn and about 80 feet west of milking parlor. The wastewater generated in the milking parlor flows south over concrete and through a pipeline into the RCS. Wastewater generated in the freestall barns is flushed down a curbed concrete floor sloping to the south away from the well. Wastewater from the milking parlor or freestall cannot enter the wells. The surrounding ground slopes away from the well.

These BMPs are for use on all three wells. All wastewater is stored in the RCS. Wastewater application will not be applied near the wells. Cattle are not allowed to graze in the area around the wells. There are no other pollutant sources such as manure, sludge, wastewater, dust, fuel storage tanks, pesticide and lubricants stored near the wells. Dead animal burial area is not near the wells. The fuel storage tank is not located near the wells. Additional wellhead protective measures include, all wells have a sanitary seal, located on a concrete slab. The areas around the wells have a bermudagrass ground cover. Water wellhead backflow prevention devices have been added to the wells.

The wells and area around them will be inspected monthly to ensure contaminants are not running into the well. If for some reason a pollutant ever flows in the direction of the well, immediate action will be taken to divert the flow from the well. Any change in conditions of the wells will have corrective measures taken. The date Well#1 and Well#2 were drilled is unknown and well logs are not available. Well#3 was drilled on January 9, 2008 a copy of the well log is attached. The wells were completed in accordance with water well drilling rules at that time of drilling. These wellhead protective measures will prevent pollutants from entering the groundwater through the wells

The natural recharge features include surface water bodies, creeks, and tributaries. Structural and non-structural controls to be used to protect the natural recharge features are as follow:

- Vegetative filter strips of Bermuda grass will filter, contain, and prevent the lateral movement of wastewater irrigation and manure.
- Waste will be applied only where the LMU cover vegetation is growing and has crop demand for nutrients.
- Waste will be applied at the nutrient requirements of the vegetative cover at the agronomic application rates.
- Wastewater will be applied at a rate less than the permeability of the soil to prevent ponding and runoff.
- Wastewater application will be at rate that ensures that wastewater will be used by the vegetative cover.
- Vegetative buffers of 150 feet for will be maintained around any newly drilled private water wells.
- 100 feet of vegetative cover buffer between waste and wastewater application areas and surface water and watercourses will be maintained.
- Records of climatic conditions during waste application such as: temperature, precipitation and cloud cover.

The following BMPs are to protect the groundwater for LMU#1, LMU#2, LMU#3, LMU#4, LMU#5 and LMU#6. These LMUs have Bernaldo, Nahatche and Wolfpen soils, which have a seasonal high-water table. LMU#1, LMU#2, LMU#5 and LMU#6 have Wolfpen soils which have excessive permeability. The LMU locations are shown on the LMU Map.

1. Application of wastewater will be applied following the Nutrient Management Plan. This will ensure:
    - Intensive nutrient management practices to manage LMU limitations
    - All agricultural waste shall be utilized in a manner that minimizes the opportunity for contamination of surface and ground water supplies.
    - Wastewater application rates will not exceed the soil infiltration rate so not to cause leaching and groundwater contamination.
    - Wastewater application rates will not exceed the available water holding capacity of the soil profile at the time of application, so not to cause leaching and groundwater contamination.
    - Wastewater will be applied at nutrients levels to meet the bermudagrass ground cover needs. This will prevent the movement of nutrients through the soil profile to groundwater caused by over irrigation
    - Annual soil sampling to determine soil available nutrient and amount of nutrients needed for crop production, according to30 TAC subchapter B: §§321.31-321.47.
2. Use of proper timing, formulation, and application methods for nutrients that maximize plant utilization of nutrients and minimize the loss to the ground water,
3. Wastewater will not be applied to saturated soils.
4. Irrigation will be limited on these soils areas when the potential for the seasonal water table to be near the soil surface. (November – May).
5. Timing of manure or waste water application should coincide as nearly as possible to the time when plants can use the nutrients -- that is, during the normal growing season
6. Continual inspection and maintenance of waste handling facilities and equipment will prevent unwarranted waste discharges into surface water and groundwater.
7. Records of crop yields will be kept to determine realistic crop yield expectations.
8. Application equipment should be calibrated and inspected for wear and damage periodically, and repaired when necessary.
9. Records of nutrient application rates will be maintained along with other management records for each field.

These BMPs will provide adequate protective measures for the natural recharge features.

_____ _____

Jim C. Wyrick Date
Professional Geoscientist, License Number 770

Bouma Well Location



Texas Water Development Board

TWDB Groundwater

Well Reports

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

1:18,056

Esri, HERE, Garmin, (c) OpenStreetMap contributors

September 4, 2024

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB.
The TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability
or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose.
The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact
WDI-Support@twdb.texas.gov.

TEXAS WATER DEVELOPMENT BOARD

STATE OF TEXAS WELL REPORT for Tracking #141111

Owner:	**Michael Bouma**	Owner Well #:	**1**
Address:	**4252 CR 2408 Winnsboro, TX 75494**	Grid #:	**34-06-2**
Well Location:	**4252 CR 2408 Winnsboro, TX 75494**	Latitude:	**32° 58' 54" N**
		Longitude:	**095° 19' 40" W**
Well County:	**Wood**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **1/7/2008** Drilling End Date: **1/9/2008**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
7.875	**0**	**573**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed; Straight Wall**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
440	**573**	**Gravel**	**16/30**

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**100**	**19 c w/6% gel**
390	**440**	**7 c w/6% gel**

Seal Method: **Pumped with Tremmie Pipe**

Sealed By: **Driller**

Distance to Property Line (ft.): **50 +**

Distance to Septic Field or other concentrated contamination (ft.): **50 +**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **215 ft.** below land surface on **2008-01-22** Measurement Method: **Unknown**

Packers: **None**

Type of Pump: **Submersible** Pump Depth (ft.): **340**

Well Tests: **Jetted** **Yield: 60 GPM with 140 ft. drawdown after 1 hours**

Plug Information:

Description (number of sacks & material)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
N/A		

Water Quality:

Strata Depth (ft.)	Water Type
No Data	**No Data**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **C Miller Drilling**

7355 E State Hwy 154
Winnsboro, TX 75494

Driller Name: **Cory L Miller** License Number: **2464**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**22**	**Clay and Rock**
22	**42**	**Shale and Sand Light Gray**
42	**82**	**Shale**
82	**102**	**Shale and Sand**
102	**202**	**Shale**
202	**340**	**Shale with Lignite Streaks**
340	**362**	**Sand with Shale Streaks**
362	**506**	**Shale with Lignite Streaks**
506	**562**	**Sand**
562	**573**	**Shale**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.) New/Used Type Setting From/To (ft.)
4 1/2" New SDR 17 0 - 480 Casing
4" New SCH 40 PVC 480 - 508 Casing
4" New SCH 40 PVC 508 - 558 .016 Screen
4" New SCH 40 PVC 558 - 564 Casing

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Waste Utilization and Nutrient Management Plan

Bouma Dairy
4252 CR 2408
Winnsboro, TX 75494
903-342-3245

TCEQ Permit Number:

Owner
Maiko Bouma
4252 CR 2408
Winnsboro, TX 75494
903-342-3245

Type of Waste Plan:
Other AFO-CAFO Waste Plan
located in Hopkins County

Prepared By:

_____

(Signature)
Jim C. Wyrick
Nutrient Management Specialist
Certificate Number = TX20049
Expiration Date = December 31, 2024
East Texas Environmental Services
317 Highland Dr.
Sulphur Springs, TX 75482
903-243-0400

This plan is based on:
590 -633 Plan V 4.0_5

2/4/25 2:27 PM

Waste Utilization and Nutrient Management Plan

EXECUTIVE SUMMARY: Permit #:

This Nutrient Management Plan has fields that meet NMP and/or NUP requirements.

LOCATION AND PURPOSE OF THE PLAN

This animal operation is located in **Hopkins** County (see attached topo map and plan map for location.) The purpose of this plan is to outline the details of the land application of the effluent and solids produced by this operation. When the plan is fully implemented, it should minimize the effects of the land application of animal wastes on the soil, water, air, plant, and animal resources in and around the application area. This plan, when applied, will meet the requirements of the Natural Resources Conservation Service Waste Utilization Standard and Nutrient Management Standard.

The plan is for the year of **2024** and will remain in effect until revision based on new soil or manure analysis or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has been stored in a **Dairy Solids** . Approximately **999** head will be confined with the average weight of **1400** pounds. The animals will be confined **24** hours per day for **365** days per year.

Values in Table 1 may be based on actual analysis or "book" values during the initial planning to determine land application rates for the initial plan. When "book" values are used, they will be from NRCS, Texas Cooperative Extension or averages from other TX testing lab sources. Site specific data will be used as soon as feasible after production begins. Manure and/or effluent will be tested at least annually or in the year of application if it is stored for more than one year. If the actual values are more than 10% higher or lower than the estimated values, this plan will need to be revised accordingly.

Application of waste products may be made up to the Maximum Rate given in Table 2 or 2a as applicable. Table 2 applies to those that are subject to Nutrient Management Plan (NMP) requirements while Table 2a applies when subject to Nutrient Utilization Plan (NUP) requirements. Current requirements for both the NMP and NUP are given in the headers of the tables. Table 2a has a criteria involving the distance to a named stream when the Soil Test P Level is above 200 ppm in arid areas as well as special requirements when the site is in a TMDL watershed designated by TCEQ. For various P Index Ratings, the maximum rates in Table 2 are based on crop requirements, whereas the maximum rates in Table 2a are based on crop removal rates. County avg. rainfall information can be found in the TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, located in the eFOTG at the address given in the section entitled **"Collecting Soil Samples for Analyses"**.

CROP REMOVAL RATES:

Crop Removal Rates of nitrogen (N), phosphorus (P), and potassium (K) in pounds per acre are given in Table 3 for the crop and yield planned for each field. This Table is included for information only, and should be used during the planning process to compare planned or maximum application rates to crop removal. Crop removal rates may be based on actual analysis of harvested material or default values in the database. P build-up will occur at higher rates when crop removal rates are exceeded..

SOLIDS APPLICATION:

The maximum solids application rates are given in Table 4 along with the current soil test P level, maximum P_2O_5 application rate, maximum tons per acre of solids and the total tons of solids per field that can be applied to each field. The maximum tons of solids that can be utilized on the fields planned is indicated in the box near the lower left corner of Table 4. When the total application acres of the fields are adequate to allow all of the solids to be applied, "Adequate" will be indicated below the tonnage in this box. If "Not Adequate" is indicated, then the lower box will indicate the tons of solids that must be utilized off-site unless more fields/acres are added. This plan is valid only if the application of waste to the crops listed does not exceed the per acre rates by more than 10%. If the yield of a crop does not meet the expected goal, the application rate should be adjusted the following year.

The estimated amounts of N, P_2O_5, and K_2O contained in the solids are provided in Table 5 for the maximum application rate. Supplemental N and K_2O will be applied to achieve the yield goals in Table 4 when recommended by the soil test and the maximum rate of the solids does not meet the crop needs. When the maximum application rate is applied and Table 5 indicates additional commercial nutrients, they **must** be applied to fields as indicated. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen, and should be included in the soil test N ppm entry.

SOLIDS APPLICATION: (cont) Permit #:

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 6 have been reduced to the level that does not exceed the amount of solids produced. Table 7 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when the application is based on these rates. The amounts of supplemental nutrients in Table 7 are based on the actual amount of waste available rather than the **maximum** rate that **"could"** be applied.

The second line from the bottom of Table 6 on the right has a box that will be "**YES**" or "**NO**". When the reduced rates use all solids to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If "**No**", either more acreage is needed on which to apply the solids or the solids will need to be transported off-site. The amount is located on the bottom line on the extreme right of the page.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 4 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 4 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to the fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The solids may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 4 and 6 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable. When the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

EFFLUENT APPLICATION:

The maximum effluent application rates are given in Table 8 for each field. This table provides the current soil test P level, maximum P_2O_5 application rate, effluent either in gallons per acre or acre inches per acre and the amount of effluent that can be applied per field. The maximum amount of effluent that can be utilized on the fields planned is indicated in a box near the lower left corner of Table 8. When the total application acres are adequate to allow all of the effluent to be applied, "Adequate" will be indicated below this box. If "Not Adequate" is indicated, then the lower box will indicate the amount of effluent that must be utilized off-site unless more field acres are added.

The estimated amounts of N, P, and K contained in the effluent are provided in Table 9 for the maximum application rate indicated in Table 8. Supplemental N and K_2O will be applied to achieve the yield goals when recommended by the soil test and the maximum rates of the effluent do not meet the crop requirements. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen.

EFFLUENT APPLICATION: (cont) Permit #:

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 10 have been reduced to the level that does not exceed the amount of effluent produced. Table 11 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when application is made based on the rates in Table 10. These amounts of supplemental nutrients in Table 11 are based on the planned amount of effluent available rather than the **maximum** rate that **"could**" be applied.

The bottom line on the right of Table 10 has a box that will be "**YES"** or "**NO"**. When the reduced rates uses all effluent to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If "**No"** is indicated, either more acreage is needed on which to apply the effluent or the effluent will need to be transported off-site.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 8 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 8 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The effluent may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 8 and 10 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable, when the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

Maximum Hourly Application Rate - The maximum hourly application rate is determined by the texture of the soil layer with the lowest permeability within the upper 24 inches of the of the predominant soil in each field. The hourly application rate must be low enough to avoid runoff and/or ponding. For effluent with 0.5% solids or less, **DO NOT** exceed the rates shown in Table 1 of the attached Job Sheet titled, *"Waste Utilization, Determining Effluent Application Rates"*. If the effluent contains more than 0.5% solids, those values must be reduced by the appropriate amount shown in Table 2 of the attached *"Waste Utilization, Determining Effluent Application Rates"* Job Sheet.

Maximum One-Time Application Rate - The maximum amount of effluent that can be applied to a given field at any one-time is the amount that will bring the top 24 inches of the soil to 100% field capacity. This amount is determined by subtracting the amount of water stored in the soil (estimated by feel and appearance method) from the available water holding capacity (AWC) of the soil. The available water holding capacity of the top 24 inches of the predominant soil of each field receiving effluent and the texture of the most restrictive layer in the upper 24 inches are given in Table 12.

EFFLUENT APPLICATION: (cont) Permit #:

To determine any one-time application amount, the current percent of field capacity (FC) of the upper 24 inches of the predominant soil in the field should be estimated using the guidance in Table 3 of the attached Job Sheet, *"Waste Utilization, Determining Effluent Application Rates, rev 4/06"*. Additional information on estimating soil moisture can be found in the NRCS Program Aid 1619, *"Estimating Soil Moisture by Feel and Appearance"*, or from the University of Nebraska Extension publication No. G84-690-A by the same name. Both of these publications have pictures of various soils at different percentages of field capacity to be used as a guide to estimating soil moisture. Once the current percent of FC is estimated, it is subtracted from the AWC amount in Table 12 for the given field and the difference is the maximum application for those soil conditions on that day. Remember, the maximum hourly application and the maximum one time application rates are only estimates to be used as a guide.

Solids/Effluent Land Application: - Land application of solids and/or effluent should be made at appropriate times to meet crop needs, but can be made at any time as long as the total annual (or biennial) rate, maximum hourly rate, and the maximum one time application rates are not exceeded. Effluent should be surface applied uniformly. No runoff or ponding should occur during application thus frequent observations should be made. Neither effluent or solids will be applied to slopes >8% with a runoff curve >80, or steeper than 16% slope with a runoff curve of 70 or greater, unless the application is part of an erosion control plan. Waste will not be spread at night, during rainfall events, or on frozen or saturated soils if a potential risk for runoff exists. Waste will not be applied to frequently flooded soils during months when the soils typically flood. If frequently flooded soil occur on any potential application field see attached, "Water Features Table", for months when flooding is expected. Solids should be applied with a manure spreader as uniformly as feasible. Surface applications with trucks should only be made when soil conditions are favorable in order to minimize soil compaction.

Managing Runoff -
A minimum 100 ft. setback or vegetated buffer (Filter Strip, Field Border, Riparian Forested Buffer, etc.) will be established and maintained between the application area and all surface water bodies, sink holes, and watercourses as designated on Soil Survey sheets or USGS topographic maps. A minimum application distance from private and public will be 150 ft. and 500 ft. respectively. A minimum application distance from water wells used exclusively for agricultural irrigation will be 100 ft. Table 9 provides a summary of the setbacks and out areas of each field.

Managing Leaching -
When soils with sandy, loamy sand, or gravelly surface textures have a Nitrogen Leaching Index score of >2 appropriate measures will be used to minimize the potential of leaching. These measures will include, split applications of waste, and may include double cropping, or cover crops, and irrigation water management (on fields that receive supplemental or full irrigation).

MORTALITY MANAGEMENT:
All mortality will be disposed of properly within 3 days according to the Texas Commission on Environmental Quality (TCEQ) rules. The preferred method for disposal of routine mortality is by a rendering plant. Before planning this method, contact the facility or its representative to be informed of special handling procedures, equipment needs, scheduling requirements, etc. Maintain a list of contact phone numbers so information will be readily available following a catastrophic die-off. Verify that local companies which have previously picked up and/or rendered dead animals are still doing so. A number of rendering companies across the state have stopped dead animal pick up service, and others have raised their fees significantly. Periodically review the availability and cost of rendering so that the plan can be modified if necessary. This can be an excellent option if mortality can be loaded and transported while still fresh or the mortality can be refrigerated until loaded and transported.

MORTALITY MANAGEMENT: (cont) Permit #:

Disposal in a landfill may be an option in some locations. Before planning this option, the closest commercial, regional, county, or municipal landfill should be contacted to determine if the landfill has a permit which would allow acceptance of dead animals (swine, sheep, cattle, etc.). Also ask if there are any restrictions on type and volume of animal mortality that will be accepted at the facility. Landfill fees and transport, offloading, and handling procedures should be discussed with landfill managers and documented for reference when needed. The landfill is not a viable option if the producer does not own or have access to a vehicle capable of transporting mortality quickly in an emergency situation. After a catastrophic die-off is not a good time to find out that a driver and truck to transport mortality will not be available for several weeks **(MAKE ARRANGEMENTS NOW, NOT AFTER THE ANIMALS ARE DEAD).**

On-farm disposal of catastrophic mortality may be considered if site conditions permit. On-farm methods include burial, composting, and incineration. Incinerators and composters are excellent options for routine mortality but usually do not have the capacity to handle mortality volumes associated with catastrophic events. Composting and incineration should not be relied on for catastrophic mortality handling without a documented evaluation of worst anticipated mortality condition (number, type, and weight of animals), and the anticipated capacity of the system (i.e., lb./hr. incineration rate, hrs/day of operation). NRCS Mortality Facility Standard 316 will be used for all mortality management.

See the attached soil interpretation, ENG - Animal Mortality Disposal (Catastrophic) Trench, to make a preliminary assessment of the limitations of the soils on this farm for burial of catastrophic mortality. The attached TX NRCS Technical Guidance, Catastrophic Animal Mortality Management (Burial Method) should be used as a guide to overcome minor limitations and as design criteria for the construction of burial pits for catastrophic mortality. Mortality burial sites shall be located outside the 100 -year floodplain. Mortality burial will not be less than 200 feet from a well, spring, or water course. A FIELD INVESTIGATION BY A QUALIFIED PROFESSIONAL SHOULD BE MADE BEFORE AN AREA IS USED FOR A BURIAL SITE FOR CATASTROPHIC MORTALITY EVENTS. **The TCEQ Industrial and Hazardous Waste Permits Section, MC-130, must be contacted before burial of catastrophic mortality.**

TCEQ
Industrial and Hazardous Waste Permits Section, MC-130
PO Box 13087
Austin, TX 78711-3087
Phone: 512-239-2334 Fax: 512-239-6383

Air Quality:

The following steps should be taken when spreading effluent or solids to reduce problems associated with odor.
1. Avoid spreading effluent or solids when wind will blow odors toward populated areas.
2. Avoid spreading effluent or solids immediately before weekends or holidays, if people are likely to be engaged in nearby outdoor activities.
3. Avoid spreading effluent or solids near heavily traveled highways.
4. Make applications in the morning when the air is warming, rather than in the late afternoon.
5. All materials will be handled in a manner to minimize the generation of particulate matter, odors, and greenhouse gas emissions.

EFFLUENT AND SOLIDS STORAGE & TESTING: Permit #:

Effluent and solids will be stored in facilities designed, constructed, and maintained according to USDA NRCS Standards and specifications.

Effluent and solids sampling is needed to get a better idea of the nutrients actually being applied. Effluent and/or solids samples will be collected at least annually, or in the year of its use if waste is typically stored for more than 1 year. The samples will be submitted immediately to a lab for testing. If sent to Texas A&M soil lab or SFASU Soil Testing Lab for analysis, use the "plant and forage analysis" form and note the type of operation. Request that the manure be analyzed for percent dry matter, solids, total nitrogen, total phosphorus, and total potassium. Further information on collecting effluent and manure samples for analysis can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. **TCEQ sampling rules and testing requirements will be followed on permitted sites.**

COLLECTING SOIL SAMPLES FOR ANALYSIS:

Collect a composite sample for each field (or area of similar soils and management not more than 40 acres in size) comprised of 10 - 15 randomly selected cores. Each core should represent 0 - 6 inches below the surface except for when injection has been done over 6" in depth, then the core should represent the 3-9" layer. Thoroughly mix each set of core samples, and select about a pint of the mixture as the sample for analysis. Label each sample for the field that it represents. Request that the samples be analyzed for nitrate nitrogen, plant-available phosphorus, potassium, sodium, magnesium, calcium, sulfur, boron, conductivity; and pH. Also note on the samples that they are from an effluent or solids application area. **TCEQ sampling rules and testing requirements will be followed on permitted sites.** A weighted average of 0-2 and 2-6 inch layers will be used for calculations on permitted sites.

Further information on collecting soil samples can be found on the TCE Form D-494, p 2, TCE Publication No. L-1793, and TCEQ RG-408. Additional NRCS guidance and requirements can be found in the Nutrient Management (590) standard located in the Texas electronic Field Office Technical Guide (eFOTG) at:

http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=TX

Click the county desired.
Click Section IV in the left column under eFOTG
Type: 590 in the Search Menu above eFOTG and click: **GO**
Click on the desired item under Nutrient Management in the left column

SOIL ANALYSIS:

A soil analysis will be completed for all areas to be used for all effluent or solids application areas. The soil test analysis method will be **Mehlich III with inductively coupled plasma (ICP)**. The area will be tested and analyzed at least annually to monitor P build up.

Waste Utilization and Nutrient Management Plan

RECORD KEEPING: Permit #:

Detailed records should be maintained by the producer for all application of animal waste to land owned and operated by the producer. Records should include date, time, location, amount of application, weather conditions, estimated wind speed and direction, etc. A rain gauge should be in place at the application site and accurate records of rainfall should be maintained at the site. All records must be kept for at least 5 years. **TCEQ requirements will be followed on permitted sites.**

Records should also be kept showing amounts of litter given or sold to others. **A copy of the effluent analysis and/or solids analysis and a Waste Utilization Guidelines Sheet should be given to anyone who will use either the effluent or solids off-site. If they routinely use animal wastes for fertilizer, they should be directed to the local Soil and Water Conservation District or NRCS office to develop a Waste Utilization and Nutrient Management Plan for their land.**

This portion may be completed by producer, if desired or recorded elsewhere.

Record of waste leaving the farm or used as feed. **Estimated Annual Excess**

Date	Amount	Hauler or Recipient

Excess Remaining

May be continued on additional sheets

Waste Utilization and Nutrient Management Plan

OPERATION AND MAINTENANCE: Permit #:

Application equipment should be maintained in good working order and it should be calibrated annually so that the desired rate and amount of effluent and solids will be applied.

Information on calibrating manure spreaders can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. Information on calibrating big gun sprinklers can be found in the Arkansas Extension publication, *"Calibrating Stationary Big Gun Sprinklers for Manure Application"*. For information on calibrating tank spreaders, traveling guns, and additional information on other manure spreading equipment, see Nebraska Extension publication No. G95-1267-A, *"Manure Applicator Calibration"*. Observe and follow manufacturer's recommended maintenance schedules for all equipment and facilities involved in the waste management system. For information on lagoon functions, refer to TCE publication E9, *"Proper Lagoon Management"*.

Any changes in this system should be discussed with the local Soil and Water Conservation District, USDA Natural Resources Conservation Service, or other qualified professional prior to their implementation.

Plan Prepared by:	**Jim C. Wyrick**	Date:	**2/4/2025**
Plan Approved by:		Date:	
Producer Signature:		Date:	

The producer's signature indicates that this plan has been discussed with him/her.
If this plan is not signed by the producer, indicate how the plan was provided to the producer.

Waste Utilization and Nutrient Management Plan

Table 1 - Estimated Effluent and Solids Quantities Produced Permit #:

Avg. Number of Animals	Type of Waste
999	Dairy Solids
	Dairy Solids

Contact the local Soil and Water Conservation District or USDA Natural Resources Conservation Service office if the total number of animals change by more than 10% so your plan can be revised.

Estimated Acre Inches of Effluent to be Available Annually* **518**

Estimated Tons Solids to be Land Applied Annually (on or off site)* **14,492.8**

*From engineering design.

Estimated Nutrient Availabilty Effluent

	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch	
N	65	0.00	0.1	**
P2O5	418	0.03	0.8	
K2O	2,092	0.15	4.0	

** Effluent Values Based on Analysis dated: December 18, 2023

Estimated Nutrient Availabilty Solids

	pounds / yr	pounds / ton	
N	67	0.0	**
P2O5	431	0.0	
K2O	2,155	0.1	

** Solids Values Based on Analysis dated: December 18, 2023

Default values were used on all fields for plant removal of nutrients and yield levels.

Waste Utilization and Nutrient Management Plan

TABLE 2. A Nutrient Management Plan (NMP) is required where Soil Test P Level [1/] is:

- **less than 200 ppm statewide or**
- **or < 350 ppm in arid areas 2/ with a named stream > one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	Annual Nitrogen (N) Requirement	Annual Nitrogen (N) Requirement	2.0 Times Annual N Requirement
Medium	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual N Requirement
High	1.5 Times Annual Crop P Requirement [3/]	1.5 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement
Very High	1.0 Times Annual Crop P Requirement [3/]	1.0 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement

TABLE 2a. A Nutrient Utilization Plan (NUP) is required by TCEQ where Soil Test P Level [1/] is:

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High or soil test P [1/] => 500 ppm in nutrient impaired TMDL areas.[5/]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ TMDL watersheds are designated by Texas Commission on Environmental Quality (TCEQ).

Waste Utilization and Nutrient Management Plan

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches

Permit #:

LMU / Field #	AWC (inches)	Restrictive Texture
1	3.52	Sandy Clay loam
2	1.71	Loamy Fine Sand
3	3.52	Sandy Clay loam
4	3.52	Sandy Clay loam
5	1.71	Loamy Fine Sand
6	1.71	Loamy Fine Sand
7		Loamy Fine Sand
8		
9		

LMU / Field #	AWC (inches)	Restrictive Texture

Waste Utilization and Nutrient Management Plan

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates Permit #:

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	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	0	1	7	320	0	85	0
2	1	3	18	365	0	145	0
3	0	2	8	535	0	375	0
4	1	3	18	400	0	150	0
5	1	3	18	345	0	85	0
6	1	3	18	385	0	145	0
7							
8							
9							

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #:

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P_2O_5 Removal lbs/Ac/Yr	Total Est. K_2O Removal lbs/Ac/Yr
1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
3	39.0	Coastal Hay 4 cut, RG mod Graze M	NUP	Default	350	105	311
4	64.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
5	30.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
6	41.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
7	38.0	Common graze 1 AU/1 ac, SG mod graze M	NUP	Default	262	85	233
8	31.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
9	101.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233

NOTE: When crops are used for grazing, only a portion of the nutrients used by the crop are removed from the field in the live weight gain of the livestock, the remainder is returned to the land in manure and urine. The book "Southern Forages" estimates the N, P, & K removed in 100 pounds live weight gain as follows: **2.5 lbs N, 0.68 lbs P, 0.15 lbs K**

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #:

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P_2O_5 Removal lbs/Ac/Yr	Total Est. K_2O Removal lbs/Ac/Yr
1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
3	39.0	Coastal Hay 4 cut, RG mod Graze M	NUP	Default	350	105	311
4	64.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
5	30.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
6	41.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
7	38.0	Common graze 1 AU/1 ac, SG mod graze M	NUP	Default	262	85	233
8	31.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
9	101.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233

NOTE: When crops are used for grazing, only a portion of the nutrients used by the crop are removed from the field in the live weight gain of the livestock, the remainder is returned to the land in manure and urine. The book "Southern Forages" estimates the N, P, & K removed in 100 pounds live weight gain as follows: **2.5 lbs N, 0.68 lbs P, 0.15 lbs K**

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #:

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
2							
3							
4							
5							
6							
7	20	128	641	285	0	0	0
8	55	350	1752	345	0	0	0
9	55	350	1752	315	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates Permit #:

LMU or Field No.	Double crop	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Max Rate tons/ac	% of Maximum to apply	Planned Solids tons/ac	Planned Solids per field (tons)
1									
2									
3									
4									
5									
6									
7		38.0	Common graze 1 AU/1 ac, SG mod graze M	302	A	4308.5	100	4308.5	163723.4
8		31.0	Common graze 1 AU/1 ac, SG mod graze M	163	A	######	100	11782.2	365247.6
9		101.0	Common graze 1 AU/1 ac, SG mod graze M	92	A	######	100	11782.2	1190000.1
Acres		170.0							1718971.1
14493			Tons of wet solids produced Annually					Will the planned per acre application rates use all of the Solids?	YES
0			Tons to be used off-site at Max. rates					Tons to be used off-site at planned rates	0

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Permit #:

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
2							
3							
4							
5							
6							
7	20	128	641	285	0	0	0
8	55	350	1752	345	0	0	0
9	55	350	1752	315	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field Permit #:

Est. Available Effluent (ac inches)	LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P_2O_5 (lbs/acre)	Annual/Biennial	Maximum Effluent Allowable (ac in/ac)	Maximum Effluent Allowable / Field (ac in)
518	1	75.0		Coastal graze 1 AU/1 ac, SG mod graze M	266	136	A	168.2	12615
Source:	2	44.0		Coastal graze 1 AU/1 ac, SG mod graze M	149	350	A	433.9	19092
	3	39.0		Coastal Hay 4 cut, RG mod Graze M	280	158	A	195.9	7640
	4	64.0		Common graze 1 AU/1 ac, SG mod graze M	188	350	A	433.9	27770
Dairy Solids	5	30.0		Common graze 1 AU/1 ac, SG mod graze M	108	350	A	433.9	13017
	6	41.0		Common graze 1 AU/1 ac, SG mod graze M	145	350	A	433.9	17790
	7								
	8								
	9								

Total Effluent Application Acres

293

Maximum Effluent Application Allowable On-Site (ac in)

97923

Adequate

Effluent to be used Off-Site (ac in)

0

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates Permit #:

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	21	136	679	300	0	0	0
2	55	350	1752	310	0	0	0
3	25	158	791	510	0	0	0
4	55	350	1752	345	0	0	0
5	55	350	1752	295	0	0	0
6	55	350	1752	335	0	0	0
7							
8							
9							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned Effluent Application Rates Permit #:

LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Maximum Effluent (ac in/ac)	% of Maximum to apply	Planned Effluent (ac in/ac)	Planned Effluent / field (Ac. In)
1	75.0		Coastal graze 1 AU/1 ac, SG mod graze M	266	A	168.2	**1.0**	1.7	128
2	44.0		Coastal graze 1 AU/1 ac, SG mod graze M	149	A	433.9	**1.0**	4.3	189
3	39.0		Coastal Hay 4 cut, RG mod Graze M	280	A	195.9	**1.0**	2	78
4	64.0		Common graze 1 AU/1 ac, SG mod graze M	188	A	433.9	**1.0**	4.3	275
5	30.0		Common graze 1 AU/1 ac, SG mod graze M	108	A	433.9	**1.0**	4.3	129
6	41.0		Common graze 1 AU/1 ac, SG mod graze M	145	A	433.9	**1.0**	4.3	176
7									
8									
9									
Acres	**293.0**								**975**

Will the planned application rates use all of the Effluent? **YES**

Waste Utilization and Nutrient Management Plan

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates Permit #:

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	0	1	7	320	0	85	0
2	1	3	18	365	0	145	0
3	0	2	8	535	0	375	0
4	1	3	18	400	0	150	0
5	1	3	18	345	0	85	0
6	1	3	18	385	0	145	0
7							
8							
9							

Waste Utilization and Nutrient Management Plan

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches

Permit #:

LMU / Field #	AWC (inches)	Restrictive Texture
1	3.52	Sandy Clay loam
2	1.71	Loamy Fine Sand
3	3.52	Sandy Clay loam
4	3.52	Sandy Clay loam
5	1.71	Loamy Fine Sand
6	1.71	Loamy Fine Sand
7		Loamy Fine Sand
8		
9		

LMU / Field #	AWC (inches)	Restrictive Texture

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field Permit #:

FS = 393-Filter Strip; **FB** = 386-Field Border, **RFB** = 391-Riparian Forest Buffer; **OLEA** = Other Land Excluded Area

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	15.0	0.0	0.0		15.0
2	0.0	0.0	0.0		
3	0.0	0.0	0.0		
4	5.0	0.0	0.0		5.0
5	10.0	0.0	0.0		10.0
6	0.0	0.0	0.0		
7	7.0	0.0	0.0		7.0
8	2.0	0.0	0.0		2.0
9	6.0	0.0	0.0		6.0
Totals	45.0	0.0	0.0	0.0	45.0

See Application Map for location of buffers

Total 590-633 application acres: 463.0

Total 590-633 Field Acres: 508.0

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	3/7/2024
Farmer Name :	Bouma Dairy
County in which the Land is located :	Hopkins
Type of Waste Plan :	Other AFO-CAFO Waste Plan
Is this plan in a TMDL watershed for nutrients? Yes or No :	No
Is any field PERMITTED by TCEQ? Yes or No :	Yes
Permit # :	

All other entries on General Page appear on the Cover Page

Animal Information

Plan Year :	2024
Are you receiving waste from another producer?	No
Number of animals :	999
Approximate Weight :	1400
Days per year in confinement :	365
Hours per day confined :	24
***ACRE FEET* of effluent to be irrigated* :**	43.17
Estimated annual gallons of effluent to be irrigated/applied annually :	14066858.16
For effluent, do you want application rates shown in gallons or acre inches? :	acre inches
Estimated Tons Solids to be Land Applied Annually (on or off site)* :	2000
Is this the first Year of the AFO-CAFO Operation? :	No

Analysis Information

Effluent Information

Date of Analysis:	12/18/2023
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	0.0021
Phosphorus % From Analysis:	0.0047
Potassium % From Analysis:	0.0449
Moisture % From Analysis:	86.2

Manure / Solids Information

Date of Analysis:	12/18/2023
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	0.0021
Phosphorus % From Analysis:	0.0047
Potassium % From Analysis:	0.0449
Moisture % From Analysis:	86.2
What will be Applied to Fields on this Farm?	Both Effluent and Solids
Is this Farm part of an AFO-CAFO?	No

This plan is based on: 590 -633 Plan V 4.0

Printed on: 2/4/25 2:27 PM

Field and Buffer Entries

Permit #:

Printed on: 2/4/25 2:27 PM

Plan is based on: 590 -633 Plan V 4.0_5

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	
1	90	15			0	15.0	75.0	
2	44	0				0.0	44.0	
3	39	0				0.0	39.0	
4	69	5				5.0	64.0	
5	40	10				10.0	30.0	
6	41	0				0.0	41.0	
7	45	7				7.0	38.0	
8	33	2				2.0	31.0	
9	107	6				6.0	101.0	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 2/4/25 2:27 PM Plan is based on: 590 -633 Plan V 4.0_5 Permit #:

Soil Test Analysis				This column only for Dry Poultry	LMU or Field #	Appl. Area Acres	Crop/Land-Use and P Index Runoff Potential VL - L; M; H; or VH	E = Effluent S = Solids	Plant Analysis (Y / N)	Plant Analysis & Yield (optional) Use Only When Crop Removal is Required			
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)							% N	% P	% K	Yield Air Dry Production (lbs/ac/yr)
39	266	154			1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
17	149	82			2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
2	280	52			3	39.0	Coastal Hay 4 cut, RG mod Graze M	E	N				
10	188	38			4	64.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
36	108	124			5	30.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
16	145	48			6	41.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
58	302	175			7	38.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				
11	163	38			8	31.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				
26	92	31			9	101.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #:

14493	"Wet tons" of solids produced Annually					Will the planned rates use all of the Tons to be used off-site at plann		
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P_2O_5 Req.	Annual or Biennial Application Cycle	Maximum Solids Allowable Tons/Ac	Enter % of Maximum Planned to Apply
1							
2							
3							
4							
5							
6							
7	38.0	Common graze 1 AU/1 ac, SG mod graze M	302	175	Annual	4308.5	100.0
8	31.0	Common graze 1 AU/1 ac, SG mod graze M	163	175	Annual	11782.2	100.0
9	101.0	Common graze 1 AU/1 ac, SG mod graze M	92	175	Annual	11782.2	100.0

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #:

14066858	Gallons of Effluent to be used annually				Will the planned rates use all of the effluent?			Yes
518	Acre inches of Effluent to be used annually							

LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P (ppm)	Crop P2O5 Req.	Annual or Biennial Application Cycle	Max Effluent Allowable (ac in/ac)	Enter % of Maximum Planned to Apply	Planned Effluent (ac in/ac)	Planned Effluent per field (acre inches)
1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	266	175	Annual	168.2	1.0	1.7	128
2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	149	175	Annual	433.9	1.0	4.3	189
3	39.0	Coastal Hay 4 cut, RG mod Graze M	280	225	Annual	195.9	1.0	2	78
4	64.0	Common graze 1 AU/1 ac, SG mod graze M	188	175	Annual	433.9	1.0	4.3	275
5	30.0	Common graze 1 AU/1 ac, SG mod graze M	108	175	Annual	433.9	1.0	4.3	129
6	41.0	Common graze 1 AU/1 ac, SG mod graze M	145	175	Annual	433.9	1.0	4.3	176
7									
8									
9									

Total Effluent This Page: 975

Printed on: 2/4/25 2:28 PM

Plan is based on: 590 -633 Plan V 4.0_5

Available Water Capacity Entries

Printed on: 2/4/25 2:28 PM Plan is based on: 590 -633 Plan V 4.0_5 Permit #:

LMU or Fields receiving Effluent	Texture of the soil layer within the upper 24 inches of the soil profile that has the lowest permeability (Don't Abbreviate)	Depth of First Layer (inches)		AWC of First Layer (in/in)		Depth of Second Layer (inches)		AWC of Second Layer (in/in)		Depth of Third Layer (inches)		AWC of Third Layer (in/in)		Depth of Fourth Layer (inches)		AWC of Fourth Layer (in/in)		Available Water Holding Capacity (AWC) of the upper 24 inches of the soil profile (Inches)
	EXAMPLE ENTRIES	0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	
		Enter Data for the top 24" only																
1	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
2	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
3	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
4	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
5	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
6	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				

PI Index by Field

Printed on: 2/4/25 2:26 PM | This plan is based on: 590 -633 Plan V 4.0_2 | Permit #:

Client Name: Bouma Dairy | **Date:** 2/4/2025

Planner: Jim C. Wyrick | **Location:** Hopkins

Rainfall: >25.0 inches

LMU or Fields	Crop	Slope	Runoff Curve	Soil Test P Level	Inorganic P_2O_5 Appl Rate	Organic P_2O_5 Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosion	Total Index Points	P Runoff Potential	Soil Test Date:
1	Coastal graze 1 AU/1 ac, SG mod graze	2.0%	61	8	0	1.5	0	4	0	1	0	14.5	Medium	11/14/23
2	Coastal graze 1 AU/1 ac, SG mod graze	2.0%	61	8	4	0.75	4	4	2.5	1	0	24.25	Medium	11/14/23
3	Coastal Hay 4 cut, RG mod Graze	2.0%	58	8	0	1.5	0	4	0	0	0	13.5	Medium	11/14/23
4	Common graze 1 AU/1 ac, SG mod graze	2.0%	61	8	0	1.5	0	4	1.25	1	0	15.75	Medium	11/14/23
5	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	0.75	0	4	5	0	0	17.75	Medium	11/14/23
6	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	0.75	0	4	5	0	0	17.75	Medium	11/14/23
7	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	3	0	4	5	0	0	20	Medium	11/14/23
8	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	6	0	4	5	0	0	23	Medium	11/14/23
9	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	6	0	4	5	0	0	23	Medium	11/14/23

TEXAS A&M AGRILIFE EXTENSION

Bouma
LMU 1

Soil Analysis Report

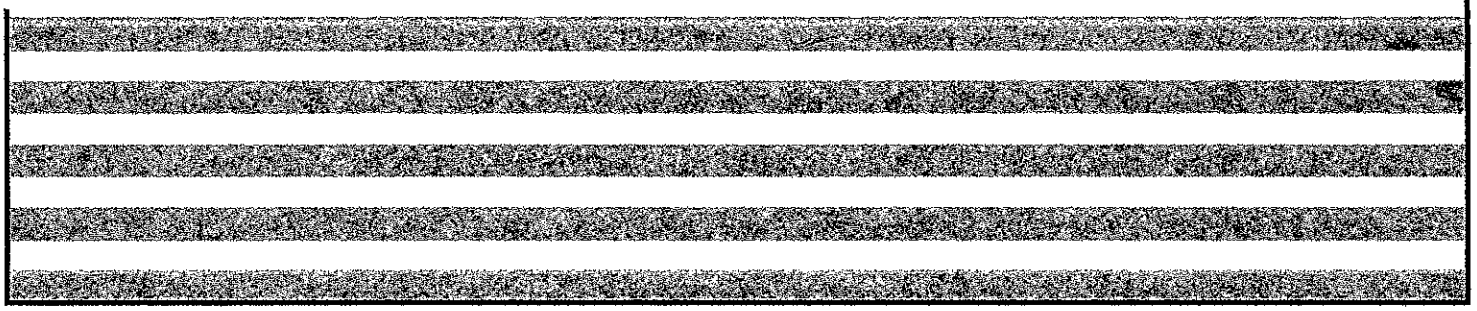
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643758
Customer Sample ID: 158
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.2	(5.8)	-	Strongly Acid	
Conductivity	97	(-)	umho/cm	None	
Nitrate-N	39	(-)	ppm**		20 lbs N/acre
Phosphorus	266	(50)	ppm		0 lbs P2O5/acre
Potassium	154	(150)	ppm		0 lbs K20/acre
Calcium	609	(180)	ppm		0 lbs Ca/acre
Magnesium	148	(50)	ppm		0 lbs Mg/acre
Sulfur	17	(13)	ppm		0 lbs S/acre
Sodium	43	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.25 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

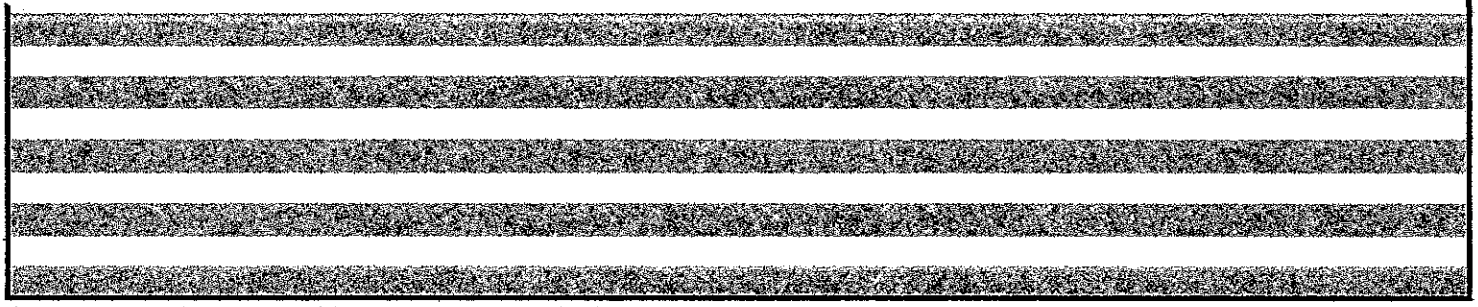
Bouma
LMU 2

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643759
Customer Sample ID: 159
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.0	(5.8)	-	Strongly Acid	
Conductivity	53	(-)	umho/cm	None	
Nitrate-N	17	(-)	ppm**		65 lbs N/acre
Phosphorus	149	(50)	ppm		0 lbs P2O5/acre
Potassium	82	(150)	ppm		110 lbs K20/acre
Calcium	532	(180)	ppm		0 lbs Ca/acre
Magnesium	110	(50)	ppm		0 lbs Mg/acre
Sulfur	16	(13)	ppm		0 lbs S/acre
Sodium	24	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.30 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

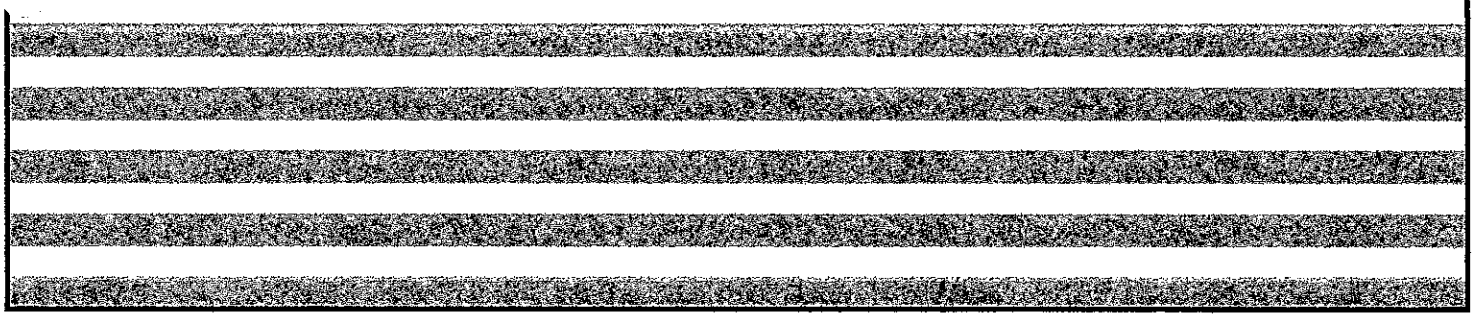
Bouma
LMU 3

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643761
Customer Sample ID: 160
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.7	(5.8)		Strongly Acid	
Conductivity	36	(-)	umho/cm	None	
Nitrate-N	2	(-)	ppm**		95 lbs N/acre
Phosphorus	280	(50)	ppm		0 lbs P2O5/acre
Potassium	52	(150)	ppm		160 lbs K20/acre
Calcium	832	(180)	ppm		0 lbs Ca/acre
Magnesium	115	(50)	ppm		0 lbs Mg/acre
Sulfur	17	(13)	ppm		0 lbs S/acre
Sodium	26	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.70 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

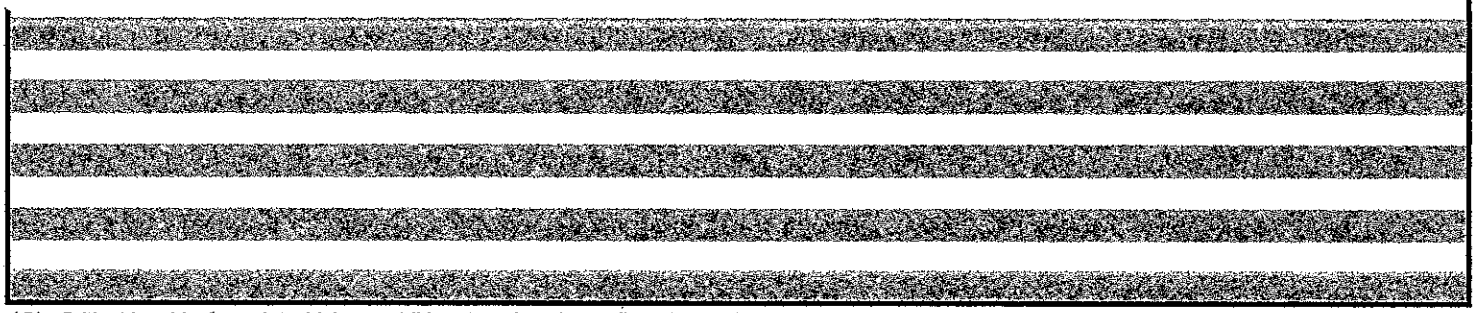
Boyma
LMU 4

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643762
Customer Sample ID: 161
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.0	(5.8)		Strongly Acid	
Conductivity	30	(-)	umho/cm	None	
Nitrate-N	10	(-)	ppm**		80 lbs N/acre
Phosphorus	188	(50)	ppm		0 lbs P2O5/acre
Potassium	38	(150)	ppm		185 lbs K20/acre
Calcium	373	(180)	ppm		0 lbs Ca/acre
Magnesium	68	(50)	ppm		0 lbs Mg/acre
Sulfur	14	(13)	ppm		0 lbs S/acre
Sodium	21	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.95 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

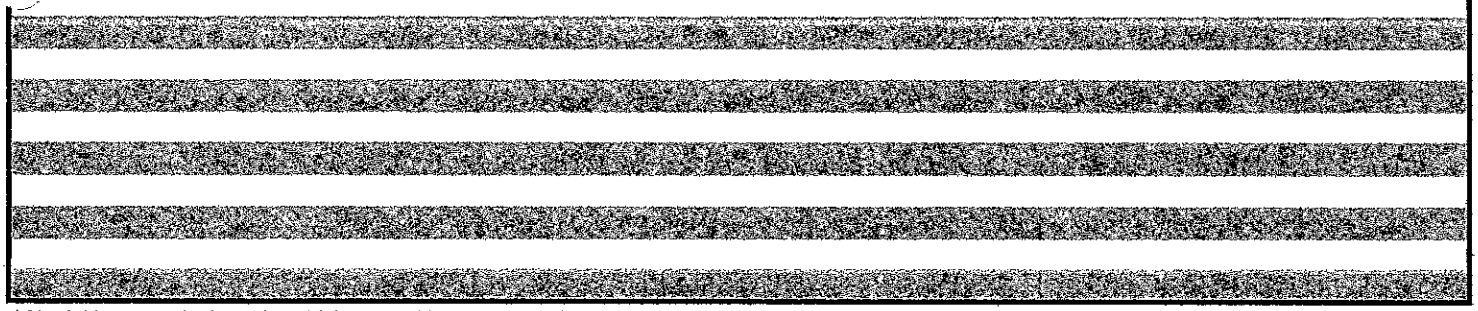
Bouma
LMU 5

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643763
Customer Sample ID: 162
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.8	(5.8)	-	Strongly Acid	
Conductivity	108	(-)	umho/cm	None	
Nitrate-N	36	(-)	ppm**		25 lbs N/acre
Phosphorus	108	(50)	ppm		0 lbs P2O5/acre
Potassium	124	(150)	ppm		40 lbs K20/acre
Calcium	1,037	(180)	ppm		0 lbs Ca/acre
Magnesium	162	(50)	ppm		0 lbs Mg/acre
Sulfur	26	(13)	ppm		0 lbs S/acre
Sodium	78	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.80 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
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Visit our website: http://soiltesting.tamu.edu

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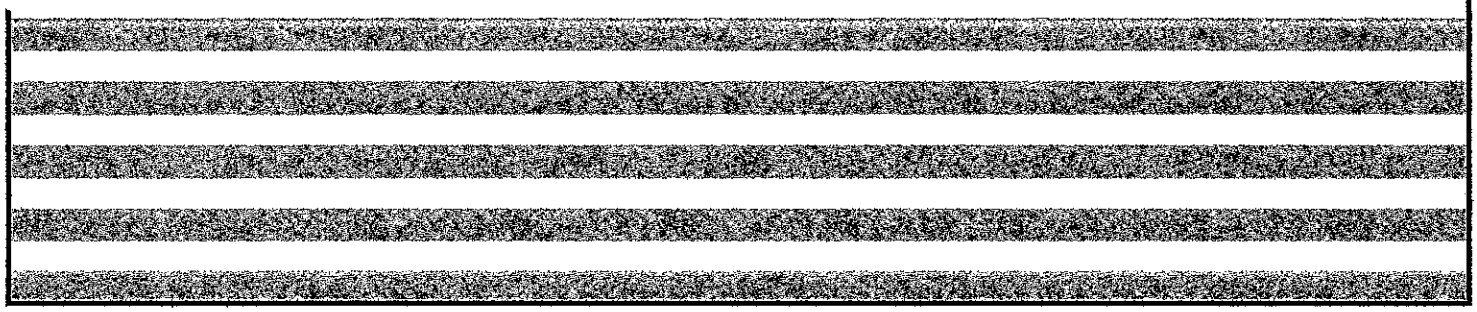
LMU 6

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643764
Customer Sample ID: 163
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.5	(5.8)		Strongly Acid	
Conductivity	82	(-)	umho/cm	None	
Nitrate-N	16	(-)	ppm**		65 lbs N/acre
Phosphorus	149	(50)	ppm		0 lbs P2O5/acre
Potassium	48	(150)	ppm		170 lbs K2O/acre
Calcium	560	(180)	ppm		0 lbs Ca/acre
Magnesium	102	(50)	ppm		0 lbs Mg/acre
Sulfur	20	(13)	ppm		0 lbs S/acre
Sodium	68	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.70 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Boyma
LMU 7

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643765
Customer Sample ID: 164
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.2	(5.8)		Strongly Acid	
Conductivity	106	(-)	umho/cm	None CL*	
Nitrate-N	58	(-)	ppm**		0 lbs N/acre
Phosphorus	302	(50)	ppm		0 lbs P2O5/acre
Potassium	175	(150)	ppm		0 lbs K20/acre
Calcium	709	(180)	ppm		0 lbs Ca/acre
Magnesium	135	(50)	ppm		0 lbs Mg/acre
Sulfur	22	(13)	ppm		0 lbs S/acre
Sodium	35	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.25 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

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Soil Analysis Report

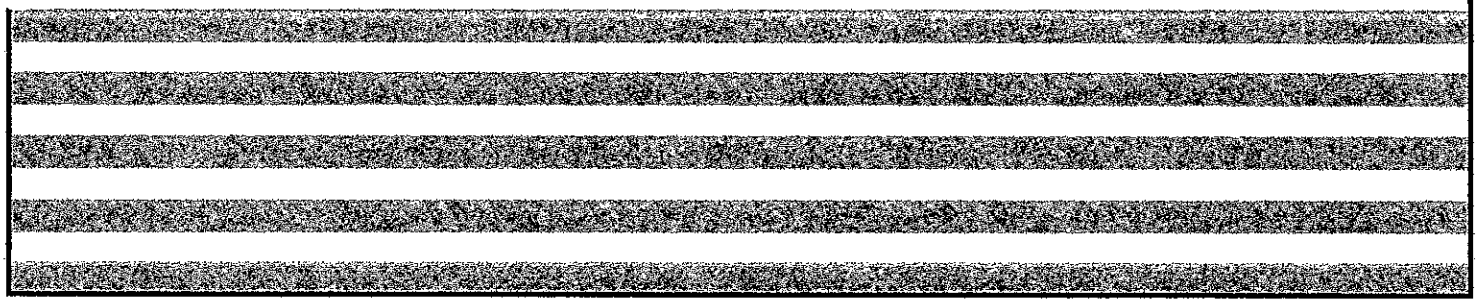
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643766
Customer Sample ID: 165
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.4	(5.8)		Strongly Acid	
Conductivity	35	(-)	umho/cm	None	
Nitrate-N	11	(-)	ppm**		75 lbs N/acre
Phosphorus	163	(50)	ppm		0 lbs P2O5/acre
Potassium	38	(150)	ppm		185 lbs K20/acre
Calcium	558	(180)	ppm		0 lbs Ca/acre
Magnesium	39	(50)	ppm		5 lbs Mg/acre
Sulfur	14	(13)	ppm		0 lbs S/acre
Sodium	15	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.70 tons 100ECCE/acre



*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Bouma
LMU 9

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643767
Customer Sample ID: 166
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.0	(5.8)	-	Strongly Acid	
Conductivity	50	(-)	umho/cm	None	
Nitrate-N	26	(-)	ppm**	CL*	45 lbs N/acre
Phosphorus	92	(50)	ppm		0 lbs P2O5/acre
Potassium	31	(150)	ppm		195 lbs K20/acre
Calcium	748	(180)	ppm		0 lbs Ca/acre
Magnesium	74	(50)	ppm		0 lbs Mg/acre
Sulfur	19	(13)	ppm		0 lbs S/acre
Sodium	27	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.40 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Bio-Liquid Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website:
http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services

Bouma
100

317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Date Printed: 12/18/2023

Sample(s) from Hopkins County

Section 1: **Bio-liquids are analyzed on an as received basis**

Laboratory #	Customer Sample Identification	Total Nitrogen %	Total Phosphorus %	Total Potassium %	Total Calcium %	Total Magnesium %	Total Sodium %	Total Zinc ppm	Total Iron ppm
45021454	100	0.0003	0.0039	0.0367	0.0055	0.0032	0.0350	2.22	1.56
45021455	101	0.0010	0.0039	0.0749	0.0063	0.0040	0.0221	2.32	1.33
45021456	102	0.0031	0.0043	0.0260	0.0258	0.0029	0.0255	3.00	1.21
45021457	103	0.0094	0.0104	0.1243	0.0280	0.0182	0.0874	5.01	1.87
45021458	104	0.0060	0.0100	0.0734	0.0245	0.0077	0.0408	3.94	3.56

Laboratory #	Total Copper ppm	Total Manganese ppm
45021454	0.06	0.00
45021455	0.06	0.10
45021456	0.24	1.11
45021457	0.75	2.40
45021458	4.16	2.33

Section 2: **Interpretation of Bio-Liquid Analysis—pounds of nutrients per acre inch of effluent.**

Laboratory #	Customer Sample Identification	Nitrogen lbs/acre inch	P_2O_5 lbs/acre inch	K_2O lbs/acre inch	Calcium lbs/acre inch	Magnesium lbs/acre inch	Sodium lbs/acre inch	Zinc lbs/acre inch	Iron lbs/acre inch
45021454	100	1	20	100	13	7	79	0.50	0.35
45021455	101	2	20	203	14	9	50	0.53	0.30
45021456	102	7	22	71	58	6	58	0.68	0.27
45021457	103	21	54	338	63	41	198	1.13	0.42
45021458	104	14	52	199	56	18	92	0.89	0.81

Laboratory #	Copper lbs/acre inch	Manganese lbs/acre inch
45021454	0.01	0.00
45021455	0.01	0.02
45021456	0.06	0.25
45021457	0.17	0.54
45021458	0.94	0.53

* one acre inch equals 27150 gallons

TEXAS A&M AGRILIFE EXTENSION

Bouma

118

Bio-Solid Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website:
http://soiltesting.tamu.edu

...ated for:
...st ... Environmental Services

7 Highland Dr.
...LPHUR SPRINGS, TX 75482

...te Processed: 12/18/2023

...mple(s) from Hopkins County

...ction 1: Based on analysis of oven dried sample(s)

Laboratory #	Customer Sample Identification	Total Nitrogen %	Total Phosphorus %	Total Potassium %	Total Calcium %	Total Magnesium %	Total Sodium %	Total Zinc ppm	Total Iron ppm
[illegible]	117	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45021472	118	0.55	0.07	6.02	0.53	0.04	0.04	37.02	2244.64
[illegible]	119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Laboratory #	Total Copper ppm	Total Manganese ppm	Total Sulfur ppm	Total Boron ppm	% Dry Matter
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	7.68	37.78	926.62	2.26	47.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.7

...ection 2: Pounds of nutrient per ton on an as received basis

Laboratory #	Customer Sample Identification	Nitrogen lbs/wet ton	P_2O_5 lbs/wet ton	K_2O lbs/wet ton	Calcium lbs/wet ton	Magnesium lbs/wet ton	Sodium lbs/wet ton	Zinc lbs/wet ton	Iron lbs/wet ton
[illegible]	117	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45021472	118	5.29	1.52	69.18	5.08	0.43	0.42	0.035	2.148
[illegible]	119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Laboratory #	Copper lbs/wet ton	Manganese lbs/wet ton	Sulfur lbs/wet ton	Boron lbs/wet ton
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45021472	0.007	0.036	0.887	0.002
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Odor Control Plan
for
Bouma Dairy

Odors from the facility are mainly associated with agricultural operations, including other CAFOs. Odors from CAFO's are not consistently predictable, and may have a periodic impact on nearby residents depending on sources and weather conditions. Odors may be less noticeable during calm days and tend to be strongest during the cleaning of animal buildings and during withdrawal of water from the lagoons and land application. It is the intention of the faculty to limit odors to an absolute minimum.

The following are practices to be used for an Odor Control Plan:

- Pens will be scraped off on as needed basis. Solid waste will be removed as needed to best reduce nuisance odors.

- All dead animals should be removed within 24 hours or will be buried at a minimum depth of three feet in designated area.

- Cleaning of the barns will be done at times consistent with the least nuisance problems.

- Irrigation will be done during daylight hours when wind velocity and humidity are lower. Irrigation will be monitored by an employee or management trained in waste disposal. This training will be accomplished by attending waste management training provided by the Agriculture Extension Service and TCEQ

- All lounging areas around the barn will be maintained so that there is no ponding of liquids.

- Pump retention ponds before the liquid level reaches the 24 hr-25 yr marker.

- The RCS is properly sized using USDA-Natural Resource Conservation Service Waternuterr spreadsheet.

- In an effort to reduce air-bound particulate the dairy will add moisture to feed when mixing under windy conditions. Controlling the speed of farm vehicles will reduce dust generated at the facility

- The dairy would urge anyone who lives in the vicinity of the dairy, to notify the management when a perceived problem develops so that the source can be identified immediately.

- Dust when necessary will be controlled by water the area until the dust is controlled.

EAST TEXAS ENVIRONMENTAL SERVICES

ENVIRONMENTAL CONSULTANTS

Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

RECEIVED
DEC 31 2024
WATER QUALITY DIVISION
TCEQ

Subject: Delegation of Signatories to Reports

Facility/Company/Site Name: Bouma Dairy

Texas General Permit Number: not issued yet

Dear Executive Director:

This letter serves to designate the following people or positions as authorized personnel for Electronic STEERS signature(s), signing reports, stormwater pollution prevention plans, Pollution Prevention Plans, Core Data Forms, Annual Reporting Forms, Soil Monitoring Report Forms, Discharge Monitoring Report Forms, certifications or other information requested by the Executive Director or required by the general or water quality permit(s), as set forth by 30 TAC §305.128.

Name or Position	Jim C. Wyrick, PG, Environmental Consultant

I understand that this authorization does extend to the STEERS Electronic Signatory Authority but does not extend to the signing of the paper copies of the Notice of Intent, Notice of Change, or Change in Permittee for obtaining coverage under a TCEQ Water Quality or Texas General Permit offered by the TCEQ.

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in 30 TAC §305.44 .

Sincerely,

M Bouma

Signature

Owner

Title

12-18-24

Date

MAIKO BOUMA

Printed Name

RELEVANT PROVISIONS

305.128(a) All reports requested by permits and other information requested by the executive director shall be signed by a person described in §305.44(a) of this title (relating to Signatories to Applications) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) the authorization is made in writing by a person described in §305.44(a) of this title (relating to Signatories to Applications);

(2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental matters for the applicant, such as the position of plant manager, operator of a well or well field, environmental manager, or a position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) the written authorization is submitted to the executive director.

(b) If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of this section must be submitted to the executive director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(c) Any person signing a report required by a permit shall make the certification set forth in §305.44(b) of this title (relating to Signatories to Applications).

305.44(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

(b) A person signing an application shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

ELECTRONIC WAIVER REQUEST FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

A Large CAFO, as defined in the CAFO rules at 30 TAC 321.32(14)(A), must request a waiver from e-reporting requirements codified in 40 Code of Federal Regulations §127.15 OR be required to submit CAFO annual reports electronically.

Are you requesting a waiver from e-reporting requirements?

☒ Yes, Indicate the type of waiver below.

☒ Temporary Waiver

☐ Permanent Waiver (available to facilities and entities owned or operated by members of religious communities that choose not to use certain modern technologies (e.g., computers, electricity))

☐ No, you must submit your application electronically through TCEQ ePermits system (STEERS) at https://www3.tceq.texas.gov/steers/index.cfm. Check How to Apply through STEERS.

If an electronic waiver request is granted, the Applicant(s) seeking authorization, or an authorized permittee(s) may continue to submit CAFO annual reports to TCEQ in a paper format.

Note:

- An approved waiver is not transferrable.
- Each Owner or Operator must request his own waiver.
- Temporary waiver will not extend beyond five years. However, permittees may re-apply for a new temporary waiver, if needed.

State Only CAFOs are exempt from this requirement.

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 601180649		RN 103920385

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 9/3/2024

☐ 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:*

NICO JAAP DEBOER

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

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

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☒ Sole Proprietorship ☐ Other:

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

13. Independently Owned and Operated? ☒ Yes ☐ No

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

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

15. Mailing Address: 19008 FM 3079 CHANDLER TX 75758 7667

City	CHANDLER	State	TX	ZIP	75758	ZIP + 4	7667

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(903) 521-3095		( ) -

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.)*

HILLTOP JERSEY FARM

23. Street Address of the Regulated Entity: *(No PO Boxes)*	19008 FM 3079							
	City	CHANDLER	**State**	TX	**ZIP**	75758	**ZIP + 4**	7667
24. County	HOPKINS							

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

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
CHANDLER			TX		75758

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:	32.2635		**28. Longitude (W) In Decimal:**	-95.537716	
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)
0241			

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

MILK PRODUCTION

34. Mailing Address:	**19008 FM 3079**							
	City	**CHANDLER**	**State**	**TX**	**ZIP**	**75758**	**ZIP + 4**	**7667**

35. E-Mail Address:	**hilltopjersey@gmail.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(903) 855-2748		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Jim C. Wyrick	**41. Title:**	Consultant

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(903) 521-3095		( ) -	wyrick@suddenlink.net

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:	East Texas Environmental Services	**Job Title:**	Consultant
Name *(In Print):*	Jim C, Wyrick	**Phone:**	(903) 243- 400
Signature:	Jim C Wyrick	**Date:**	8/3/2024

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDIVIDUAL PERMIT APPLICATION FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

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

SECTION 1. APPLICATION FEE

Minor Amendment - $150.00
Renewal - $315.00
New or Major Amendment - $350.00

Mailed	Check/Money Order Number: 24665
	Check/Money Order Amount: $350.00
	Name Printed on Check: Maiko Bouma DBA Bouma Dairy
EPAY	Voucher Number:
	Copy of Payment Voucher enclosed? Yes ☐

SECTION 2. TYPE OF APPLICATION

A. Coverage: State Only ☐ TPDES ☒

B. Media Type: Water Quality ☐ Air and Water Quality ☒

C. Application Type: New ☒ Major Amendment ☐
Renewal ☐ Minor Amendment ☐

D. For amendments, describe the proposed changes:

E. For existing permits:
What is the permit number?
What is the EPA I.D. Number? TX

SECTION 3. FACILITY OWNER (APPLICANT) INFORMATION

A. What is the legal name of the facility owner?
- BOUMA, MAIKO HESSEL

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN 601231814

C. What is the contact information for the owner?

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: na

E-mail Address: boumadairy@hotmail.com

D. Indicate the type of customer:

- ☐ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☒ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify:

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☒ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

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

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller:

What is the Charter Filing Number issued by the Texas Secretary of State:

SECTION 4. CO-APPLICANT INFORMATION

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

A. What is the legal name of the co-applicant?

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN

C. What is the contact information for the co-applicant?

Mailing Address:

City, State and Zip Code:

Phone Number: Fax Number:

E-mail Address:

D. Indicate the type of customer:

- ☐ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☐ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify:

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☐ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

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

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller:

What is the Charter Filing Number issued by the Texas Secretary of State:

SECTION 5. APPLICATION CONTACT INFORMATION

This is the person TCEQ will contact if additional information is needed about this application.

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

Application Contact First and Last Name: Jim Wyrick

Title: Consultant Credentials: Professional Geoscientist

Company Name: East Texas Environmental Services

Mailing Address: 317 Highland Dr,

City, State and Zip Code: Sulphur Springs, TX 75482

Phone Number: 903 243-0400 Fax Number:

E-mail Address: wyrick@suddenlink.net

SECTION 6. PERMIT CONTACT INFORMATION

Provide two names of individuals that TCEQ can contact during the term of the permit.

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

Permit Contact First and Last Name: Jim Wyrick

Title: Consultant Credentials: PG

Company Name: East Texas Environmental Services

Mailing Address: 317 Highland Dr.

City, State and Zip Code: Sulphur Springs, TX 75482

Phone Number: 903-243-0400 Fax Number: na E-mail Address: wyrick@suddenlink.net

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

Permit Contact First and Last Name: MAIKO BOUMA

Title: Owner Credentials:

Company Name: BOUMA DAIRY

Mailing Address: 4252 COUNTY ROAD 2408

City, State and Zip Code: WINNSBORO, TX 75494 4100

Phone Number: 903 855 2748 Fax Number: E-mail Address: boumadairy@hotmail.com

SECTION 7. ANNUAL BILLING CONTACT INFORMATION

Please identify the individual for receiving the annual fee invoices.

Is the billing contact and contact information the same as the Owner or the Co-Applicant identified in Section 3) or Section 4) above?

☒ Yes, specify which applicant on the line below and go to Section 8)

MAIKO HESSEL BOUMA

☐ No, complete this section

Prefix (Mr., Ms., Miss):

First and Last Name:

Title: Credentials:

Company Name:

Mailing Address:

City, State and Zip Code:

Phone Number: Fax Number: E-mail Address:

SECTION 8. LANDOWNER INFORMATION

A. Landowner where the production area is or will be located

Landowner Name: MAIKO HESSEL BOUMA

B. Landowner of the land management units (LMUs)

Landowner Name: MAIKO HESSEL BOUMA

SECTION 9. PUBLIC NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Mr. First and Last Name: JIM WYRICK

Title: Consultant Credentials: PG

Company Name: EAST TEXAS ENVIRONMENTAL SERVICES

Mailing Address: 317 HIGHLAND DR.

City, State and Zip Code: SULPHUR SPRINGS, TX 75482

Phone Number: 903-243-0400 Fax Number: _____ E-mail Address: wyrick@suddenlink.net

B. Method for receiving the notice package for the Notice of Receipt and Intent

☐ E-mail:

☐ Fax Number:

☒ Regular Mail:

Mailing Address: 317 Highland Dr.

City, State and Zip Code: Sulphur Springs, TX 75482

C. Contact person to be listed in the notice

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

First and Last Name: MAIKO BOUMA

Title: OWNER Credentials:

Company Name: BOUMA DAIRY

Phone Number: 903 855 2748

D. Public viewing location

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

Public Building Name: Texas A&M AgriLife extension Service

Physical Address of Building: 1200 W Houston

City: Sulphur Springs County: TX

Phone Number: 903-885-3443

E. Bilingual Notice Requirement

For new, major amendment, and renewal applications. This information can be obtained by

Texas Commission on Environmental Quality

Template and Instructions for the Plain Language Summary for a Concentrated Animal Feeding Operation (CAFO) Permit Application

This template is a guide for developing a plain language summary for a CAFO permit application as required by the TCEQ Public Participation Plan and Language Access Plan. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed site or facility; (2) the expected output of the proposed site or facility; (3) the expected pollutants that may be emitted or discharged by the proposed site or facility; and (4) how the applicant will control those pollutants, so that the proposed or existing CAFO facility will not have an adverse impact on human health or the environment.

Complete the plain language summary templates in English and Spanish below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If a bilingual education program is required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility, and the alternative language is not Spanish, you must provide a translated copy of the completed English plain language summary in the appropriate alternative language as part of your application package for CAFO Permit Applications.

If you have any questions about this template, contact the TCEQ Water Quality Division at (512) 239-4671.

You must submit this template with any of these applications or forms:

1. CAFO General Permit Notice of Intent Application, for a new or significant expansion (form number TCEQ 20111)

2. Notice of Change, for substantial change (form number TCEQ 20511)

3. CAFO Individual Permit Application for new, renewal, or major amendment (form number TCEQ 000728.)

Plantilla e instrucciones para el resumen en lenguaje sencillo para una solicitud de permiso de operación concentrada de alimentación animal (CAFO, sigla en inglés).

Esta plantilla es una guía para desarrollar un resumen en lenguaje sencillo para una solicitud de permiso CAFO según lo requerido por el Plan de Participación Pública y el Plan de Acceso Lingüístico de TCEQ. Puede modificar la plantilla según sea necesario para describir con precisión su instalación, siempre y cuando el resumen incluya la siguiente información: (1) la función del sitio o instalación propuestos; (2) la producción esperada del sitio o instalación propuestos; (3) los contaminantes esperados que pueden ser emitidos o descargados por el sitio o instalación propuestos; y (4) cómo el solicitante controlará esos contaminantes, de modo que la instalación CAFO propuesta o existente no tenga un impacto adverso en la salud humana o el medio ambiente.

Complete las plantillas de resumen en lenguaje sencillo en inglés y español a continuación para describir su instalación y aplicación en lenguaje sencillo. A continuación se proporcionan instrucciones y ejemplos. Realice cualquier otra edición necesaria para mejorar la legibilidad o la gramática y para cumplir con los requisitos de la regla.

Si el Código de Educación de Texas requiere un programa de educación bilingüe en la escuela primaria o intermedia más cercana a la instalación o instalación propuesta, y el idioma alternativo no es el español, debe proporcionar una copia traducida del resumen completo en inglés en el idioma alternativo apropiado como parte de su paquete de solicitud para las solicitudes de permisos CAFO.

Si tiene alguna pregunta sobre esta plantilla, comuníquese con la División de Calidad del Agua de TCEQ al (512) 239-4671.

Debe enviar esta plantilla con cualquiera de estas solicitudes o formularios:

1. Solicitud de Aviso de Intención de Permiso General de CAFO, para una expansión nueva o significativa (número de formulario TCEQ 20111)
2. Aviso de cambio, para cambios sustanciales (número de formulario TCEQ 20511)
3. Solicitud de Permiso Individual CAFO para una enmienda nueva, renovable o importante (número de formulario TCEQ 000728.)

ENGLISH LANGUAGE TEMPLATE FOR CAFO PERMIT APPLICATIONS

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by the TCEQ Public Participation Plan and Language Access Plan. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

1. Applicant's Name: - BOUMA, MAIKO HESSEL
2. Enter Customer Number: CN601231814
3. Name of facility: BOUMA DAIRY
4. Enter Regulated Entity Number: RN102334539
5. Provide your permit Number: NOT ISSUED YET
6. Facility Business: DAIRY MILK PRODUCTION. THIS FACILITY CONFINES 999 HEAD DAIRY CATTLE, OF WHICH 999 HEAD ARE MILKING COWS. THE FACILITY PRODUCTION AREA IS LOCATED 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100. THE DAIRY FACILITY HAS 9 LAND MANAGEMENT UNITS (LMUS) WITH THE FOLLOWING ACREAGE: LMU #1 - 75, LMU # LMU #2 - 44, LMU #3 - 39, LMU #4 – 64, LMU #5 – 30, LMU #5 – 30, LMU #6 – 41, LMU #7 – 38, LMU #8 – 37, AND LMU #9 – 101, AND 2 RETENTION CONTROL STRUCTURES (RCSS), AND A CONCRETE SETTLING BASINS. THE RCSS TOTAL REQUIRED CAPACITIES WITHOUT FREEBOARD (ACRE-FEET) ARE RCS #1 – 5.56 AND RCS #2 – 6.92. THERE ARE ONSITE 3 WATER WELLS (WELLS #1- #3). THE FACILITY IS LOCATED IN THE DRAINAGE AREA OF SEGMENT NO. 0514 OF BIG SANDY CREEK
7. Facility Location: 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100
8. Application Type: NEW
9. Description of your request: APPLYING FOR A NEW IP
10. Potential pollutant sources at the facility include (list the pollutant sources): Manure, Wastewater, Dust, lubricants, Feed, Fuel Storage, Medicines, Cleaning Chemicals
11. The following best management practices will be implemented at the site to manage pollutants from the listed pollutant sources (describe the best management practices that are used): MANURE WILL BE STORED WITHIN THE DRAINAGE AREA OF RCS #1. WASTEWATER WILL BE STORED IN RCS #1, AND RCS #2. UNTIL PROPERLY IRRIGATED THROUGH A DRAGHOSE SYSTEM IRRIGATION SYSTEMS. MANURE WILL BE HAULED TO THE APPROPRIATE LMUS, OFFSITE, IN ACCORDANCE WITH THE NUTRIENT MANAGEMENT PLAN. RCS #1, AND RCS #2 ARE DESIGNED TO STORE AND MAINTAIN THE SLUDGE AND 25YR-24HR RAINFALL. ALL OTHER CLEANERS, LUBRICANTS, FUELS AND MEDICINES WILL BE MAINTAINED AND ALL MANUFACTURERS' DIRECTIONS FOLLOWED. DEAD COWS WILL BE BURIED WITHIN 72 HOURS

Unless otherwise limited, manure, sludge, or wastewater will not be discharged from a land management unit (LMU) or a retention control structure (RCS) into or adjacent to water in the state from a CAFO except resulting from any of the following conditions:

1) a discharge of manure, sludge, or wastewater that the permittee cannot reasonably prevent or control resulting from a catastrophic condition other than a rainfall event;

2) overflow of manure, sludge, or wastewater from a RCS resulting from a chronic/catastrophic rainfall event; or

3) a chronic/catastrophic rainfall discharge from a LMU that occurs because the permittee takes measures to de-water the RCS if the RCS is in danger of imminent overflow.

PLANTILLA DE IDIOMA ESPAÑOL PARA SOLICITUDES DE PERMISO CAFO

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Plan de Participación Pública y el Plan de Acceso al Idioma de la TCEQ. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación federal exigible de la solicitud de permiso.

1. Nombre del Solicitante: BOUMA, MAIKO HESSEL
2. Introduzca el Número de Cliente: CN601231814
3. Nombre de la Instalación: BOUMA DAIRY
4. Introduzca el Número de Entidad Regulada: RN102334539.
5. Proporcione su Número de Permiso: AÚN NO EMITIDO
6. Negocio de Instalación: PRODUCCIÓN DE LECHE. ESTA INSTALACIÓN CONFINA 999 CABEZAS DE GANADO LECHERO, DE LAS CUALES 999 CABEZAS SON VACAS DE ORDEÑO. EL ÁREA DE PRODUCCIÓN DE LA INSTALACIÓN ESTÁ UBICADA EN 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100. LA INSTALACIÓN LÁCTEA TIENE 9 UNIDADES DE GESTIÓN DE TIERRAS (LMUS) CON LA SIGUIENTE SUPERFICIE: LMU N.º 1 - 75, LMU N.º 2 - 44, LMU N.º 3 - 39, LMU N.º 4 - 64, LMU N.º 5 - 30, LMU N.º 5 - 30, LMU N.º 6 - 41, LMU N.º 7 - 38, LMU N.º 8 - 37 Y LMU N.º 9 - 101, Y 2 ESTRUCTURAS DE CONTROL DE RETENCIÓN (RCSS) Y CUENCAS DE SEDIMENTACIÓN DE CONCRETO. LAS CAPACIDADES TOTALES REQUERIDAS POR RCSS SIN FRANCOBORDO (ACRE-PIES) SON RCS N.° 1: 5,56 Y RCS N.° 2: 6,92. HAY 3 POZOS DE AGUA EN EL LUGAR (POZOS N.° 1 A N.° 3). LA INSTALACIÓN ESTÁ UBICADA EN EL ÁREA DE DRENAJE DEL SEGMENTO N.° 0514 DE BIG SANDY CREEK
7. Ubicación de la Instalación: 4252 COUNTY ROAD 2408 WINNSBORO TX 75494 4100.
8. Tipo de Solicitud: NUEVO
9. Descripción de su solicitud: SOLICITUD DE NUEVA IP
10. Las fuentes potenciales de contaminantes en la instalación incluyen (liste las fuentes contaminantes): ESTIÉRCOL, AGUAS RESIDUALES, POLVO, LUBRICANTES, PIENSOS, ALMACENAMIENTO DE COMBUSTIBLE, MEDICAMENTOS, PRODUCTOS QUÍMICOS DE LIMPIEZA
11. Las siguientes mejores prácticas de gestión se implementarán en el sitio para gestionar los contaminantes de las fuentes contaminantes listadas (describa las mejores prácticas de gestión que se utilizan): EL ESTIÉRCOL SE ALMACENARÁ DENTRO DEL ÁREA DE DRENAJE DE RCS #1, Y RCS #2. LAS AGUAS RESIDUALES SE ALMACENARAN EN RCS #1 Y RCS #2 HASTA QUE SE RIGUEN CORRECTAMENTE A TRAVÉS DE UN SISTEMA DE RIEGO DE PIVOTE CENTRAL Y DE ARRASTRE. EL ESTÉRICO SERÁ TRANSPORTADO A LOS LMUS APROPIADOS, FUERA DEL SITIO, DE ACUERDO CON EL PLAN DE MANEJO DE NUTRIENTES. Los RCS #1 y RCS #2 ESTARÁN DISEÑADOS PARA ALMACENAR Y MANTENER LOS LODOS Y LAS LLUVIAS DE 25 A 24 HORAS. TODOS LOS DEMÁS LIMPIADORES, LUBRICANTES, COMBUSTIBLES Y

MEDICAMENTOS SE MANTENDRÁN Y SE SEGUIRÁN TODAS LAS INSTRUCCIONES DEL FABRICANTE. LAS VACAS MUERTAS SERÁN ENTERRADAS EN 72 HORASMEDICAMENTOS SE MANTENDRÁN Y SE SEGUIRÁN TODAS LAS INSTRUCCIONES DEL FABRICANTE. LAS VACAS MUERTAS SERÁN ENTERRADAS EN 72 HORASA

A menos que se limite lo contrario, el estiércol, los lodos o las aguas residuales no se descargarán de una unidad de gestión de la tierra (LMU, por sus siglas en inglés) o una estructura de control de retención (RCS, por sus siglas en inglés) hacia o adyacente al agua en el estado de una CAFO, excepto como resultado de cualquiera de las siguientes condiciones:

1) una descarga de estiércol, lodos o aguas residuales que el permisionario no pueda prevenir o controlar razonablemente como resultado de una condición catastrófica que no sea un evento de lluvia;

2) desbordamiento de estiércol, lodo o aguas residuales de un RCS como resultado de un evento de lluvia crónico/catastrófico; o

3) una descarga de lluvia crónica/catastrófica de una LMU que ocurre porque el permisionario toma medidas para desaguar el RCS si el RCS está en peligro de desbordamiento inminente.

Instructions to Complete the Summary - English

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789). You may search for your CN from this web address: Customer Number.
3. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
4. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789). You may search for your RN from this web address: Regulated Entity Number
5. Provide the permit number that the TCEQ assigned to your site. GP starts with TXG92 and four numbers. IPs start with WQ000xxxx000.
6. Enter a description of the facility in this section. For example, Dairy cattle milk production facility; dairy heifer replacement production facility; beef cattle production facility; young calves production facility or cow/calf operation; chicken egg laying production facility; chicken broiler production facility; sheep/goat production facility; swine production facility.
7. Enter the location of the facility in this section. If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753 enter it in this section, but if not provide the location description in the space.
8. Provide the application type in this section.
1. CAFO general permit authorization: select the applicable type from the following list:
1. New authorization for a facility not currently authorized
2. Significant expansion
3. Substantial change
4. CAFO Individual Permit: select the applicable type from the following list:
    1. New
    2. Renewal
    3. Major Amendment
4. Provide a detailed description of the proposed changes to the site to be authorized if you are already authorized and you are proposing some changes to your permit (IP) or authorization (GP).

    If you are requesting a new permit or authorization, provide the number of animals, the number of acres that will be available for land application, list of main crops, and number of lagoons to be authorized.
5. List all potential pollutant sources expected at the facility in this section. For example, you may refer to page one of the technical information packet in this application.
6. Enter a description of the best management practices used at your facility. Include a description of each process, starting with initial treatment and finishing with the point of

disposal. For example, process generated wastewater and stormwater are stored in a lagoon (RCS) until land applied through irrigation, and manure and sludge are stockpiled in the drainage area of the RCS until land applied or hauled offsite for beneficial use.

Example of a Completed Plain Language Summary - English

Individual Permit Application for a Concentrated Animal Feeding Operation- English

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

1. Spotted Cow Dairy, LLC
2. CN600000000
3. Spotted Cow Dairy
4. RN1000000000
5. WQ0000000000
6. This facility confines 4,100 head dairy cattle, of which 3,500 head are milking cows. The facility main production area is located on the west side of County Road 8000, approximately one mile south of the intersection of County Road 60 and Highway 11, east of Hico in Hamilton County, Texas. The dairy facility has twelve (12) land management units (LMUs) with the following acreage: LMU #1 - 25, LMU #1A - 45, LMU #2 - 19, LMU #3 - 15, LMU #4 - 59, LMU #5 - 54, LMU #6 - 48, LMU #7 - 35, LMU #8 - 44, LMU #9 - 7, LMU #10 - 6, and LMU #14 - 26; and two (2) retention control structures (RCSs), one Earthen Slurry Basin, one Concrete Slurry Basin, three Earthen Settling Basins, and two Concrete Settling Basins. The RCSs total required capacities without freeboard (acre-feet) are RCS #1 - 67.84 and RCS #2 - 5.24. There are ten onsite water wells (Wells #1 through #10), of which Wells #1, #5 and #6 are plugged. The facility also owns a calf ranch facility and one retention control structure (RCS) RCS #3. The facility is located in the drainage area of the North Bosque River in Segment No. 1226 of the Brazos River Basin.
7. The facility main production area is located on the west side of County Road 80, approximately one mile south of the intersection of County Road 2361 and Highway 6, east of Hico in Hamilton County, Texas.
8. This application is for a major amendment to the permit.
9. The changes include the increase in the number of milking cows from 3500 to 4100 head, the addition of a cross ventilated barn a pen area.
10. Potential pollutant sources at the site include: manure and manure stockpiles, wastewater, sludge, dust, inorganic fertilizers, fuel storage tanks, and compost.
11. The following best management practices will be implemented at the site to manage pollutants from the listed pollutant sources: process generated wastewater and stormwater are stored in a lagoon (RCS) until land applied through irrigation, and manure and sludge are stockpiled in the drainage area of the RCS until land applied or hauled offsite for beneficial use.

Manure, sludge, and wastewater generated by the CAFO will be retained and used in an appropriate and beneficial manner in accordance with a certified site- specific nutrient management plan; and wastewater will be contained in RCSs properly designed ((25-year frequency 10-day duration (25 year/10 day), constructed, operated and maintained according to the provisions of the permit.

Manure, sludge, or wastewater will not be discharged from a LMU or a retention control structure (RCS) into or adjacent to water in the state except under the following conditions:

1. a discharge of manure, sludge, or wastewater that the permittee cannot reasonably prevent or control resulting from a catastrophic condition other than a rainfall event;
2. overflow of manure, sludge, or wastewater from a RCS resulting from a chronic/catastrophic rainfall event; or
3. a chronic/catastrophic rainfall discharge from a LMU that occurs because the permittee takes measures to de-water the RCS if it is in danger of imminent overflow.

Any discharges initiated under the above conditions will be sampled for the following potential pollutants: 5 Day Biochemical Oxygen Demand (BOD5), Escherichia coli, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Nitrate (N), Total Phosphorus, Ammonia Nitrogen and Pesticides.

Instrucciones para completar el resumen – Español

1) Introduzca el nombre del solicitante en esta sección. El nombre del solicitante debe coincidir con el nombre asociado con el número de cliente.
2) Introduzca el número de cliente en esta sección. A cada individuo u organización se le emite un número de identificación único de 11 dígitos llamado CN (por ejemplo, CN123456789). Puede buscar su CN desde esta dirección web: Número de cliente.
3) Introduzca el nombre de la instalación en esta sección. El nombre de la instalación debe coincidir con el nombre asociado con el número de entidad regulada.
4) Introduzca el número de Entidad Regulada en esta sección. Cada ubicación del sitio recibe un número de identificación único de 11 dígitos llamado RN (por ejemplo, RN123456789). Puede buscar su RN desde esta dirección web: Número de entidad regulada
5) Proporcione el número de permiso que la TCEQ asignó a su sitio. GP comienza con TXG92 y cuatro números. Las direcciones IP comienzan con WQ000____000.
6) Introduzca una descripción de la instalación en esta sección. Por ejemplo, la planta de producción de leche para ganado lechero; instalación de producción de reemplazo de novillas lecheras; instalaciones de producción de ganado vacuno; instalación de producción de terneros jóvenes u operación de vacas/terneros; planta de producción de puesta de huevos de gallina; planta de producción de pollos de engorde; planta de producción de ovino y caprino; planta de producción porcina.
7) Introduzca la ubicación de la instalación en esta sección. Si el sitio tiene una dirección física como 12100 Park 35 Circle, Austin, TX 78753, introdúzcala en esta sección, pero si no proporciona la descripción de la ubicación en el espacio.
8) Proporcione el tipo de aplicación en esta sección.
   a) Autorización de permiso general CAFO: seleccione el tipo aplicable de la siguiente lista:
      - Nueva autorización para una instalación no autorizada actualmente
      - Expansión significativa
      - Cambio sustancial
   b) Permiso Individual CAFO: seleccione el tipo aplicable de la siguiente lista:
      - Nuevo
      - Renovación
      - Modificación importante
9) Proporcione una descripción detallada de los cambios propuestos al sitio que se autorizará si ya está autorizado y está proponiendo algunos cambios a su permiso (IP) o autorización (GP).

   Si está solicitando un nuevo permiso o autorización, proporcione el número de animales, el número de acres que estarán disponibles para la aplicación en tierra, la lista de cultivos principales y el número de lagunas que se autorizarán.
10) Enumere todas las fuentes potenciales de contaminantes que se esperan en la instalación en esta sección. Por ejemplo, puede consultar la página uno del paquete de información técnica de esta aplicación.

11) Introduzca una descripción de las mejores prácticas de gestión utilizadas en sus instalaciones. Incluya una descripción de cada proceso, comenzando con el tratamiento inicial y terminando con el punto de eliminación. Por ejemplo, las aguas residuales y pluviales generadas por el proceso se almacenan en una laguna (RCS) hasta que la tierra se aplica a través del riego, y el estiércol y el lodo se almacenan en el área de drenaje del RCS hasta que la tierra se aplica o se transporta fuera del sitio para un uso beneficioso.

Ejemplo de un resumen completo en lenguaje sencillo - Español

Solicitud de Permiso Individual para una Operación de Alimentación Animal Concentrada-Español

Se proporciona el siguiente resumen para esta solicitud de permiso de calidad del agua que se presenta para su revisión por la Comisión de Calidad Ambiental de Texas según lo requerido por 30 Código Administrativo de Texas, Capítulo 39. La información proporcionada en este sumario puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutable federal de la solicitud de permiso.

1) Spotted Cow Dairy, LLC

2) CN600000000

3) Vaca lechera manchada

4) RN1000000000

5) WQ0000000000

6) Esta instalación confina 4.100 cabezas de ganado lechero, de las cuales 3.500 cabezas son vacas de ordeño. El área de producción principal de la instalación está ubicada en el lado oeste de County Road 8000, aproximadamente una milla al sur de la intersección de County Road 60 y Highway 11, al este de Hico en el condado de Hamilton, Texas. La instalación lechera tiene doce (12) unidades de manejo de tierras (LMU) con la siguiente superficie: LMU # 1 - 25, LMU #1A - 45, LMU # 2 - 19, LMU # 3 - 15, LMU # 4 - 59, LMU # 5 - 54, LMU # 6 - 48, LMU # 7 - 35, LMU # 8 - 44, LMU # 9 - 7, LMU # 10 - 6 y LMU # 14 - 26; y dos (2) estructuras de control de retención (RCS), una cuenca de lodo de tierra, una cuenca de lodo de concreto, tres cuencas de sedimentación de tierra y dos cuencas de sedimentación de concreto. Las capacidades totales requeridas de RCS sin francobordo (acres-pies) son RCS # 1 - 67.84 y RCS # 2 - 5.24. Hay diez pozos de agua en el sitio (pozos # 1 a # 10), de los cuales los pozos # 1, # 5 y # 6 están tapados. La instalación también posee una instalación de rancho de terneros y una estructura de control de retención (RCS) RCS # 3. La instalación está ubicada en el área de drenaje del río Bosque Norte en el Segmento No. 1226 de la Cuenca del Río Brazos.

7) El área de producción principal de la instalación está ubicada en el lado oeste de County Road 80, aproximadamente una milla al sur de la intersección de County Road 2361 y Highway 6, al este de Hico en el condado de Hamilton, Texas.

8) Esta solicitud es para una modificación importante del permiso.

9) Los cambios incluyen el aumento en el número de vacas de ordeño de 3500 a 4100 cabezas, la adición de un establo ventilado cruzado y un área de corral.

10) Las fuentes potenciales de contaminantes en el sitio incluyen: estiércol y estiércol, aguas residuales, lodos, polvo, fertilizantes inorgánicos, tanques de almacenamiento de combustible y compost.

11) Las siguientes mejores prácticas de gestión se implementarán en el sitio para manejar los

contaminantes de las fuentes contaminantes enumeradas: las aguas residuales generadas por el proceso y las aguas pluviales se almacenan en una laguna (RCS) hasta que la tierra se aplica a través del riego, y el estiércol y el lodo se almacenan en el área de drenaje del RCS hasta que la tierra se aplica o se transporta fuera del sitio para un uso beneficioso.

El estiércol, lodo y aguas residuales generados por la CAFO serán retenidos y utilizados de manera apropiada y beneficiosa de acuerdo con un plan certificado de manejo de nutrientes específico del sitio; y las aguas residuales estarán contenidas en RCS debidamente diseñados ((frecuencia de 25 años 10 días de duración (25 años / 10 días), construidos, operados y mantenidos de acuerdo con las disposiciones del permiso.

El estiércol, los lodos o las aguas residuales no se descargarán de una LMU o una estructura de control de retención (RCS) en o adyacentes al agua en el estado, excepto bajo las siguientes condiciones:

· una descarga de estiércol, lodo o aguas residuales que el permisionario no puede prevenir o controlar razonablemente como resultado de una condición catastrófica que no sea un evento de lluvia;

· desbordamiento de estiércol, lodo o aguas residuales de un RCS como resultado de un evento de lluvia crónica / catastrófica; o

· una descarga de lluvia crónica/catastrófica de una LMU que ocurre porque el permisionario toma medidas para deshidratar el RCS si está en peligro de desbordamiento inminente.

Cualquier descarga iniciada en las condiciones anteriores se muestreará para los siguientes contaminantes potenciales: demanda bioquímica de oxígeno (DBO5) de 5 días, Escherichia coli, sólidos disueltos totales (TDS), sólidos suspendidos totales (TSS), nitrato (N), fósforo total, nitrógeno amoniacal y pesticidas.

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

☒ New Permit or Registration Application

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

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

Section 2. Secondary Screening

☒ Requires public notice,

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

☐ Located within any of the following geographical locations:

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

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

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

Section 3. Application Information

Type of Application (check all that apply):

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

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

Water Quality

☒ Texas Pollutant Discharge Elimination System (TPDES)

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

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

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

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Application for an Individual Permit.

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.

Sulphur Springs

(City)

Hopkins

(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) County Extension Office

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) Local Newspaper

contacting the bilingual/ESL coordinator at the nearest elementary or middle school.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?
Yes ☒ No ☐

(**If No**, alternative language notice publication is not required; skip to Section 10. Regulated Entity (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 ☒

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

6. Complete the CAFO Plain Language Summary Template (English) for CAFO Permit Applications for a new, renewal, major or minor amendment and submit with this application.

If a bilingual education program is required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility, also complete the CAFO Plain Language Summary Template (Spanish) or provide a translated copy of the completed English plain language summary in the appropriate alternative language if different from Spanish.

F. **Public Involvement Plan Form**
Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit.

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name as known by the local community: Bouma Dairy

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 102334539

C. Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Item 1.

If the site does not have a physical address, provide a location description in Item 2. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Item 1: Physical Address of Project or Site:

Street Number and Name: 4252 COUNTY ROAD 2408 4100

City, State and Zip Code: WINNSBORO TX 75494

Item 2: Site Location Description:

Location description:

City where the site is located or, if not in a city, what is the nearest city:

Zip Code where the site is located:

D. County or counties if more than 1:

E. Latitude: 32.980666 Longitude: -95.328666

F. Animal Type:

- ☒ Dairy-0241
- ☐ Beef Cattle- 0211
- ☐ Swine-0213
- ☐ Broiler-0251
- ☐ Laying Hens-0252
- ☐ Sheep/Goats-0214
- ☐ Auction-5154
- ☐ Other, specify:

G. Existing Maximum Number of Animals: 1200

Proposed Maximum Number of Animals: 999

H. What is the total LMU acreage? 469

SECTION 11. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s):

B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.

C. Is the production area located within the protection zone of a sole source drinking water supply? Yes ☐ No ☒

D. 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).

E. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☒

Do you owe any penalties to the TCEQ? Yes ☐ No ☒

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number.

Bouma Dary Land Owners Map

A	R000027529 R000019171	AISE J & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
B	R000021921	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
C	R000021920	MISTY GAYLE & JEFFERY ALAN ETAL MCBRIDE 3259 CR 2408 WINNSBORO, TX 75494
D	R000021923	SHANE NICHOLS 2745 CR 2403 WINNSBORO, TX 75494
E	R000021918	CARL & KATHERINE KASTNER 1195 CR 2403 WINNSBORO, TX 75494
F	R000021279	JODY W & ROSE M RIOJAS 3999 CR 2408 WINNSBORO, TX 75494
G	R000021278	JOHN P & LESLIE A MOORE P O BOX 724 WINNSBORO, TX 75494
H	R000013292	GEORGE JAMES PIERCE 20343 HWY 11 E WINNSBORO, TX 7549
I	R000013308	LAUZON PETER G & SHEILA M REVOCABLE LIVING TRUST PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES 20262 HWY 11 E WINNSBORO, TX 75494
J	R000013310	PHILLIP GILBREATH 7750 LYNDON B JOHNSON FWY 201 DALLAS, TX 75251
K	R000022685	BLAKE C & REGINA BAIN 4360 CR 2310 SULPHUR SPRINGS, TX 75482
L	R000022705 R000022704	DENNIS RAY & SHERRY G NICHOLS 2342 CR 2403 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

M	R000022703	ROYCE EUGENE & VERA LEE CARTER P O BOX 941 VAN ALSTYNE, TX 75495
N	R000019900	RAGSDALE LAND COMPANY LLC PO BOX 822 WINNSBORO, TX 75494
O	R000028423 R000019895 R000019897	AISE & CHARLOTTE BOUMA 902 MAIN ST HALSTEAD, KS 67056
P	R000019224	DUSTIN BRODY ALLEN 2430 CR 2410 WINNSBORO, TX 75494
Q	R000028089 R000028180	SHIRLEY JACKSON MAY 2822 CR 2408 WINNSBORO, TX 75494-4136
R	R000015060 R000015064 R000015064	TEMPLEMAN LIVING TUST TRUSTEE IRIS ANNETTE TEMPLEMAN 1901 WISTERIA WAY MCKINNEY, TX 75071
S	R000021272	RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS 1205 CEDARWOOD DR FLOWER MOUND, TX 75028
U	R000027893	KARI GAYE NOLEN 1577 CR 2393 WINNSBORO, TX 75494
W	R000021274	CHARLESTON DAVID GREEN 203 E CEDAR ST WINNSBORO, TX 75494
X	R000027089	JOHN DAVID & ANNA LAURISSA STONE 1923 CR 2399 WINNSBORO, TX 75494-4241
Y	R000019838	AMELIA ANN L/E GREEN LAQUITA RACHELLE SAVAGE 1801 CR 2399 WINNSBORO, TX 7549
Z	R000019834	RICHARD & TAMMY SMITH 1671 CR 2399 WINNSBORO, TX 75494

Bouma Dary Land Owners Map

AA R000019842 ANTHONY TY & TAMMY LYNNE MARLER
1179 CR 2399
WINNSBORO, TX 75494

BB R000019824 ANTHONY TY & TAMMY LYNNE MARLER
1179 CR 2399
WINNSBORO, TX 75494

CC R000026415 PHUONG LAN T TRAN
1394 CR 2393
WINNSBORO, TX 75494

DD R000029985 WIEPIE & JENNIFER SANDLIN JONGSMA
4705 CR 2390
WINNSBORO, TX 75494

EE R000019836 ANASTASIA & MATTHEW PERRY
PO BOX 917
WINNSBORO, TX 75494

FF R000015984 RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

HOPKINS COUNTY APPRAISAL DISTRICT

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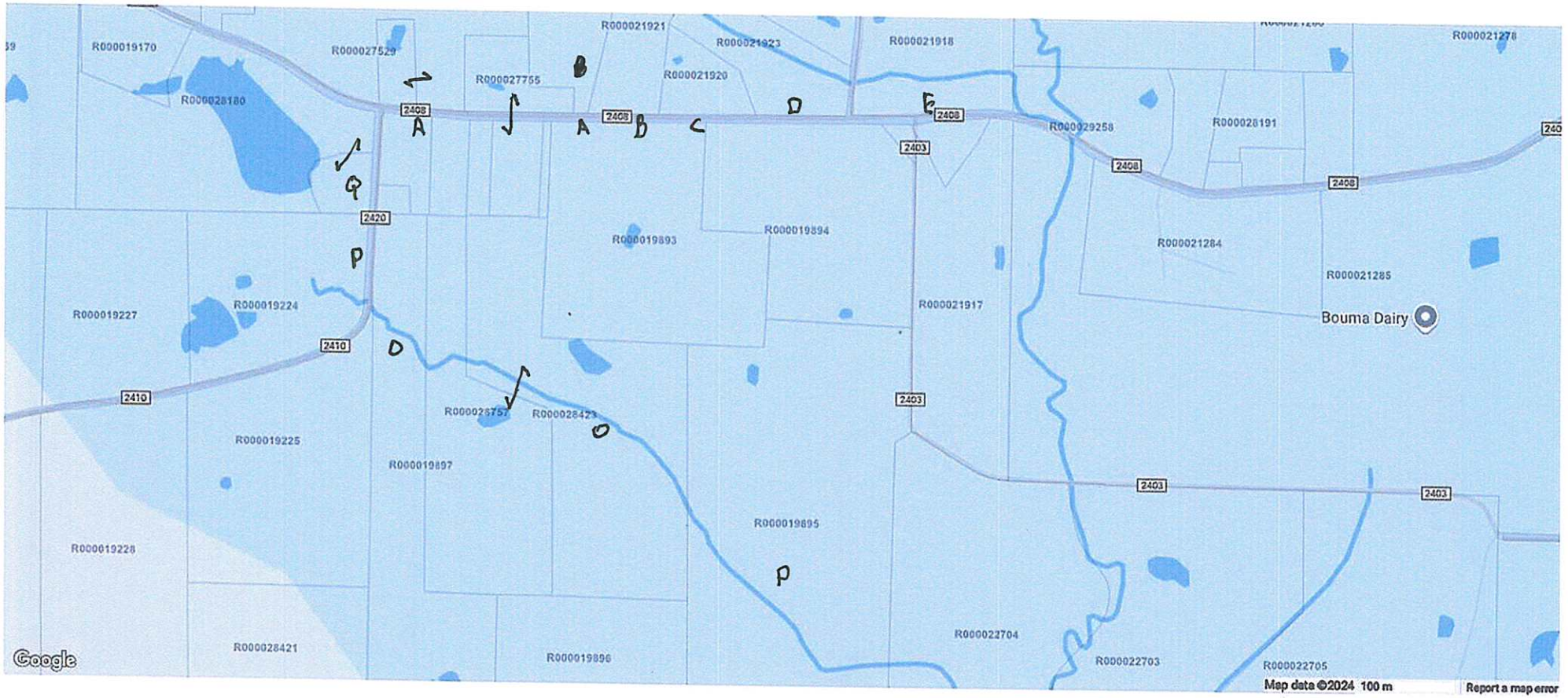
Property Year 2024 Map/GIS

Property ID: R000013309 Geo ID: 65.0307.000.013.01

MAP A

Information Updated 10/23/2024

< Previous Property | 12 / 27 Next Property >



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HOPKINS COUNTY APPRAISAL DISTRICT

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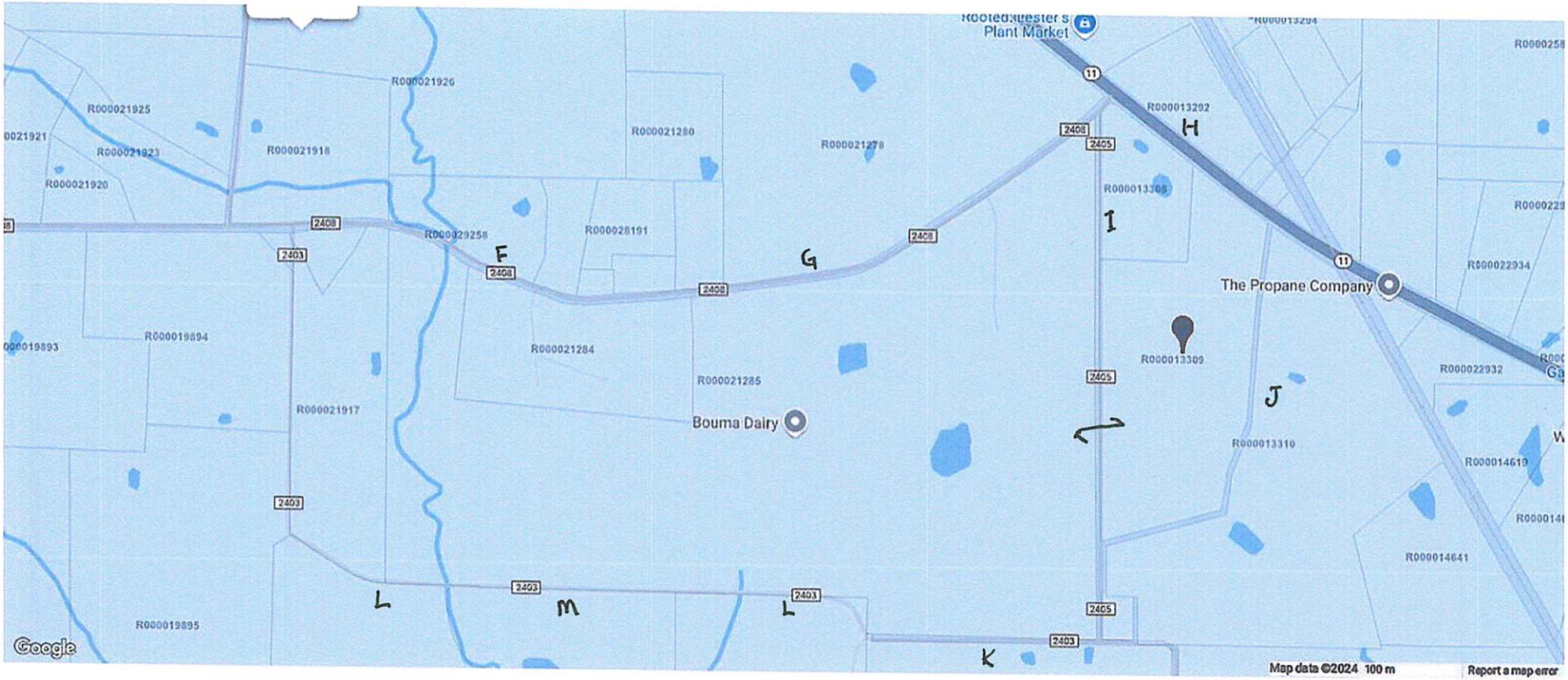
Property Year 2024 Map/GIS

Property ID: R000013309 Geo ID: 65.0307.000.013.01

MAP B

Information Updated 10/23/2024

< Previous Property 12 / 27 Next Property >



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HOPKINS COUNTY APPRAISAL DISTRICT

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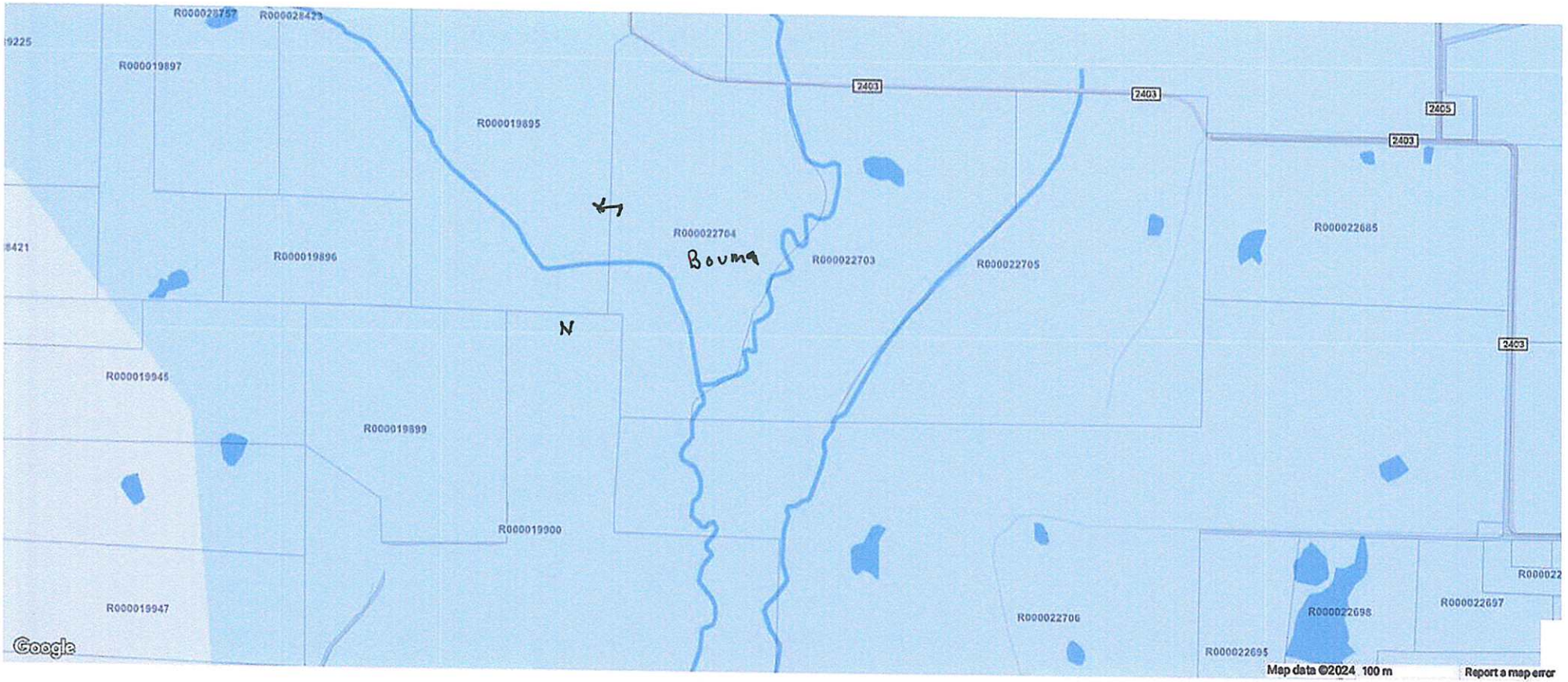
Property Year 2024 Map/GIS

Property ID: R000021285 Geo ID: 65.0898.000.005.01

Information Updated 10/24/2024

< Previous Property 19 / 27 Next Property >

MAP



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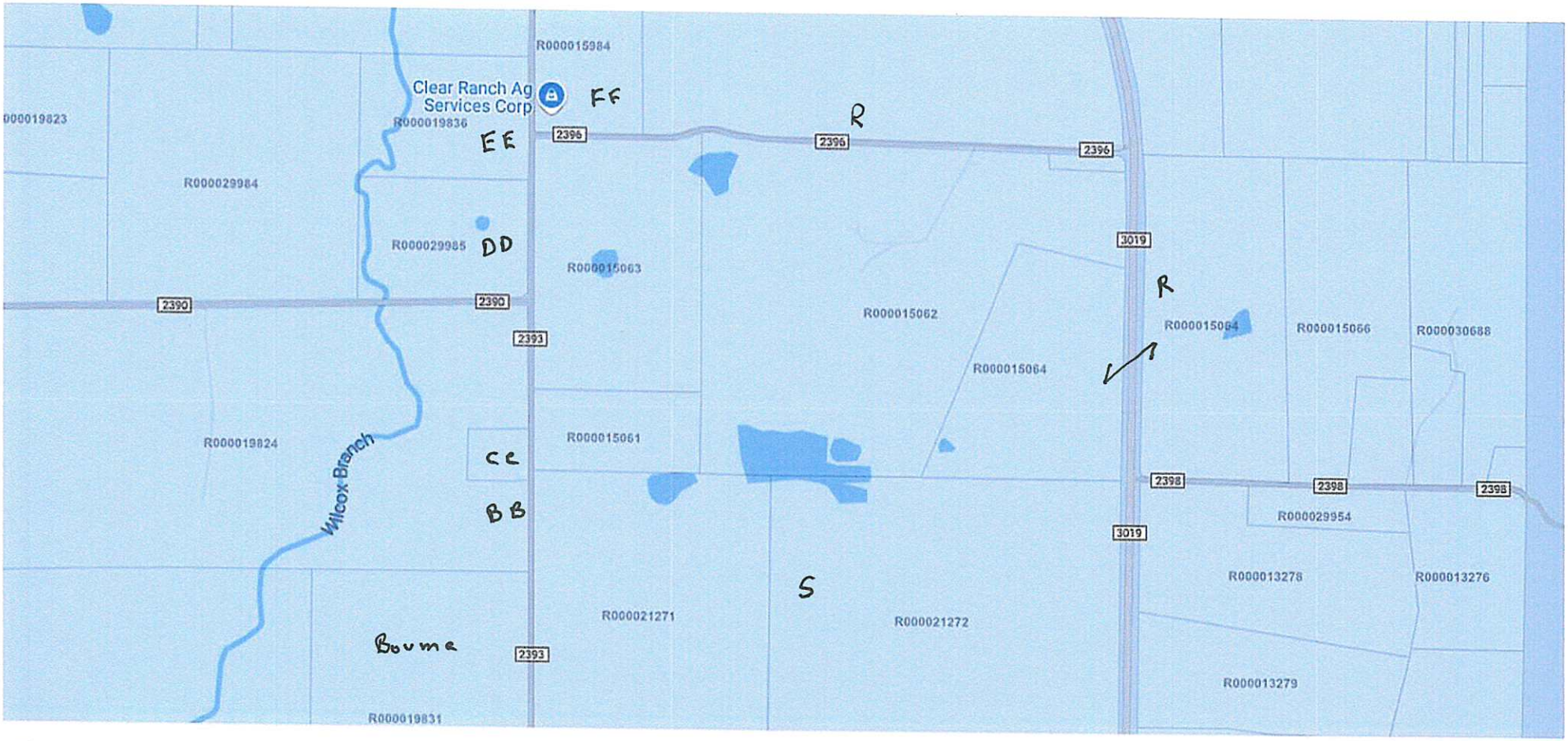
Property Year 2024 Map/GIS

Property ID: R000021285 Geo ID: 65.0898.000.005.01

Off site A

Information Updated 10/24/2024

< Previous Property 19 / 27 Next Property >



Google

Map data ©2024 100 m Report a map error

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HOPKINS COUNTY APPRAISAL DISTRICT

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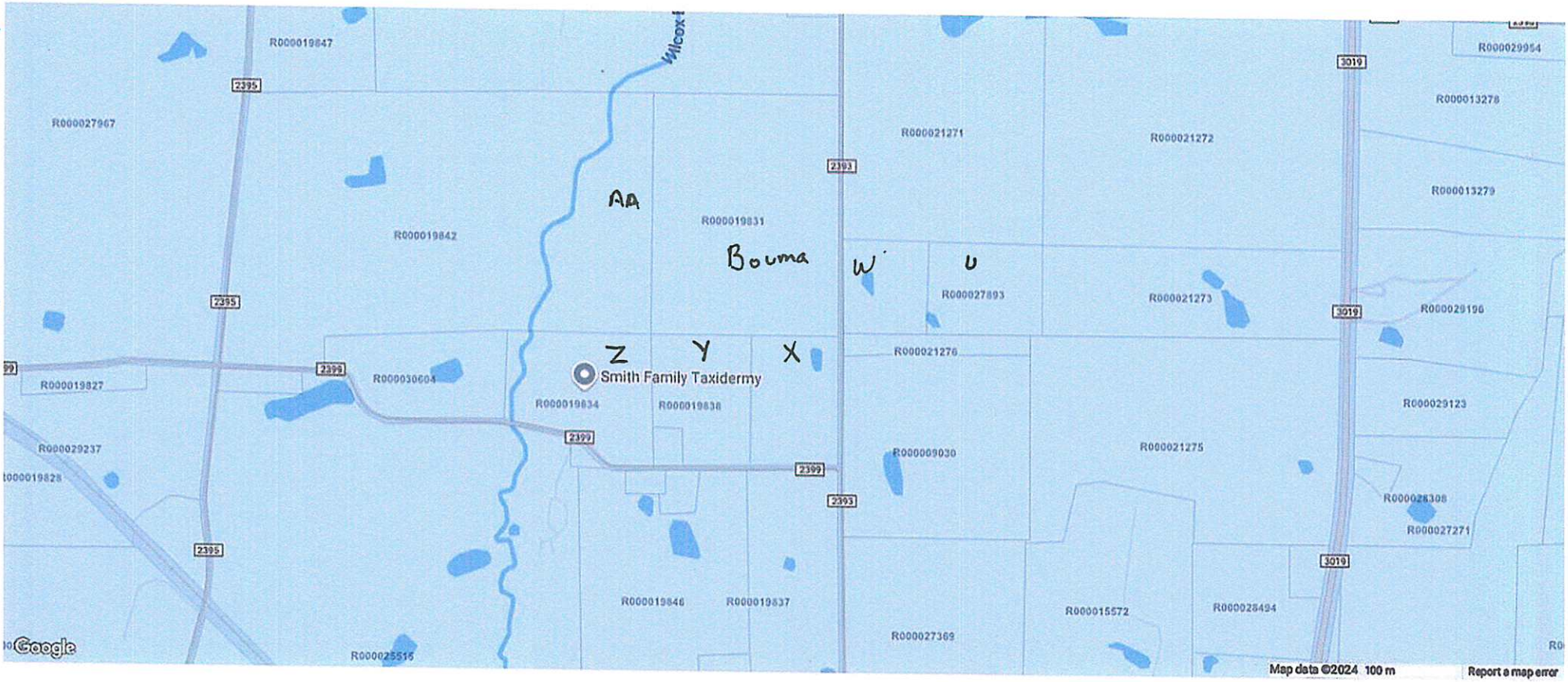
Property Year 2024 Map/GIS

Property ID: R000021285 Geo ID: 65.0898.000.005.01

Off site B

Information Updated 10/24/2024

< Previous Property 19 / 27 | Next Property >



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BLAKE C & REGINA BAIN
4360 CR 2310
SULPHUR SPRINGS, TX 75482

DENNIS RAY & SHERRY G NICHOLS
2342 CR 2403
WINNSBORO, TX 75494

ROYCE EUGENE & VERA LEE CARTER
P O BOX 941
VAN ALSTYNE, TX 75495

RAGSDALE LAND COMPANY LLC
PO BOX 822
WINNSBORO, TX 75494

RAMONA L LONG
1143 CR 2393
WINNSBORO, TX 75494

RIDDLES ELLEN GRUBBS & GARY NEAL GRUBBS
1205 CEDARWOOD DR
FLOWER MOUND, TX 75028

SHIRLEY JACKSON MAY
2822 CR 2408
WINNSBORO, TX 75494-4136

TEMPLEMAN LIVING TUST
TRUSTEE IRIS ANNETTE TEMPLEMAN
1901 WISTERIA WAY
MCKINNEY, TX 75071

JOHN DAVID & ANNA LAURISSA STONE
1923 CR 2399
WINNSBORO, TX 75494-4241

KARI GAYE NOLEN
1577 CR 2393
WINNSBORO, TX 75494

CHARLESTON DAVID GREEN
203 E CEDAR ST
WINNSBORO, TX 75494

ANTHONY TY & TAMMY LYNNE MARLER
1179 CR 2399
WINNSBORO, TX 75494

AMELIA ANN L/E GREEN
LAQUITA RACHELLE SAVAGE
1801 CR 2399
WINNSBORO, TX 7549

RICHARD & TAMMY SMITH
1671 CR 2399
WINNSBORO, TX 75494

WIEPIE & JENNIFER SANDLIN JONGSMA
4705 CR 2390
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1394 CR 2393
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AISE J & CHARLOTTE BOUMA
902 MAIN ST
HALSTEAD, KS 67056

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2430 CR 2410
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3259 CR 2408
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2745 CR 2403
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JODY W & ROSE M RIOJAS
3999 CR 2408
WINNSBORO, TX 75494

JOHN P & LESLIE A MOORE
P O BOX 724
WINNSBORO, TX 75494

GEORGE JAMES PIERCE
20343 HWY 11 E
WINNSBORO, TX 7549

PETER G LAUZON & SHEILA M LAUZON AS CO TRUSTEES
20262 HWY 11 E
WINNSBORO, TX 75494

PHILLIP GILBREATH
7750 LYNDON B JOHNSON FWY 201
DALLAS, TX 75251

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179 CR 2399
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705 CR 2390
WINNSBORO, TX 75494

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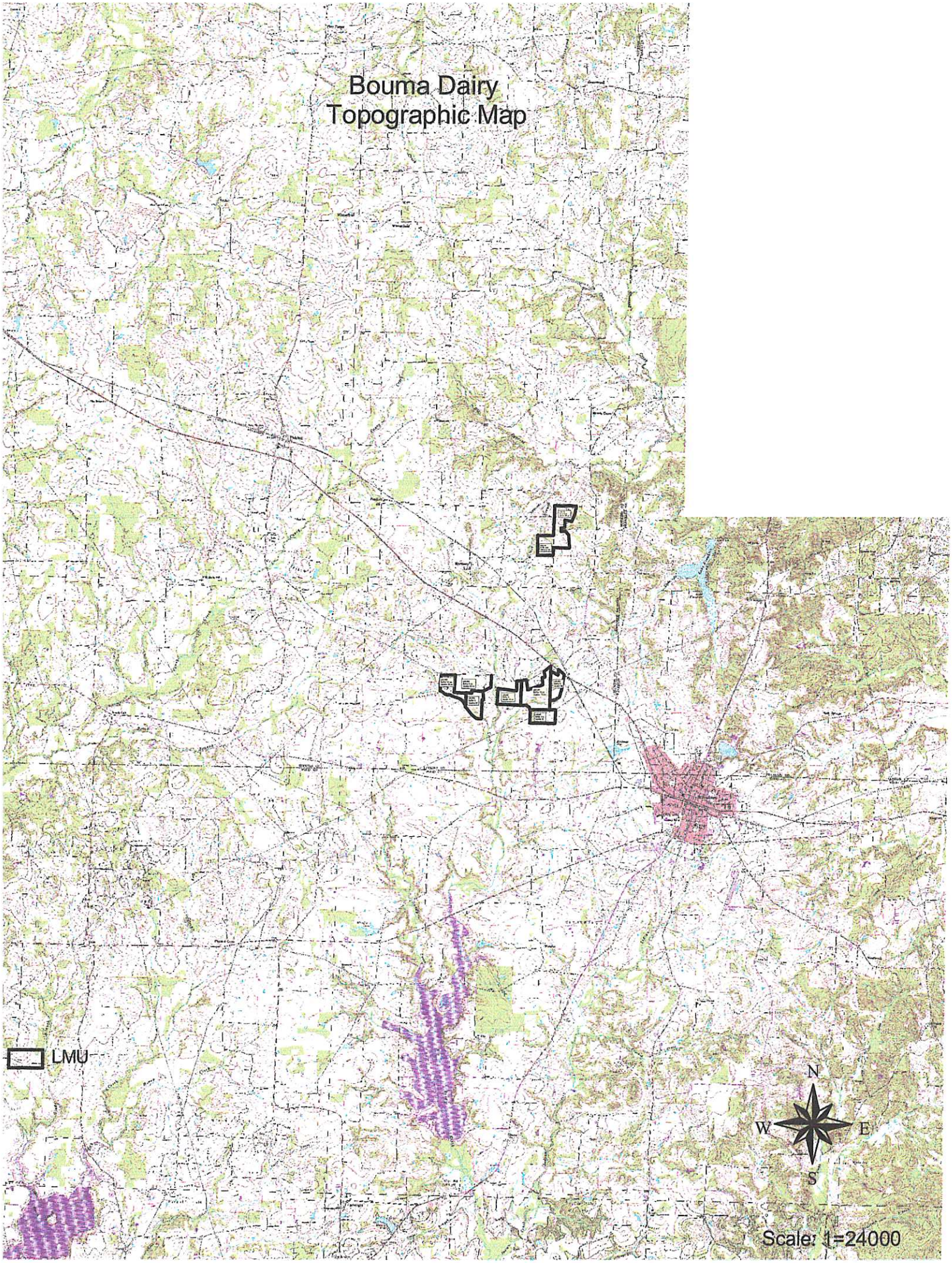
1394 CR 2393
WINNSBORO, TX 75494


Bouma Dairy
Topographic Map
LMU
N
W
E
S
Scale: 1=24000

SECTION 12. AFFECTED LANDOWNER INFORMATION

This section must be completed if the application type is new or major amendment. If the application type is renewal or minor amendment, skip to Section 13.

A. Landowner map. Attach a landowner map or drawing, with scale, that includes the following. Each landowner should be designated by a letter or number on both the list and the map.

- The applicant's property boundaries, including onsite and offsite LMUs; and
- The property boundaries of all landowners within 500 feet of the applicant's property.

B. Landowner list. Attach a separate list of the landowners' names and mailing addresses. The list must be cross-referenced to the landowners map.

C. Landowner list media. Indicate the format of the landowners list.

☐ Read/Writeable CD

☒ 4 sets of mailing labels

D. Landowner data source. Provide the source of the landowners' names and mailing addresses.

Hopkins County Appraisal District Website

SECTION 13. ATTACHMENTS

A. All applications

- Supplemental Permit Information Form, if required by instructions on that form
- Current copy of tax records or deed showing ownership of the land
- Lease agreement, if LMUs are not owned by the applicant or co-applicant

B. New, Major amendment, or Renewal

- Completed Technical Information Packet (TCEQ-00760).

C. New and Major amendment

- Public Involvement Plan Form (TCEQ-20960)

D. Minor Amendment

Attach the following items if applicable:

- Current vicinity map, site map, runoff control map, and LMU map
- RCS design calculations
- Nutrient Management Plan or Land application rate calculations
- Other technical documents affected by the proposed amendment

HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Property ID: R000021919 Geo ID: 65.0984.000.003.11

Information Updated 10/31/2024

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Property Details

Ownership

BOUMA MAIKO & PETRONELLA-BAUKJE GLAS

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

CLICK HERE FOR PDF APPRAISAL NOTICE

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 2.019, ABS: 984, TR: 3-11, SUR: THOMAS GEORGE

Situs: CR 2403 1361

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$120,020	$100,580	$100,580	$61,970	$60,370	$0
Land	+	$44,420	$44,420	$30,290	$14,130	$14,130	$0
Production Market	+	$0	$0	$0	$0	$0	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$164,440	$145,000	$130,870	$76,100	$74,500	$0
Agricultural Loss	-	$0	$0	$0	$0	$0	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$164,440	$145,000	$130,870	$76,100	$74,500	$0

Improvement / Buildings *Improvement Value: $120,020*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage
1	RES1	RESIDENCE - 1ST FLOOR	1950	1,740	176
2	S4AP	COV PORCH	1950	180	72
3			1950	0	
4	S1AF	ATT GARAGE	1950	336	80

Land Details *Market Value: $44,420* *Production Market Value: $0* *Production Value: $0*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC63	1.000	43,560	0	0		22,000	0
AC63	1.019	44,388	0	0		22,418	0

Deed History

Conveyance	Volume	Page	Deed Date Instrument
UNAVAILABLE	014	256	4/28/1986

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	164,440	$1.0118	0.010118	$1,663.80
HOP	HOPKINS COUNTY	164,440	$0.40022	0.0040022	$658.12
HOS	HOSPITAL DISTRICT	164,440	$0.151886	0.00151886	$249.76
	Total Estimation		**$1.563906**	**0.01563906**	**$2,571.68**

The above property tax estimation is not a tax bill. Do not pay.

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HOPKINS COUNTY APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000015063 Geo ID: 65.0459.000.002.03

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-11

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 25.000, ABS: 459, TR: 2-03, SUR: HEDGECOCK MINTER

Situs: CR 2396 459

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$2,310	$2,310	$2,310	$2,310	$2,310	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$250,000	$250,000	$150,000	$64,130	$64,130	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$252,310	$252,310	$152,310	$66,440	$66,440	$0
Agricultural Loss	-	$246,870	$246,300	$146,300	$60,430	$60,430	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$5,440	$6,010	$6,010	$6,010	$6,010	$0

Improvement / Buildings *Improvement Value: $2,310*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage
1	PSAQ	POLE SHED AV QUAL		1,200	160

Land Details *Market Value: $0* *Production Market Value: $250,000* *Production Value: $3,130*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC51	25.000	1,089,000	0	0		250,000	3,125

Deed History

Conveyance	Volume	Page	Deed Date Instrument
MORGAN DAVID L & ADDIE M	528	278	5/2/2005

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	5,440	$1.0118	0.010118	$55.04
HOP	HOPKINS COUNTY	5,440	$0.40022	0.0040022	$21.77
HOS	HOSPITAL DISTRICT	5,440	$0.151886	0.00151886	$8.26
	Total Estimation		**$1.563906**	**0.01563906**	**$85.07**

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HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000019831 Geo ID: 65.0757.000.009.02

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-11

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 39.400, ABS: 757, TR: 9-02, SUR: POLK JOHN

Situs: CR 2393 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$275,800	$275,800	$157,600	$89,830	$89,830	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$275,800	$275,800	$157,600	$89,830	$89,830	$0
Agricultural Loss	-	$270,870	$269,970	$151,770	$84,000	$84,000	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$4,930	$5,830	$5,830	$5,830	$5,830	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $275,800* *Production Value: $4,930*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	39.400	1,716,264	0	0		275,800	4,925

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
HAND BILLY JOE	489	605	6/22/2004	

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	4,930	$1.0118	0.010118	$49.88
HOP	HOPKINS COUNTY	4,930	$0.40022	0.0040022	$19.73
HOS	HOSPITAL DISTRICT	4,930	$0.151886	0.00151886	$7.49
	Total Estimation		**$1.563906**	**0.01563906**	**$77.10**

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HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Property ID: R000019895 Geo ID: 65.0761.000.005.00

Information Updated 10/31/2024

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 65.600, ABS: 761, TR: 5, SUR: POE JAMES W

Situs: CR 2403 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$464,870	$464,870	$265,640	$159,380	$159,380	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$464,870	$464,870	$265,640	$159,380	$159,380	$0
Agricultural Loss	-	$456,570	$455,040	$255,810	$149,550	$149,550	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$8,300	$9,830	$9,830	$9,830	$9,830	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $464,870* *Production Value: $8,300*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	52.410	2,282,980	0	0		366,870	6,551
AC46	14.000	609,840	0	0		98,000	1,750

Deed History

Conveyance	Volume	Page	Deed Date Instrument
PENN DORIS E	483	168	5/7/2004

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	8,300	$1.0118	0.010118	$83.98
HOP	HOPKINS COUNTY	8,300	$0.40022	0.0040022	$33.22
HOS	HOSPITAL DISTRICT	8,300	$0.151886	0.00151886	$12.61
	Total Estimation		**$1.563906**	**0.01563906**	**$129.81**

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HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000019895 Geo ID: 65.0761.000.005.00

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 65.600, ABS: 761, TR: 5, SUR: POE JAMES W

Situs: CR 2403 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$464,870	$464,870	$265,640	$159,380	$159,380	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$464,870	$464,870	$265,640	$159,380	$159,380	$0
Agricultural Loss	-	$456,570	$455,040	$255,810	$149,550	$149,550	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$8,300	$9,830	$9,830	$9,830	$9,830	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $464,870* *Production Value: $8,300*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	52.410	2,282,980	0	0		366,870	6,551
AC46	14.000	609,840	0	0		98,000	1,750

Deed History

Conveyance	Volume	Page	Deed Date Instrument
PENN DORIS E	483	168	5/7/2004

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	8,300	$1.0118	0.010118	$83.98
HOP	HOPKINS COUNTY	8,300	$0.40022	0.0040022	$33.22
HOS	HOSPITAL DISTRICT	8,300	$0.151886	0.00151886	$12.61
	Total Estimation		**$1.563906**	**0.01563906**	**$129.81**

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HOPKINS COUNTY APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000021271 Geo ID: 65.0897.000.001.00

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-11

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 40.000, ABS: 897, TR: 1, SUR: SHEARER L D

Situs: CR 2393 1601

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$1,040	$1,040	$1,040	$1,040	$1,040	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$280,000	$280,000	$160,000	$91,200	$91,200	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$281,040	$281,040	$161,040	$92,240	$92,240	$0
Agricultural Loss	-	$275,000	$274,080	$154,080	$85,280	$85,280	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$6,040	$6,960	$6,960	$6,960	$6,960	$0

Improvement / Buildings *Improvement Value: $1,040*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage
1	PSAQ	POLE SHED AV QUAL		2,040	188

Land Details *Market Value: $0* *Production Market Value: $280,000* *Production Value: $5,000*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	40.000	1,742,400	0	0		280,000	5,000

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
MORGAN DAVID L	528	278	5/2/2005	

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	6,040	$1.0118	0.010118	$61.11
HOP	HOPKINS COUNTY	6,040	$0.40022	0.0040022	$24.17
HOS	HOSPITAL DISTRICT	6,040	$0.151886	0.00151886	$9.17
	Total Estimation		**$1.563906**	**0.01563906**	**$94.45**

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HOPKINS COUNTY APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000021285 Geo ID: 65.0898.000.005.01

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-12

Available Actions

CLICK HERE FOR PDF APPRAISAL NOTICE

Qualified Exemptions

Homestead Exempt

* For property owner confidentiality reasons not all exemption details are available online.

Legal Information

Legal: Acres: 193.700, ABS: 898, TR: 5-01 ALSO AB 307, SUR: SMITH THOMAS B

Situs: CR 2408 4252

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$816,550	$786,340	$789,260	$712,740	$696,630	$0
Land	+	$11,000	$11,000	$7,000	$4,200	$4,200	$0
Production Market	+	$1,054,350	$1,054,350	$670,950	$402,370	$402,370	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$1,881,900	$1,851,690	$1,467,210	$1,119,310	$1,103,200	$0
Agricultural Loss	-	$1,031,020	$1,026,600	$643,200	$374,620	$374,620	$0
Homestead / Circuit Breaker Cap Loss	-	$75,538	$59,870	$71,090	$5,180	$0	$0
Total Assessed	=	$775,342	$765,220	$752,920	$739,510	$728,580	$0

Improvement / Buildings *Improvement Value: $816,550*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage
1	RES1	RESIDENCE - 1ST FLOOR	1950	2,898	234
10	S3AQ	DET CARPORT	1950	992	126
16	ESEQ	EQPT SHED	1950	288	72
1	RES2	2ND RESIDENCE ON ACCOUNT		1,064	180
2	HSAQ	HAY SHED AV QUAL		1,560	196
1	RES3	THIRD RESIDENCE ON ACCOUNT		952	164
2	HSAQ	HAY SHED AV QUAL		1,400	180
15	ST1V	METAL STG BLD		560	108
1	DPAF	DAIRY PARLOR		1,042	152
2	PSAQ	POLE SHED AV QUAL		1,460	186
3	PSLQ	POLE SHED LOW QUAL		2,904	220
6	HSAQ	HAY SHED AV QUAL	2002	920	136
7	ST1G	METAL STG BLD	2002	200	60
1	HSAQ	HAY SHED AV QUAL		5,616	316
2	HSLQ	HAY SHED LOW QUALITY		308	72
3	PSAQ	POLE SHED AV QUAL		484	88
1	PSLQ	POLE SHED LOW QUAL		840	142
2	PSLQ	POLE SHED LOW QUAL		345	76
1	HSEQ	HAY SHED EX QUAL	1992	55,000	1,220
9	HSEQ	HAY SHED EX QUAL	2004	52,800	1,180
12	HSLQ	HAY SHED LOW QUALITY	2017	4,000	440
13	HSLQ	HAY SHED LOW QUALITY	2017	800	120
17	DPEB	DAIRY PARLOR	2017	2,500	200
18	PSEQ	POLE SHED EX QUAL	2017	7,500	400

Land Details *Market Value: $11,000* *Production Market Value: $1,054,350* *Production Value: $23,330*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC43	1.000	43,560	0	0		5,500	0
AC43	8.000	348,480	0	0		44,000	368
AC43	183.700	8,001,972	0	0		1,010,350	22,962
AC43	1.000	43,560	0	0		5,500	0

Deed History

Conveyance	Volume	Page	Deed Date Instrument
BOUMA TJITZE & WILLEMKE	327	237	3/22/2000

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	675,342	$1.0118	0.010118	$6,833.11
HOP	HOPKINS COUNTY	743,350	$0.40022	0.0040022	$2,975.04
HOS	HOSPITAL DISTRICT	775,342	$0.151886	0.00151886	$1,177.64
	Total Estimation		**$1.563906**	**0.01563906**	**$10,985.79**

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HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000019893 Geo ID: 65.0761.000.002.00

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Property Details

Ownership

BOUMA MAIKO & PETRONELLA BAUKJE

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 34.939, ABS: 761, TR: 2, SUR: POE JAMES W

Situs: CR 2408 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$244,570	$244,570	$139,760	$83,850	$83,850	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$244,570	$244,570	$139,760	$83,850	$83,850	$0
Agricultural Loss	-	$240,200	$239,400	$134,590	$78,680	$78,680	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$4,370	$5,170	$5,170	$5,170	$5,170	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $244,570* *Production Value: $4,370*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	34.939	1,521,943	0	0		244,573	4,367

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
BUSBY JERRY MACK & DEBORAH KAY	600	542	11/17/2006	

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	4,370	$1.0118	0.010118	$44.22
HOP	HOPKINS COUNTY	4,370	$0.40022	0.0040022	$17.49
HOS	HOSPITAL DISTRICT	4,370	$0.151886	0.00151886	$6.64
	Total Estimation		**$1.563906**	**0.01563906**	**$68.35**

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HOPKINS COUNTY APPRAISAL DISTRICT

Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000028756 Geo ID: 65.0725.000.009.02

Property Details

Ownership

BOUMA MAIKO & PETRONELLA GLAS

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

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Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 3.058, Tract: 9-02, Abst: 725, Survey: ODOM OLLEN

Situs: CR 2408 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$58,100	$45,870	$25,990	$11,930	$11,930	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$58,100	$45,870	$25,990	$11,930	$11,930	$0
Agricultural Loss	-	$57,720	$45,420	$25,540	$11,480	$11,480	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$380	$450	$450	$450	$450	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $58,100* *Production Value: $380*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC60	3.058	133,206	0	0		58,102	382

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
NO OWNER ON FILE			10/1/2015	20154946

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
020	COMO-PICKTON CISD	380	$1.1669	0.011669	$4.43
HOP	HOPKINS COUNTY	380	$0.40022	0.0040022	$1.52
HOS	HOSPITAL DISTRICT	380	$0.151886	0.00151886	$0.58
	Total Estimation		**$1.719006**	**0.01719006**	**$6.53**

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HOPKINS COUNTY APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000028757 Geo ID: 65.0761.000.006.04

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Property Details

Ownership

BOUMA MAIKO & PETRONELLA GLAS

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-13-12

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 26.942, Tract: 6-04, Abst: 761, Survey: POE JAMES

Situs: CR 2408 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$269,420	$269,420	$161,650	$96,990	$72,000	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$269,420	$269,420	$161,650	$96,990	$72,000	$0
Agricultural Loss	-	$266,050	$265,430	$157,660	$93,000	$67,560	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$3,370	$3,990	$3,990	$3,990	$4,440	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $269,420* *Production Value: $3,370*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC51	26.942	1,173,594	0	0		269,420	3,368

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
NO OWNER ON FILE			10/1/2015	20154946

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	3,370	$1.0118	0.010118	$34.10
HOP	HOPKINS COUNTY	3,370	$0.40022	0.0040022	$13.49
HOS	HOSPITAL DISTRICT	3,370	$0.151886	0.00151886	$5.12
	Total Estimation		**$1.563906**	**0.01563906**	**$52.71**

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HOPKINS COUNTY APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000015062 Geo ID: 65.0459.000.002.02

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-11

Available Actions

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Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 65.560, ABS: 459, TR: 2-02, SUR: HEDGECOCK MINTER

Situs: CR 2396 452

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$272,840	$254,120	$254,120	$232,450	$208,510	$0
Land	+	$7,000	$7,000	$4,000	$2,280	$2,280	$0
Production Market	+	$450,560	$450,560	$256,880	$145,900	$145,900	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$730,400	$711,680	$515,000	$380,630	$356,690	$0
Agricultural Loss	-	$446,800	$445,260	$251,580	$140,600	$140,600	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$283,600	$266,420	$263,420	$240,030	$216,090	$0

Improvement / Buildings *Improvement Value: $272,840*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage
1	RES1	RESIDENCE - 1ST FLOOR	1981	1,716	166
3	ST2V	WOOD STG BLD	1989	120	44
4	ST2G	WOOD STG BLDG	1981	192	56
1	DPAF	DAIRY PARLOR		948	140
2	PSAQ	POLE SHED AV QUAL		1,708	290
3	ESLQ	EQPT SHED		100	40
4	PSLQ	POLE SHED LOW QUAL	1995	900	120
11	PSAQ	POLE SHED AV QUAL		3,240	228
12	PSGQ	POLE SHED GD QUAL		1,440	168
13	ST1A	METAL STG BLDG		80	36
9	HSEQ	HAY SHED EX QUAL	2008	30,000	800

Land Details *Market Value: $7,000* *Production Market Value: $450,560* *Production Value: $3,760*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	1.000	43,560	0	0		7,000	0
AC46	10.000	435,600	0	0		70,000	1,250
AC46	54.560	2,376,634	0	0		380,556	2,510

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
MORGAN ADDIE M (ARNOLD)	528	278	5/2/2005	

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	283,600	$1.0118	0.010118	$2,869.46
HOP	HOPKINS COUNTY	283,600	$0.40022	0.0040022	$1,135.02
HOS	HOSPITAL DISTRICT	283,600	$0.151886	0.00151886	$430.75
	Total Estimation		**$1.563906**	**0.01563906**	**$4,435.23**

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HOPKINS COUNTY
APPRAISAL DISTRICT

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Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000015061 Geo ID: 65.0459.000.002.01

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Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-11

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 10.000, ABS: 459, TR: 2-01, SUR: HEDGECOCK MINTER

Situs: CR 2393 0

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$100,000	$100,000	$60,000	$28,500	$28,500	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$100,000	$100,000	$60,000	$28,500	$28,500	$0
Agricultural Loss	-	$98,750	$98,520	$58,520	$27,020	$27,020	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$1,250	$1,480	$1,480	$1,480	$1,480	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $100,000* *Production Value: $1,250*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC51	10.000	435,600	0	0		100,000	1,250

Deed History

Conveyance	Volume	Page	Deed Date	Instrument
MORGAN DAVID L	528	278	5/2/2005	

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	1,250	$1.0118	0.010118	$12.65
HOP	HOPKINS COUNTY	1,250	$0.40022	0.0040022	$5.00
HOS	HOSPITAL DISTRICT	1,250	$0.151886	0.00151886	$1.90
	Total Estimation		**$1.563906**	**0.01563906**	**$19.55**

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HOPKINS COUNTY APPRAISAL DISTRICT

Property Year 2024 Map/GIS

Information Updated 10/31/2024

Property ID: R000013309 Geo ID: 65.0307.000.013.01

Property Details

Ownership

BOUMA MAIKO

4252 CR 2408
WINNSBORO, TX 75494

Ownership Interest: 1.0000000

4-14-12

Available Actions

Qualified Exemptions

Not Applicable

Legal Information

Legal: Acres: 37.320, ABS: 307, TR: 13-01, SUR: EARP ROBERT

Situs: HWY 11 0 E

Property Valuation History

Values by Year		2024	2023	2022	2021	2020	n/a
Improvements	+	$0	$0	$0	$0	$0	$0
Land	+	$0	$0	$0	$0	$0	$0
Production Market	+	$261,240	$261,240	$149,280	$89,570	$89,570	$0
Personal	+	$0	$0	$0	$0	$0	$0
Mineral	+	$0	$0	$0	$0	$0	$0
Total Market	=	$261,240	$261,240	$149,280	$89,570	$89,570	$0
Agricultural Loss	-	$256,570	$255,720	$143,760	$84,050	$84,050	$0
Homestead / Circuit Breaker Cap Loss	-	$0	$0	$0	$0	$0	$0
Total Assessed	=	$4,670	$5,520	$5,520	$5,520	$5,520	$0

Improvement / Buildings *Improvement Value: $0*

Group Sequence	Code	Building Description	Year Built	Square Footage	Perimeter Footage

Land Details *Market Value: $0* *Production Market Value: $261,240* *Production Value: $4,670*

Land Code	Acres	Sq. Ft.	Front Ft.	Rear Ft.	Depth	Mkt. Value	Prd. Value
AC46	37.320	1,625,659	0	0		261,240	4,665

Deed History

Conveyance	Volume	Page	Deed Date Instrument
n/a	230	869	8/14/1996
n/a			1/1/1901

Property Tax Estimation by Entity / Jurisdiction

Code	Description	Taxable Value	Tax Rate per $100	Tax Factor applied to Taxable Value	Estimated Tax
095	WINNSBORO ISD	4,670	$1.0118	0.010118	$47.25
HOP	HOPKINS COUNTY	4,670	$0.40022	0.0040022	$18.69
HOS	HOSPITAL DISTRICT	4,670	$0.151886	0.00151886	$7.09
	Total Estimation		**$1.563906**	**0.01563906**	**$73.03**

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page.

Permit Number:

Applicant: MAIKO HESSEL BOUMA

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code

§305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory Name: MAIKO HESSEL BOUMA

Title: Owner

Signature: MHBouma Date: 12-18-24

SUBSCRIBED AND SWORN to before me by the said MAiKo Bouma on

this 18 day of December, 20 24

My commission expires on the 14 day of February, 20 27

JENNIFER A. GRAHAM
(Seal) Notary Public
State of Texas
ID # 13420239-8
My Comm. Expires 02-14-2027

Jennifer A Graham
Notary Public

WOOD
County, Texas

Attachment 1
Individual Information

N/A

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

Prefix (Mr., Ms., Miss):

Full Legal Name, including middle name:

Driver's License or State Identification Number:

State that Issued the License or Identification Number:

Date of Birth:

Mailing Address:

City, State and Zip Code:

Phone Number: Fax Number:

E-mail Address:

For TCEQ Use Only

Customer Number _____
Regulated Entity Number _____
Permit Number _____

TCEQ USE ONLY

Application type: ☐ Renewal ☐ Major Amendment ☐ Minor Amendment ☐ New
County: _____ Admin Complete Date: _____
Agency Receiving SPIF: ☐ Texas Historical Commission ☐ U.S. Fish and Wildlife
☐ Texas Parks and Wildlife ☐ Army Corps of Engineers

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form is required for all TPDES applications

1. Applicant: MAIKO HESSEL BOUMA,
2. Permit Number: EPA ID Number:
3. Address of the project (location description that includes street/highway, city/vicinity, and county). 4252 COUNTY ROAD 2408 WINNSBORO, TX 75494 4100 Hopkins Co.
4. Provide the name, address, telephone and fax number of an individual that can be contacted to answer specific questions about the property.

   First and Last Name: Jim Wyrick

   Company Name: East Texas Environmental Services

   Mailing Address: 317 Highland Dr.

   City, State, and Zip Code: 75482

   Phone Number: 903-243-0400 Fax Number:
5. County where the facility is located: Hopkins Co
6. If the property is publicly owned and the owner is different than the permittee/applicant, please identify the owner.
7. Identify the name of the water body (receiving waters) and TCEQ segment number that will receive the discharge. BIG SANDY CREEK
8. Provide a 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. (This map is required in addition to the map in the administrative report.)
9. Provide photographs of any structures 50 years or older on the property.
10. Does your project involve any of the following? Select all that apply.
    - ☐ Proposed access roads, utility lines, and construction easements
    - ☐ Visual effects that could damage or detract from a historic property's integrity
    - ☐ Vibration effects during construction or as a result of project design
    - ☐ Additional phases of development that are planned for the future
    - ☐ Sealing of caves, fractures, sinkholes, or other karst features
    - ☐ Disturbance of vegetation or wetlands
11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves or other karst features):
12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances):

Aeriation of hayland, no-till of winter pasture, plowing and seeding

The following applies to New TPDES and Major Amendment to TPDES Permits:

13. List construction dates of any buildings or structures on the property: unknown

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

The following applies to New, Amended and Renewal TPDES applications:

15. List each Retention Control Structure and its required capacity (Acre Feet). RCS#1-5.66, RCS#2-6.92

16. Provide the location and number of acres where wastewater and manure are land applied: LMU#1-75, LMUJ#2-44, LMU#3-39, LMU#4-64, LMU#5-30, LMU#6-41, 7-38, LMU#8-31, LMU#9-101

17. List the maximum number of head to be permitted. 999

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit you APPLICATION FEE, if you are mailing your payment.

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

Mail this form and your check to:

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

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: WQP Wastewater Permit Number: WQ000

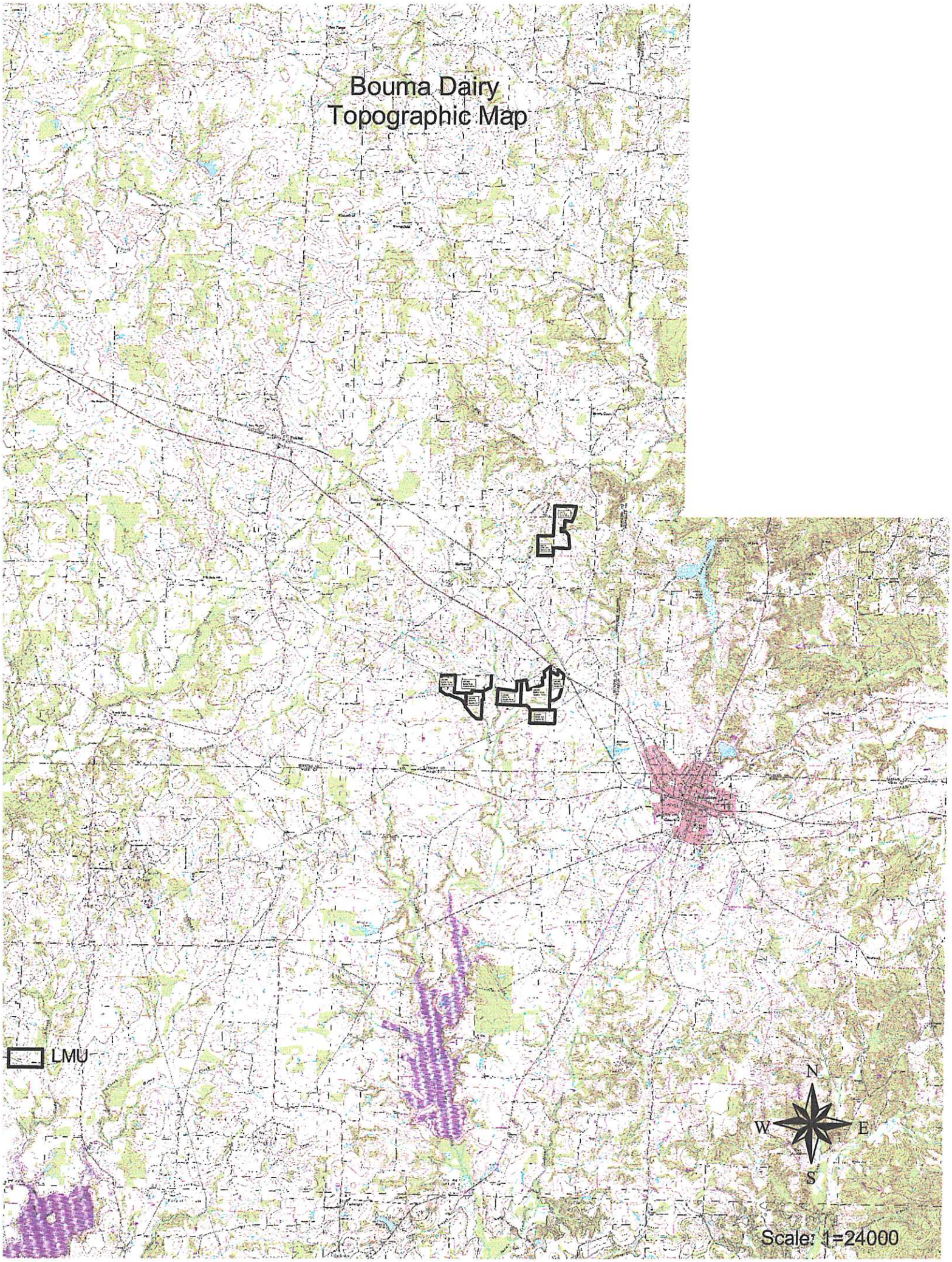
1. Check / Money Order Number:
2. Amount of Check/Money Order:
3. Date of Check or Money Order:
4. Name on Check or Money Order:
5. APPLICATION INFORMATION

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

   Project/Site (RE) Physical Address:

Staple Check in This Space

TCEQ - 20134


Bouma Dairy
Topographic Map
LMU
N
W
E
S
Scale: 1=24000

Google Maps

Bouma Dairy
Vicinity Map



TECHNICAL INFORMATION PACKET FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS)

Submit this Form with your Individual Permit Application (TCEQ – 000728)

Name of Site: BOUMA DAIRY

TCEQ Permit Number, if assigned: WQ000

Date Prepared: 11/14/24

SECTION 1. POLLUTANT SOURCES MANAGEMENT

For each potential pollutant source listed in the table below, provide the management practices utilized or enter "Not Applicable". Management practices should address the collection, storage and final disposition of each potential pollutant source. You may attach your list.

Table 1: Potential Pollutant Sources and Best Management Practices

Potential Pollutant Source	Best Management Practices
Manure and Manure Stockpiles	Manure generated in the freestalls is flushed into the settling basin then into RCS #1 and irrigated to the LMUs with the irrigation water. Very limited amount will be stockpiled at end of the freestalls and hauled to LMUs.
Wastewater	All wastewater gravity flows from the freestalls into the settling basin then into the RCS#1. Where it is stored until there is a crop demand for water and nutrients, and then applied to LMUs at an agronomic rate.
Sludge	Sludge will be cleaned from the RCSs before the sludge volume reaches the designed capacity. A system of irrigation and vacuum tanks will be used to with the sludge from the RCSs
Compost	NA
Feed and Bedding	Feed when spoiled, will be applied to LMUs. When applied it will be applied at a rate similar to that of manure.
Silage stockpiles	Most of the silage is stored under plastic. The plastic will be removed and disposed of in the appropriate waste containers. If the silage is not covered, any ruined silage will be land applied
Dead animals	All dead animals are collected within 24-hours and properly buried within 72 hours of death following TCEQ guidelines.
Dust	Water will be applied to the until the conductions for dust have passed.
Lubricants	All oil and lubricant products will be stored in a covered storage area in covered, waterproof container. Empty containers are to be disposed of following all precautionary guidelines on the container or placing in a commercial garbage

Potential Pollutant Source	Best Management Practices
Pesticides	All pesticides and herbicides application is contracted to an applicator and no chemicals are stored on the property. All pesticides will be used and disposed in accordance with the label rules
Bulk cleaning chemicals	Use and disposal of empty containers will be according to direction on the product label.
Inorganic fertilizers	NA
Fuel storage tanks	All fuels are stored in a properly maintained storage tank, away from wells. Care will be so spills do not occur when equipment is being filled. If a spill occurs, it will be immediately cleaned up and not allowed to flow from the tank area
Other, specify:	NA

SECTION 2. RETENTION CONTROL STRUCTURE DESIGN

A. Design Summary

1) Design Standards, Characteristic, and Values Sources Used

- ☒ Natural Resource Conservation Service
- ☐ American Society of Agricultural and Biological Engineers
- ☐ Other; specify:

2) Total Number of Animals:
In Open Lots: 999 In Buildings: 999

3) Animal Housing Location, hours/day:
Open Lots: 7 Buildings: 17

4) Average Liveweight, pounds per head: 1400

5) Volatile Solids Removed by Separator System: NA

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: NA

7) Spilled Drinking Water, gallons/day: 4995

8) Water for Cleanup, gallons/day: 4995

9) Water for Manure Removal, gallons/day: 14563

10) Recycled Wastewater, gallons/day: 58252

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 8.00

2) Design Rainfall Event:

- ☒ 25-year, 24 hour
- ☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model
- ☐ 25-year, 10 day
- ☐ Other; specify:

C. Retention Control Structure(s) (RCS) Volume Allocations

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
RCS#1	.85	2.36	0	2.25	.10	5.56	5.56
RCS#2	.86	0	0	1.16	4.90	6.92	6.92

Indicate which RCSs are in-series: RCS#1 and RCS#2 are in series

D. RCS Liner or Lack of Hydrologic Connection Certification

Table 3: RCS Hydrologic Connection

RCS Name	Construction Date	Type of Hydrologic Connection Certification
RCS#1	1/6/2000	In-situ Soils - certified 3/1/2007
RCS#2	To be constructed	After completion of RCS

E. Playa Lakes

Are any playa lakes used for RCSs? Yes ☐ No ☒

SECTION 3. MANURE, SLUDGE, AND WASTEWATER HANDLING

A. Manure:

1) Use or Disposal Method:
   - ☒ Land Application to LMUs
   - ☐ Transfer to other persons
   - ☐ Third Party Fields
   - ☐ Other; specify:
2) Land Application Location:
   - ☒ Onsite ☒ Offsite ☐ Not Applicable
3) Composting Location:
   - ☐ Onsite ☐ Offsite ☒ Not Applicable

B. Sludge:

1) Use or Disposal Method:
   - ☒ Land Application to LMUs
   - ☐ Transfer to other persons
   - ☐ Third Party Fields
   - ☐ Other; specify:
2) Land Application Location:
   - ☒ Onsite ☒ Offsite ☐ Not Applicable

C. Wastewater:

1) Use or Disposal Method:

☒ Land Application to LMUs

☐ Total Evaporation

☐ Third Party Fields

☐ Other; specify:

2) Land Application Location:

☒ Onsite ☐ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

For each Land Management Unit (LMU), provide the name, acre, crops/yield goals and application rates on Table 4 below. Add rows if needed or attach additional pages.

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
LMU#1	75	Coastal graze 1 AU/1 ac, SG mod graze	14.0 Ac-ft/Ac/Year
LMU#2	44	Coastal graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#3	39	Coastal Hay 4 cut, RG mod Graze	16.3 Ac-ft/Ac/Year
LMU#4	64	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#5	30	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#6	41	Common graze 1 AU/1 ac, SG mod graze	36.2 Ac-ft/Ac/Year
LMU#7	38	Common graze 1 AU/1 ac, SG mod graze	4308.5 Tons/Ac/Year
LMU#8	31	Common graze 1 AU/1 ac, SG mod graze	11782.2 Tons/Ac/Year
LMU#9	101	Common graze 1 AU/1 ac, SG mod graze	11782.2 Tons/Ac/Year

1) Wastewater production, ac-in/year: 43.17
2) Estimated Wastewater application, ac-in/year: 43.17
3) Manure production, tons/year: 3752
4) Estimated manure application, tons/year: 0 as dry manure. 3752 in draghose irrigation
5) Estimated manure transferred to other persons, tons/year: 0

E. Floodplain Information

1) Is any part of the production area within a 100-year floodplain? Yes ☐ No ☒

If YES, describe management practices to protect the sites.

2) Is land application or temporary storage of manure in a 100-year floodplain or near a water course? Yes ☐ No ☒

If YES, describe management practices.

F. Soil Limitations

Table 5: Soil Limiting Characteristics and Best Management Practices

Soil Types	Limiting Characteristics	Best Management Practices
	SEE ATTACHMENT	

G. Well Protection

Table 6: Water Well Status and Protective Measures

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
#1	Domestic	Producing	Cased	Maintain 150' Buffer
#2	Domestic	Producing	Cased	Maintain 150' Buffer
#3	Domestic	Producing	Cased	Maintain 150' Buffer

SECTION 4. AIR AUTHORIZATION SUMMARY

Table 5: Soil Limiting Characteristics and Best Management Practices

Soil Types	Limiting Characteristics	Best Management Practices
BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes	Too acid	Permanent Vegetation: High residue crop
FrB—Freestone fine sandy loam, 1 to 3 percent slopes	Depth to saturated zone	Permanent Vegetation: High residue crop
KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	Slow water movement, Too steep for surface application, too acid	Permanent Vegetation: High residue crop
KvD—Kirvin soils, 3 to 8 percent slopes	Slow water movement, Too steep for surface application, too acid	Permanent Vegetation: High residue crop
Lr—Lufkin-Raino complex		Permanent Vegetation: High residue crop
Na—Nahatche soils, frequently flooded	Flooding	Permanent Vegetation: High residue crop
PkC—Pickton loamy fine sand, 2 to 5 percent slopes	Filtering capacity	Permanent Vegetation: High residue crop
WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes	Filtering capacity	Permanent Vegetation: High residue crop
WtC—Woodtell loam, 2 to 5 percent slopes	Slow water movement	Permanent Vegetation: High residue crop

A. Type of Air Authorization

- ☐ Air Standard Permit in 30 TAC § 321.43
- ☒ Permit By Rule in 30 TAC Chapter 106 Subchapter F
- ☐ Individual Air Quality Permit

If Air Standard Permit is selected, then complete Sections B and C below.

B. Indicate the AFO Status and Buffer Option.

☒ Operation started after August 19, 1998:
- ☐ ½ mile buffer*
- ☒ ¼ mile buffer* and an odor control plan

☐ Operation started on or before August 19, 1998:
- ☐ ¼ mile buffer*
- ☐ odor control plan

*A written letter of consent from an affected landowner may be used in lieu of meeting the buffer distances specified.

C. Odor Receptors

Identify the number of occupied residences or business structures, schools (including associated recreational areas), places of worship, or public parks located within the following distances from permanent odor sources as defined in 30 TAC §321.32(43):

0 - ¼ mile: 2

¼ - ½ mile: 4

½ - 1 mile: 32

SECTION 5. ATTACHMENTS

A. Maps

1) Site Map
2) Land Management Unit Map
3) Vicinity Map
4) Original United States Geological Survey 7.5 Minute Quadrangle Map
5) 100 Year Floodplain Map (if applicable)
6) Runoff Control Map
7) Natural Resource Conservation Service (NRCS) Soil Survey Map

B. Professional Certifications

1) Recharge Feature Certification Statement and Supporting Documents
2) RCS Design Calculations (Water Nutr, Animal Waste Management (AWM), or equivalent)
3) RCS As-Built Capacity Certifications (if constructed)
4) RCS Hydrologic Connection Certifications (if constructed)

C. Land Application

1) Nutrient Management Plan
2) Nutrient Utilization Plan. If the NUP is already approved, include the approval letter.
3) Copy of Annual Soil Sampling Analyses (used for the NMP that was submitted with the application)

4) Copy of Annual Manure and Wastewater Analyses (used for the NMP that was submitted with the application

D. Air Standard Permit Documentation (if required)

1) Area Land Use Map,
2) Odor Control Plan, if applicable
3) Written Consent Letters, if applicable

E. Groundwater Monitoring (if required)

1) Groundwater Monitoring Plan
2) Groundwater Monitoring Analyses

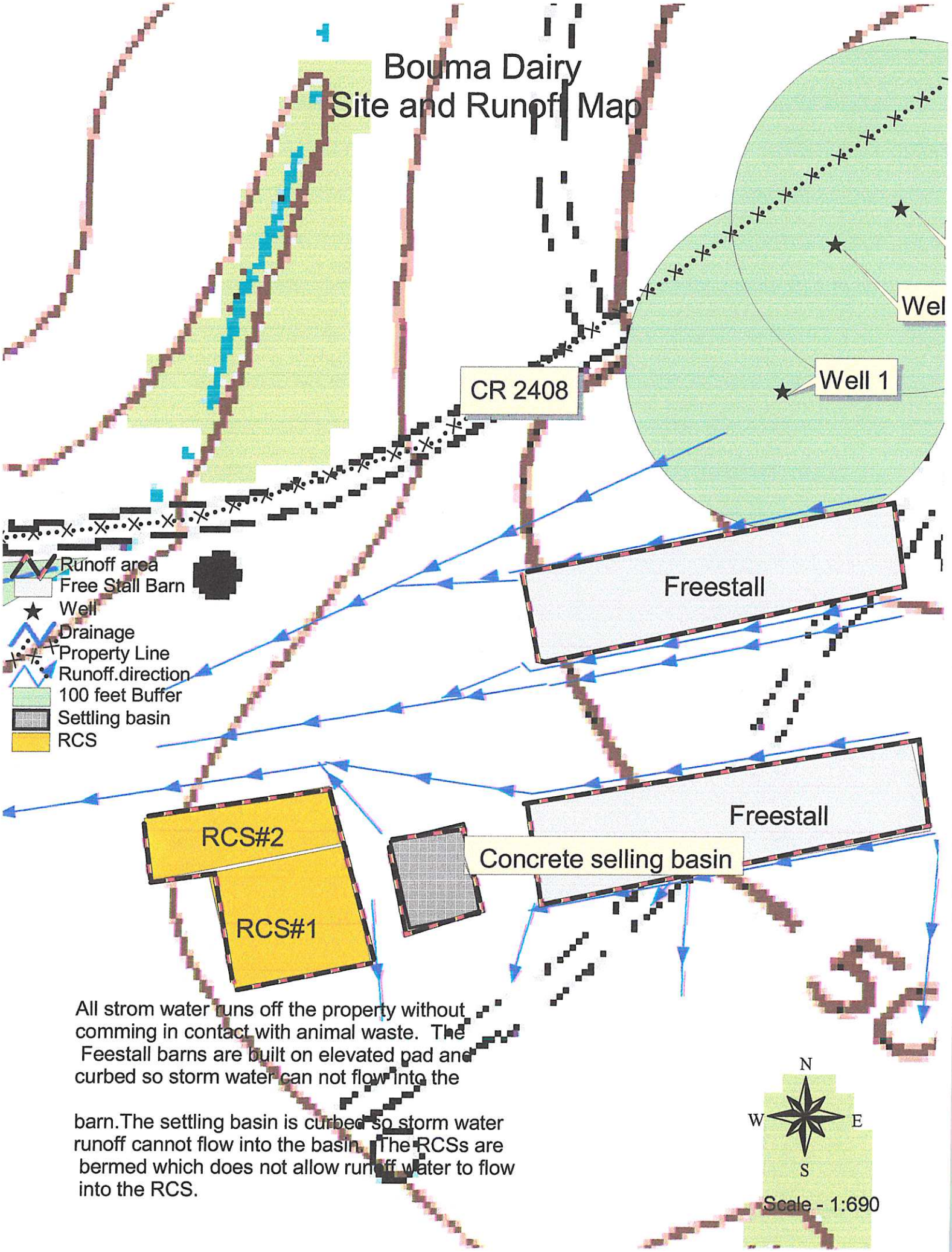
RECHARGE FEATURE CERTIFICATION STATEMENT

I certify that potential recharge features, as defined in 30 Texas Administrative Code 321, Subchapter B, ☒ EXIST ☐ DO NOT EXIST on properties used in this application. All information presented on this page and the attached supporting documents is true and accurate to the best of my knowledge.

Certification Signature: J.C Wyatt Seal and Date: 11/14/2024

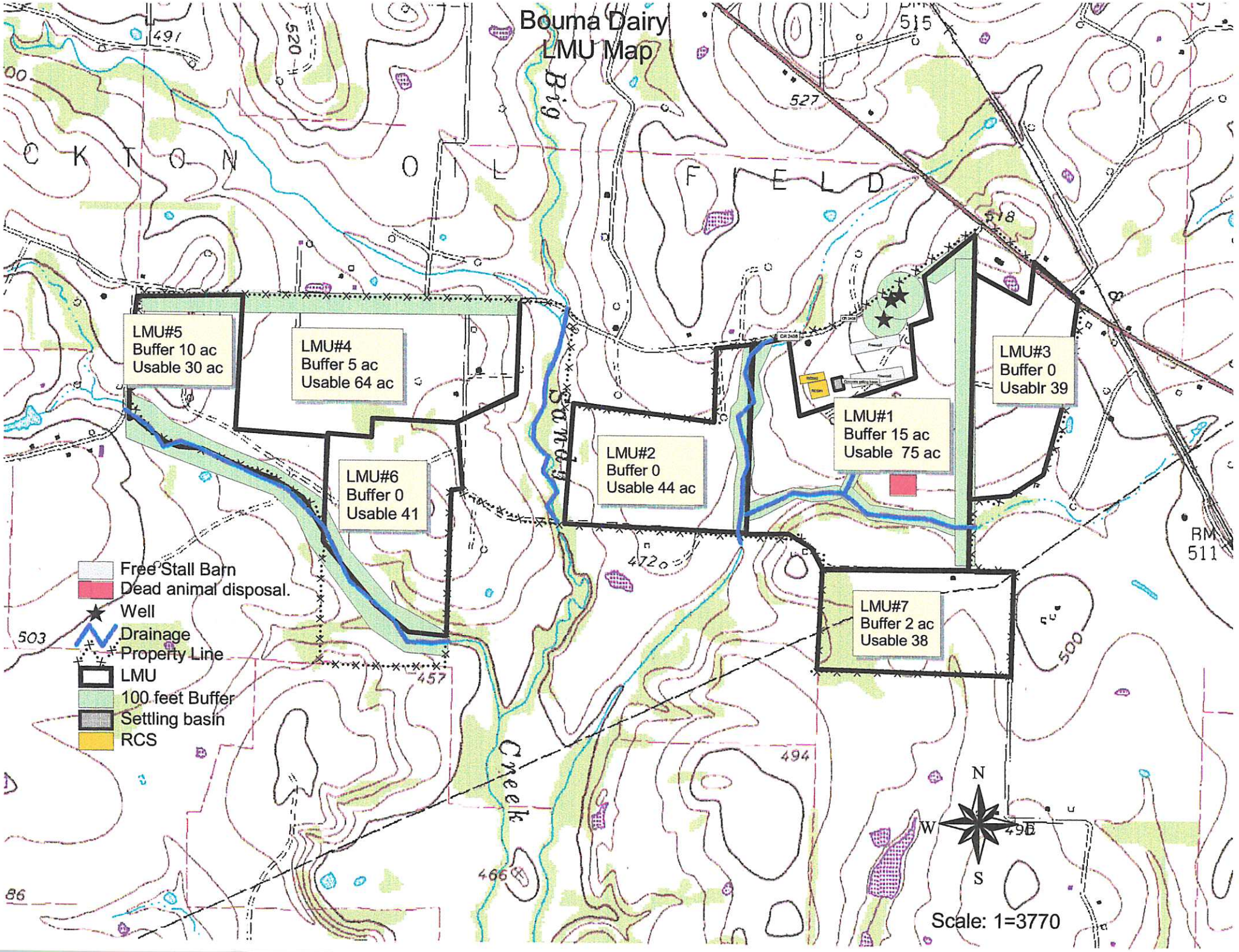


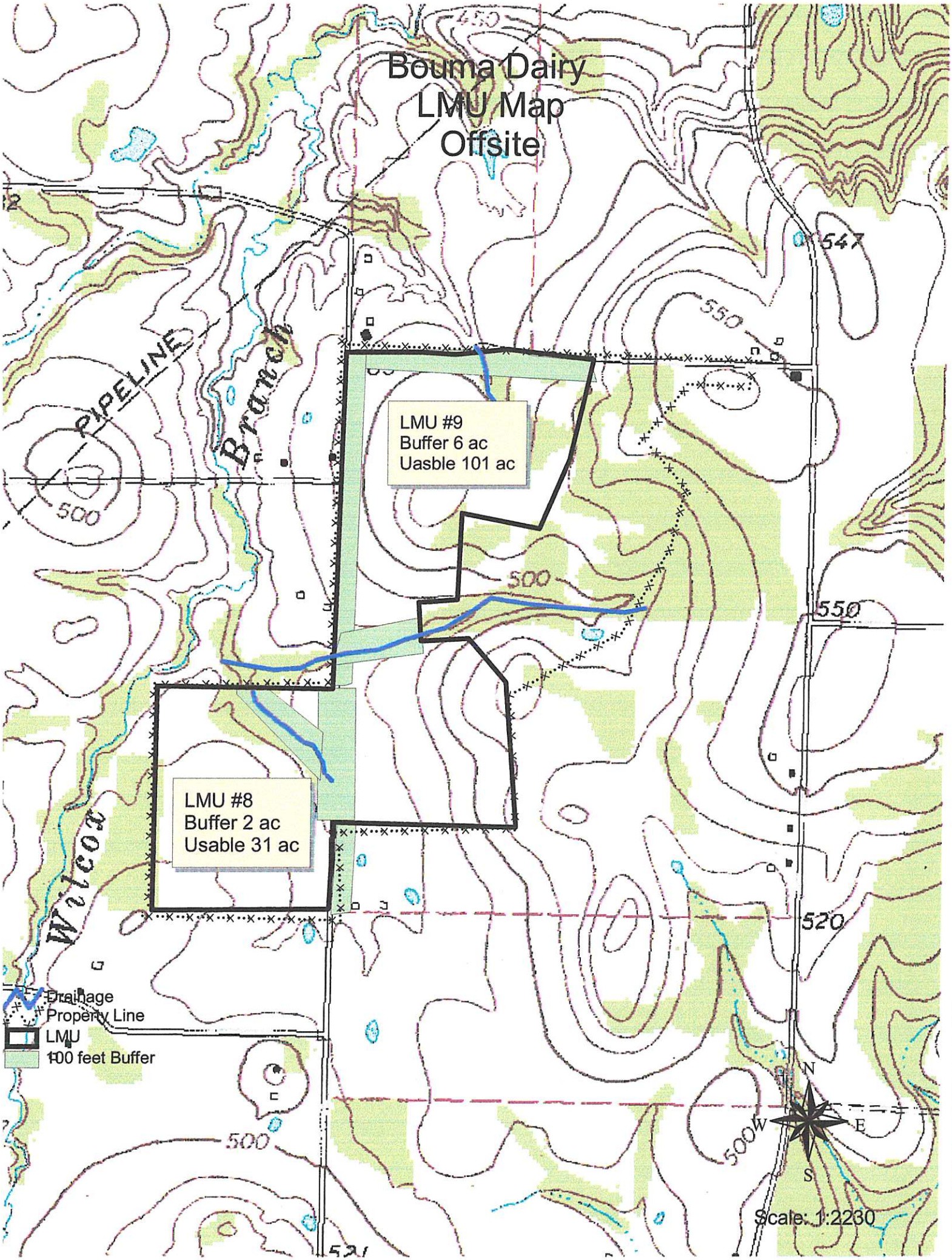
Bouma Dairy
Site and Runoff Map



All strom water runs off the property without comming in contact with animal waste. The Feestall barns are built on elevated pad and curbed so storm water can not flow into the

barn.The settling basin is curbed so storm water runoff cannot flow into the basin. The RCSs are bermed which does not allow runoff water to flow into the RCS.

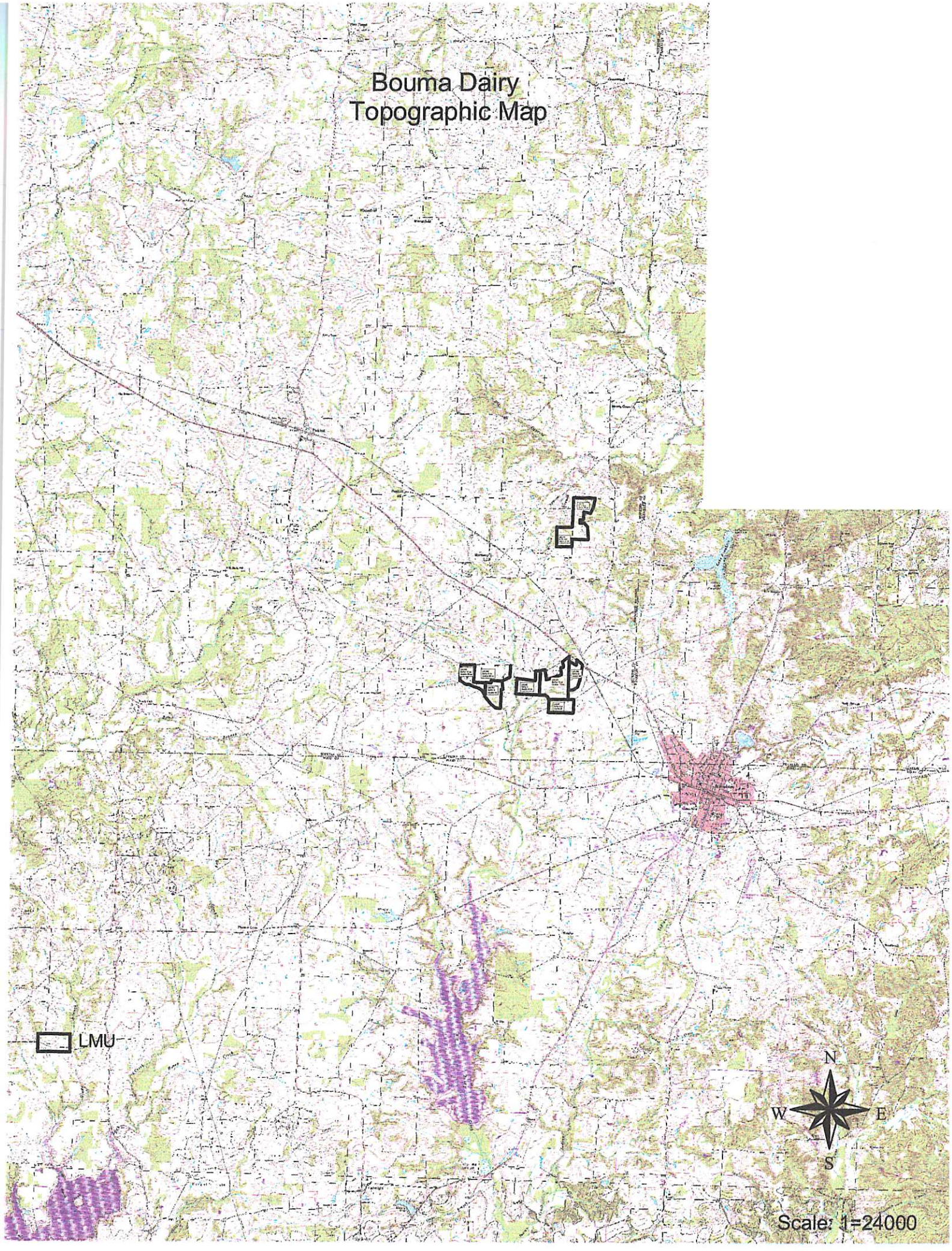

Bouma Dairy
LMU Map
LMU#5
Buffer 10 ac
Usable 30 ac
LMU#4
Buffer 5 ac
Usable 64 ac
LMU#6
Buffer 0
Usable 41
LMU#2
Buffer 0
Usable 44 ac
LMU#1
Buffer 15 ac
Usable 75 ac
LMU#3
Buffer 0
Usablr 39
LMU#7
Buffer 2 ac
Usable 38
Free Stall Barn
Dead animal disposal.
Well
Drainage
Property Line
LMU
100 feet Buffer
Settling basin
RCS
Big Sioux
Creek
N
W
S
Scale: 1=3770

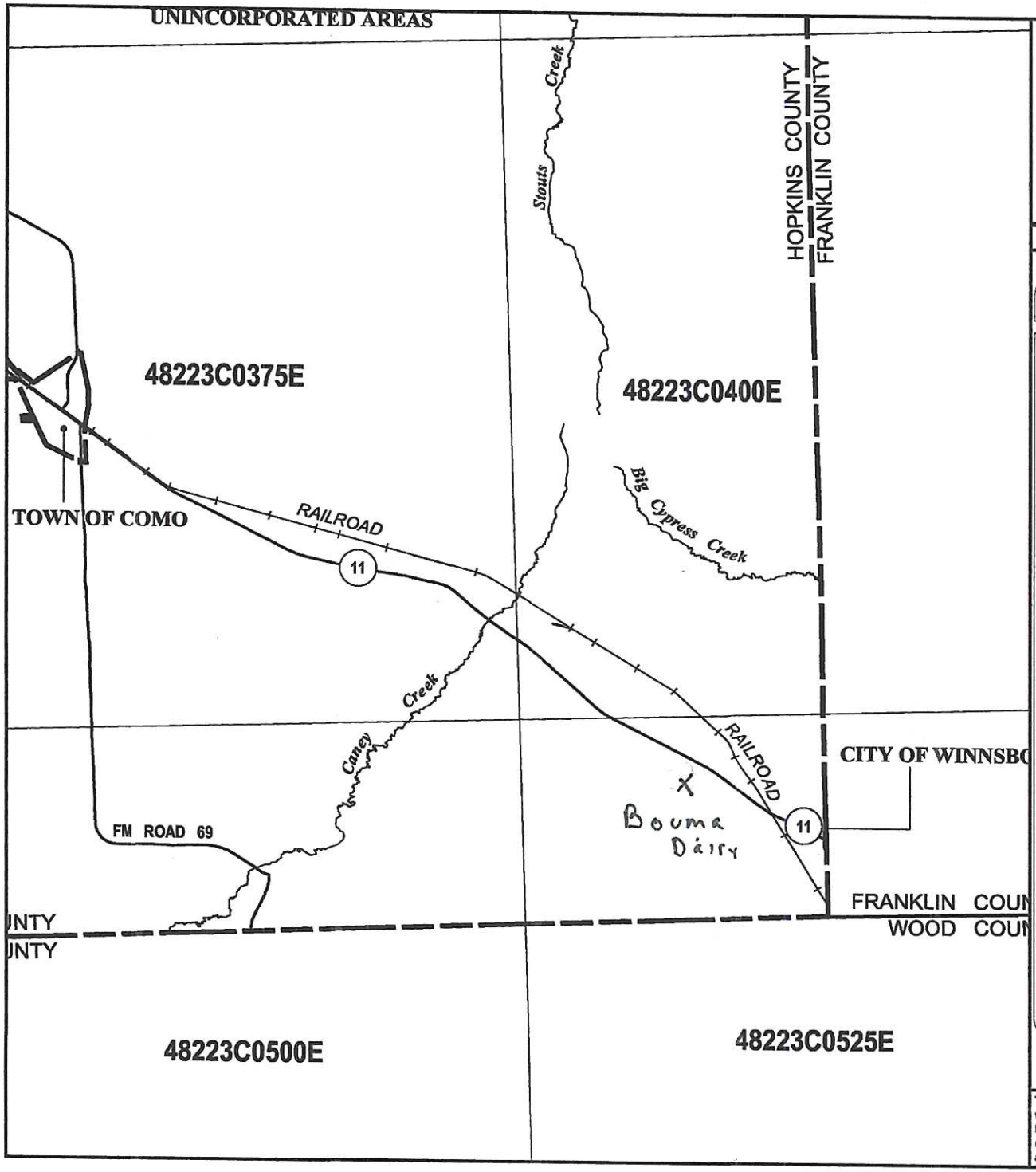

Bouma Dairy
LMU Map
Offsite
LMU #9
Buffer 6 ac
Uasble 101 ac
LMU #8
Buffer 2 ac
Usable 31 ac
PIPELINE
Branch
Wilcox
450
500
550
520
547
Drainage
Property Line
LMU
100 feet Buffer
N
W
E
S
Scale: 1:2230

Google Maps

Bouma Dairy
Vicinity Map




Bouma Dairy
Topographic Map
LMU
N
W
E
S
Scale: 1=24000



N

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

HOPKINS COUNTY, TEXAS

AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

PANELS PRINTED: 50, 75, 100, 125, 150, 175, 200, 215, 225, 250, 275, 300, 325, 330, 350, 375, 400, 425, 450, 475, 500, 525

MAP NUMBER
48223CIND0A

EFFECTIVE DATE
MARCH 17, 2011

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

RECHARGE FEATURE CERTIFICATION
FOR
BOUMA DAIRY

GENERAL REMARKS:

Mr. Bouma is applying for a TCEQ Individual Permit for a concentrated animal feeding operation. He will be reducing the herd size to 999 animals of which 999 are milking cows and will be kept in confinement. This recharge feature evaluation and associated certification was conducted at the request of Miako Bouma of Bouma Dairy. Jim C. Wyrick, Professional Geoscientist, compiled the findings and recommendations, contained herein.

PURPOSE OF REPORT:

The purpose of this report is to determine if the subject property has any natural or artificial features, either on or beneath the ground surface, which would provide a significant pathway for wastewater from the retention control structure or land application site into the underlying aquifer as according to GPTXG920000 requirements. The following records and/or maps from the following entities/agencies were reviewed to locate any recharge features: (a) Texas Railroad Commission, (b) well driller, (c) TCEQ, (d) Natural Resource Conservation Service, (e) owner of site, and (f) an on-site inspection. There are no previous landowners available to contact.

AREA OF EVALUATION

The site under evaluation consists of a retention control structure (RCS#1) and (RCS#2) to be constructed. The wastewater application area LMU#1, LMU#2, LMU#3, LMU#4, LMU#5, LMU#6, LMU#7, LMU#8 and LMU#9. The property is located on the side of CR 2408, .29 miles W of intersection Hwy 11 and CR 2408 in Hopkins County. Latitude: 32.980666 ° N and Longitude: 95.328666° W. This property consists of approximately 477 acres located on Abstract 307, Tract 5-01, and Thomas B. Smith Survey in Hopkins, Texas. The facility is a dairy operation using a freestall system. The facility is located on a topographic ridge with uncontaminated surface runoff generally draining via overland flow and shallow concentrated flows west into unnamed drain and then into Big sandy Creek. The elevation of the dairy property ranges from approximately 460 to 520 feet above mean sea level (AMSL). The current land use of the property is agricultural (pasture and forage crops). All waste application areas are located on the property, and off-site manure application areas will be used by this facility.

SITE DESCRIPTIONS

The existing RCS is located west and down slope of the dairy barn. The RCS was constructed in 1999. Inland Engineering and Surveying certified the size of RCS#1 as having a capacity of 5.56 acre-feet. RCS#2 will be constructed north of the existing RCS will be built to a capacity of 6.92 ac ft. The RCSs will catch and contain all wastewater and manure generated from the dairy barn and 2 free stallbarns. Wastewater flows from the dairy barn and freestall barns into a concrete settling basin then though a six-inch PVC pipe into RCS#1 and then into RCS#2. The RCSs will be dewatered using a drag hose system attached to the back of a tractor. The wastewater application area is on 331acres, LMU#1, LMU#2, LMU#3, LMU#4, LMU#5 LMU#6 and LMU#7 The fields generally drain via overland flow and shallow concentrated flows south into unnamed creek then into Big Sandy Creek.

DEFINITION OF RECHARGE ZONE FEATURE

For the purpose of this report, the definition of "recharge feature" shall be the same as the definition presented in TXG920000 Part 1. Recharge feature is defined as those natural or artificial features either on or beneath the ground surface at the site under evaluation that provide or create significant hydrologic connections between the ground surface and the underlying groundwater within an aquifer.

Significant artificial features include, but are not limited to wells and excavation or material pits. Significant natural hydrologic connection includes, but are not limited to: faults; fractures; sinkholes or other macro pores that allow direct surface infiltration; a permeable or a shallow soil material that overlies an aquifer; exposed geologic formations that are identified as an aquifer; or a water course bisecting an aquifer

LOCAL GEOLOGY

The site is located in the northern part of the East Texas Basin. Geologic units near the site crop out in bands running generally in an east-west direction. The fine sandy loams and loams of the Bernaldo Freestone, Nahatche, Kirvin and Wolfpen soils are immediately underlain by the Relaw Formation (Er) which consists of a layer of dark silty shale typically 30' to 40' thick over a layer of dark gray to green, very fine glauconitic silty sand typically 20' to 30' thick for a total formation thickness of 50' to 70', but is up to 130' thick in certain areas. The shale layer is important in that it provides an impermeable separation between the Queen City Formation and the Carrizo Formation. The Formation is not considered a source of water for water wells. Formations in descending order include The Carrizo Formation (Ec) which consists largely of white to light gray, fine to medium quartz sand. However, small amounts of silt and clay are present in the upper part of the formation. The Carrizo yields small to moderate quantities of water to wells. Typical thickness of the Carrizo is 50' to 100', but is up to 150' thick in some places and in other places is mostly shale so as to not be detectable. Wilcox Group Undivided (Ewi) which consists mostly of silty and sandy clay, very thinly bedded to massive, locally cross-bedded, in part carbonaceous, calcareous siltstone and ironstone concretions common various shades of gray; local beds of clay, lignite, silt, and quartz sand; weathers various shades of gray, brown, yellow, and red; abundant plant fossils; thickness 700 feet. Midway Group which includes the Wills Point Formation (Ewp) and Kincaid Formation (Ek). Wills Point Formation is mostly clay, upper part silty, locally liginitic, some calcareous siltstone concretions, thin bed of rosette limestone near middle, glauconitic near base thin bedded to locally massive, various shades of gray; weathers medium gray to yellowish gray; marine megafossils; thickness ±450 feet. Kincaid Formation is mostly clays calcareous, glauconitic, selenitic, in part silty and sandy locally phosphatic near base, some thin beds of hard gray limestone in upper part, various shades of gray; weathers medium gray: marine megafossils thickness ±150 feet. Navarro Group Undivided (Kna) Upper part mostly clay, salty, in part sandy, sand increases downward, calcareous, glauconitic, calcareous concretions common, some cone-in-cone, medium gray to bluish gray; weather light yellowish gray and medium greenish gray; marine mega fossils scarce. Lower part is mostly sand, fine grained, salty, clayey, weakly coherent, light to medium gray; weathers light yellowish gray; marine mega fossils abundant locally. Indistinctly to thinly bedded. Thickness ranges from 500-775 feet. Neylandville Formation (Kne) consists of clay, calcareous, silty, sandy, medium gray; weathers light gray, forms somewhat irregular topography; scattered marine megafossils; thickness ±75 feet. Marlbrook Marl (Kmb) is marl, slightly glauconitic in upper part, highly plastic when wet, strikingly uniform throughout, medium bluish gray to yellowish gray; weathers light gray to white, forms smooth, rolling topography; marine megafossils scarce; thickness 150-450 feet, thins eastward. (Barnes and others 1966).

GROUND WATER

The Wilcox Group undivided is a multi-aquifer system, composed of fluvial channel sand distributed within the lower permeability interchannel sands and clays. (Kaiser, 1990). These two are considered to be one aquifer in this area. They are considerate the primary and most productive aquifer in the area. These aquifers are tapped by most of the local moderate to large-capacity wells. Locally, this aquifer is tapped by wells between about 240 and 1,250 feet deep. The aquifers are recharged as part of the precipitation that falls on the outcrops infiltrates the soil layers and percolates to the generally shallow water table. Water also moves between overlying alluvial and terrace aquifers according to

hydraulic head differences. Recharge to the deeper sands is generally is limited to areas where these sands outcrop. In other areas, movement of groundwater into the deeper portions of the Wilcox Aquifer is insignificant because of the very low vertical permeability of the interbedded clay layers found in the Wilcox Group (Hall Southwest, 1990b). Water level fluctuations are mostly seasonal.

EVALUATIONS OF LOCAL RECHARGE POTIENTAL

Recharge from Precipitation

According to the National Weather Service (NOAA), the average annual precipitation rate in Hopkins County is about 38.1 inches per year. A significant amount of water that infiltrates to the water table moves slowly down the local hydraulic gradient and discharges through evapotranispiration or via seeps and springs into the surface drainage system. This rejected recharge supplies a major fraction of the base flow for streams in the area. The balance of the water is available to move downdip into the confined portions of the Wilcox Aquifer.

Retention Control Structures (RCS)

The USDA-NRCS Web Soil Survey for Hopkins-Rains Counties indicates the RCS was constructed in BeB - Bernaldo fine sandy loam. 1 to 3 percent slopes See Soil Interpretation Tables for detail information on theses soil. A Texas Licensed Professional Geoscientist certified the pond liner in the RCS. (See liner certification documents) as meeting the minimum requirements considered protective of groundwater as established by the TCEQ. An on-site evaluation was done on the RCSs. Mr. Bouma owner indicated there had not been any digging equipment in the RCS#1 since it was constructed. During the inspection no evidence was found to show any mechanical or structural damage to the liner. The RSC is being be properly maintained and there was no indication of seepage or leakage. The embankments are free of trash, brushes or trees and walls are stabilized and no erosion or deterioration has taken place. Based on these facts, there is little or no potential for hydraulic connection between the RCS and the underlying aquifer.

Wastewater Application Area

The USDA-NRCS Web Soil Survey for Hopkins-Rains Counties, Texas indicates that soils occurring on the wastewater application areas are: KnD - Kirvin gravelly fine sandy loam, 3 to 8 percent slopes, BeB - Bernaldo fine sandy loam. 1 to 3 percent slopes, Na - Nahatche soils, FrB - Freestone fine sandy loam, 1 to 3 percent slopes, and WoC - Wolfpen loamy fine sand, 1 to 5 percent slopes. Bernaldo, Nahatche and Wolfpen soils have a seasonal highwater table and Wolfpen soil has excessive permeability. See Soil Interpretation Tables for detail information on these soils. Sustaining and maintaining the bermuda grass cover and applying wastewater at agronomic rates will prevent nutrient build-up in the soil profile.

ARTIFICIAL RECHARGE FEATURE EVALUATION

Texas Railroad Commission Records

An inventory of oil and gas wells located on the property was conducted for this report. Texas Rail Road Commission records show there are fourteen abandoned or operating oil or gas wells located within a one-mile radius of the site.

Local Water District

Hopkins County does not have a local groundwater district. The rural water supply company for the area surrounding Bouma Dairy is in the Brinker Springs Water Supply Corporation. According to the Water Supply office, no public water supply wells are known to exist on the subject property.

Texas Water Development Board

Texas Water Development Board Water Data Interactive (TWDB WDI). was reviewed for registered wells within a 1-mile radius of the faculty site. There are no registered public

wells within the site.

Current and Previous Landowners

Mr. Bouma stated there are no abandoned or operating oil or gas wells are located on or near the facility. Three private water wells are located on the facility. A certified well driller constructed the wells. Surface completion was in accordance with a Specified Surface Slab (Rule 287.44 (2) (A). The wells are 100 feet deep and surface casing was cemented to a depth of 60 feet below ground level. The previous landowner is not available to be contacted to locate any artificial recharge features. The water wells are identified Site Map

USDA Natural Resources Conservation Service (Hopkins County)

An inquiry was made to the USDA-NRCS office in Sulphur Springs relating to artificial or natural recharge features, which may be present on the site. They were not aware of any additional features.

On-Site Inspection

The property comprising Bouma Dairy was inspected by ground reconnaissance on the dairy property for signs or features that could be adversely affected due to the operation of the facility. Other than the areas identified within the attached maps, no other suspect areas were observed.

METHODS USED

Natural and artificial recharge features were identified by the following techniques: on-site inspection of the dairy site, interviews with the landowner, review of Texas Railroad Commission records, review of published maps and reports (refer to bibliography), review of Soil Survey of Hopkins and Rains Counties, Texas, NRCS information, review of Texas Water Development Board maps, well driller's logs, the Geologic Atlas of Texas Texarkana and personal knowledge of the area. The previous owner was not available for interview regarding recharge features.

CONCLUSIONS

1) The Wilcox Aquifer is the major water-bearing unit beneath the area. Deep Wilcox sand aquifers (greater than 100 feet deep) provide an important source groundwater to the area. It is highly unlikely that operations at the dairy will affect these deeper aquifers because of file presence of frequent low permeability clay beds in the Wilcox Group

2) The site is located in an area where shallow Wilcox sand bodies exist. These sand bodies have sufficient permeability and capacity to serve as local aquifers for domestic purposes. Because they are typically of limited lateral extent, they do not constitute a major source of groundwater in the area. The shallow aquifers are partially recharged by precipitation where the sand units crop out at or near ground surface.

3) The shallow fine-grained sand units present at the site do not represent a classic recharge feature for the regional aquifer system. A significant pathway between ground surface and the regional aquifers does not appear to exist at the site; however, a percentage of the annual precipitation will infiltrate through the unsaturated zone to the shallow aquifers underlying the site. Therefore, protective measures as Best Management Practices (BMPs) should be carried out to prevent any potential negative impacts to the underlying aquifer.

4) There are three private water wells located on the facility. A records search and on-site inspection were made and no other wells were found. Other water wells not identified during this investigation could be near the site.

5) The existing RCS was constructed prior to this application and meets GPTXG920000

requirements for in-situ soil material pond liner. The RCSs are designed to hold all runoff water from the facility, including a 25-Year - 24-hour rainfall event.

RECOMMENDATIONS

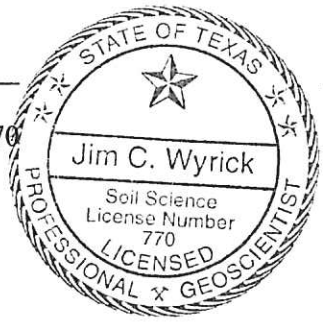
Since a percentage of the annual precipitation will infiltrate through the unsaturated zone to the shallow, local aquifers underlying the site, the facility will employ BMPs, which are protective of the local aquifer underlying the site. These protective measures will be taken to prevent the possible migration of contaminants from, RCSs and the wastewater application areas to the underlying groundwater. As a minimum, these protective measures will include the following BMPs:

- Operations in and around the RCS will take care not to damage the in-suite clay liners. If the ponds are cleaned by a dragline, front-end loader or the waste storage pond liner disturbed, the dairy operator will request the pond liner be inspected and certified by a Texas Licensed Professional Engineer or Texas Licensed Professional Geoscientists
- The operator will prohibit livestock entry into the RCSs.
- Land application of wastewater in the recharge areas of the shallow, local aquifer will take place on designated application areas and at agronomic rates as an organic fertilizer. Wastewater application rates will not exceed the infiltration rates of the soil.
- Over watering of wastewater will be avoided to prevent leaching of nutrients below the crop root zone.
- Wastewater will not be applied when the ground is frozen or saturated or during rainfall events.
- Irrigation practices will be managed to minimize ponding and puddling of wastewater
- Wastewater and manure will be applied at agronomic rates and not allowed to runoff. Diversions or terraces will be constructed if necessary, to prevent wastewater from leaving the application areas.
- Wastewater will not be applied closer than 150 feet from any active water well. Wastewater will not be applied closer than 100 feet to waters of Texas. In addition, a vegetative buffer strip will be maintained between all waste application areas and waters of Texas.
- Dead animals will be properly buried in the designated burial area as identified on LMU Map. According to 30 TAC subchapter B: §§321.31-321.47 requirements.
- Pesticides and other chemicals will not be stored near the water wells or disposed of in the waste storage pond.
- Soils in the waste application areas will be sampled annually in accordance with TCEQ requirements.
- Thorough inspections of the RCSs, transport, treatment and disposal system will take place on regular intervals. If problems are encountered during these inspections, corrective action plans will be developed to address the specific problems encountered
- Any abandoned wells encountered will be reported, inspected and properly sealed to prevent possible point source contamination to the underlying aquifer.
- A 150-foot buffer zone will be maintained between any future water supply wells drilled and the waste storage facilities and other potential pollutants. The water wells will be properly cemented, cased and protected from inundation.
- If public water well is drilled on the dairy site, a 500 feet buffer will be maintained around the well and waste application areas.

CERTIFICATION

The undersigned hereby certifies that natural recharge features and three potential artificial recharge features exist as defined in 30 TAC subchapter B: §§321.31-321.47 Part I on tracts operated or controlled by Bouma Dairy and utilized under this application. See Aquifer Protection Plan for the natural and artificial recharge features impact on the Aquifer.

Jim C. Wyrick
Professional Geoscientist, License Number 770



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AQUIFER PROTECTION PLAN

The artificial recharge features are three private water wells. They are used exclusively for private water supply. The wells locations are shown on the Site and Runoff Map.

Well #1 is about 80 feet north of the commodity barn. Well #2 is about 75 feet west of the commodity barn and 140 feet north of the milking parlor. All runoff water from the commodity barns flows to the south away from the wells. The wastewater generated in the milking parlor flows south over a concrete lane and a pipeline into the RCS. Wastewater from the commodity or milking parlor could not enter the wells. The surrounding ground slopes away from the wells. Well #3 is about 110 feet north of the freestall barn and about 80 feet west of milking parlor. The wastewater generated in the milking parlor flows south over concrete and through a pipeline into the RCS. Wastewater generated in the freestall barns is flushed down a curbed concrete floor sloping to the south away from the well. Wastewater from the milking parlor or freestall cannot enter the wells. The surrounding ground slopes away from the well.

These BMPs are for use on all three wells. All wastewater is stored in the RCS. Wastewater application will not be applied near the wells. Cattle are not allowed to graze in the area around the wells. There are no other pollutant sources such as manure, sludge, wastewater, dust, fuel storage tanks, pesticide and lubricants stored near the wells. Dead animal burial area is not near the wells. The fuel storage tank is not located near the wells. Additional wellhead protective measures include, all wells have a sanitary seal, located on a concrete slab. The areas around the wells have a bermudagrass ground cover. Water wellhead backflow prevention devices have been added to the wells.

The wells and area around them will be inspected monthly to ensure contaminants are not running into the well. If for some reason a pollutant ever flows in the direction of the well, immediate action will be taken to divert the flow from the well. Any change in conditions of the wells will have corrective measures taken. The date Well#1 and Well#2 were drilled is unknown and well logs are not available. Well#3 was drilled on January 9, 2008 a copy of the well log is attached. The wells were completed in accordance with water well drilling rules at that time of drilling. These wellhead protective measures will prevent pollutants from entering the groundwater through the wells

The natural recharge features include surface water bodies, creeks, and tributaries. Structural and non-structural controls to be used to protect the natural recharge features are as follow:

- Vegetative filter strips of Bermuda grass will filter, contain, and prevent the lateral movement of wastewater irrigation and manure.
- Waste will be applied only where the LMU cover vegetation is growing and has crop demand for nutrients.
- Waste will be applied at the nutrient requirements of the vegetative cover at the agronomic application rates.
- Wastewater will be applied at a rate less than the permeability of the soil to prevent ponding and runoff.
- Wastewater application will be at rate that ensures that wastewater will be used by the vegetative cover.
- Vegetative buffers of 150 feet for will be maintained around any newly drilled private water wells.
- 100 feet of vegetative cover buffer between waste and wastewater application areas and surface water and watercourses will be maintained.
- Records of climatic conditions during waste application such as: temperature, precipitation and cloud cover.

The following BMPs are to protect the groundwater for LMU#1, LMU#2, LMU#3, LMU#4, LMU#5 and LMU#6. These LMUs have Bernaldo, Nahatche and Wolfpen soils, which have a seasonal high-water table. LMU#1, LMU#2, LMU#5 and LMU#6 have Wolfpen soils which have excessive permeability. The LMU locations are shown on the LMU Map.

1. Application of wastewater will be applied following the Nutrient Management Plan. This will ensure:
    - Intensive nutrient management practices to manage LMU limitations
    - All agricultural waste shall be utilized in a manner that minimizes the opportunity for contamination of surface and ground water supplies.
    - Wastewater application rates will not exceed the soil infiltration rate so not to cause leaching and groundwater contamination.
    - Wastewater application rates will not exceed the available water holding capacity of the soil profile at the time of application, so not to cause leaching and groundwater contamination.
    - Wastewater will be applied at nutrients levels to meet the bermudagrass ground cover needs. This will prevent the movement of nutrients through the soil profile to groundwater caused by over irrigation
    - Annual soil sampling to determine soil available nutrient and amount of nutrients needed for crop production, according to30 TAC subchapter B: §§321.31-321.47.
2. Use of proper timing, formulation, and application methods for nutrients that maximize plant utilization of nutrients and minimize the loss to the ground water,
3. Wastewater will not be applied to saturated soils.
4. Irrigation will be limited on these soils areas when the potential for the seasonal water table to be near the soil surface. (November – May).
5. Timing of manure or waste water application should coincide as nearly as possible to the time when plants can use the nutrients -- that is, during the normal growing season
6. Continual inspection and maintenance of waste handling facilities and equipment will prevent unwarranted waste discharges into surface water and groundwater.
7. Records of crop yields will be kept to determine realistic crop yield expectations.
8. Application equipment should be calibrated and inspected for wear and damage periodically, and repaired when necessary.
9. Records of nutrient application rates will be maintained along with other management records for each field.

These BMPs will provide adequate protective measures for the natural recharge features.

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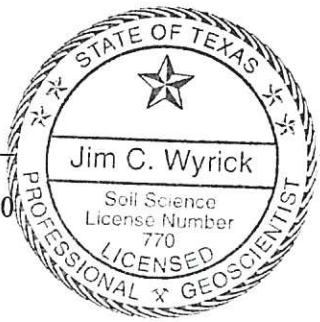
Professional Geoscientist, License Number 770



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Date

United States Department of Agriculture

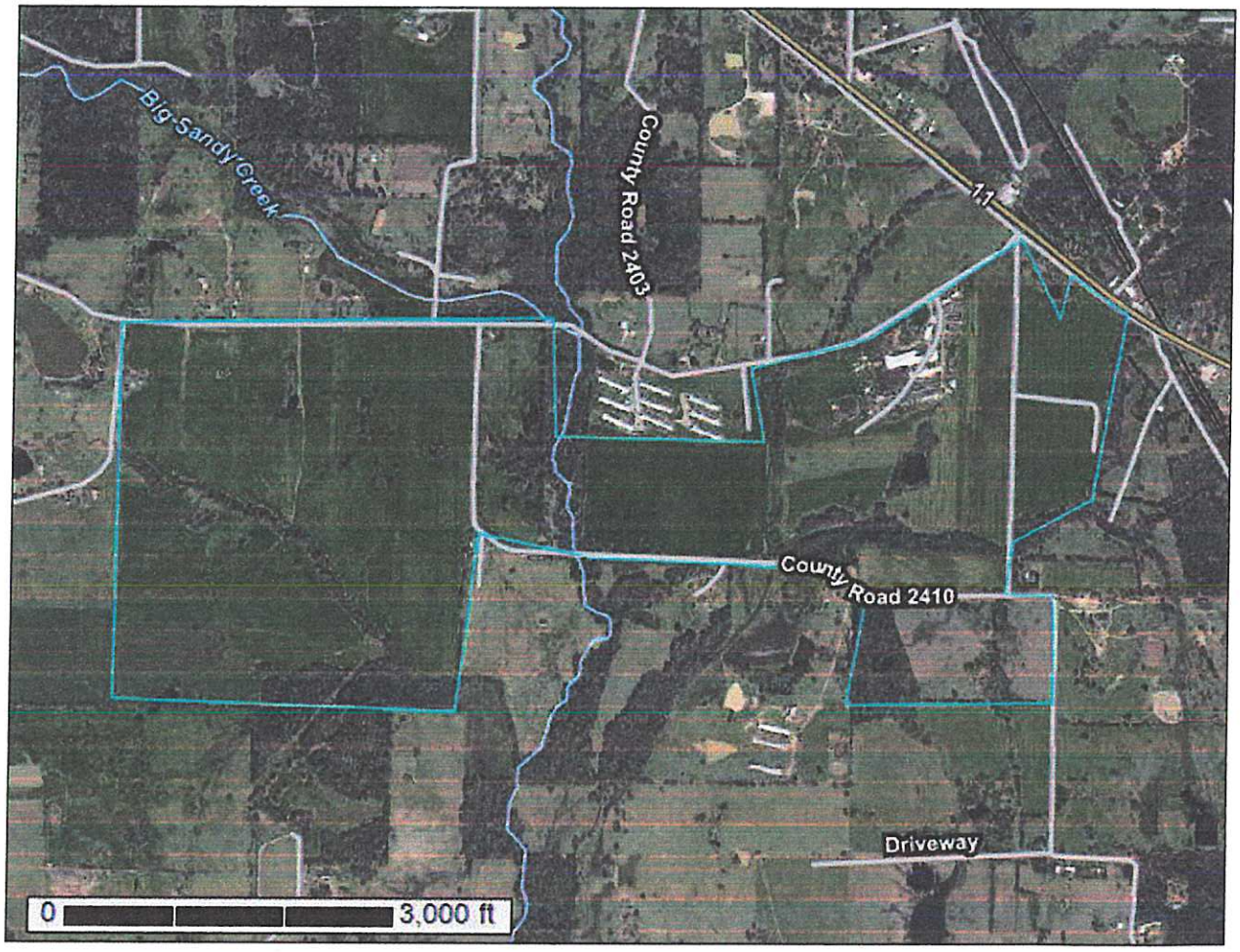
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hopkins and Rains Counties, Texas

Bouma Dairy



August 21, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

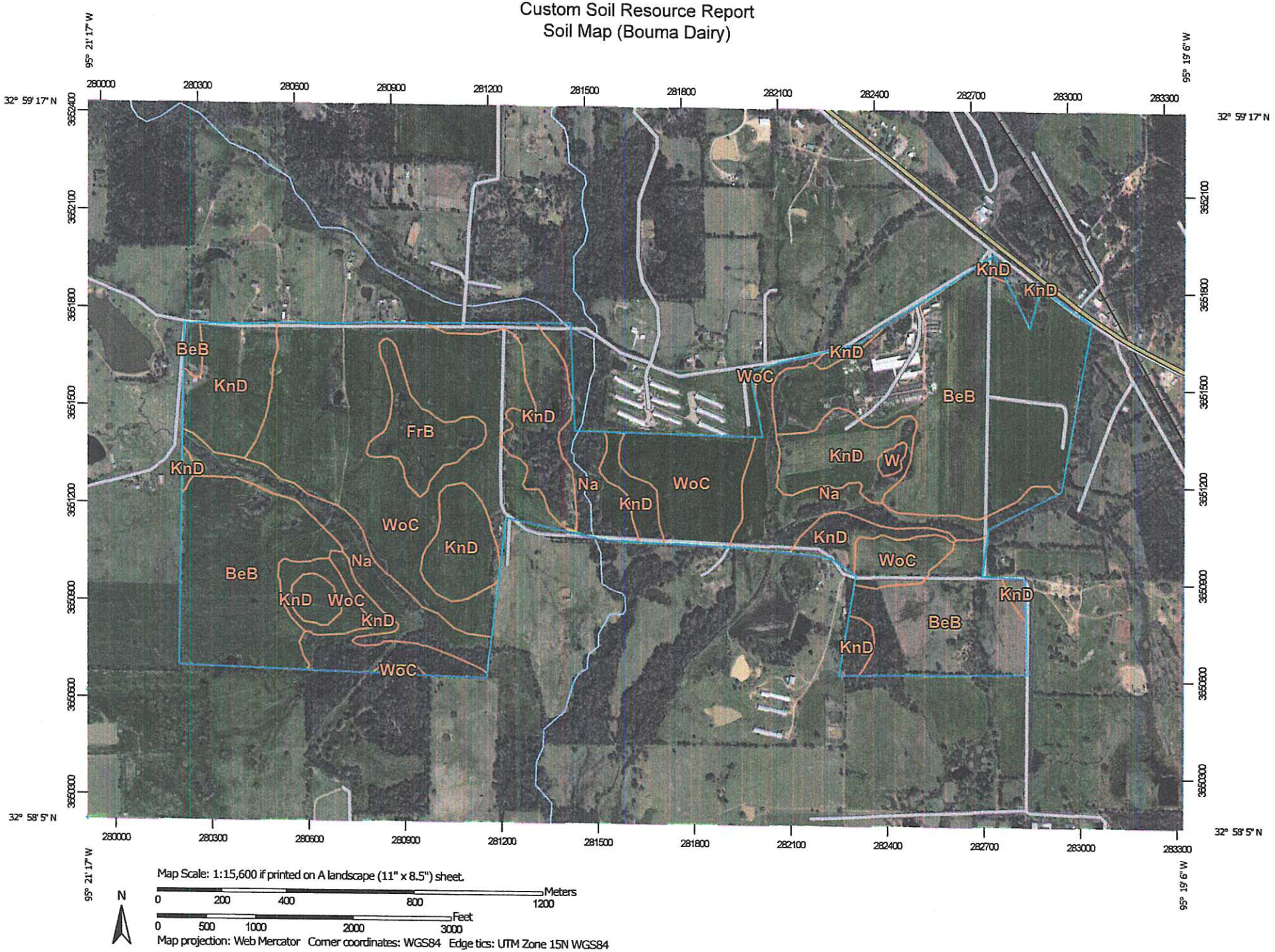
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

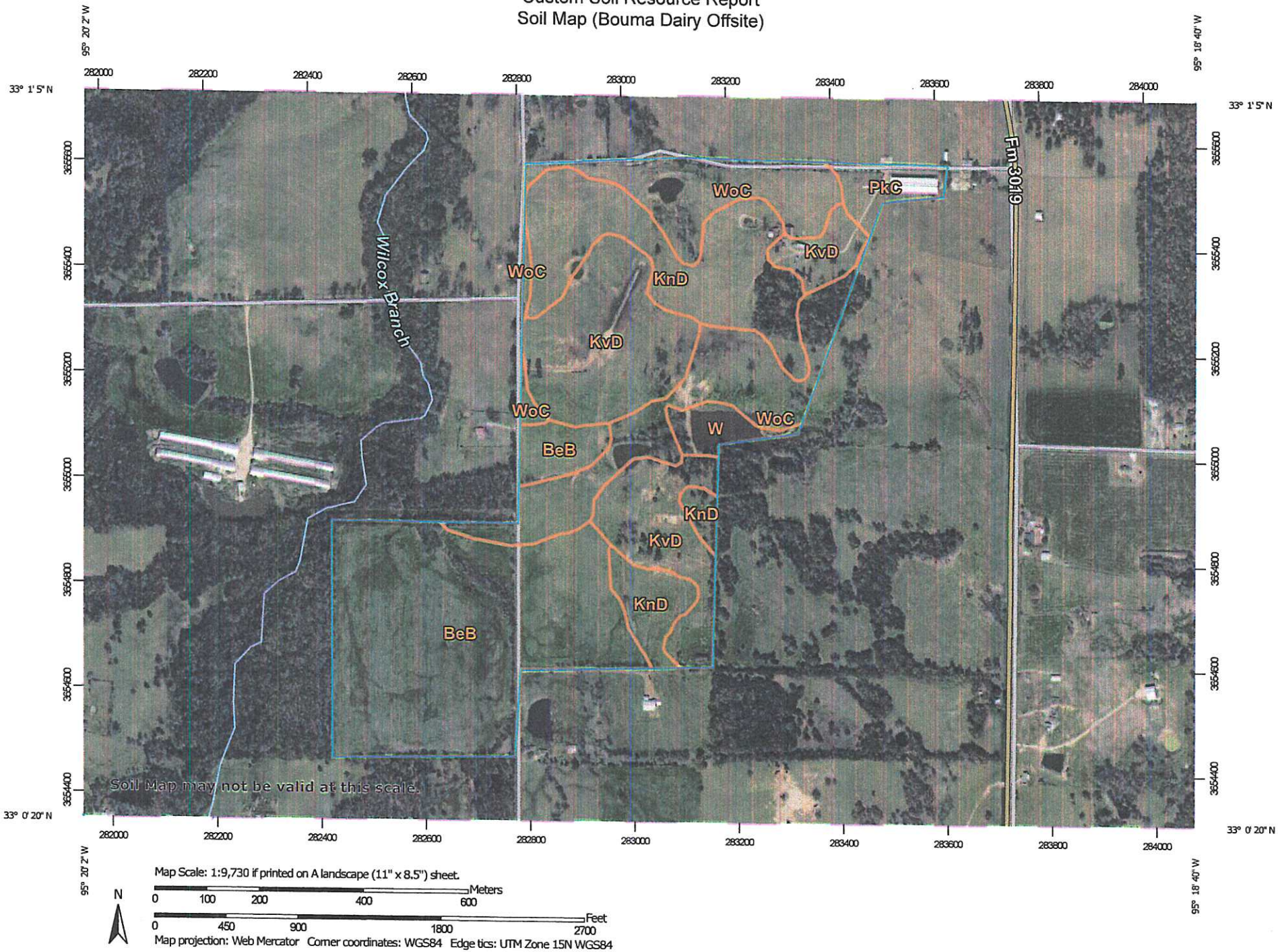
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Bouma Dairy)



Custom Soil Resource Report
Soil Map (Bouma Dairy Offsite)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hopkins and Rains Counties, Texas
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 19, 2023—Mar 5, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Bouma Dairy)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Bernaldo fine sandy loam, 1 to 3 percent slopes	203.2	36.0%
FrB	Freestone fine sandy loam, 1 to 3 percent slopes	16.1	2.9%
KnD	Kirvin gravelly fine sandy loam, 2 to 8 percent slopes	122.5	21.7%
Na	Nahatche soils, frequently flooded	67.5	12.0%
W	Water	1.5	0.3%
WoC	Wolfpen loamy fine sand, 2 to 5 percent slopes	153.3	27.2%
Totals for Area of Interest		**564.2**	**100.0%**

Map Unit Descriptions (Bouma Dairy)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hopkins and Rains Counties, Texas

BeB—Bernaldo fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tf44
Elevation: 200 to 720 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 54 to 75 degrees F
Frost-free period: 240 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernaldo and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernaldo

Setting

Landform: Stream terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 47 inches: sandy clay loam
Bt/E - 47 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 42 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F133BY013TX - Terrace
Hydric soil rating: No

Minor Components

Freestone

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Wolfpen

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

FrB—Freestone fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wg9c
Elevation: 140 to 790 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 218 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Freestone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freestone

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy alluvium derived from shale and siltstone

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 11 inches: fine sandy loam
Bt - 11 to 20 inches: sandy clay loam

B/Et1 - 20 to 28 inches: clay loam
B/Et2 - 28 to 44 inches: clay
B't - 44 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R087BY003TX - Sandy Loam
Hydric soil rating: No

Minor Components

Raino

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Mounds
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

Woodtell

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY002TX - Claypan Savannah
Hydric soil rating: No

KnD—Kirvin gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tlk3
Elevation: 230 to 630 feet
Mean annual precipitation: 42 to 49 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 195 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition

Kirvin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kirvin

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
E - 4 to 12 inches: gravelly fine sandy loam
Bt - 12 to 31 inches: clay
BCt - 31 to 43 inches: clay loam
C - 43 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Bowie
Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Na—Nahatche soils, frequently flooded

Map Unit Setting
National map unit symbol: dklg
Elevation: 100 to 400 feet
Mean annual precipitation: 40 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 235 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Nahatche and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nahatche

Setting
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium of holocene age

Typical profile
H1 - 0 to 7 inches: clay loam
H2 - 7 to 65 inches: loam

H3 - 65 to 80 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R087BY007TX - Loamy Bottomland
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WoC—Wolfpen loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tcnz
Elevation: 210 to 570 feet
Mean annual precipitation: 41 to 51 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 204 to 236 days
Farmland classification: Not prime farmland

Map Unit Composition

Wolfpen and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wolfpen

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy fluviomarine deposits

Typical profile

A - 0 to 6 inches: loamy fine sand
E - 6 to 27 inches: loamy fine sand
Bt - 27 to 55 inches: sandy clay loam
Bt/E - 55 to 70 inches: sandy clay loam
B't - 70 to 80 inches: sandy clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Minor Components

Oakwood

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

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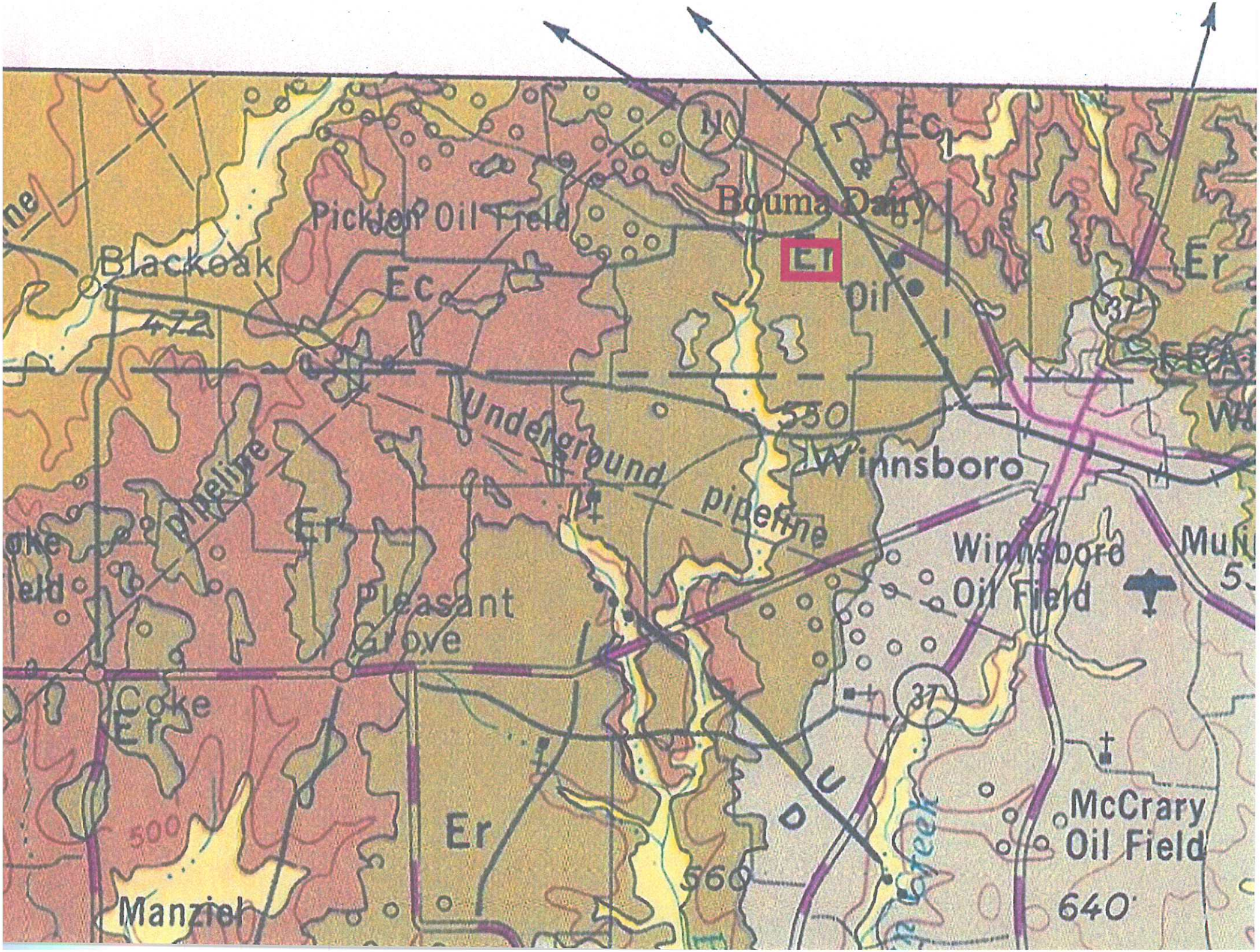
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Bouma Dairy
Blackoak
Ec
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Oil
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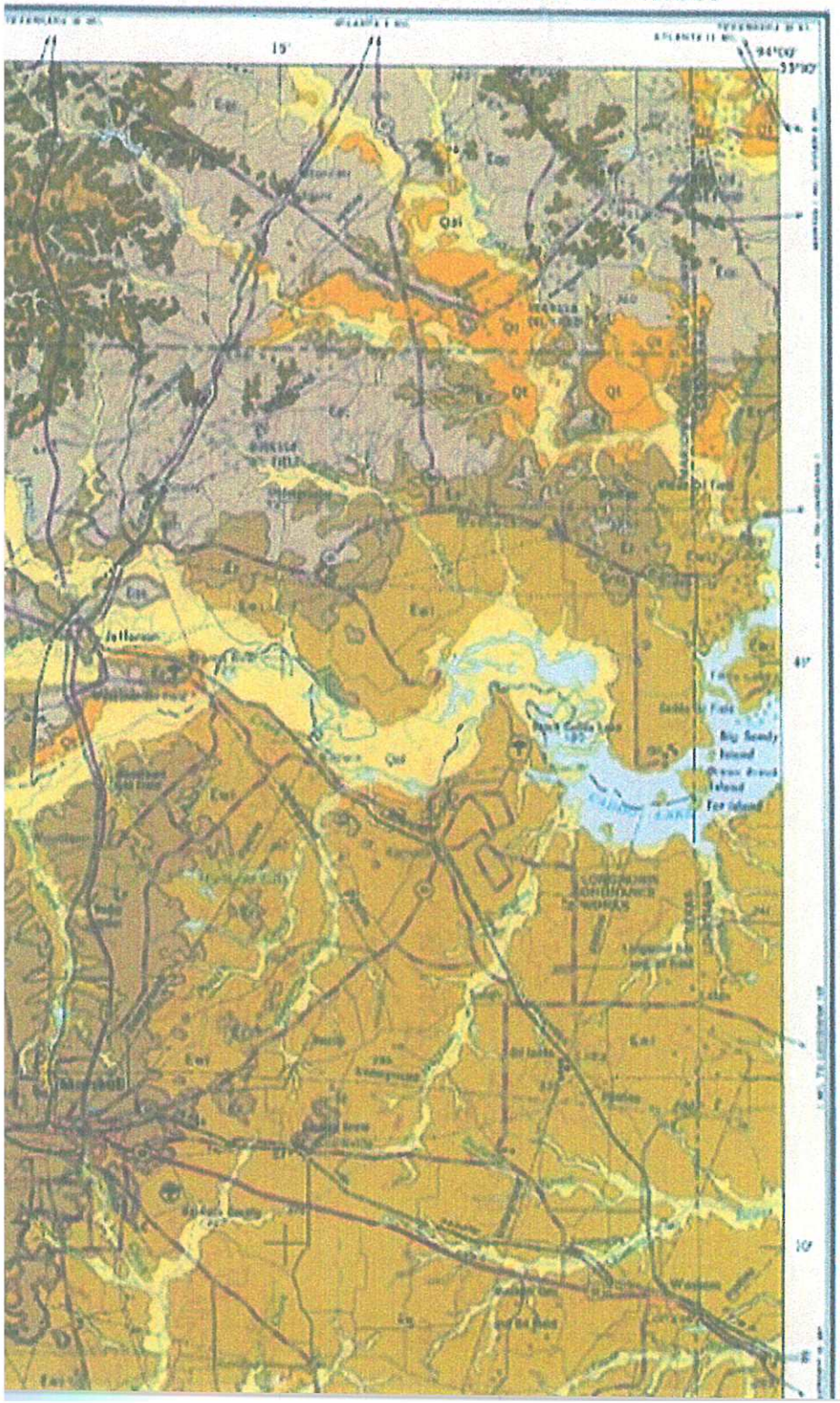
Underground pipeline
Winnsboro
Pleasant Grove
Winnsboro Oil Field
Coke
Manziel
560
640
McCrary Oil Field
37

TYLER SHEET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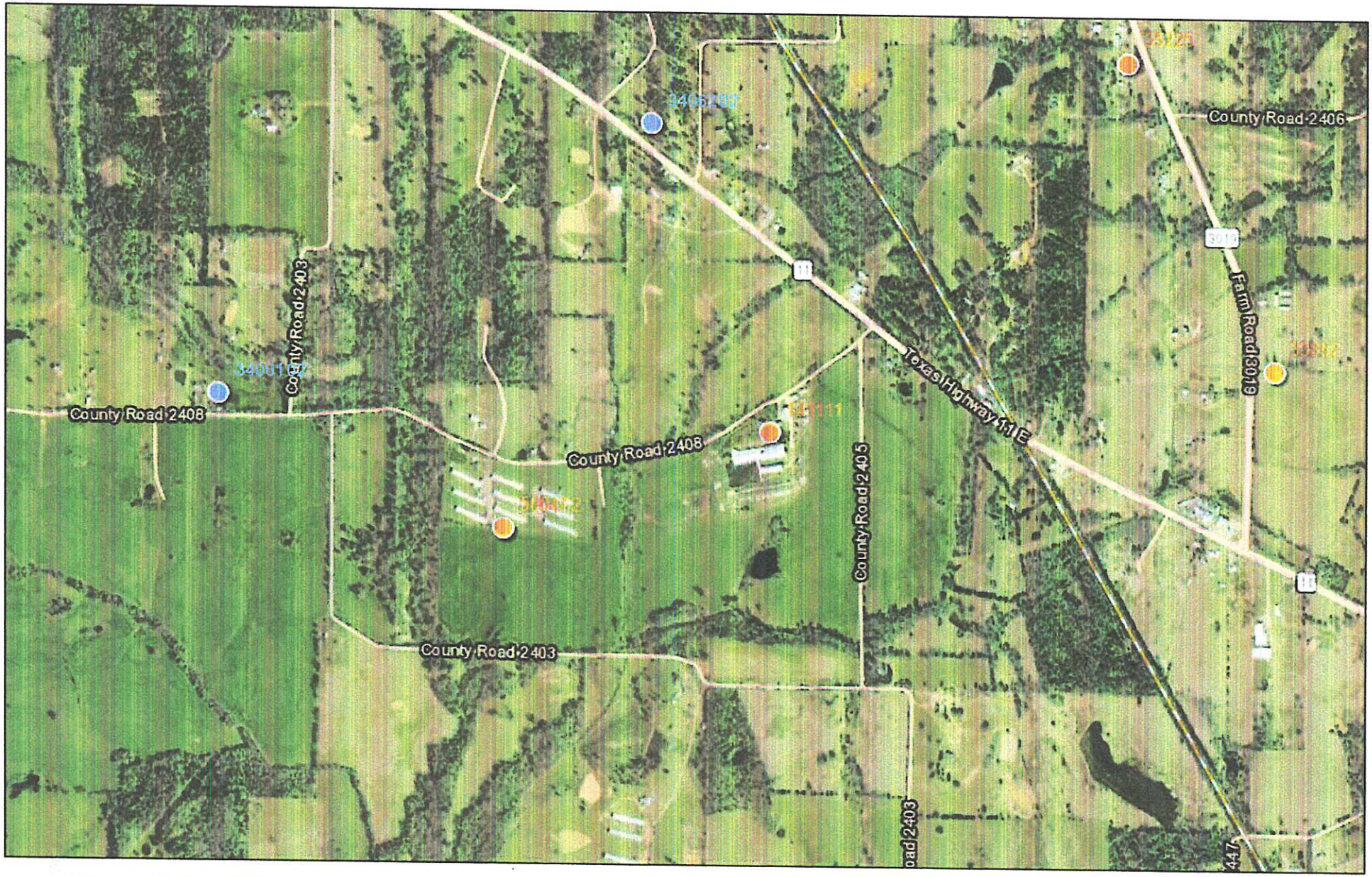
Bouma Well Location



Texas Water Development Board

September 4, 2024

TWDB Groundwater

Well Reports

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

1:18,056

Esri, HERE, Garmin, (c) OpenStreetMap contributors

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB. The TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose. The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact WDI-Support@twdb.texas.gov.

TEXAS WATER DEVELOPMENT BOARD

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #141111

Owner:	**Michael Bouma**	Owner Well #:	**1**
Address:	**4252 CR 2408 Winnsboro, TX 75494**	Grid #:	**34-06-2**
Well Location:	**4252 CR 2408 Winnsboro, TX 75494**	Latitude:	**32° 58' 54" N**
		Longitude:	**095° 19' 40" W**
Well County:	**Wood**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **1/7/2008** Drilling End Date: **1/9/2008**

Borehole:

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
7.875	0	573

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed; Straight Wall**

Filter Pack Intervals:

Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
440	573	Gravel	16/30

Annular Seal Data:

Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
0	100	19 c w/6% gel
390	440	7 c w/6% gel

Seal Method: **Pumped with Tremmie Pipe**

Sealed By: **Driller**

Distance to Property Line (ft.): **50 +**

Distance to Septic Field or other concentrated contamination (ft.): **50 +**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **215 ft.** below land surface on **2008-01-22** Measurement Method: **Unknown**

Packers: **None**

Type of Pump: **Submersible** Pump Depth (ft.): **340**

Well Tests: **Jetted** **Yield: 60 GPM with 140 ft. drawdown after 1 hours**

Plug Information:

Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
N/A		

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **C Miller Drilling**

7355 E State Hwy 154
Winnsboro, TX 75494

Driller Name: **Cory L Miller** License Number: **2464**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	22	Clay and Rock
22	42	Shale and Sand Light Gray
42	82	Shale
82	102	Shale and Sand
102	202	Shale
202	340	Shale with Lignite Streaks
340	362	Sand with Shale Streaks
362	506	Shale with Lignite Streaks
506	562	Sand
562	573	Shale

Casing:
BLANK PIPE & WELL SCREEN DATA

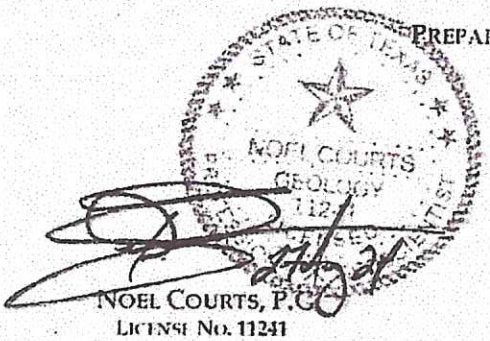
Dia. (in.) New/Used Type Setting From/To (ft.)
4 1/2" New SDR 17 0 - 480 Casing
4" New SCH 40 PVC 480 - 508 Casing
4" New SCH 40 PVC 508 - 558 .016 Screen
4" New SCH 40 PVC 558 - 564 Casing

BOUMA DAIRY

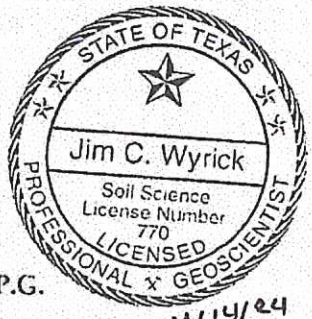
CALCULATIONS FOR DAIRY BARN & FREE STALL SLUDGE

MAIKO BOUMA
4252 COUNTY ROAD 2408
WINNSBORO, TEXAS 75494
HOPKINS COUNTY

PREPARED BY:

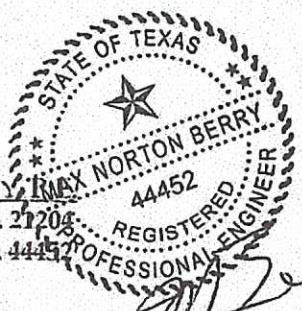


NOEL COURTS, P.G.
LICENSE NO. 11241
EAST TEXAS ENVIRONMENTAL SERVICES



JIM C. WYRICK, P.G.
LICENSE NO. 770
EAST TEXAS ENVIRONMENTAL SERVICES

11/14/24



M. BERRY, INC.
FIRM NO. 21204
SEAL NO. 44452

11/29/24

BOUMA DAIRY - SLUDGE VOLUME

D.A. #1 - DAIRY BARN & FREESTALL BARN

All of the waste from the dairy barn and freestalls at Bouma Dairy removed by a Honey Vacuum that is proved to be at least 50-90% effective according to the NRCS Practice Standard Code 6632 – "Solid/Liquid Waste Separation Facility". In this case 90% vacuum efficiency was used. The remaining solids go into settling basins that removes 45% of the remaining solids produced. Any manure separating facilities have 40%-65% total solids efficiency according to NRCS Practice Standard Code 632 – "Solid/Liquid Waste Separation Facility". The adjusted total live weight contributing to the waste volume is 990,675 pounds @ 1400lbs/cow. The sludge from the free stall barns is calculated below:

Adjusted Total Live weight Contributing Manure	990,675 lbs
Honey Vacuum Efficiency	90%
Adjusted Live weight	99,067 lbs
Settling Basin Efficiency	45%
Adjusted Live weight	54,487 lbs
Sludge Accumulation Rate cu ft/year/lbs live weight	0.25

Sludge Volume = $\frac{(54,487 \text{ lbs})\ (0.25 \text{ cu ft/year/lbs live weight})}{43,560 \text{ cu ft/ac-ft}}$ =

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MAX NORTON BERRY
44452
REGISTERED
PROFESSIONAL ENGINEER
F-21204
11/29/24

BOUMA DAIRY

SLUDGE VOLUME FROM OPEN LOTS

OPEN LOT:

Sludge storage for a ten year period may be calculated using the following equation:

Sludge Volume = 25% x (25yr-24hr storm volume runoff from open lots)

For this facility the 25yr-24hr storm volume from open lots = 1.31 ac-ft

Open Lot Volume = .25 x 1.31 = .33 for a ten year period.

The planned sludge cleanout interval for open lots is 1 year; therefore, allotted sludge volume is as follows:

$\frac{.33 \text{ ac-ft (5 years)}}{10 \text{ years}}$ =

CERTIFICATION:

Prepared By: _____
Noel Courts, P.G.
East Texas Env. Services

Prepared By: _____
Jim C. Wyrick
East Texas Env. Services
11/14/24

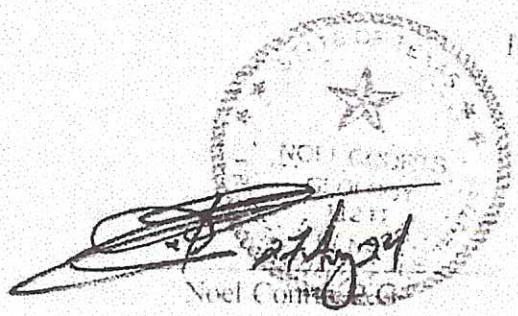
Prepared By: _____
M. Berry, P.E.
Firm No. F-21204
Seal No. 44452
11/29/24

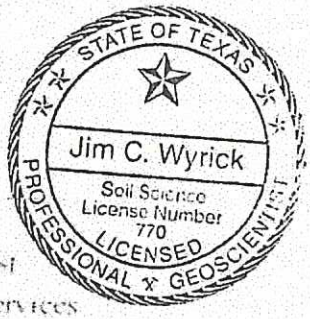
BOUMA DAIRY- TOTAL

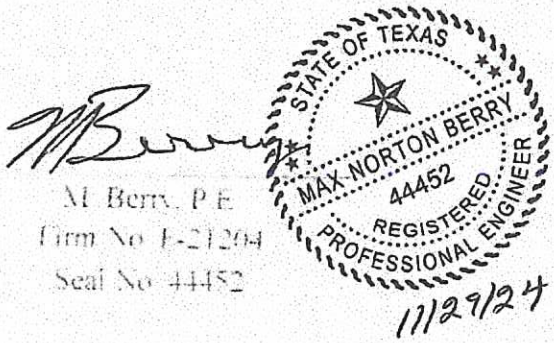
AGRICULTURAL WASTE MANAGEMENT PLAN

HOPKINS COUNTY

Prepared by







Noel Connie, P.G.
Professional Geoscientist
East Texas Environmental Services

Jim C Wyrick, P.G.
Professional Geoscientist
East Texas Environmental Services

STATE OF TEXAS
Jim C. Wyrick
Soil Science
License Number
770
LICENSED
PROFESSIONAL GEOSCIENTIST

M. Berry, P.E.
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Modified for Wood/Hopkins/Kaufman/Franklin Counties/LD, [illegible] January 22, 2008. Modifications made in monthly rainfall, monthly evaporation, and monthly consumptive use values for bermudagrass pastureland, bermuda small grain pastureland, small grain cropland, grain sorghum cropland, and sorghum small grain cropland. Modifications [illegible] taken from following reference: Borrelli, J.S. B. Felder, and T.M. Gregory. 1998. Mean Crop Consumptive Use and Free-Water Evaporation for Texas. TWDB Grant No. 95-483-137. Dept. of Civil Engineering, Texas Tech University, Lubbock, Texas. [illegible] Modified by [illegible]

IN COOPERATION WITH:

NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

MANURE PRODUCTION DATA
FOR CONFINED ANIMAL FEEDING OPERATIONS

TYPE OF ANIMAL (Dairy=0, Swine=1, Laying Hens=2, Beef Feedlot=3, Sheep Feedlot=4, Horses=5, Turkeys=6, Broilers=7) = 0

Feeding Facilities For: Dairy

	Dairy Barn & Free Stall Barn	Open Lots	Total
Number of Animals	999	999	
Average Liveweight per Head, lbs/hd	1,400	1,400	
Total Liveweight,lbs	1,398,600	1,398,600	
Confinement Period, hours/hd/day	17.0	7.0	24.0
Adjusted Total Liveweight, lbs	990,675	407,925	1,398,600
Wet Manure Production, lbs/day	101,049	41,608	142,657
Dry Manure Production, lbs/day	14,563	5,996	20,559
Dry Manure Production, tons/year	2,658	1,094	3,752
Volatile Solids (VS) Production, lbs/day	10,689	4,402	15,091
Total Nitrogen Production, lbs/day	542	223	765
Total Phosphorus (P2O5), lbs/day	267	110	378
Total Potassium (K2O), lbs/day	459	189	648
Sodium Production, lbs/day	77	32	109
COD Production, lbs/day	13,275	5,466	18,741
BOD5 Production, lbs/day	2,061	848	2,909

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Engineering Job Approval Authority Job Class for Ag. Waste Management System: _____

This practice, Ag. Waste Management System, meets specifications, signed by:

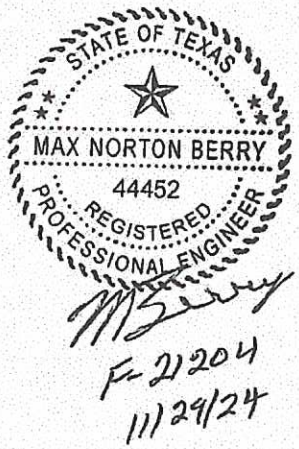
_____ Date: _____

Remarks

VOLUME OF MANURE & WASTEWATER FROM CONFINEMENT BUILDINGS

Wet Manure Production	=	12116	gal/day
Water Used for Manure Removal			
a. Dry Manure Production	=	14563	lbs/day
b. Water Volume Required for Manure Removal			
1. Flush Systems:			
(Enter gallons water per pound of dry manure production, range 8-12 gal/lb)	=>	5	
Total flush water	=	72815	gal/day
2. Manual Scrape/Wash System (Enter gallons of water per pound of dry manure production. Range: 3 - 6 gal/lb)	=>	0	
Total manual wash water	=	0	gal/day
Cleanup and Washwater (Default=10 gal/hd/day)	=>	5	gal/hd/day
	=	4995	gal/day
Other Water That Enters Wastewater System	=>	5	gal/hd/day
[e.g. drinking water, etc.(12 gal/hd/day)]	=	4995	gal/day
Total Process Generated Wastewater Volume			
Daily Volume	=	94921	gal/day
Less Volume of Recycled Wastewater Used for Manure Removal	=>	58253	gal/day
Design Wastewater Storage Volume, Minimum Allowable			
Minimum Storage Days (Use Exhibit 2)*	=>	21	days
Minimum Design Storage Volume	=	2.36	ac-ft
Net Manure and Wastewater Volume for Land Application			
Monthly Volume	=	3.42	ac-ft/month
Annual Sludge Accumulation Rate, ac-ft	=	0.31	
Desired Sludge Storage Volume in Pond	=>	3.41	ac-ft
Sludge Cleanout Interval	=	10.0	years
Design Sludge Accumulation Storage Volume (Not to be less than 1 Year accumulation)	=	3.41	ac-ft

* Use Exhibit 2 of Texas Water Commission regulations for your particular location.



F-21204
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ESTIMATED VOLUME OF RUNOFF FROM OPEN LOTS

Total area draining into Runoff Control Structure (RCS)			
a. Area of open lot surface	=>	[illegible]	acres
b. Area between open lot surface and RCS	=>	[illegible]	acres
c. Surface area of RCS	=>	[illegible]	acres
d. Total area (#1.a + #1.b + #1.c)	=	2.80	acres
Design rainfall (25-year frequency, 24-hour duration storm), inches (Use Exhibit 1)	1) =>	[illegible]	inches
Design runoff depth, inches (Use exhibit 3)			
a. For Open Lot Surface * CN	=>	[illegible]	
		6.81	inches
b. For Area Between Lots and RCS ** CN	=>	[illegible]	
		6.21	inches
c. For Surface Area of RCS	=	8.00	inches
Design runoff volume from 25-year, 24-hour storm			
a. For Open Lot Surface	=	0.7	ac-ft
b. For Area Between Lots and RCS	=	0.1	ac-ft
c. For Surface Area of RCS	=	0.9	ac-ft
d. Total Design Runoff Volume	=	1.7	ac-ft

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NOTE: Runoff Control Structures must be capable of storing Design Runoff Volume plus Design Storage Volume, if runoff and process generated wastewater streams are combined.

* Use NRCS soil cover complex curve No. 90 for unpaved (soil) lots and curve No. 95 for concrete surfaces.

** Use appropriate NRCS soil cover complex curve number for particular type of cover. Contact local Natural Resources Conservation Service field office for assistance.

SUMMARY OF REQUIRED AND DESIGNED STORAGE PONDS

Minimum Design Wastewater Storage Volume	2.36	ac-ft
Minimum Design Runoff Storage Volume	1.71	ac-ft
Sludge Accumulation Storage Volume	3.41	ac-ft
Additional Capacity Allowance	5.00	ac-ft
Total Capacity Designed	12.48	ac-ft

DESIGN BASIS FOR
PRIMARY ANAEROBIC MANURE TREATMENT LAGOONS

(WHERE APPLICABLE)

Design Factor		Dairy	
Adjusted Total Liveweight Contributing Manure to Lagoon	=	54487	lbs
Recommended Unit Treatment Volume (see footnote) (RUTV), cubic feet/pound liveweight	=> =	3.00	
Total Treatment Volume	=	[illegible]	
Design checks (see footnotes):			
a. Volatile Solids (VS) Loading Rate		0.0654	
b. Hydraulic Retention Time		13	days
c. Estimated Sludge Cleanout Interval:			
1. Sludge Accumulation Rate, cu ft/year/lb liveweight	=	0.250	
2. Sludge Cleanout Interval	=	6.0	years
Additional Capacity Allowance for:			
a. Design Runoff Volume, (one stage lagoons o	=>	[illegible]	ac-ft
b. Sludge storage	=>	[illegible]	ac-ft
c. Additional Storage	=>	[illegible]	ac-ft
Total Primary Lagoon Capacity	=	3.8	ac-ft

THIS PAGE IS NOT APPLICABLE TO THIS PLAN

Notes: 2. If user entry area equals 0, then default values are used
(dairy=3, swine=1.75, poultry,laying hens=2.5, beef=2, sheep=2, horses=2).
User may specify alternate value which will override template default.

4.a. VS Loading Rate--Volatile Solids Production (Worksheet I, #10) / Total Treatment Volume.
Desired range is 0.0025-0.0040 lbs VS/day/cu ft for odor control

4.b. Hydraulic Retention Time--Total Treatment Volume / Total Manure and Wastewater Volume.
Desired range is 160-400 days for good treatment.

4.c. Sludge Cleanout Interval (when half full)

$$\text{Interval} = \frac{\text{Total Treatment Volume (cuft)} \times 0.5}{\text{Adj. Total Live Wt.} \times \text{Sludge Accum. Rate}}$$

LAND AREA FOR DISPOSAL OF MANURE OR EFFLUENT FROM TREATMENT LAGOONS,

BASED ON PLANT-AVAILABLE NITROGEN (PAN)

		Buildings		Open Lots	
Total Daily Nitrogen Production	=	542	more->	223	lbs/day
Total Annual Nitrogen Production	=	197793	more->	81444	lbs/yr
Percent Nitrogen Loss from manure storage or treatment system*	=>	20	more->	50	percent
Annual Nitrogen Loss from manure storage or treatment system	=	39559	more->	40722	lbs/yr
Total Annual Nitrogen Remaining	=	158235	more->	40722	lbs/yr
Availability of Nitrogen in Manure or Effluent:% (Normal range is 80-95% in lagoon effluent; 50-80% in fresh or pit-stored manure; or 40-50% in feed lot manure)	=>	80	more->	50	percent
Annual Plant-Available Nitrogen (PAN) Applied to Soil		126588	more->	20361	lbs/yr
PAN Losses from Soil Surface Application**	** =>	20	more->	20	percent
PAN Losses from Soil Surface Application	=	25318	more->	4072	lbs/yr
PAN Entering Soil	=	101270	more->	16289	lbs N/yr

Land Required for Various PAN Application Rates:

Assumed PAN Application Rate, lbs/ac/yr	Buildings Acres		Open Lots Acres		Total Acres
100	1013	+	163	=	1176
150	675	+	109	=	784
200	506	+	81	=	588
300	338	+	54	=	392
400	253	+	41	=	294

* Nitrogen Loss from Lagoon Surface--Normal loss is 40-65% for primary treatment lagoons with 200 days or more storage; 10-20% from liquid manure settling basins or storage pits; and 40-50% from open feedlot surface.

** Normal range of nitrogen loss from soil surface is 15-35% for surface application or, 5% for soil injection. Losses are highest in warm weather and on high pH soils.

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WATER BUDGET ANALYSIS

DRAINAGE AREA	2.80	ACRES	RUNOFF CONTROL STRUCTURE DATA		
MANURE PROD. RCS AREA	1.32	ACRES	LOCATION NO.	12	FIELD OFFICE SULPHUR SPRGS
					COUNTY HOPKINS
SLUDGE ACCUMULATION	3.41	AC-FT	30-DAY CURVE NUMBERS		CROPS FOR WATER DEMAND
MIN. WASTEWATER STORE	2.36	AC-FT	POND	74.0	Bermudagrass 0.00 AC
ADDITIONAL STORAGE	5.00	AC-FT	FIELD	48.0	Bermuda SmGr 381.00 AC
SUBTOTAL	10.77	AC-FT	IRRIG. EFFICIENCY, %	75.00	Sorghum SmGr 0.00 AC
25YR-24HR RUNOFF	1.71	AC-FT	IRRIGATION DEPTH, IN/YR	1.02	Small Grain 0.00 AC
TOTAL POND CAPACITY	12.48	AC-FT	EVAPORATION, COEFF.	71.50	Assumed Seepage 0.0 ACFT

MONTH	RAINFALL (1) IN	RUNOFF (2) IN	INFLOW TO POND (3) AC-FT	OTHER INFLOW (3a) AC-FT	EFFECTIVE RAINFALL (5) IN	GROSS EVAP (6) IN	NET POND EVAP (8) AC-FT	CROP DEMAND (9) AC-FT	ACTUAL WITHDRAWL (10) AC-FT	STORAGE at E O M (11) AC-FT	SURF AREA at E O M (12) AC	SPILL (13) AC-FT
										10.72	1.25	0.00
JAN	2.70	0.03	0.17	3.42	2.67	2.20	0.00	18.89	10.90	3.41	0.91	0.00
FEB	3.20	0.09	0.24	3.42	3.11	2.30	0.00	24.76	3.67	3.41	0.91	0.00
MAR	3.90	0.24	0.36	3.42	3.66	3.20	0.04	145.39	3.74	3.41	0.91	0.00
APR	4.80	0.51	0.51	3.42	4.29	3.90	0.05	188.75	3.88	3.41	0.91	0.00
MAY	5.29	0.66	0.59	3.42	4.84	4.50	0.11	190.93	3.90	3.41	0.91	0.00
JUN	3.70	0.19	0.32	3.42	3.51	3.60	0.21	159.39	3.55	3.41	0.91	0.00
JUL	3.10	0.07	0.25	3.42	3.03	7.10	0.33	131.26	3.32	3.41	0.91	0.00
AUG	2.40	0.00	0.13	3.42	2.40	7.60	0.39	139.86	3.16	3.41	0.91	0.00
SEP	3.50	0.15	0.29	3.42	3.35	6.20	0.26	60.29	3.45	3.41	0.91	0.00
OCT	4.00	0.27	0.37	3.42	3.73	5.20	0.18	35.73	3.62	3.41	0.91	0.00
NOV	3.40	0.13	0.27	3.42	3.27	3.80	0.10	0.00	0.00	7.01	1.68	0.00
DEC	3.60	0.17	0.31	3.42	3.43	2.70	0.02	0.00	0.00	10.72	1.25	0.00
TOTALS	43.50	2.51	3.79	41.07	40.99	54.60	1.69	1075.15	43.17			Reset
	43.50					54.60			43.17	Checks		

STORAGE-AREA TABLE FOR RUNOFF CONTROL STRUCTURE

STORAGE DATA TYPE R (C - CIRCULAR, R - RECTANGULAR, or S - STAGE DATA)

CIRCULAR	RECTANGULAR	
DEPTH, FT 0.00	DEPTH, FT 12.35	THIS WATER BUDGET VERIFIES THAT
SIDE SLOPE, RATIO 0.00	SIDE SLOPE, RATIO 2.50	25YR - 24 HR STORM RUNOFF STORAGE
TOP DIAMETER, FT 0.00	END SLOPE, RATIO 2.50	ALLOCATION IS MAINTAINED
FREE BOARD, FT 0.00	TOP WIDTH, FT 240.00	THROUGHOUT THIS CLIMATIC CYCLE.
BOTTOM DIAMETER, FT 0.00	TOP LENGTH, FT 240.00	* *
SURFACE AREA, AC 0.00	FREE BOARD, FT 2.00	*
VOLUME, ACFT 0.00	BOTTOM WIDTH, FT 178.25	
	BOTTOM LENGTH, FT 178.25	NOTE: USER INPUT VALUES FOR NUTRIENTS
	SURFACE AREA, AC 1.32	USED IN NUTRIENT BALANCE WORKSHEET!
	VOLUME, ACFT 12.49	

DEPTH, FT 0.0 STAGE

FREE BOARD, FT 0.00

Leave Extra Rows at Bottom with Blanks or Zeros.

ROW =	DEPTH FT	AREA AC
BOTTOM	0.00	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

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F-21204
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STAGE STORAGE DATA SUMMARY

METHOD: RECTANGULAR

ROW =	DEPTH FT	AREA AC	STORE ACFT	WIDTH FT	LENGTH FT
0	0.00	0.73	0.00	178.25	178.25
1	1.24	0.78	0.93	184.43	184.43
2	2.47	0.83	1.93	190.60	190.60
3	3.71	0.89	2.99	196.78	196.78
4	4.94	0.95	4.13	202.95	202.95
5	6.18	1.00	5.33	209.13	209.13
6	7.41	1.06	6.61	215.30	215.30
7	8.65	1.13	7.96	221.48	221.48
8	9.88	1.19	9.39	227.65	227.65
9	11.12	1.26	10.90	233.83	233.83
10	12.35	1.32	12.49	240.00	240.00
11	13.35	1.38	13.84	245.00	245.00
12	14.35	1.43	15.25	250.00	250.00
BOT 25YR-24HR	11.01	1.25	10.77	233.83	233.83
SPILLWAY	12.35	1.32	12.49	240.00	240.00
FREE BOARD	14.35	1.43	15.25	250.00	250.00

INLAND ENGINEERING AND SURVEYING

2304 HANCOCK DRIVE #1A
AUSTIN, TEXAS 78756

Telephone (512) 302-1750
Fax (512) 302-1751

January 6, 2000

Job No. 00173

Bouma Dairy
Rt 4, Box 45296
Winnsboro, Texas 75495

Re: Certification Waste Storage Pond No. 1
Bouma Dairy - TNRCC Permit No. 04145

Mr. Bouma,

Measurements and calculations of Waste Storage Pond No. 1 at your dairy site has been completed. Maximum storage is noted below.

Waste Storage Pond No. 1 ..... constructed storage = 5.56 ac-ft.

Certification by

STATE OF TEXAS
JERRY E. HOLLIGAN
29146
REGISTERED PROFESSIONAL ENGINEER

Jerry E. Holligan, P.E.
Registered Professional Engineer, No. 29146
State of Texas

00173.wps

HYDROLOGIC CONNECTION INVESTIGATION
Bouma Dairy
RCS#1
Hopkins County, Texas

Report for
Miako Bouma
Sulphur Springs, Texas



3/1/07

Prepared By
Jim C. Wyrick, PG
EAST TEXAS ENVIRONMENTAL SERVICES
315 Highland Dr.
Sulphur Springs, Texas 75482

INTRODUCTION

This investigation was performed in accordance with request for services and authorization to proceed granted by Miako Bouma, Bouma Dairy, Winnsboro, Texas. Field operations were conducted on March 1 2007. The purpose of this investigation was to define and evaluate the in-situ soil material of the wastewater RCS. Specifically, this study was planned to determine the following soil properties of the in-situ soil material in the RCS:

- Hydraulic Conductivity equal to or less than 1 x 10-7 cm/sec. ASTM D 5084
- Depth of liner soil material is a minimum thickness of 1.5 feet of suitable in-situ soil material. ASTM D1452-07a and ASTM D2488-06

PROJECT DESCRIPTION

The RCSs was constructed in 1985 and have been service years prior to this investigation. RCS#1 has an approximate dimension of 150 feet wide by 234.5 feet long and 10 feet deep.

INVESTIGATION PROCEDURE

Depth of the in-situ material was verified by using a two-inch soil bucket auger, six-foot long with a seven-foot extension. The water level was at 5 feet below the ground level. The borings were made to a depth of 11.5 feet below the ground level in four locations. Upon completion all sample holes were backfilled with native soil cuttings. Determining in-place hydraulic conductivity was done by driving two thin-walled tube into the soil mass to obtain a relativity undisturbed sample according to ASTM D1587. The sample was taken in the RCS sidewall just above the wastewater level. ADJ Services, Inc. Lab, Longview Texas determined the hydraulic conductivity using ASTM D 5084.

The RCS is in service and wastewater was present. Based on the literature reviewed, introduction of manure provides a further decrease in the permeability rate of at least 1 order of magnitude. Such sealing is thought to be a result of physical, chemical, and biological processes. Suspended solids settle or filter out of solution and physically clog the pores of the soil mass. Anaerobic bacteria produce by-products that accumulate at the soil-water interface and reinforce the seal, and in the process of metabolizing organic material can alter the soil structure. Chemicals in animal waste, such as salts, can disperse soil, which may be beneficial in reducing seepage. 1/.

1/ Part 651, Agricultural Waste Management Field Handbook, Agricultural Waste Management System Component Design Chapter 10, 651.1080 Appendix 10D—Geotechnical, Design, and Construction Guidelines

FIELD OPERATIONS

Jim Wyrick, Professional Geoscientist, made the soil borings, collected the hydraulic conductivity sample and visually identified the characteristic of the in-situ soil material.

CONCLUSION

The in-situ clay material in RCS#1, to depth of 11.5 feet meets the minimum criteria of hydraulic conductivity no greater than 1 x 10^{-7} centimeters per second (cm/sec) at optimal moisture content. The in-suite clay material has a thickness of 1.5 feet or greater meeting the thickness requirement in Part III.A.5(g)(3). No significant hydrologic connection exists, so there will be no significant leakage from the retention control structure. Therefore, a liner is not needed to prevent a significant hydrologic connection between the contained wastewater and water in the state

LIMITATIONS

Geotechnical investigations are characterized by the presence of a calculated risk that soil and groundwater conditions may not have been fully revealed by this exploratory boring investigation. This risk derives from the practical necessity of basing interpretations and design conclusions on a limited sampling of the subsoil stratigraphy at the project site. The recommendations given in this report are based upon the conditions that existed at the boring location at the time it was drilled. It is conceivable that soil conditions throughout the site may vary from those observed in the exploratory boring. ETES is not responsible for the conclusions, opinions, or recommendations made by others based on the contents of this report. My professional services have been performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical principles and practices. These warranties are in lieu of other warranties either expressed or implied.

Jim C. Wyrick,
Professional Geoscientist



3/1/07

ADJ SERVICES INC.

A Women Owned Business

705 Coleman Dr.
Longview, Texas756.05
Phone: 903-759-3111
Fax; 903-759-3126

March 1, 2007

Test for Hydraulic Conductivity

To: East Texas Environmental Services
317 Highland Dr.
Sulphur Springs, Texas 75482

Project No.: 10-6020
Wyrick- Bouma-07-148
P.O. No. verbal

Attn: Jim Wyrick

Project: Bouma Dairy
Hopkins Co
RCS #1

Mr. Wyrick;

As requested ADJ Services, Inc. has completed the soil testing for the above referenced project site. The purpose of the testing was to conduct hydraulic conductivity testing on a soil sample shipped to our Longview Office. The soil sample was shipped in two drive ring samplers and sealed to prevent moisture loss.

The samples were prepared and tested in accordance with ASTM D5084 Test Procedure. The test results are as follows;

	Site 1	Site 2
Test Procedure:	ASTM D5084	ASTM D5084
Specimen ID:	Bouma Dairy	Bouma Dairy
Soil Description:	Gray clay	Gray and yellow clay
Specimen Height:	1.37 inches	1.44 inches
Initial Moisture (%):	22.1 inches	23.1 inches
Final Moisture (%):	25.1 inches	25.4 inches
Surcharge: Yes psi	25 psi	25 psi
Hydraulic Conductivity (cm/sec)	3.8 x 10 -8 (cm/sec)	3.6 x 10 -8 (cm/sec)

Test meets minimum 1.0 x 10 -7 cm/sec for both samples

This should provide you with the information needed. Please contact me if you have any questions.

Very truly yours,
ADJ Services, Inc.
Co. Reg. No. F-1003

James Kim Winn, P.E. On behalf of ADJ Services, Inc.



3/1/07

Waste Utilization and Nutrient Management Plan

Bouma Dairy
4252 CR 2408
Winnsboro, TX 75494
903-342-3245

TCEQ Permit Number:

Owner
Maiko Bouma
4252 CR 2408
Winnsboro, TX 75494
903-342-3245

Type of Waste Plan:
Other AFO-CAFO Waste Plan
located in Hopkins County

Prepared By:

(Signature)
Jim C. Wyrick
Nutrient Management Specialist
Certificate Number = TX20049
Expiration Date = December 31, 2024
East Texas Environmental Services
317 Highland Dr.
Sulphur Springs, TX 75482
903-243-0400

This plan is based on:
590 -633 Plan V 4.0_5

11/14/24 4:29 PM

Waste Utilization and Nutrient Management Plan

RECORD KEEPING: Permit #:

Detailed records should be maintained by the producer for all application of animal waste to land owned and operated by the producer. Records should include date, time, location, amount of application, weather conditions, estimated wind speed and direction, etc. A rain gauge should be in place at the application site and accurate records of rainfall should be maintained at the site. All records must be kept for at least 5 years. **TCEQ requirements will be followed on permitted sites.**

Records should also be kept showing amounts of litter given or sold to others. **A copy of the effluent analysis and/or solids analysis and a Waste Utilization Guidelines Sheet should be given to anyone who will use either the effluent or solids off-site. If they routinely use animal wastes for fertilizer, they should be directed to the local Soil and Water Conservation District or NRCS office to develop a Waste Utilization and Nutrient Management Plan for their land.**

This portion may be completed by producer, if desired or recorded elsewhere.

Record of waste leaving the farm or used as feed. **Estimated Annual Excess**

Date	Amount	Hauler or Recipient

Excess Remaining | May be continued on additional sheets

EFFLUENT AND SOLIDS STORAGE & TESTING: Permit #:

Effluent and solids will be stored in facilities designed, constructed, and maintained according to USDA NRCS Standards and specifications.

Effluent and solids sampling is needed to get a better idea of the nutrients actually being applied. Effluent and/or solids samples will be collected at least annually, or in the year of its use if waste is typically stored for more than 1 year. The samples will be submitted immediately to a lab for testing. If sent to Texas A&M soil lab or SFASU Soil Testing Lab for analysis, use the "plant and forage analysis" form and note the type of operation. Request that the manure be analyzed for percent dry matter, solids, total nitrogen, total phosphorus, and total potassium. Further information on collecting effluent and manure samples for analysis can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. **TCEQ sampling rules and testing requirements will be followed on permitted sites.**

COLLECTING SOIL SAMPLES FOR ANALYSIS:

Collect a composite sample for each field (or area of similar soils and management not more than 40 acres in size) comprised of 10 - 15 randomly selected cores. Each core should represent 0 - 6 inches below the surface except for when injection has been done over 6" in depth, then the core should represent the 3-9" layer. Thoroughly mix each set of core samples, and select about a pint of the mixture as the sample for analysis. Label each sample for the field that it represents. Request that the samples be analyzed for nitrate nitrogen, plant-available phosphorus, potassium, sodium, magnesium, calcium, sulfur, boron, conductivity; and pH. Also note on the samples that they are from an effluent or solids application area. **TCEQ sampling rules and testing requirements will be followed on permitted sites.** A weighted average of 0-2 and 2-6 inch layers will be used for calculations on permitted sites.

Further information on collecting soil samples can be found on the TCE Form D-494, p 2, TCE Publication No. L-1793, and TCEQ RG-408. Additional NRCS guidance and requirements can be found in the Nutrient Management (590) standard located in the Texas electronic Field Office Technical Guide (eFOTG) at:

http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=TX

Click the county desired.
Click Section IV in the left column under eFOTG
Type: 590 in the Search Menu above eFOTG and click: **GO**
Click on the desired item under Nutrient Management in the left column

SOIL ANALYSIS:

A soil analysis will be completed for all areas to be used for all effluent or solids application areas. The soil test analysis method will be **Mehlich III with inductively coupled plasma (ICP)**. The area will be tested and analyzed at least annually to monitor P build up.

MORTALITY MANAGEMENT: (cont) Permit #:

Disposal in a landfill may be an option in some locations. Before planning this option, the closest commercial, regional, county, or municipal landfill should be contacted to determine if the landfill has a permit which would allow acceptance of dead animals (swine, sheep, cattle, etc.). Also ask if there are any restrictions on type and volume of animal mortality that will be accepted at the facility. Landfill fees and transport, offloading, and handling procedures should be discussed with landfill managers and documented for reference when needed. The landfill is not a viable option if the producer does not own or have access to a vehicle capable of transporting mortality quickly in an emergency situation. After a catastrophic die-off is not a good time to find out that a driver and truck to transport mortality will not be available for several weeks **(MAKE ARRANGEMENTS NOW, NOT AFTER THE ANIMALS ARE DEAD).**

On-farm disposal of catastrophic mortality may be considered if site conditions permit. On-farm methods include burial, composting, and incineration. Incinerators and composters are excellent options for routine mortality but usually do not have the capacity to handle mortality volumes associated with catastrophic events. Composting and incineration should not be relied on for catastrophic mortality handling without a documented evaluation of worst anticipated mortality condition (number, type, and weight of animals), and the anticipated capacity of the system (i.e., lb./hr. incineration rate, hrs/day of operation). NRCS Mortality Facility Standard 316 will be used for all mortality management.

See the attached soil interpretation, ENG - Animal Mortality Disposal (Catastrophic) Trench, to make a preliminary assessment of the limitations of the soils on this farm for burial of catastrophic mortality. The attached TX NRCS Technical Guidance, Catastrophic Animal Mortality Management (Burial Method) should be used as a guide to overcome minor limitations and as design criteria for the construction of burial pits for catastrophic mortality. Mortality burial sites shall be located outside the 100 -year floodplain. Mortality burial will not be less than 200 feet from a well, spring, or water course. A FIELD INVESTIGATION BY A QUALIFIED PROFESSIONAL SHOULD BE MADE BEFORE AN AREA IS USED FOR A BURIAL SITE FOR CATASTROPHIC MORTALITY EVENTS. **The TCEQ Industrial and Hazardous Waste Permits Section, MC-130, must be contacted before burial of catastrophic mortality.**

TCEQ
Industrial and Hazardous Waste Permits Section, MC-130
PO Box 13087
Austin, TX 78711-3087
Phone: 512-239-2334 Fax: 512-239-6383

Air Quality:

The following steps should be taken when spreading effluent or solids to reduce problems associated with odor.
1. Avoid spreading effluent or solids when wind will blow odors toward populated areas.
2. Avoid spreading effluent or solids immediately before weekends or holidays, if people are likely to be engaged in nearby outdoor activities.
3. Avoid spreading effluent or solids near heavily traveled highways.
4. Make applications in the morning when the air is warming, rather than in the late afternoon.
5. All materials will be handled in a manner to minimize the generation of particulate matter, odors, and greenhouse gas emissions.

EFFLUENT APPLICATION: (cont) Permit #:

To determine any one-time application amount, the current percent of field capacity (FC) of the upper 24 inches of the predominant soil in the field should be estimated using the guidance in Table 3 of the attached Job Sheet, *"Waste Utilization, Determining Effluent Application Rates, rev 4/06"*. Additional information on estimating soil moisture can be found in the NRCS Program Aid 1619, *"Estimating Soil Moisture by Feel and Appearance"*, or from the University of Nebraska Extension publication No. G84-690-A by the same name. Both of these publications have pictures of various soils at different percentages of field capacity to be used as a guide to estimating soil moisture. Once the current percent of FC is estimated, it is subtracted from the AWC amount in Table 12 for the given field and the difference is the maximum application for those soil conditions on that day. Remember, the maximum hourly application and the maximum one time application rates are only estimates to be used as a guide.

Solids/Effluent Land Application: - Land application of solids and/or effluent should be made at appropriate times to meet crop needs, but can be made at any time as long as the total annual (or biennial) rate, maximum hourly rate, and the maximum one time application rates are not exceeded. Effluent should be surface applied uniformly. No runoff or ponding should occur during application thus frequent observations should be made. Neither effluent or solids will be applied to slopes >8% with a runoff curve >80, or steeper than 16% slope with a runoff curve of 70 or greater, unless the application is part of an erosion control plan. Waste will not be spread at night, during rainfall events, or on frozen or saturated soils if a potential risk for runoff exists. Waste will not be applied to frequently flooded soils during months when the soils typically flood. If frequently flooded soil occur on any potential application field see attached, "Water Features Table", for months when flooding is expected. Solids should be applied with a manure spreader as uniformly as feasible. Surface applications with trucks should only be made when soil conditions are favorable in order to minimize soil compaction.

Managing Runoff -
A minimum 100 ft. setback or vegetated buffer (Filter Strip, Field Border, Riparian Forested Buffer, etc.) will be established and maintained between the application area and all surface water bodies, sink holes, and watercourses as designated on Soil Survey sheets or USGS topographic maps. A minimum application distance from private and public will be 150 ft. and 500 ft. respectively. A minimum application distance from water wells used exclusively for agricultural irrigation will be 100 ft. Table 9 provides a summary of the setbacks and out areas of each field.

Managing Leaching -
When soils with sandy, loamy sand, or gravelly surface textures have a Nitrogen Leaching Index score of >2 appropriate measures will be used to minimize the potential of leaching. These measures will include, split applications of waste, and may include double cropping, or cover crops, and irrigation water management (on fields that receive supplemental or full irrigation).

MORTALITY MANAGEMENT:
All mortality will be disposed of properly within 3 days according to the Texas Commission on Environmental Quality (TCEQ) rules. The preferred method for disposal of routine mortality is by a rendering plant. Before planning this method, contact the facility or its representative to be informed of special handling procedures, equipment needs, scheduling requirements, etc. Maintain a list of contact phone numbers so information will be readily available following a catastrophic die-off. Verify that local companies which have previously picked up and/or rendered dead animals are still doing so. A number of rendering companies across the state have stopped dead animal pick up service, and others have raised their fees significantly. Periodically review the availability and cost of rendering so that the plan can be modified if necessary. This can be an excellent option if mortality can be loaded and transported while still fresh or the mortality can be refrigerated until loaded and transported.

EFFLUENT APPLICATION: (cont) Permit #:

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 10 have been reduced to the level that does not exceed the amount of effluent produced. Table 11 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when application is made based on the rates in Table 10. These amounts of supplemental nutrients in Table 11 are based on the planned amount of effluent available rather than the **maximum** rate that **"could"** be applied.

The bottom line on the right of Table 10 has a box that will be **"YES"** or **"NO"**. When the reduced rates uses all effluent to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If **"No"** is indicated, either more acreage is needed on which to apply the effluent or the effluent will need to be transported off-site.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 8 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 8 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The effluent may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 8 and 10 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable, when the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

Maximum Hourly Application Rate - The maximum hourly application rate is determined by the texture of the soil layer with the lowest permeability within the upper 24 inches of the of the predominant soil in each field. The hourly application rate must be low enough to avoid runoff and/or ponding. For effluent with 0.5% solids or less, **DO NOT** exceed the rates shown in Table 1 of the attached Job Sheet titled, *"Waste Utilization, Determining Effluent Application Rates"*. If the effluent contains more than 0.5% solids, those values must be reduced by the appropriate amount shown in Table 2 of the attached *"Waste Utilization, Determining Effluent Application Rates"* Job Sheet.

Maximum One-Time Application Rate - The maximum amount of effluent that can be applied to a given field at any one-time is the amount that will bring the top 24 inches of the soil to 100% field capacity. This amount is determined by subtracting the amount of water stored in the soil (estimated by feel and appearance method) from the available water holding capacity (AWC) of the soil. The available water holding capacity of the top 24 inches of the predominant soil of each field receiving effluent and the texture of the most restrictive layer in the upper 24 inches are given in Table 12.

SOLIDS APPLICATION: (cont) Permit #:

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 6 have been reduced to the level that does not exceed the amount of solids produced. Table 7 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when the application is based on these rates. The amounts of supplemental nutrients in Table 7 are based on the actual amount of waste available rather than the **maximum** rate that **"could"** be applied.

The second line from the bottom of Table 6 on the right has a box that will be **"YES"** or **"NO"**. When the reduced rates use all solids to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If **"No"**, either more acreage is needed on which to apply the solids or the solids will need to be transported off-site. The amount is located on the bottom line on the extreme right of the page.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 4 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 4 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to the fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The solids may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 4 and 6 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable. When the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

EFFLUENT APPLICATION:

The maximum effluent application rates are given in Table 8 for each field. This table provides the current soil test P level, maximum P_2O_5 application rate, effluent either in gallons per acre or acre inches per acre and the amount of effluent that can be applied per field. The maximum amount of effluent that can be utilized on the fields planned is indicated in a box near the lower left corner of Table 8. When the total application acres are adequate to allow all of the effluent to be applied, "Adequate" will be indicated below this box. If "Not Adequate" is indicated, then the lower box will indicate the amount of effluent that must be utilized off-site unless more field acres are added.

The estimated amounts of N, P, and K contained in the effluent are provided in Table 9 for the maximum application rate indicated in Table 8. Supplemental N and K_2O will be applied to achieve the yield goals when recommended by the soil test and the maximum rates of the effluent do not meet the crop requirements. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen.

TABLES 1, 2 and 2a Permit #:

Values in Table 1 may be based on actual analysis or "book" values during the initial planning to determine land application rates for the initial plan. When "book" values are used, they will be from NRCS, Texas Cooperative Extension or averages from other TX testing lab sources. Site specific data will be used as soon as feasible after production begins. Manure and/or effluent will be tested at least annually or in the year of application if it is stored for more than one year. If the actual values are more than 10% higher or lower than the estimated values, this plan will need to be revised accordingly.

Application of waste products may be made up to the Maximum Rate given in Table 2 or 2a as applicable. Table 2 applies to those that are subject to Nutrient Management Plan (NMP) requirements while Table 2a applies when subject to Nutrient Utilization Plan (NUP) requirements. Current requirements for both the NMP and NUP are given in the headers of the tables. Table 2a has a criteria involving the distance to a named stream when the Soil Test P Level is above 200 ppm in arid areas as well as special requirements when the site is in a TMDL watershed designated by TCEQ. For various P Index Ratings, the maximum rates in Table 2 are based on crop requirements, whereas the maximum rates in Table 2a are based on crop removal rates. County avg. rainfall information can be found in the TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, located in the eFOTG at the address given in the section entitled **"Collecting Soil Samples for Analyses"**.

CROP REMOVAL RATES:

Crop Removal Rates of nitrogen (N), phosphorus (P), and potassium (K) in pounds per acre are given in Table 3 for the crop and yield planned for each field. This Table is included for information only, and should be used during the planning process to compare planned or maximum application rates to crop removal. Crop removal rates may be based on actual analysis of harvested material or default values in the database. P build-up will occur at higher rates when crop removal rates are exceeded..

SOLIDS APPLICATION:

The maximum solids application rates are given in Table 4 along with the current soil test P level, maximum P_2O_5 application rate, maximum tons per acre of solids and the total tons of solids per field that can be applied to each field. The maximum tons of solids that can be utilized on the fields planned is indicated in the box near the lower left corner of Table 4. When the total application acres of the fields are adequate to allow all of the solids to be applied, "Adequate" will be indicated below the tonnage in this box. If "Not Adequate" is indicated, then the lower box will indicate the tons of solids that must be utilized off-site unless more fields/acres are added. This plan is valid only if the application of waste to the crops listed does not exceed the per acre rates by more than 10%. If the yield of a crop does not meet the expected goal, the application rate should be adjusted the following year.

The estimated amounts of N, P_2O_5, and K_2O contained in the solids are provided in Table 5 for the maximum application rate. Supplemental N and K_2O will be applied to achieve the yield goals in Table 4 when recommended by the soil test and the maximum rate of the solids does not meet the crop needs. When the maximum application rate is applied and Table 5 indicates additional commercial nutrients, they **must** be applied to fields as indicated. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen, and should be included in the soil test N ppm entry.

Waste Utilization and Nutrient Management Plan

EXECUTIVE SUMMARY: Permit #:

This Nutrient Management Plan has fields that meet NMP and/or NUP requirements.

LOCATION AND PURPOSE OF THE PLAN

This animal operation is located in Hopkins County (see attached topo map and plan map for location.) The purpose of this plan is to outline the details of the land application of the effluent and solids produced by this operation. When the plan is fully implemented, it should minimize the effects of the land application of animal wastes on the soil, water, air, plant, and animal resources in and around the application area. This plan, when applied, will meet the requirements of the Natural Resources Conservation Service Waste Utilization Standard and Nutrient Management Standard.

The plan is for the year of 2024 and will remain in effect until revision based on new soil or manure analysis or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has been stored in a Dairy Solids . Approximately 999 head will be confined with the average weight of 1400 pounds. The animals will be confined 24 hours per day for 365 days per year.

Waste Utilization and Nutrient Management Plan

OPERATION AND MAINTENANCE: Permit #:

Application equipment should be maintained in good working order and it should be calibrated annually so that the desired rate and amount of effluent and solids will be applied.

Information on calibrating manure spreaders can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. Information on calibrating big gun sprinklers can be found in the Arkansas Extension publication, *"Calibrating Stationary Big Gun Sprinklers for Manure Application"*. For information on calibrating tank spreaders, traveling guns, and additional information on other manure spreading equipment, see Nebraska Extension publication No. G95-1267-A, *"Manure Applicator Calibration"*. Observe and follow manufacturer's recommended maintenance schedules for all equipment and facilities involved in the waste management system. For information on lagoon functions, refer to TCE publication E9, *"Proper Lagoon Management"*.

Any changes in this system should be discussed with the local Soil and Water Conservation District, USDA Natural Resources Conservation Service, or other qualified professional prior to their implementation.

Plan Prepared by:	**Jim C. Wyrick**	Date:	**11/14/2024**
Plan Approved by:	Jim C Wyrick	Date:	11/14/24
Producer Signature:		Date:	

The producer's signature indicates that this plan has been discussed with him/her.
If this plan is not signed by the producer, indicate how the plan was provided to the producer.

NMP will be discussed with Producer, after it is approved by TCEQ

Waste Utilization and Nutrient Management Plan

Table 1 - Estimated Effluent and Solids Quantities Produced Permit #:

Avg. Number of Animals	Type of Waste
999	Dairy Solids
	Dairy Solids

Contact the local Soil and Water Conservation District or USDA Natural Resources Conservation Service office if the total number of animals change by more than 10% so your plan can be revised.

Estimated Acre Inches of Effluent to be Available Annually* 518

Estimated Tons Solids to be Land Applied Annually (on or off site)* 14,492.8

*From engineering design.

Estimated Nutrient Availabilty Effluent

	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch	
N	65	0.00	0.1	**
P2O5	418	0.03	0.8	
K2O	2,092	0.15	4.0	

** Effluent Values Based on Analysis dated: December 18, 2023

Estimated Nutrient Availabilty Solids

	pounds / yr	pounds / ton	
N	67	0.0	**
P2O5	431	0.0	
K2O	2,155	0.1	

** Solids Values Based on Analysis dated: December 18, 2023

Default values were used on all fields for plant removal of nutrients and yield levels.

Waste Utilization and Nutrient Management Plan

TABLE 2. A Nutrient Management Plan (NMP) is required where Soil Test P Level [1/] is:

- **less than 200 ppm statewide or**
- **or < 350 ppm in arid areas 2/ with a named stream > one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	Annual Nitrogen (N) Requirement	Annual Nitrogen (N) Requirement	2.0 Times Annual N Requirement
Medium	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual N Requirement
High	1.5 Times Annual Crop P Requirement [3/]	1.5 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement
Very High	1.0 Times Annual Crop P Requirement [3/]	1.0 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement

TABLE 2a. A Nutrient Utilization Plan (NUP) is required by TCEQ where Soil Test P Level [1/] is:

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High or soil test P [1/] => 500 ppm in nutrient impaired TMDL areas.[5/]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ TMDL watersheds are designated by Texas Commission on Environmental Quality (TCEQ).

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #:

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P_2O_5 Removal lbs/Ac/Yr	Total Est. K_2O Removal lbs/Ac/Yr
1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
3	39.0	Coastal Hay 4 cut, RG mod Graze M	NUP	Default	350	105	311
4	64.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
5	30.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
6	41.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
7	38.0	Common graze 1 AU/1 ac, SG mod graze M	NUP	Default	262	85	233
8	31.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233
9	101.0	Common graze 1 AU/1 ac, SG mod graze M	NMP	Default	262	85	233

NOTE: When crops are used for grazing, only a portion of the nutrients used by the crop are removed from the field in the live weight gain of the livestock, the remainder is returned to the land in manure and urine. The book "Southern Forages" estimates the N, P, & K removed in 100 pounds live weight gain as follows: **2.5 lbs N, 0.68 lbs P, 0.15 lbs K**

Waste Utilization and Nutrient Management Plan

Table 4 - Maximum Solids Application per Field Permit #:

Est. Solids Produced Annually (wet tons)	LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P2O5 lbs/acre	Annual/Biennial	Maximum Solids Allowable Tons/Acre	Maximum Allowable Application Per field (Tons)
14,493	1							
	2							
	3							
	4							
	5							
	6							
	7	38.0	Common graze 1 AU/1 ac, SG mod graze M	302	128	A	4308.5	163723
	8	31.0	Common graze 1 AU/1 ac, SG mod graze M	163	350	A	11782.2	365248
	9	101.0	Common graze 1 AU/1 ac, SG mod graze M	92	350	A	11782.2	1190000
Total Solids Application Acres								
170								
Application Allowable on-site (tons)								
1718971.1								
Adequate								
Solids to be used off-site (tons)								
0.0								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #:

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
2							
3							
4							
5							
6							
7	20	128	641	285	0	0	0
8	55	350	1752	345	0	0	0
9	55	350	1752	315	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates Permit #:

LMU or Field No.	Double crop	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Max Rate tons/ac	% of Maximum to apply	Planned Solids tons/ac	Planned Solids per field (tons)
1									
2									
3									
4									
5									
6									
7		38.0	Common graze 1 AU/1 ac, SG mod graze M	302	A	4308.5	100	4308.5	163723.4
8		31.0	Common graze 1 AU/1 ac, SG mod graze M	163	A	######	100	11782.2	365247.6
9		101.0	Common graze 1 AU/1 ac, SG mod graze M	92	A	######	100	11782.2	1190000.1
Acres		170.0							1718971.1
14493			Tons of wet solids produced Annually					Will the planned per acre application rates use all of the Solids?	YES
0			Tons to be used off-site at Max. rates					Tons to be used off-site at planned rates	0

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Permit #:

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
2							
3							
4							
5							
6							
7	20	128	641	285	0	0	0
8	55	350	1752	345	0	0	0
9	55	350	1752	315	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field Permit #:

Est. Available Effluent (ac inches)	LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P_2O_5 (lbs/acre)	Annual/Biennial	Maximum Effluent Allowable (ac in/ac)	Maximum Effluent Allowable / Field (ac in)
518	1	75.0		Coastal graze 1 AU/1 ac, SG mod graze M	266	136	A	168.2	12615
Source:	2	44.0		Coastal graze 1 AU/1 ac, SG mod graze M	149	350	A	433.9	19092
	3	39.0		Coastal Hay 4 cut, RG mod Graze M	280	158	A	195.9	7640
	4	64.0		Common graze 1 AU/1 ac, SG mod graze M	188	350	A	433.9	27770
Dairy Solids	5	30.0		Common graze 1 AU/1 ac, SG mod graze M	108	350	A	433.9	13017
	6	41.0		Common graze 1 AU/1 ac, SG mod graze M	145	350	A	433.9	17790
	7								
	8								
	9								
Total Effluent Application Acres									
293									
Maximum Effluent Application Allowable On-Site (ac in)									
97923									
Adequate									
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates Permit #:

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	21	136	679	300	0	0	0
2	55	350	1752	310	0	0	0
3	25	158	791	510	0	0	0
4	55	350	1752	345	0	0	0
5	55	350	1752	295	0	0	0
6	55	350	1752	335	0	0	0
7							
8							
9							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned Effluent Application Rates Permit #:

LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Maximum Effluent (ac in/ac)	% of Maximum to apply	Planned Effluent (ac in/ac)	Planned Effluent / field (Ac. In)
1	75.0		Coastal graze 1 AU/1 ac, SG mod graze M	266	A	168.2	1.0	1.7	128
2	44.0		Coastal graze 1 AU/1 ac, SG mod graze M	149	A	433.9	1.0	4.3	189
3	39.0		Coastal Hay 4 cut, RG mod Graze M	280	A	195.9	1.0	2	78
4	64.0		Common graze 1 AU/1 ac, SG mod graze M	188	A	433.9	1.0	4.3	275
5	30.0		Common graze 1 AU/1 ac, SG mod graze M	108	A	433.9	1.0	4.3	129
6	41.0		Common graze 1 AU/1 ac, SG mod graze M	145	A	433.9	1.0	4.3	176
7									
8									
9									
Acres	293.0								

Will the planned application rates use all of the Effluent?	975
	YES

Plan is based on: 590 -633 Plan V 4.0_5

Waste Utilization and Nutrient Management Plan

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates Permit #:

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	0	1	7	320	0	85	0
2	1	3	18	365	0	145	0
3	0	2	8	535	0	375	0
4	1	3	18	400	0	150	0
5	1	3	18	345	0	85	0
6	1	3	18	385	0	145	0
7							
8							
9							

Waste Utilization and Nutrient Management Plan

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches Permit #:

LMU / Field #	AWC (inches)	Restrictive Texture
1	3.52	Sandy Clay loam
2	1.71	Loamy Fine Sand
3	3.52	Sandy Clay loam
4	3.52	Sandy Clay loam
5	1.71	Loamy Fine Sand
6	1.71	Loamy Fine Sand
7		Loamy Fine Sand
8		
9		

LMU / Field #	AWC (inches)	Restrictive Texture

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field Permit #:

FS = 393-Filter Strip; **FB** = 386-Field Border, **RFB** = 391-Riparian Forest Buffer; **OLEA** = Other Land Excluded Ar

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	15.0	0.0	0.0		15.0
2	0.0	0.0	0.0		
3	0.0	0.0	0.0		
4	5.0	0.0	0.0		5.0
5	10.0	0.0	0.0		10.0
6	0.0	0.0	0.0		
7	7.0	0.0	0.0		7.0
8	2.0	0.0	0.0		2.0
9	6.0	0.0	0.0		6.0

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
Totals	45.0	0.0	0.0	0.0	45.0

See Application Map for location of buffers

Total 590-633 application acres: 463.0

Total 590-633 Field Acres: 508.0

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	11/14/2024
Farmer Name :	Bouma Dairy
County in which the Land is located :	Hopkins
Type of Waste Plan :	Other AFO-CAFO Waste Plan
Is this plan in a TMDL watershed for nutrients? Yes or No :	No
Is any field PERMITTED by TCEQ? Yes or No :	Yes
Permit # :	

All other entries on General Page appear on the Cover Page

Animal Information

Plan Year :	2024
Are you receiving waste from another producer?	No
Number of animals :	999
Approximate Weight :	1400
Days per year in confinement :	365
Hours per day confined :	24
ACRE FEET of effluent to be irrigated* :	43.17
Estimated annual gallons of effluent to be irrigated/applied annually :	14066858.16
For effluent, do you want application rates shown in gallons or acre inches? :	acre inches
Estimated Tons Solids to be Land Applied Annually (on or off site)* :	2000
Is this the first Year of the AFO-CAFO Operation? :	No

Analysis Information

Effluent Information

Date of Analysis:	12/18/2023
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	0.0021
Phosphorus % From Analysis:	0.0047
Potassium % From Analysis:	0.0449
Moisture % From Analysis:	86.2

Manure / Solids Information

Date of Analysis:	12/18/2023
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	0.0021
Phosphorus % From Analysis:	0.0047
Potassium % From Analysis:	0.0449
Moisture % From Analysis:	86.2
What will be Applied to Fields on this Farm?	Both Effluent and Solids
Is this Farm part of an AFO-CAFO?	No

This plan is based on: 590 -633 Plan V 4.0

Printed on: 11/14/24 4:29 PM

Field and Buffer Entries

Permit #:

Printed on: 11/14/24 4:29 PM

Plan is based on: 590 -633 Plan V 4.0_5

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	
1	90	15			0	15.0	75.0	
2	44	0				0.0	44.0	
3	39	0				0.0	39.0	
4	69	5				5.0	64.0	
5	40	10				10.0	30.0	
6	41	0				0.0	41.0	
7	45	7				7.0	38.0	
8	33	2				2.0	31.0	
9	107	6				6.0	101.0	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 11/14/24 4:29 PM Plan is based on: 590 -633 Plan V 4.0_5 Permit #:

Soil Test Analysis				This column only for Dry Poultry	LMU or Field #	Appl. Area Acres	Crop/Land Use and P Index Runoff Potential VL - L; M; H; or VH	E = Effluent S = Solids	Plant Analysis (Y / N)	Plant Analysis & Yield (optional) Use Only When Crop Removal is Required			
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)							% N	% P	% K	Yield Air Dry Production (lbs/ac/yr)
39	266	154			1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
17	149	82			2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
2	280	52			3	39.0	Coastal Hay 4 cut, RG mod Graze M	E	N				
10	188	38			4	64.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
36	108	124			5	30.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
16	145	48			6	41.0	Common graze 1 AU/1 ac, SG mod graze M	E	N				
58	302	175			7	38.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				
11	163	38			8	31.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				
26	92	31			9	101.0	Common graze 1 AU/1 ac, SG mod graze M	S	N				

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #:

14493 "Wet tons" of solids produced Annually						Will the planned rates use all of the Tons to be used off-site at plann	
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P_2O_5 Req.	Annual or Biennial Application Cycle	Maximum Solids Allowable Tons/Ac	Enter % of Maximum Planned to Apply
1							
2							
3							
4							
5							
6							
7	38.0	Common graze 1 AU/1 ac, SG mod graze M	302	175	Annual	4308.5	100.0
8	31.0	Common graze 1 AU/1 ac, SG mod graze M	163	175	Annual	11782.2	100.0
9	101.0	Common graze 1 AU/1 ac, SG mod graze M	92	175	Annual	11782.2	100.0

Printed on: 11/14/24 4:29 PM

Plan is based on: 590 -633 Pl

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #:

14066858	Gallons of Effluent to be used annually				Will the planned rates use all of the effluent?				Yes
518	Acre inches of Effluent to be used annually								
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P (ppm)	Crop P2O5 Req.	Annual or Biennial Application Cycle	Max Effluent Allowable (ac in/ac)	Enter % of Maximum Planned to Apply	Planned Effluent (ac in/ac)	Planned Effluent per field (acre inches)
1	75.0	Coastal graze 1 AU/1 ac, SG mod graze M	266	175	Annual	168.2	1.0	1.7	128
2	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	149	175	Annual	433.9	1.0	4.3	189
3	39.0	Coastal Hay 4 cut, RG mod Graze M	280	225	Annual	195.9	1.0	2	78
4	64.0	Common graze 1 AU/1 ac, SG mod graze M	188	175	Annual	433.9	1.0	4.3	275
5	30.0	Common graze 1 AU/1 ac, SG mod graze M	108	175	Annual	433.9	1.0	4.3	129
6	41.0	Common graze 1 AU/1 ac, SG mod graze M	145	175	Annual	433.9	1.0	4.3	176
7									
8									
9									
								Total Effluent This Page	975

Printed on: 11/14/24 4:29 PM

Plan is based on: 590 -633 Plan V 4.0_5

Available Water Capacity Entries

Printed on: 11/14/24 4:30 PM Plan is based on: 590 -633 Plan V 4.0_5 Permit #:

LMU or Fields receiving Effluent	Texture of the soil layer within the upper 24 inches of the soil profile that has the lowest permeability (Don't Abbreviate)	Depth of First Layer (inches)		AWC of First Layer (in/in)		Depth of Second Layer (inches)		AWC of Second Layer (in/in)		Depth of Third Layer (inches)		AWC of Third Layer (in/in)		Depth of Fourth Layer (inches)		AWC of Fourth Layer (in/in)		Available Water Holding Capacity (AWC) of the upper 24 inches of the soil profile (Inches)
EXAMPLE ENTRIES		0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	
		Enter Data for the top 24" only																
1	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
2	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
3	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
4	Sandy Clay loam	0	10	0.11	0.16	10	24	0.13	0.18	24				0				3.52
5	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
6	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				1.71
	Loamy Fine Sand	0	6	0.06	0.09	6	24	0.05	0.09	24				0				

PI Index by Field

Printed on: 11/14/24 4:27 PM

This plan is based on: 590 -633 Plan V 4.0_2

Permit #:

Client Name: Bouma Dairy

Planner: Jim C. Wyrick

Date: 11/14/2024

Location: Hopkins

Rainfall: >25.0 inches

LMU or Fields	Crop	Slope	Runoff Curve	Soil Test P Level	Inorganic P_2O_5 Appl Rate	Organic P_2O_5 Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosion	Total Index Points	P Runoff Potential	Soil Test Date:
1	Coastal graze 1 AU/1 ac, SG mod graze	2.0%	61	8	0	1.5	0	4	0	1	0	14.5	Medium	11/14/23
2	Coastal graze 1 AU/1 ac, SG mod graze	2.0%	61	8	4	0.75	4	4	2.5	1	0	24.25	Medium	11/14/23
3	Coastal Hay 4 cut, RG mod Graze	2.0%	58	8	0	1.5	0	4	0	0	0	13.5	Medium	11/14/23
4	Common graze 1 AU/1 ac, SG mod graze	2.0%	61	8	0	1.5	0	4	1.25	1	0	15.75	Medium	11/14/23
5	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	0.75	0	4	5	0	0	17.75	Medium	11/14/23
6	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	0.75	0	4	5	0	0	17.75	Medium	11/14/23
7	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	3	0	4	5	0	0	20	Medium	11/14/23
8	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	6	0	4	5	0	0	23	Medium	11/14/23
9	Common graze 1 AU/1 ac, SG mod graze	3.0%	39	8	0	6	0	4	5	0	0	23	Medium	11/14/23

TEXAS A&M AGRILIFE EXTENSION

Bouma
LMU 1

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643758
Customer Sample ID: 158
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	5.2	(5.8)		Strongly Acid							
Conductivity	97	(-)	umho/cm	None							
Nitrate-N	39	(-)	ppm**					CL*			20 lbs N/acre
Phosphorus	266	(50)	ppm								0 lbs P2O5/acre
Potassium	154	(150)	ppm								0 lbs K2O/acre
Calcium	609	(180)	ppm								0 lbs Ca/acre
Magnesium	148	(50)	ppm								0 lbs Mg/acre
Sulfur	17	(13)	ppm								0 lbs S/acre
Sodium	43	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.25 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Bouma
LMU 2

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643759
Customer Sample ID: 159
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	5.0	(5.8)		Strongly Acid							
Conductivity	53	(-)	umho/cm	None			CL*				
Nitrate-N	17	(-)	ppm**								65 lbs N/acre
Phosphorus	149	(50)	ppm								0 lbs P2O5/acre
Potassium	82	(150)	ppm								110 lbs K2O/acre
Calcium	532	(180)	ppm								0 lbs Ca/acre
Magnesium	110	(50)	ppm								0 lbs Mg/acre
Sulfur	16	(13)	ppm								0 lbs S/acre
Sodium	24	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.30 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
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979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Bouma
LMU 3

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643761
Customer Sample ID: 160
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	4.7	(5.8)		Strongly Acid							
Conductivity	36	(-)	umho/cm	None				CL*			
Nitrate-N	2	(-)	ppm**								95 lbs N/acre
Phosphorus	280	(50)	ppm								0 lbs P2O5/acre
Potassium	52	(150)	ppm								160 lbs K2O/acre
Calcium	832	(180)	ppm								0 lbs Ca/acre
Magnesium	115	(50)	ppm								0 lbs Mg/acre
Sulfur	17	(13)	ppm								0 lbs S/acre
Sodium	26	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.70 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Boyma
LMU 4

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643762
Customer Sample ID: 161
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.0	(5.8)		Strongly Acid	
Conductivity	30	(-)	umho/cm	None	
Nitrate-N	10	(-)	ppm**	CL*	80 lbs N/acre
Phosphorus	188	(50)	ppm		0 lbs P2O5/acre
Potassium	38	(150)	ppm		185 lbs K2O/acre
Calcium	373	(180)	ppm		0 lbs Ca/acre
Magnesium	68	(50)	ppm		0 lbs Mg/acre
Sulfur	14	(13)	ppm		0 lbs S/acre
Sodium	21	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.95 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Bouma
LMU 5

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643763
Customer Sample ID: 162
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.8	(5.8)		Strongly Acid	
Conductivity	108	(-)	umho/cm	None CL*	
Nitrate-N	36	(-)	ppm**		25 lbs N/acre
Phosphorus	108	(50)	ppm		0 lbs P2O5/acre
Potassium	124	(150)	ppm		40 lbs K2O/acre
Calcium	1,037	(180)	ppm		0 lbs Ca/acre
Magnesium	162	(50)	ppm		0 lbs Mg/acre
Sulfur	26	(13)	ppm		0 lbs S/acre
Sodium	78	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.80 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Department of Soil and Crop Sciences
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College Station, TX 77843-2478
979-845-4816 (phone)
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Boyma
LMU 6

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643764
Customer Sample ID: 163
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	4.5	(5.8)		Strongly Acid	
Conductivity	82	(-)	umho/cm	None CL*	
Nitrate-N	16	(-)	ppm**		65 lbs N/acre
Phosphorus	149	(50)	ppm		0 lbs P2O5/acre
Potassium	48	(150)	ppm		170 lbs K2O/acre
Calcium	560	(180)	ppm		0 lbs Ca/acre
Magnesium	102	(50)	ppm		0 lbs Mg/acre
Sulfur	20	(13)	ppm		0 lbs S/acre
Sodium	68	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.70 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
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TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
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Bouma
LMU 7

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643765
Customer Sample ID: 164
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.2	(5.8)		Strongly Acid	
Conductivity	106	(-)	umho/cm	None CL*	
Nitrate-N	58	(-)	ppm**		0 lbs N/acre
Phosphorus	302	(50)	ppm		0 lbs P2O5/acre
Potassium	175	(150)	ppm		0 lbs K2O/acre
Calcium	709	(180)	ppm		0 lbs Ca/acre
Magnesium	135	(50)	ppm		0 lbs Mg/acre
Sulfur	22	(13)	ppm		0 lbs S/acre
Sodium	35	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.25 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

TEXAS A&M AGRILIFE EXTENSION

Boyma

LMU 8

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643766
Customer Sample ID: 165
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	Fertilizer Recommended
pH	4.4	(5.8)		Strongly Acid							
Conductivity	35	(-)	umho/cm	None			CL*				
Nitrate-N	11	(-)	ppm**								75 lbs N/acre
Phosphorus	163	(50)	ppm								0 lbs P2O5/acre
Potassium	38	(150)	ppm								185 lbs K2O/acre
Calcium	558	(180)	ppm								0 lbs Ca/acre
Magnesium	39	(50)	ppm								5 lbs Mg/acre
Sulfur	14	(13)	ppm								0 lbs S/acre
Sodium	15	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.70 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Phosphorus: Phosphorus is highly elevated, avoid phosphorus containing fertilizers and organics for the next 5 years, retest annually.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
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TEXAS A&M AGRILIFE EXTENSION

Bouma
LMU 9

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
East Texas Environmental Services
Jim Wyrick
317 Highland Dr.
SULPHUR SPRINGS, TX 75482

Sample received on: 11/14/2023
Printed on: 11/20/2023
Area Represented: 40 acres

Hopkins County
Laboratory Number: 643767
Customer Sample ID: 166
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	5.0	(5.8)		Strongly Acid.	
Conductivity	50	(-)	umho/cm	None CL*	
Nitrate-N	26	(-)	ppm**		45 lbs N/acre
Phosphorus	92	(50)	ppm		0 lbs P2O5/acre
Potassium	31	(150)	ppm		195 lbs K2O/acre
Calcium	748	(180)	ppm		0 lbs Ca/acre
Magnesium	74	(50)	ppm		0 lbs Mg/acre
Sulfur	19	(13)	ppm		0 lbs S/acre
Sodium	27	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.40 tons 100ECCE/acre

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Limestone recommendations are based on 100 ECCE liming products. Limestone applications >3 tons/acre should be made >4 months prior to crop establishment to lessen micro-nutrient availability issues.

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

EXAS A&M
GRILIFE
EXTENSION

Bouma

118

Bio-Solid Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website:
http://soiltesting.tamu.edu

ated for:
nvironmental Services

hland Dr.
UR SPRINGS, TX 75482

rocessed: 12/18/2023

e(s) from Hopkins County

1: Based on analysis of oven dried sample(s)

atory #	Customer Sample Identification	Total Nitrogen %	Total Phosphorus %	Total Potassium %	Total Calcium %	Total Magnesium %	Total Sodium %	Total Zinc ppm	Total Iron ppm
								37.02	2244.64
1472	118	0.55	0.07	6.02	0.53	0.04	0.04		

oratory #	Total Copper ppm	Total Manganese ppm	Total Sulfur ppm	Total Boron ppm	% Dry Matter
472	7.68	37.78	926.62	2.26	47.8

tion 2: Pounds of nutrient per ton on an as received basis

boratory #	Customer Sample Identification	Nitrogen lbs/wet ton	P_2O_5 lbs/wet ton	K_2O lbs/wet ton	Calcium lbs/wet ton	Magnesium lbs/wet ton	Sodium lbs/wet ton	Zinc lbs/wet ton	Iron lbs/wet ton
									2.148
021472	118	5.29	1.52	69.18	5.08	0.43	0.42	0.035	

aboratory #	Copper lbs/wet ton	Manganese lbs/wet ton	Sulfur lbs/wet ton	Boron lbs/wet ton
5021472	0.007	0.036	0.887	0.002

TEXAS A&M AGRILIFE EXTENSION

Bio-Liquid Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website:
http://soiltesting.tamu.edu

Bouma
100

generated for:
Texas Environmental Services

Highland Dr.
PHUR SPRINGS, TX 75482

Printed: 12/18/2023

ple(s) from Hopkins County

ion 1: Bio-liquids are analyzed on an as received basis

oratory #	Customer Sample Identification	Total Nitrogen %	Total Phosphorus %	Total Potassium %	Total Calcium %	Total Magnesium %	Total Sodium %	Total Zinc ppm	Total Iron ppm
21454	100	0.0003	0.0039	0.0367	0.0055	0.0032	0.0350	2.22	1.56
21455	101	0.0010	0.0039	0.0749	0.0063	0.0040	0.0221	2.32	1.33
21456	102	0.0031	0.0043	0.0260	0.0258	0.0029	0.0255	3.00	1.21
21457	103	0.0094	0.0104	0.1243	0.0280	0.0182	0.0874	5.01	1.87
21458	104	0.0060	0.0100	0.0734	0.0245	0.0077	0.0408	3.94	3.56

oratory #	Total Copper ppm	Total Manganese ppm
454	0.06	0.00
21455	0.06	0.10
21456	0.24	1.11
21457	0.75	2.40
21458	4.16	2.33

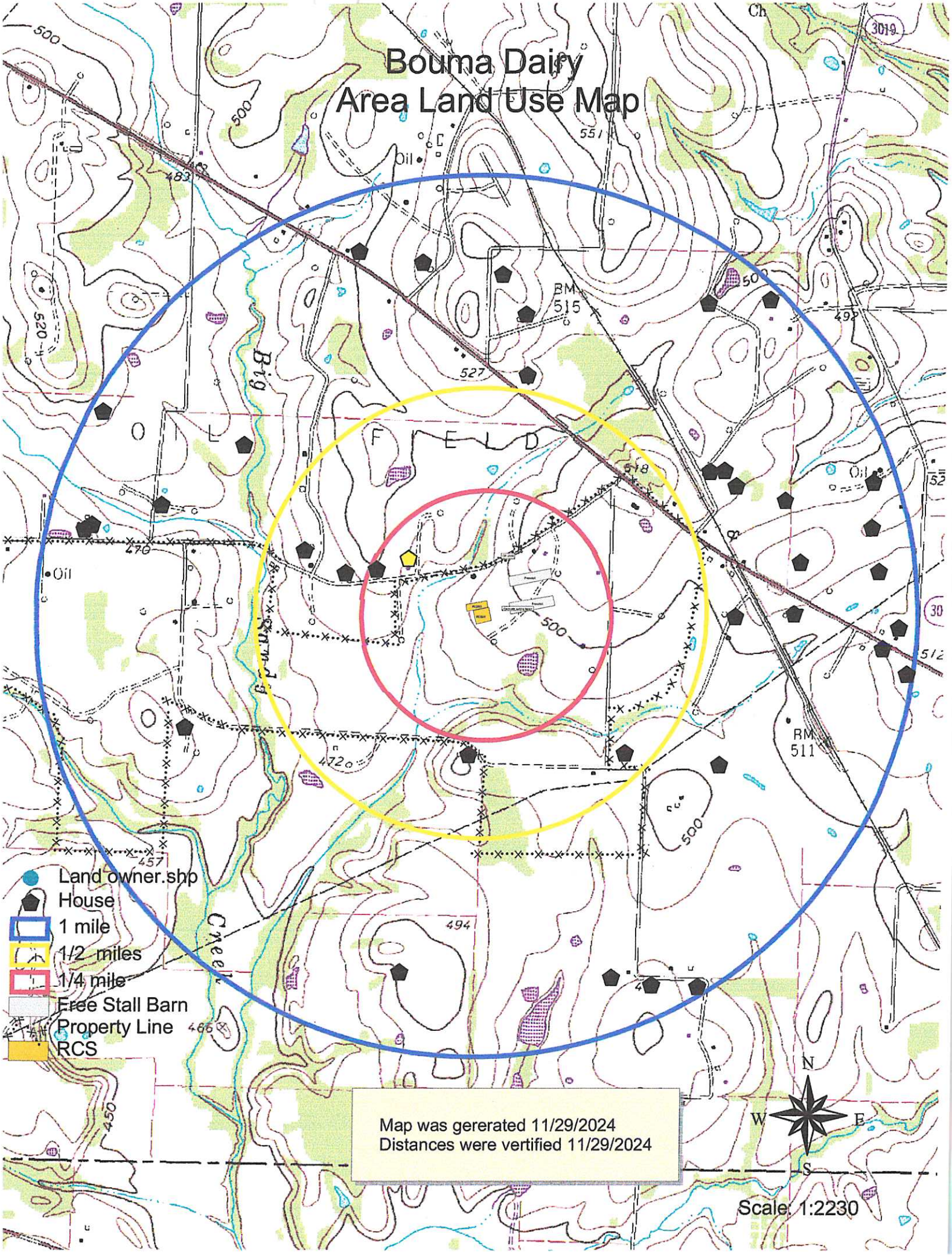
on 2: Interpretation of Bio-Liquid Analysis----pounds of nutrients per acre inch of effluent.

oratory #	Customer Sample Identification	Nitrogen lbs/acre inch	P_2O_5 lbs/acre inch	K_2O lbs/acre inch	Calcium lbs/acre inch	Magnesium lbs/acre inch	Sodium lbs/acre inch	Zinc lbs/acre inch	Iron lbs/acre inch
21454	100	1	20	100	13	7	79	0.50	0.35
21455	101	2	20	203	14	9	50	0.53	0.30
21456	102	7	22	71	58	6	58	0.68	0.27
21457	103	21	54	338	63	41	198	1.13	0.42
21458	104	14	52	199	56	18	92	0.89	0.81

ratory #	Copper lbs/acre inch	Manganese lbs/acre inch
21454	0.01	0.00
21455	0.01	0.02
456	0.06	0.25
21457	0.17	0.54
21458	0.94	0.53

acre inch equals 27150 gallons

Bouma Dairy
Area Land Use Map



Odor Control Plan
for
Bouma Dairy

Odors from the facility are mainly associated with agricultural operations, including other CAFOs. Odors from CAFO's are not consistently predictable, and may have a periodic impact on nearby residents depending on sources and weather conditions. Odors may be less noticeable during calm days and tend to be strongest during the cleaning of animal buildings and during withdrawal of water from the lagoons and land application. It is the intention of the faculty to limit odors to an absolute minimum.

The following are practices to be used for an Odor Control Plan:

- Pens will be scraped off on as needed basis. Solid waste will be removed as needed to best reduce nuisance odors.
- All dead animals should be removed within 24 hours or will be buried at a minimum depth of three feet in designated area.
- Cleaning of the barns will be done at times consistent with the least nuisance problems.
- Irrigation will be done during daylight hours when wind velocity and humidity are lower. Irrigation will be monitored by an employee or management trained in waste disposal. This training will be accomplished by attending waste management training provided by the Agriculture Extension Service and TCEQ
- All lounging areas around the barn will be maintained so that there is no ponding of liquids.
- Pump retention ponds before the liquid level reaches the 24 hr-25 yr marker.
- The RCS is properly sized using USDA-Natural Resource Conservation Service Waternuterr spreadsheet.
- In an effort to reduce air-bound particulate the dairy will add moisture to feed when mixing under windy conditions. Controlling the speed of farm vehicles will reduce dust generated at the facility
- The dairy would urge anyone who lives in the vicinity of the dairy, to notify the management when a perceived problem develops so that the source can be identified immediately.
- Dust when necessary will be controlled by water the area until the dust is controlled.