resubmittal

DEQ Montana Department of Environmental Quality

WATER PROTECTION BUREAU

Agency Use	
Permit No.:	MTG010159
Date Rec'd	2-25-25
Amount Rec'd	0
Check No.	0
Rec'd By	JMF via email

FORM **NOI-NMP CAFO**

Notice of Intent (NOI) and Nutrient Management Plan (NMP) Concentrated Animal Feeding Operation General Permit MTG010000

This application form is comprised of the **NOI (Sections 1 – 5)** and the **NMP (Sections 6 – 10)**. Before completing the NOI-NMP form, Concentrated Animal Feeding Operation (CAFO) operators must read the CAFO General Permit. CAFO operators are also advised to read the attached NOI-NMP instructions before completing this form. You must print or type legibly; forms that are not legible, not complete, or unsigned will be rejected. You must maintain a copy of the completed NOI-NMP form for your records.

CAFO Status and Fee

Permit Authorization Number: M T G 0 1 0 1 5 9

Select Appropriate Fee:

- ☐ New Application: $1200
- ☒ Renewal Application: $600
- ☐ Permit Modification: $600

Sections 1 through 5 consist of the NOI. The application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO).

Section 1 – Facility/Site Information

Facility Name: Sage Creek Colony

Location (Physical address or Directions): 470 Laird Rd

Nearest City or Town: Chester

Zip Code, County: 59522, Liberty

Facility Latitude, Longitude: 48.9306940, -110.975278

Date facility began operation: 01-Feb-1961

Status of Applicant: ☐ Federal ☐ State ☐ No ☒ Private ☐ Other _____

Located on Tribal Lands? ☒ No ☐ Yes *(If yes, obtain the permit through EPA, not DEQ)*

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Section 2 – Representatives

2.1 Applicant (Owner/Operator)

The owner/operator assumes all liability for site discharges and compliance with the terms and conditions of the permit. The signatory/responsible official must meet certification requirements listed in the Certification Section at this end of this form.

Owner/Operator Formal Name: Sage Creek Colony

Mailing Address: 470 Laird Rd

City, State, Zip Code: Chester, MT 59522

Signatory/Responsible Official: Name Joe P Waldner Title Farm Boss

Contact Information: Phone 406-945-2353 Email Chemical.sage@colonymt.com

2.2 Authorized Representative

For future reports (including NetDMR) to be signed by anyone other than the signatory/responsible official, a duly authorized individual(s) or position must be identified. If one is not designated, than all reports must be signed by the signatory until such designation is made in writing [ARM 17.30.1232(2)].

Select Appropriate Box:

☐ No authorized representative for this permit is designated at this time (continue to Section 3)

☒ I designate the following duly authorized representative for this permit (provide the information below):

Authorized Representative Information:

Authorized Representative: Name Joe P Waldner Title Farm Manager

Company Name: Sage Creek Colony

Mailing Address: 470 Laird Rd

City, State, Zip Code: Chester, MT 59522

Contact Information: Phone 406-945-2353 Email Chemical.sage@colonymt.com

Section 3 – Business Description

3.1 SIC Codes and NAICS Codes

Provide at least one Standard Industrial Classification (SIC) code and one North American Industry Classification System (NAICS) code which best reflects the products or services provided by the CAFO.

SIC Code		Description
(1)	253	Turkeys
(2)	259	Ducks
(3)	252	Chicken Eggs
(4)	213	Hogs ISO weaN

NAICS Code		Description
(1)	11233	Turkeys
(2)	112390	Ducks
(3)	11234	Chicken Eggs
(4)	11221	Hogs ISO weaN

SIC Code Examples:

211 Beef Cattle Feedlots
212 Beef Cattle, Except Feedlots
213 Hogs
214 Sheep and Goats
241 Dairy Farms
251 Broiler, Fryer and Roaster Chickens
252 Chicken Eggs
253 Turkeys and Turkey Eggs
254 Poultry Hatcheries
259 Poultry and Eggs, not elsewhere classified (Ducks)
272 Horses and other Equines

NAICS Code Examples:

112112 Cattle Feedlots
112111 Beef Cattle Ranching and Farming
11221 Hog and Pig Farming
11240 Sheep Farming
11212 Dairy Cattle and Milk Production
11232 Broilers and other Meat-Type Chickens
11234 Chicken Egg Production
11233 Turkey Production
11234 Poultry Hatcheries
112390 Other Poultry Production
112920 Horses and other Equine Production

3.2 Facility or Operation Description

Provide a brief description of the nature of the facility (feedlot, stockyard, sale barn, etc.)

Poultry, Chicken eggs - Swine ISO-wing in 2025

3.3 Existing or Pending Permits, Certification, or Approvals

☐ None

☒ MPDES CAFO

☐ PSD (Air Emissions)_____

☐ 404 Permit (Dredge and Fill)_____

☐ RCRA_____

☐ Other_____

☐ Other_____

Section 4 – Outfalls

4.1 Receiving Water

For each outfall, provide the latitude and longitude (to the nearest decimal degree) and the name of the receiving water. If the receiving water/drainage is unnamed, indicate the closest named drainage it flows into (i.e., "unnamed tributary to Clear Creek"). Attach additional sheets if necessary for more outfalls. This section must not be left blank, and "N/A" is not acceptable.

Outfall	Latitude	Longitude	Name of Receiving Water
001	48.9354	-110.97057	Laird Creek

Section 5 – Characteristics

5.1 Impaired Waters 303(d)

Identify whether the receiving water is impaired for nutrients. Check the Clean Water Act Information Center database at https://deq.mt.gov/water/resources to determine if the receiving water is impaired for nutrients (total nitrogen and/or total phosphorus).

☐ The receiving water is impaired for nutrients

☒ The receiving water is NOT impaired for nutrients

Continue to Page 4

5.2 Animal Confinement

Report the maximum number of each type of animal confined at any one time in open confinement and/or housed under a roof.

Animal type	Number in Open Confinement	Number Housed Under Roof
Mature Dairy Cows	0	0
Veal Calves	0	0
Cattle including dairy Heifers	0	0
Swine 55 lbs. or over "2025"	0	2000
Swine 55 lbs. or under "825"	0	4,000
Horses	0	0
Sheep or Lambs	0	0
Turkeys	0	980
Chicken broilers –includes juveniles	0	0
Chicken layers –includes juveniles	0	78,000
Ducks	0	800
Other Specify:	0	0
Other Specify:	0	0

5.3 Rain Gage Location

Identify the nearest gage station or onsite rain gage. Provide either the Station ID of the gage or a latitude and longitude.

Station ID _____ OR

Latitude, Longitude 48.9306940 , -110.9752?8

5.4 Containment Structures

Were the containment structures built after February 2006?

☒ Yes. Skip the following 3 questions and continue to the table below.

☐ No. Complete the questions and table below.

Do the livestock waste control facilities have 10 feet of separation between the pond bottom and any bedrock formations?

☐ Yes ☐ No NA - Concrete

Do the waste containment structures have 4 feet of separation from the pond bottom to any ground water?

☐ Yes ☐ No NA - No Ponds

Do the livestock waste control facilities comply with the applicable well setbacks?

☒ Yes ☐ No

Continue to Page 5

Identify the type of containment/storage, the total capacity with units, and the number of days of storage in each:

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
Anaerobic Lagoon	None		
Storage Pond #1	1580000	gallons	365
Storage Pond #2	3150000	gallons	365
Storage Pond #3			
Storage Pond #4			
Storage Pond #5			
Above Ground Storage Tank #1			
Above Ground Storage Tank #2			
Above Ground Storage Tank #3			
Underfloor Pits 2025	750000	gallons	120 days
Below Ground Storage Tank			
Roofed Storage Shed			
Concrete Pad	2000	ton	365
Impervious Soil Pad	2000	ton	365
Other Specify:			
Other Specify:			

5.5 Sage Grouse Habitat

Visit the Montana Sage Grouse Habitat Conservation Program (Program) website at https://sagegrouse.mt.gov/ to determine if the proposed operation is located in designated sage grouse core, general, or connectivity habitat.

☐ Yes. Submit an application to the Program and **attach the required consultation letter**.

☒ No. No additional information is required.

5.6 New Source/Operation

Is this a new source and/or operation? New sources must obtain analyses from the Montana Natural Heritage Program (MTNHP) and Montana State Historic Preservation Office (SHPO) demonstrating possible impacts to wildlife and cultural resources, respectively.

☐ Yes. Attach project review analyses from MTNHP and SHPO.

☒ No. No additional information is required

Continue to Page 6

Sections 6 through 10 consist of the Nutrient Management Plan (NMP). These sections are intended to help CAFO operators develop a site-specific NMP required by the CAFO General Permit. Your NMP must be kept at the operation. Attach additional pages as necessary, indicating the corresponding section number on this NMP form.

Section 6 – NMP Minimum Elements

Facility Photos and Maps

Facilities must attach photos and maps depicting the following:

- The production area that shows the locations of all animal confinement structures described in the **Animal Type, Storage Location, and Generation Rates Table.**
- The flow direction of storm water and wastewater for all animal confinement structures described in the **Animal Type, Storage Location, and Generation Rates Table.**
- Manure and wastewater handling and storage areas
- Raw material handling and storage areas
- Storage and disposal areas of chemicals or other contaminants handled on site
- All land application areas (include topography and soil types)
- Environmentally sensitive areas (sinkholes, wells, drinking water sources, tile drain outlets, etc.) for the production area
- Illustrate the facility/activity boundaries, receiving water, and major drainage patterns
- Identify the specific location of the production area and the land application area(s)

☒ I have attached photos and maps (aerial and topographic) that meet the above requirements. See maps in FACTS

6.1 Ensure Adequate Storage Capacity

Complete the table below: Be sure to identify each type of animal confined at this facility. This could include animals of a given species, weight class, or housed for a specific purpose.

Livestock Statistics and Manure, Litter, and Process Wastewater Generation Rates

Animal Type	Waste Storage Location	Maximum Number of Animals at Any Time	Number of Days/Year on Site	Annual manure, litter, and process wastewater production	
				Dry (tons/yr)	Liquid (gallons/yr)
1. Chickens (layers)	Concrete Pad	78,000	365	1800	
2. Turkeys	Concrete Pad	980	150	220	
3. Ducks	Concrete Pad	800	120	190	
4. Sows "2025"	Pits & Ponds	2000	365		1,300,000
5. Piglets "2025"	Pits & Ponds	4000	365		1,000,000
6.					
7.					
8.					
9.					
10.					
11.					

Methods for estimating animal manure, litter, and process wastewater production

Describe the methods used for estimating animal manure, litter, and process wastewater production: Include all formulas, factors, references to tables, and other resources used to calculate manure, litter, and wastewater production. Be sure to account for soiled bedding materials.

Prior years production
Application Records
similar facility production

Manure handling:

Identify manure, litter, and process wastewater handling at the CAFO. Mark all that apply:

- ☒ Stored in pens
- ☒ Stored on stacking pad
- ☒ Composting on site
- ☐ Other _____
- ☐ Direct pipe to liquid impoundment
- ☐ Stored under floor pit
- ☐ Separator

Frequency of manure removal from confinement areas:

- ☒ Bi-annually
- ☐ Annually
- ☐ As needed
- ☐ Other _____

Is the manure, litter, or process wastewater temporarily stored in any location other than the production area?

- ☒ No.
- ☐ Yes. Explain how and where _____

Is dry manure and/or litter stored on an impervious surface?

- ☐ No.
- ☒ Yes. Describe the type and characteristics of this surface soil pad & concrete pad

Waste control structures:

Provide the 24-hr-25-yr storm event at your facility location. Refer to the map provided in the instructions. 3.4 in/hr

Provide the annual precipitation during critical winter storage period (180 days from mid-October to mid-April) 12.0 in

Provide the area within clean water diversions. This is the area that is inside the BMPs used for clean water diversions and is used to calculate volume required to hold the 24-hr-25-yr storm event and the volume of your critical storage period. 6 acres

Check all the surface types within the clean water diversion area and provide the coverage in acres or ft². Be sure to circle the correct units.

- ☒ Dirt 4.0 (acres) or ft² (circle correct unit)
- ☐ Concrete _____ acres or ft² (circle correct unit)
- ☐ Paved _____ acres
- ☐ Under roof _____ acres or ft² (circle correct unit) – check if runoff is not part of clean water BMPs
- ☒ Gravel 2.0 (acres) or ft² (circle correct unit)
- ☐ Pasture _____ acres or ft² (circle correct unit)
- ☐ Other _____ _____ acres or ft² (circle one)

Use the Table below to identify and describe all production area waste control structures for the production area of each animal type identified in the table "Livestock Statistics and Manure, Litter, and Process Wastewater Generation Rates" above (Section 6.1). Waste control structures may include but are not limited to: manure lagoons, manure ponds, evaporation ponds, wastewater retention ponds, contaminated runoff retention ponds, settling basins, underground storage tanks, underfloor pits, manure solids stacking pads, vegetative treatment strips, composting facilities, and dry stack facilities. Berms, dikes, concrete curbs, ditches, and waste transfer pipelines are also waste control structures and must be listed, though some of the requested measurements may not apply.

Production Area Waste Control Structures Description				
Production area Waste Control Structure (For Corresponding Animal Type Identified in Table Above)	Volume (gal if liquid) (ft^3 if dry)	Number of days of storage	Winter storage depth (ft)	The 24hr-25 yr storm event depth (ft)
1. Concrete pad	2000	365	4.0	5.0 ft
2. Impervious pad	2000	365	3.0	6.0 ft
3. Iso-Wing Pit	750,000	365	8.0	NA - Inside Storage
4. Stage 1 Pond	1,580,000	365	10.0	6.0 ft
5. Stage 2 Pond	3,150,000	365	8.0	5.0 ft
6.				
7.				
8.				
9.				
10.				
11.				

6.2 Mortality Management

Check the box that describes how mortalities are disposed of at this CAFO.

- ☒ Burial
- ☒ Composted
- ☐ Incineration
- ☐ Landfill
- ☐ Contractor removal
- ☐ Other_____

Provide the location where mortalities are disposed of, if part of the production area:

Large animals are hauled off-site to a burial pit & covered within 48 hrs. Small animals are composted in stacking pad.

6.3 Clean Water Diversion Practices

Check all that apply for how clean water is diverted from the production area.

- ☒ Ditches
- ☒ Earthen berms
- ☒ Culverts
- ☒ Site grading
- ☒ Gutters and spouts
- ☐ Other _____

6.4 Prohibiting Animals and Wastes from Direct Contact with State Waters

Check all that apply for how animals and wastes are prohibited from direct contact with sate waters.

- ☒ Fencing
- ☐ Wall
- ☒ Inside building
- ☐ Other _____

6.5 Chemicals and Contaminants

List all major chemicals or other contaminants handled on site as part of your CAFO operation, including, but not limited to: pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal and location stored for each contaminant. Ensure a corresponding map has been attached, as required in Section 6, Facility Photos and Maps.

All chemicals are stored outside of the production area in the chemical shop.

6.6 Conservation Practices

Check all temporary, permanent, and structural BMPs which will be used to control runnoff of pollutants from the facility's **production area**. Be sure to include them on the map described above in Section 6. If BMPs are not installed, include a schedule for implementation of each of the following measures. Provide details and specifications to suplement the BMP descriptions. Attach additional sheets if necessary.

- ☒ Ditches
- ☒ Earthen berms
- ☒ Culverts and pipes
- ☒ Buffers
- ☒ Site grading
- ☒ Gutters and spouts
- ☒ Covered Pens
- ☐ Other _____

6.7 Sampling and Analysis Procedures for Manure, Litter, Process Wastewater, and Soil

Representative samples of manure, litter, and process wastewater must be analyzed a minimum of once per year for total nitrogen and total phosphorus. Results should be reported in lbs/ton for solids and lbs/1000 gal for liquids. Results will be used to determine rates for manure, litter, and process wastewater. Indicate your method for samping. Be sure to provide a description if you select "other."

- ☒ Sample collection will occur according to CAFO General Permit Section II.D.
- ☐ Other _____

Continue to Page 10

Sage Creek Colony
2024 facility
Map

Section 7 – NMP Land Application

Identify whether manure will be land applied to land that is owned, rented, or leased by the owner or operator of the facility.

☐ No. Explain how animal waste will be managed by the operation, including protocol for transfers of manure, litter, and process wastewater. Skip to Section 10.

_____

_____

☒ Yes. Continue below.

7.1 Land Application Photos and Maps

Facilities that land apply must attach photos/maps clearly identify the following items. If an item is not applicable, check the box "None."

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The soil type(s) present and their locations within the individual land application field(s)
- The location of any downgradient surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field i.e. setbacks
- Buffers and setbacks around state surface waters, well heads, etc.
- Any downgradient open tile line intake structures
  ☒ None. Not included on map
- Any downgradient sinkholes
  ☒ None. Not included on map
- Any downgradient agricultural well heads
  ☒ None. Not included on map
- All conduits to surface waters
- All temporary, permanent, and structural BMPs used to control runoff of pollutants from the land application area

☒ I have attached photos and maps of the site where manure is to be applied. see Maps & Photos

7.2 Protocols to Land Apply Manure, Litter, or Process Wastewater

Check all temporary, permanent, and structural BMPs which will be used to control runoff of pollutants from the CAFO's **land application area.** If not already in use, include a schedule for implementation of each of these measures. You may supplement this description by attaching details and specifications.

☒ Buffers	☒ Conservation tillage
☐ Constructed wetlands	☒ Grass Filter
☒ Infiltration field	☒ Residue Management
☒ Setbacks	☐ Terrance

☐ Other _____

7.3 Soil Phosphorus Sampling and Analysis

Representative **soil** (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater.

☒ Sample collection will occur according to Part II.D of the CAFO General Permit.

☐ Other (describe)_____

7.4 Soil Nitrogen Sampling and Analysis

Representative composite soil samples for total nitrogen and nitrate must be collected for each field where manure will be applied. Composite samples for total nitrogen must be collected from a soil depth of 0 to 6 inches and must be analyzed at least once every 3 years. Composite samples for nitrate must be collected from a soil depth of 6 to 24 inches and must be analyzed at least once every 3 years. All samples must be analyzed according to method code 4H2al-3 in NRCS Soil Survey Laboratory Methods Manual, Soil Survey Investigation Report No. 42. Results must be reported as mg/kg total nitrogen and pounds per acre will be used in determining application rates for manure, litter, and process wastewater.

☒ Sample collection will occur according to Part II.D of the CAFO General Permit.

☐ Other _____

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Section 8. NMP Application Rates

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ. Select one:

☐ **Linear Approach**. Expresses rates of application as pounds of nitrogen and phosphorus. Complete Section 8.1, then continue to Section 9. See page 8 of the NOI-NMP Instructions for guidance on the Linear Approach.

☒ **Narrative Rate Approach**. Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. Complete Section 8.2, then continue to section 9. See page 9 of the NOI-NMP Instructions for guidance on the Narrative Rate Approach.

8.1 Linear Approach

Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the Department the following information for each crop, field, and year covered by the NMP:

1. The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
2. The outcome of the field-specific assessment of the potential for phosphorus transport from each field. The Department does not have an N transport risk assessment, therefore the NMP must document any basis for assuming that nitrogen will be fully used by crops. The CAFO must specify any conservation practices used in calculating the risk rating.
3. The crops to be planted or any other uses of a field such as pasture or fallow fields.
4. The realistic annual yield goal for each crop or use identified for each field.
5. The nitrogen and phosphorus recommendations from Department acceptable sources for each crop or use identified for each field.
6. Credits for all residual nitrogen in each field that will be plant available.
7. Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
8. All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
9. The form and source of manure, litter, and process wastewater to be land-applied.
10. The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
11. The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
12. Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

See DEQ Spread Sheet

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Field identification: 20-37n-6e Year: 2024 Crop: Durum Wheat					
Expected Crop Yield: 70 BU					
Phosphorus index results or Phosphorus application from soil test: 45 ppm					
Method of Land Application: Injection Plow					
When will application occur: Fall application					
		Nutrient Budget	Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	231	47	EB-161
2	(-)	Credits from previous legume crops, or soil test lbs/ac	122	0.00	
3	(-)	Residuals from past manure production lbs/acre (if no new soil test)	0	0	
4	(-)	Nutrients from commercial fertilizer and biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	80	0	
6		**= Additional Nutrients Needed, lbs/acre**	29.00	46.70	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	20	25	
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.60	1	
9		**= Available Nutrients in Manure, lbs/ton or lbs/1000 gal**	11.88	24.60	
10		Additional Nutrients needed, lbs/acre (calculated above)	29.00	46.70	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	11.88	24.60	
12		**= Manure Application Rate, tons/acre or 1000 gal/acre**	2.441	1.898	

Comments

Actual application in 2024 1.1-ton acre maximum application was 1.89-ton acre

Example Shows Nitrogen and Phos Based Calculations See Spread sheet.

8.2 Narrative Approach

Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the Department the following information for each crop, field, and year covered by the NMP:

1. The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
   See Spread Sheet Attached

2. The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The Department does not have an N transport risk assessment, therefore the NMP must document any basis for assuming that nitrogen will be fully used by crops. The CAFO must specify any conservation practices used in calculating the risk rating.
   See spreadsheet

3. The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
   See Spreadsheet

4. The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
   See Spreadsheet

5. The nitrogen and phosphorus recommendations from Department acceptable sources for each crop or use identified for each field, including any alternative crops identified.
   Applications from EB-161

6. The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests, (2) credits for all nitrogen in the field that will be plant-available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.
   See spreadsheet Narrative

7. Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.
   See spreadsheet & Nutrient Budgets

8. NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:
   - Planned crop rotations for each field for the period of permit coverage.
   - Projected amount of manure, litter, or process wastewater to be applied.
   - Projected credits for all nitrogen in the field that will be plant available.
   - Consideration of multi-year phosphorus application.
   - Accounting for other additions of plant available nitrogen and phosphorus to the field.
   - The predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

Section 9 – NMP Phosphorus

Phosphorus Risk Assessment: The permittee shall assess the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment, unless the receiving water is impaired for nutrients, then you must use method B below for phosphorus risk assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained onsite at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Indicate which method will be used to determine phosphorus application:

☐ **Method A** – Representative Soil Sample. Complete Section 9.1, then continue to Section 10.

☒ **Method B** – Phosphorus Index. Complete Section 9.2, then continue to Section 10.

9.1 Method A – Representative Soil Sample

Obtain one or more representative soil sample(s) from the field per ARM 17.30.1334
Have the sample analyzed for phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm). Using the results of the Olsen P test, determine application basis according to the Table below.

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

Olsen P Test Result: _____ ppm

See Spreadsheet attached

End of Method A. Continue to Section 10

B = 2-4 C = 4-8 D = 8-15
A = 0-2 Slope

9.2 Method B – Phosphorus Index

Complete a phosphorus Index according to the crop grown on each field. Complete the Phosphorus Index Worksheet below to calculate phosphorus index. For information on filling out specific sections of this table, please refer to the method as described in NRCS Agronomy Technical Note MT-77.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: **Crop:** **Year:**

Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	2	X 0.5	1
Olson Soil Test P	———	<20 ppm 81	20-40 ppm 15	40-80 ppm 3	>80 ppm	1, 2, 4	X 0.5	.5, 1, 2
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	2	X 1.0	2
Organic P Source Application Rate	None Applied	<30 lbs/ac P205 X	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet 2	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	2	X 1.0	2
Total Phosphorus Index Value:				P=Low		10		
				P=Med		10.5		
				P=High		11.5		

Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

Phosphorus Index Value: See Spreadsheet

Section 10 – NMP Guidance

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibration procedures:

Implementation, Operation, Maintenance and Recordkeeping

The permittee is required to develop protocols for implementation of the NMP, proper operation and maintenance of the livestock waste control facilities, and recordkeeping as described in Part 2 of the permit.

Have protocols been developed for the operation? ☒ Yes ☐ No

The documents below are maintained:

Implementation of the NMP:	☒ Yes ☐ No
Facility operation and maintenance:	☒ Yes ☐ No
Recordkeeping and reporting	☒ Yes ☐ No
Sample collection and analysis	☒ Yes ☐ No
Manure transfer	☐ Yes ☒ No

If your answer to any of the above question is no, provide explanation:

No manure transfer occurs

Provide date and location of most recent documentation:

Date: Dec 2023

Location: Farm Manager's office

NOI-NMP Certification

The NOI Form certification must be completed by the applicant (owner/operator) responsible for the authorization as identified in Section C. Certification of this NOI is certification that the applicant will comply with the applicable terms of the CAFO General Permit.

Permittee Information: This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete 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 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 that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA].

Certification of this form indicates conformance with the CAFO General Permit.

Name (Type or Print)	
Joe P Waldner	
Title (Type or Print)	Phone Number
farm Boss	(406) 945-2353
Signature	Date Signed
Joe Waldner	12/29/2023

DEQ will not process this form until all the requested information is supplied, and the appropriate fees are paid.

Return this NOI-NMP-CAFO Form and the applicable fee payment to:

Department of Environmental Quality
Water Protection Bureau
P● Box 200901
Helena, MT 59620-0901
(406) 444-5546

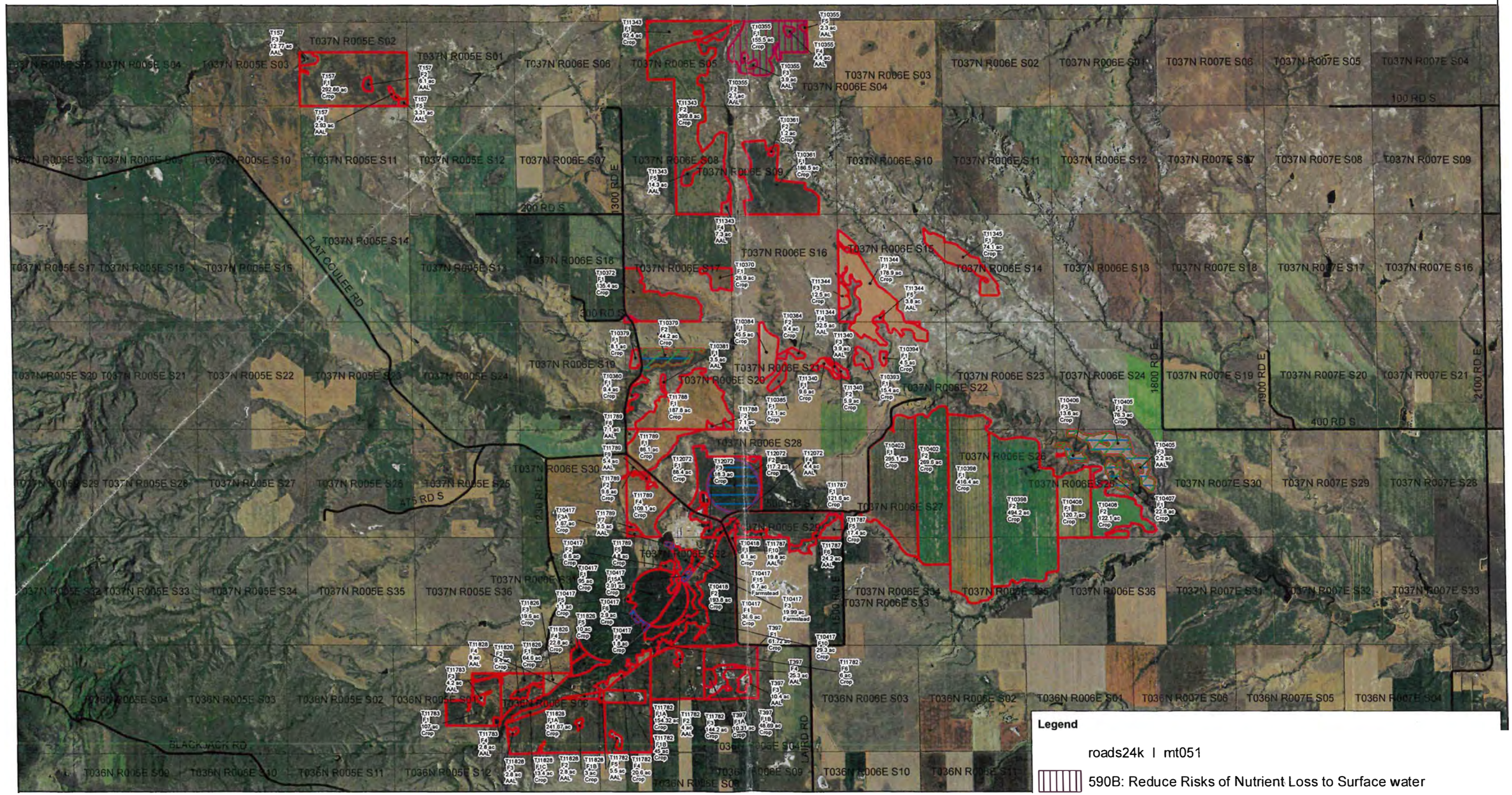
RECEIVED
FEB 25 2025
DEQ WATER QUALITY DIVISION

Location Map

Map from Feb 4, 2025 Walk-in

Customer: North Field Farms
Date: 12/8/2022
Program: CSP 2023 Renewal

Planner Name: Catrina Foss
Field Office: Chester
County: Liberty



0 0.5

Miles

1:55,000
1 in = 4,583 ft

W E

Legend

- roads24k I mt051
- 590B: Reduce Risks of Nutrient Loss to Surface water
- 340/340F Cover Crop to Minimize Soil compaction
- 512/512A/512C Cropland Conversion to Grass Based Agriculture
- PLUs

Fields Available for Land Application

Field ID	Total Acres
F1	190
F2	509
F3	337
F4	91
F5	343
F6	167
F7	172
F8	23
F9	35
F10	76
F11	466
F12	58
F13	45
F14	33
F15	25
F16	225
F17	12
F18	7
F19	4
F20	19
F21	403
F22	21
F23	145
F24	33
F25	17
F26	26
F27	42
F28	139
F29	107
F30	101
F31	30

Field ID	Total Acres
F45	291
F46	160
F48	30
F49	244
F50	201
F51	119
F52	159
F53	128
F54	33
F56	4
F57	124
F58	269
F59	50
F60	131
F61	27
F62	89
F63	401
F64	159
F65	190
F66	12
F67	179
F68	74
F69	74
F75	81
F76	120
F78	196
F80	104
F86	292
F87	267
F88	408
F89	490

F32	181
F33	35
F34	64
F35	170
F36	249
F37	305
F38	156
F39	117
F40	166
F41	8
F82	63
F83	31

F90	117
F91	119
F92	74
F93	73
F94	72
F95	67
F96	177
F97	233
F98	300
F99	317

Outcome of the Field-Specific Assessment of the Potential for N and P Transport from Each Field and Maximum Amount of Nitrogen and Phosphorus Derived from All Sources

Field ID	Year	Crop	Olsen P Soil Test Results (ppm)	Recommended Rate Basis	Max N Derived from all sources	Max P_2O_5 Derived from all sources
					(lbs/acre)	
F1	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F2	2024-2028	Wheat	16	Nitrogen Needs of Crop	156	32.7
F3	2024-2028	Wheat	13	Nitrogen Needs of Crop	156	40
F4	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F5	2024-2028	Wheat	4	Nitrogen Needs of Crop	156	50
F6	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	40
F7	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	42
F8	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	42
F9	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F10	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	40
F11	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	40
F12	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F13	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F14	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F15	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	40
F16	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	48
F17	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	48
F18	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	48
F19	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	48
F20	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	40
F21	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	40
F22	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	40
F23	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F24	2024-2028	Wheat	15	Nitrogen Needs of Crop	156	35
F25	2024-2028	Wheat	15	Nitrogen Needs of Crop	156	35
F26	2024-2028	Wheat	15	Nitrogen Needs of Crop	156	35
F27	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40

Field ID	Year	Crop	Olsen P Soil Test Results (ppm)	Recommended Rate Basis	Max N Derived from all sources	Max P_2O_5 Derived from all sources
					(lbs/acre)	
F28	2024-2028	Wheat	9	Nitrogen Needs of Crop	156	45
F29	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F30	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	47
F31	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	47
F32	2024-2028	Wheat	8	Nitrogen Needs of Crop	156	45
F33	2024-2028	Wheat	8	Nitrogen Needs of Crop	156	45
F34	2024-2028	Wheat	7	Nitrogen Needs of Crop	156	45
F35	2024-2028	Wheat	17	Nitrogen Needs of Crop	156	35
F36	2024-2028	Wheat	60	Phosphorus Needs of Crop	156	37.2
F37	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	47
F38	2024-2028	Wheat	30	Phosphorus Needs of Crop	156	37.2
F39	2024-2028	Wheat	23	Nitrogen Needs of Crop	156	35
F40	2024-2028	Wheat	13	Nitrogen Needs of Crop	156	40
F41	2024-2028	Wheat	14	Nitrogen Needs of Crop	156	40
F82	2024-2028	Wheat	24	Nitrogen Needs of Crop	156	37.2
F83	2024-2028	Wheat	24	Nitrogen Needs of Crop	156	37.2
F45	2024-2028	Wheat	9	Nitrogen Needs of Crop	156	48
F46	2024-2028	Wheat	11	Nitrogen Needs of Crop	156	40
F48	2024-2028	Wheat	24	Nitrogen Needs of Crop	156	37.2
F49	2024-2028	Wheat	9	Nitrogen Needs of Crop	156	42
F50	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F51	2024-2028	Wheat	8	Nitrogen Needs of Crop	156	45
F52	2024-2028	Wheat	10	Nitrogen Needs of Crop	156	42
F53	2024-2028	Wheat	14	Nitrogen Needs of Crop	156	38
F54	2024-2028	Wheat	14	Nitrogen Needs of Crop	156	38
F56	2024-2028	Wheat	9	Nitrogen Needs of Crop	156	42
F57	2024-2028	Wheat	64	Phosphorus Needs of Crop	156	37.2
F58	2024-2028	Wheat	37	Phosphorus Needs of Crop	156	37.2
F59	2024-2028	Wheat	15	Nitrogen Needs of Crop	156	38
F60	2024-2028	Wheat	5	Nitrogen Needs of Crop	156	48

Field ID	Year	Crop	Olsen P Soil Test Results (ppm)	Recommended Rate Basis	Max N Derived from all sources	Max P_2O_5 Derived from all sources
					(lbs/acre)	
F61	2024-2028	Wheat	5	Nitrogen Needs of Crop	156	48
F62	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F63	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F64	2024-2028	Wheat	5	Nitrogen Needs of Crop	156	48
F65	2024-2028	Wheat	7	Nitrogen Needs of Crop	156	43
F66	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F67	2024-2028	Wheat	7	Nitrogen Needs of Crop	156	43
F68	2024-2028	Wheat	6	Nitrogen Needs of Crop	156	48
F69	2024-2028	Wheat	3	Nitrogen Needs of Crop	156	56
F75	2024-2028	Wheat	12	Nitrogen Needs of Crop	156	40
F76	2024-2028	Wheat	66	Phosphorus Needs of Crop	156	37.2
F78	2024-2028	Wheat	30	Phosphorus Needs of Crop	156	37.2
F80	2024-2028	Wheat	39	Phosphorus Needs of Crop	156	37.2
F86	2024-2028	Wheat	29	Phosphorus Needs of Crop	156	37.2
F87	2024-2028	Wheat	19	Nitrogen Needs of Crop	156	37.2
F88	2024-2028	Wheat	20	Nitrogen Needs of Crop	156	37.2
F89	2024-2028	Wheat	9	Nitrogen Needs of Crop	156	42
F90	2024-2028	Wheat	15	Nitrogen Needs of Crop	156	38
F91	2024-2028	Wheat	8	Nitrogen Needs of Crop	156	45
F92	2024-2028	Wheat	4	Nitrogen Needs of Crop	156	50
F93	2024-2028	Wheat	3	Nitrogen Needs of Crop	156	50
F94	2024-2028	Wheat	4	Nitrogen Needs of Crop	156	50
F95	2024-2028	Wheat	2	Nitrogen Needs of Crop	156	52
F96	2024-2028	Wheat	2	Nitrogen Needs of Crop	156	52
F97	2024-2028	Wheat	2	Nitrogen Needs of Crop	156	52
F98	2024-2028	Wheat	3	Nitrogen Needs of Crop	156	50
F99	2024-2028	Wheat	3	Nitrogen Needs of Crop	156	50

Alternative Crops

Field	Potential Alternative Crop(s)	Yield Goal (unit/acres)	N rec. (lbs/acre)	P_2O_5 rec. (lbs/acre)
All Fields	Barley	60	96	30.82
All Fields	Lentils	30	0	20.1
All Fields	Chickpeas	32	0	21.44
All Fields	Mustard	800	52	18.7

Methodology

Rates of application that are expressed using the narrative rate approach must include the *methodology* for calculating the amount of manure to be land applied.

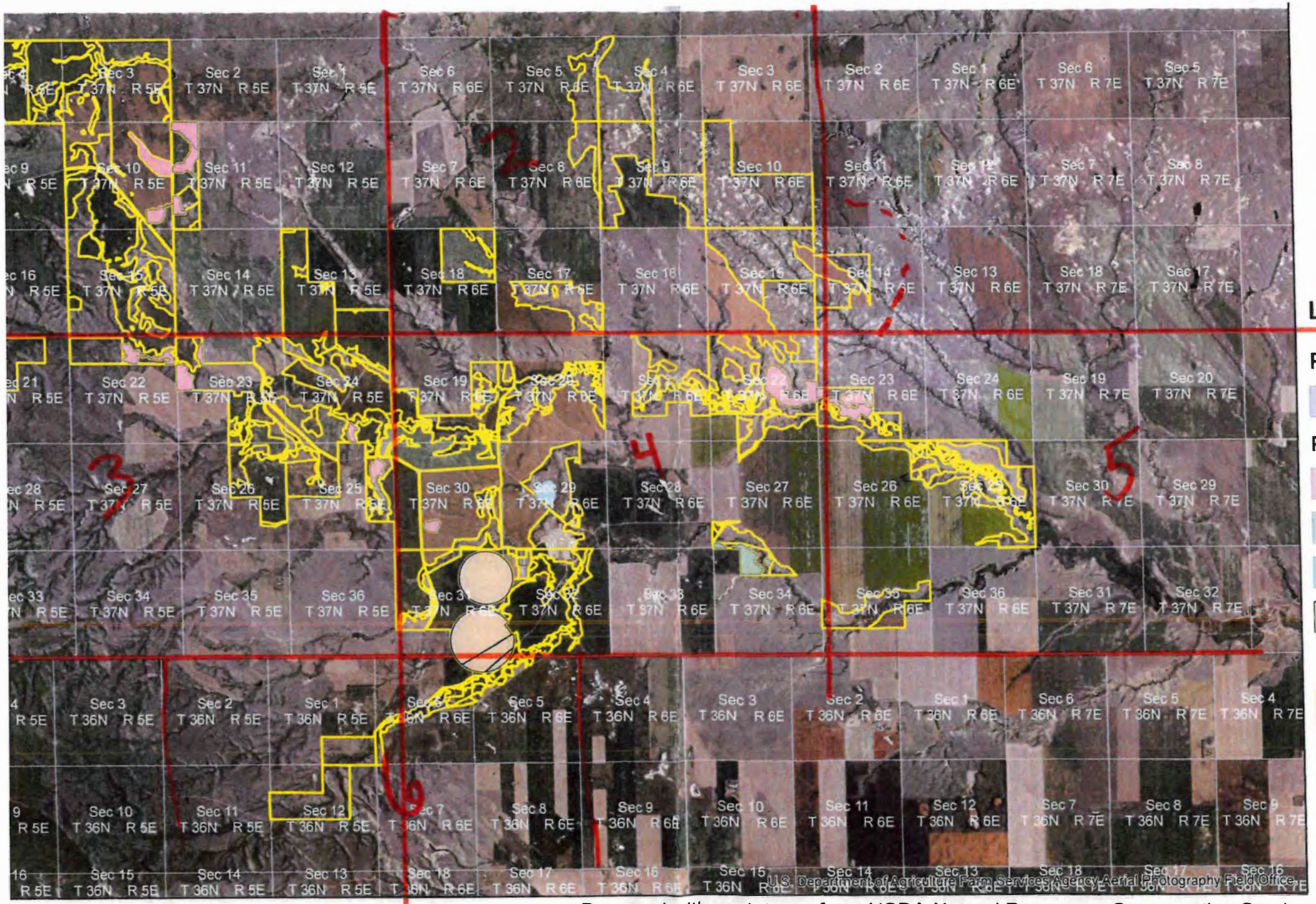
In the text box below, provide the methodology that will be used to account for:
- Soil test results
- Credits for plant available nitrogen in the field
- Amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied
- Consideration of multi-year phosphorus application
- Accounting for all other additions of plant available nitrogen and phosphorus to the field
- Form and source of manure, litter, and process wastewater
- Timing and method of land application
- Volatilization of nitrogen and mineralization of organic nitrogen

Attach additional sheets as necessary.

For the soil sampling, we hired Helena Agri-Enteprises to do the soil sampling. They send their soil samples to Agvise Laboratories in North Dakota. We also got Helena to send off a sample of our manure to get tested for the levels of nutrients in the manure. They sent the maure sample to Ward Laboratories in Nebraska. Once we got the soil & manure results back, we sat down and figured out our seeding plan for the year. After we figured our seeding plan, we were able to figure out how much Nitrogen & Phosphours we needed for each field by looking in the Fertilizer Guidelines for Montana Crops that the MSU Extension provides. The soil sample results gave us a good idea at what level of nutrients were in the soil and the manure result gave us the amount of nutrients in it. For the Nitrogen, we subtracted the recommended fertilizer amount of N from the actual amount of N in the soil and that gave us a recommended Nitrogen amount for that specific field and crop. For the Phorophus, we took the Olsen P soil test levels from our fields and matched them with the table that recommends lbs P_2O_5/ acre. The manure comes from on farm poultry production. Since it is dry poultry litter, we plan to spread it with spinner truck in the early spring. Taking into consideration of N volatilization, we plan to split apply our nitrogen to avoid volatilization. The urea that we put down during planting will be banded into the soil to limit volatilization.
naritive method b based on sage creek being a impaird water shed there for phos index was utilized for all fields see attached spreed sheet.
nutriant budget balincing both nitrogen and phos. used to determin application rate. see attachment for example.

Wheat is the Defaut crop

See alternative crops on Spread Sheet



SOIL MAPS FROM FEB 4, 2025 Walk-in

Legend

Practices (polygons)

- <all other values>

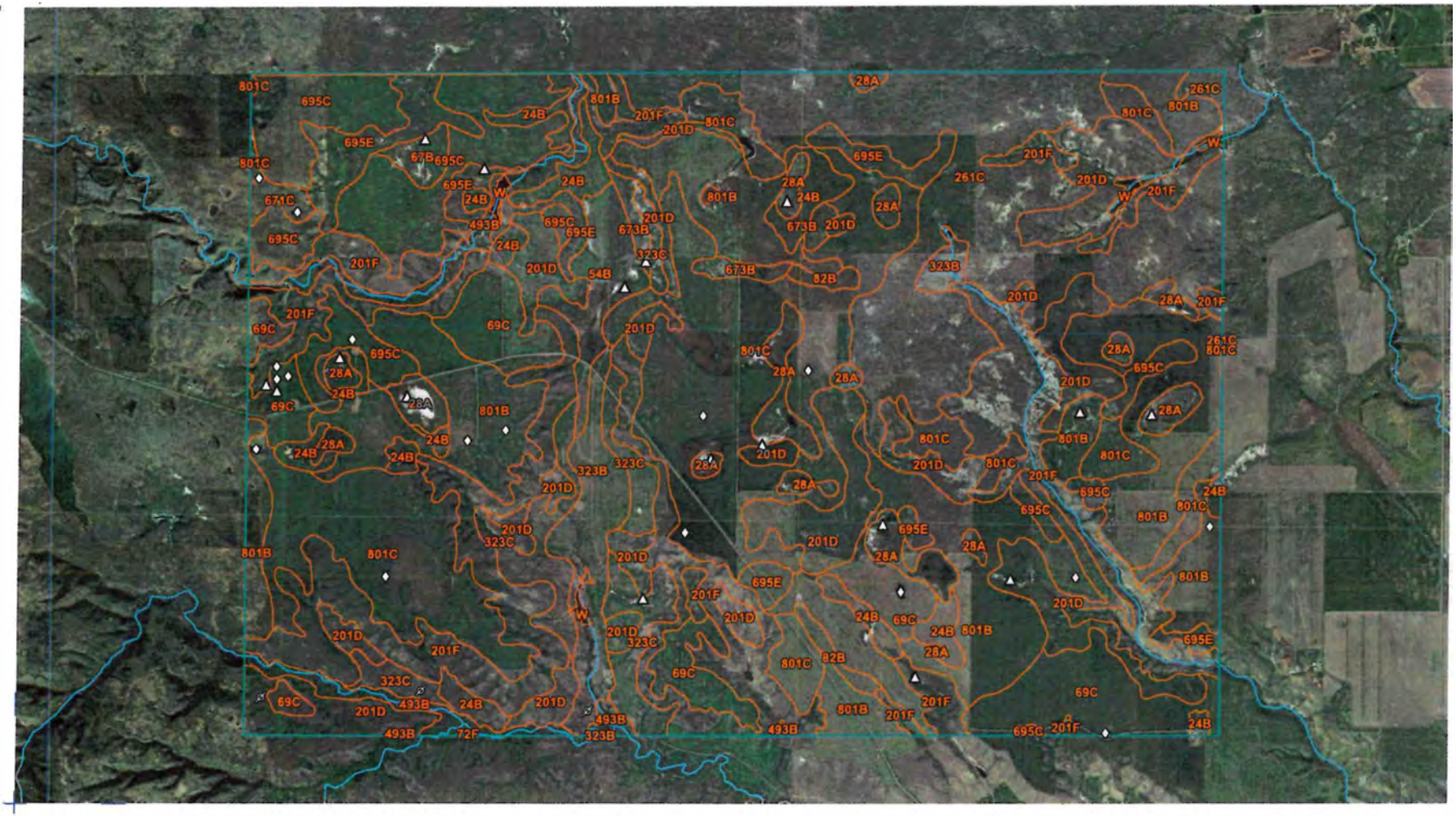
Practice code

- 328 Cl 4, 7, 10, 13
- 512 Cl 1
- 550 Cl 2
- E590130Z Cl 5, 8, 11, 14
- E595116Z Cl 3, 6, 9, 12
- 2019_CStwP_Plan
- plss_a_mt051

Prepared with assistance from USDA-Natural Resources Conservation Service

4,700 0 4,700 9,400 14,100 18,800
Feet

N



Map projection: Web Mercator Corner coordinates: WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

Soil Survey Area: Liberty County, Montana
Survey Area Data: Version 17, Sep 16, 2019

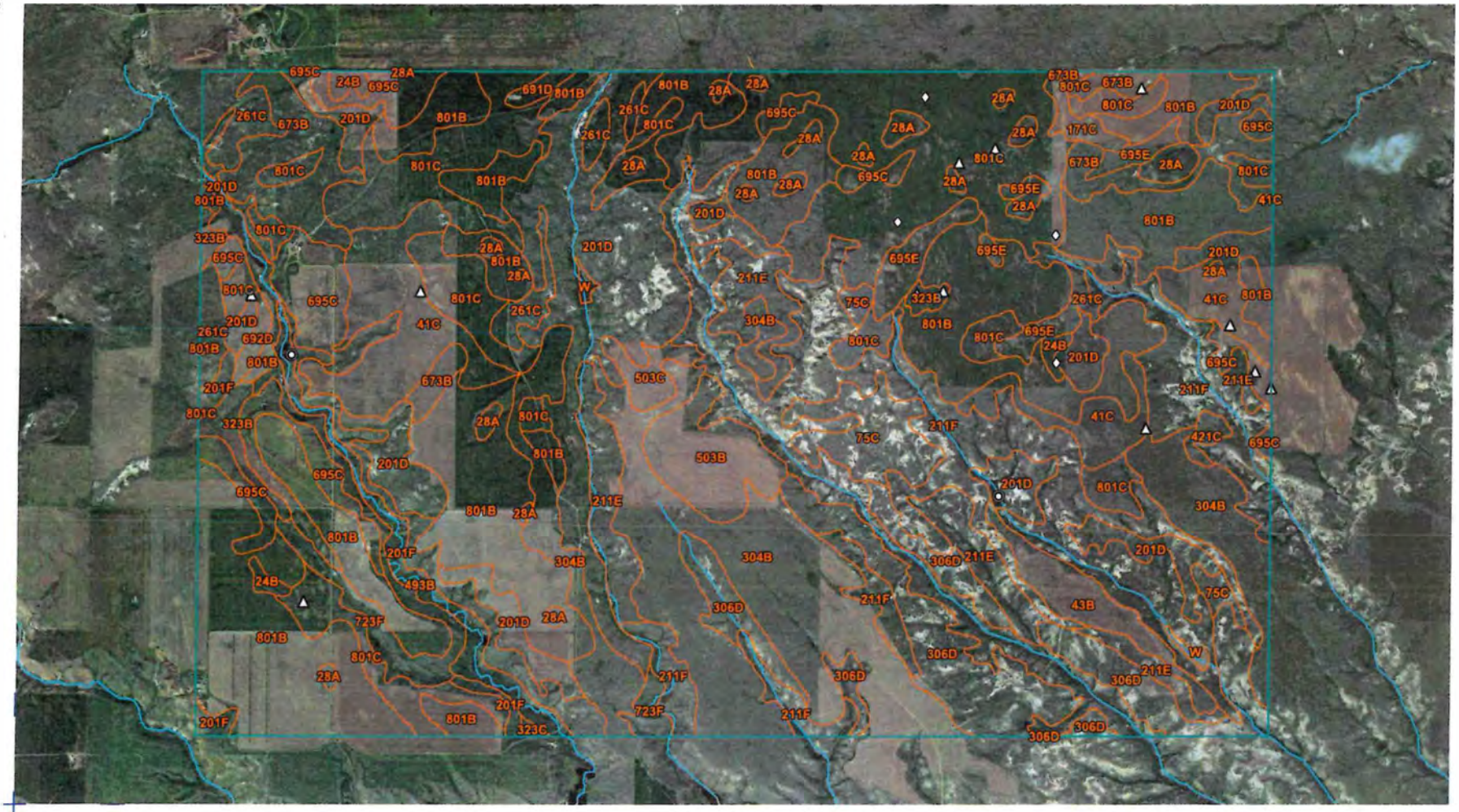
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 23, 2011—Sep 28, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
24B	Farnuf loam, 0 to 4 percent slopes	238.1	3.2%
28A	Nishon clay loam, 0 to 1 percent slopes	240.1	3.2%
54B	Lawther clay, 0 to 4 percent slopes	103.1	1.4%
67B	Bearpaw clay loam, 0 to 4 percent slopes	28.5	0.4%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	516.0	7.0%
72F	Zahill-Zahl clay loams, 15 to 60 percent slopes	0.5	0.0%
82B	Savage silty clay loam, 0 to 4 percent slopes	30.0	0.4%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	765.0	10.3%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	1,045.2	14.1%
261C	Auchard-Williams complex, 2 to 8 percent slopes	858.0	11.6%
323B	Sagedale silty clay, 0 to 4 percent slopes	174.6	2.4%
323C	Sagedale silty clay, 4 to 8 percent slopes	240.3	3.2%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	139.5	1.9%
671C	Bearpaw-Vida-Nishon clay loams, 0 to 8 percent slopes	21.7	0.3%
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	45.4	0.6%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	487.8	6.6%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	216.7	2.9%
801B	Williams-Vida loams, 0 to 4 percent slopes	1,072.2	14.5%
801C	Williams-Vida loams, 2 to 8 percent slopes	1,169.1	15.8%
W	Water	16.6	0.2%
Totals for Area of Interest		**7,413.8**	**100.0%**

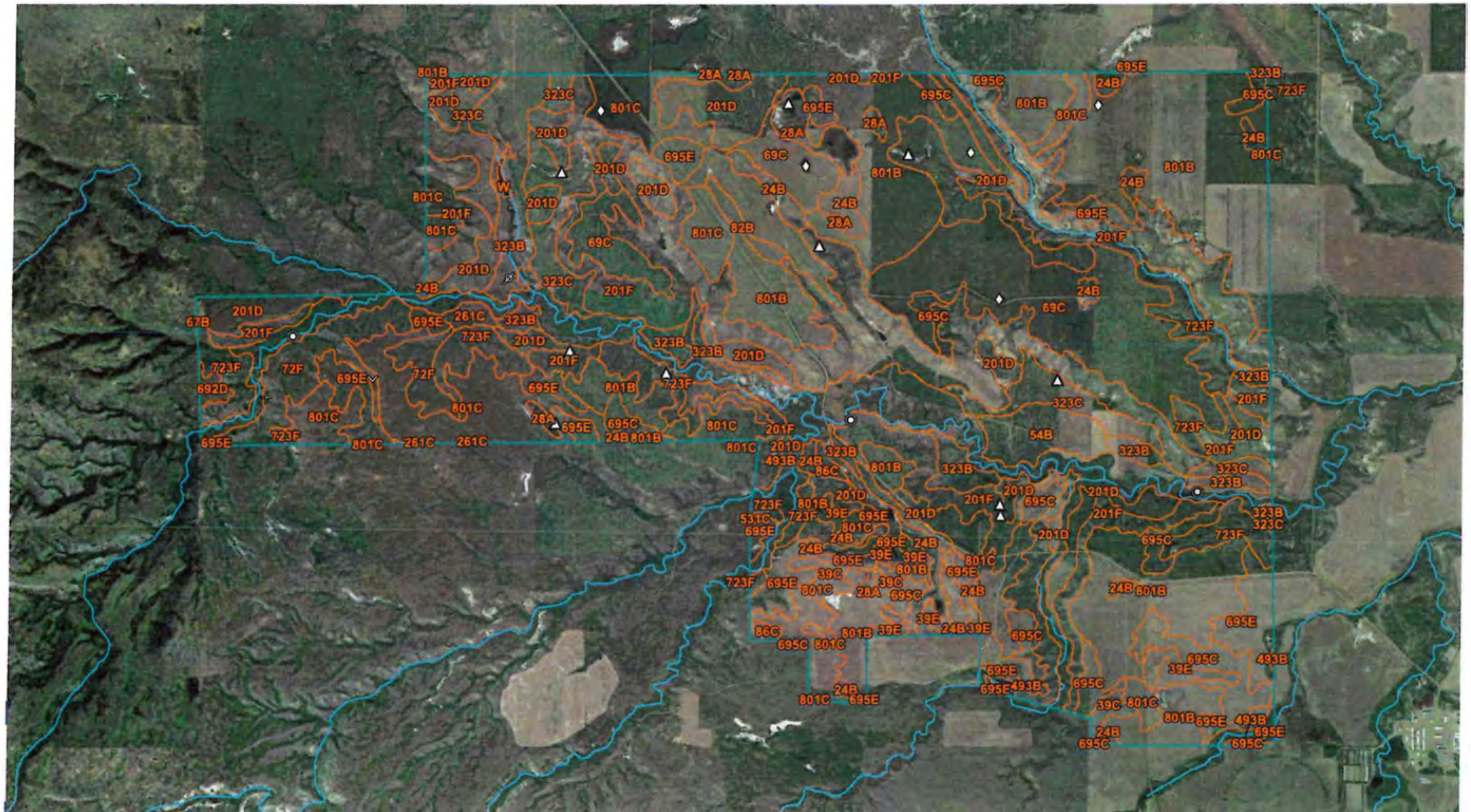


Map projection: Web Mercator Corner coordinates: WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
24B	Famuf loam, 0 to 4 percent slopes	26.3	0.3%
28A	Nishon clay loam, 0 to 1 percent slopes	95.4	1.2%
41C	Reeder loam, 2 to 8 percent slopes	314.9	4.1%
43B	Marmarth loam, 0 to 4 percent slopes	81.4	1.1%
75C	Benz clay loam, 2 to 8 percent slopes	127.9	1.7%
171C	Delpoint-Cabbart loams, 2 to 8 percent slopes	23.2	0.3%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	735.5	9.6%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	161.3	2.1%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	255.5	3.3%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	975.2	12.8%
261C	Auchard-Williams complex, 2 to 8 percent slopes	157.1	2.1%
304B	Marvan-Joplin, complex, 0 to 4 percent slopes	784.0	10.3%
306D	Marvan-Yawdim-Cabbart complex, 4 to 15 percent slopes	411.7	5.4%
323B	Sagedale silty clay, 0 to 4 percent slopes	49.9	0.7%
323C	Sagedale silty clay, 4 to 8 percent slopes	3.1	0.0%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	13.9	0.2%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	91.3	1.2%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	121.9	1.6%
503C	Telstad-Joplin loams, 2 to 8 percent slopes	35.3	0.5%
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	234.0	3.1%
691D	Vida-Williams, Zahill-high precipitation loams, 4 to 15 percent slopes	12.1	0.2%

Soil Map—Liberty County, Montana
(Tract 3 of 6)



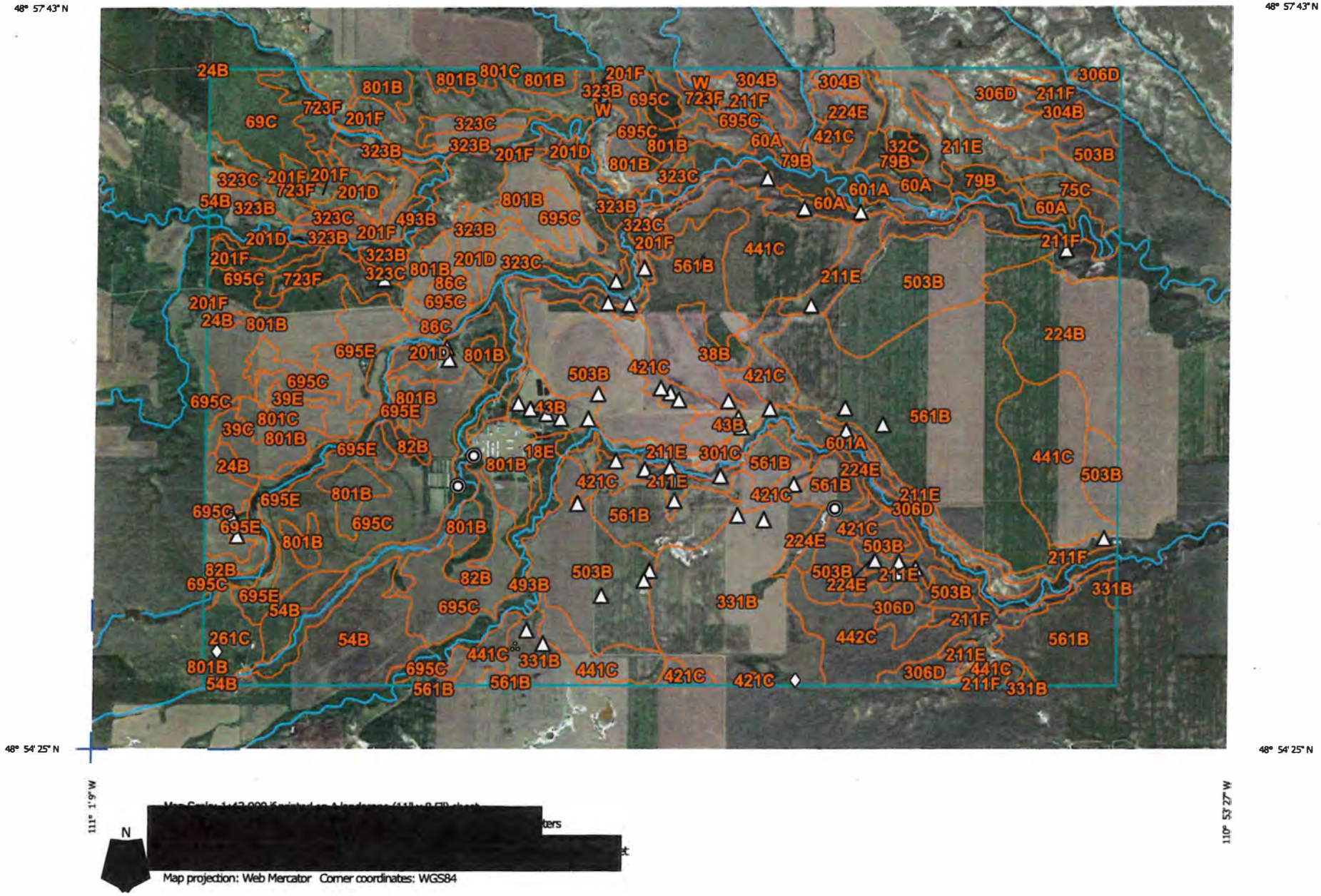
N
[redacted]
Map projection: Web Mercator Corner coordinates: WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
24B	Farnuf loam, 0 to 4 percent slopes	134.6	2.2%
28A	Nishon clay loam, 0 to 1 percent slopes	54.8	0.9%
39C	Lisk sandy loam, 2 to 8 percent slopes	31.4	0.5%
39E	Lisk sandy loam, 8 to 25 percent slopes	104.7	1.7%
54B	Lawther clay, 0 to 4 percent slopes	71.4	1.2%
67B	Bearpaw clay loam, 0 to 4 percent slopes	0.2	0.0%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	572.8	9.4%
72F	Zahill-Zahl clay loams, 15 to 60 percent slopes	144.5	2.4%
82B	Savage silty clay loam, 0 to 4 percent slopes	17.5	0.3%
86C	Work clay loam, 2 to 8 percent slopes	11.4	0.2%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	476.6	7.8%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	1,072.1	17.6%
261C	Auchard-Williams complex, 2 to 8 percent slopes	14.9	0.2%
323B	Sagedale silty clay, 0 to 4 percent slopes	213.4	3.5%
323C	Sagedale silty clay, 4 to 8 percent slopes	231.1	3.8%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	493.8	8.1%
531C	Turner-Beaverton complex, 2 to 8 percent slopes	1.3	0.0%
692D	Vida-Bearpaw-Zahill clay loams, 4 to 15 percent slopes	10.4	0.2%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	259.7	4.3%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	263.6	4.3%
723F	Zahill-Cabba complex, 15 to 45 percent slopes	273.9	4.5%

DEQ Maps

Soil Map—Liberty County, Montana
(Tract 4 of 6)



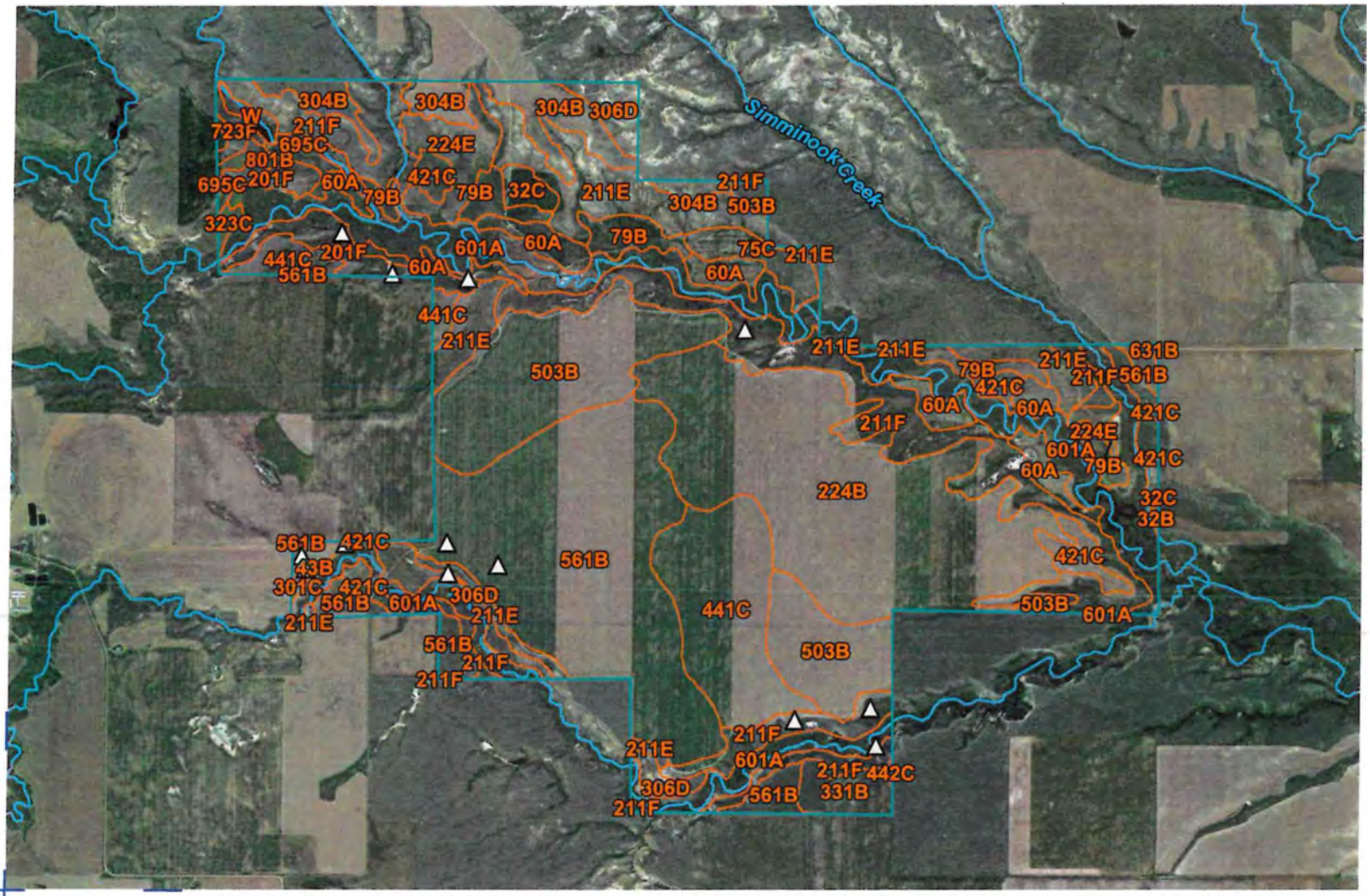
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18E	Yawdim silty clay, 8 to 25 percent slopes	18.8	0.2%
24B	Farnuf loam, 0 to 4 percent slopes	19.1	0.2%
32C	Kobase silty clay loam, 4 to 8 percent slopes	17.0	0.2%
38B	Ethridge silty clay loam, 0 to 4 percent slopes	35.5	0.4%
39C	Lisk sandy loam, 2 to 8 percent slopes	15.1	0.2%
39E	Lisk sandy loam, 8 to 25 percent slopes	18.4	0.2%
43B	Marmarth loam, 0 to 4 percent slopes	112.0	1.2%
54B	Lawther clay, 0 to 4 percent slopes	230.2	2.4%
60A	Havre clay loam, 0 to 1 percent slopes	69.8	0.7%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	130.9	1.4%
75C	Benz clay loam, 2 to 8 percent slopes	38.7	0.4%
79B	Yamacall loam, 0 to 4 percent slopes	56.4	0.6%
82B	Savage silty clay loam, 0 to 4 percent slopes	61.3	0.6%
86C	Work clay loam, 2 to 8 percent slopes	40.5	0.4%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	144.7	1.5%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	661.3	6.9%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	306.1	3.2%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	376.4	3.9%
224B	Joplin-Hillon loams, 0 to 4 percent slopes	239.8	2.5%
224E	Hillon-Joplin loams, 8 to 25 percent slopes	105.0	1.1%
261C	Auchard-Williams complex, 2 to 8 percent slopes	64.4	0.7%
301C	Marvan-Vanda complex, 2 to 8 percent slopes	8.9	0.1%

110° 58' 15" W

110° 51' 27" W

48° 57' 42" N



48° 54' 48" N

110° 58' 15" W

110° 51' 27" W

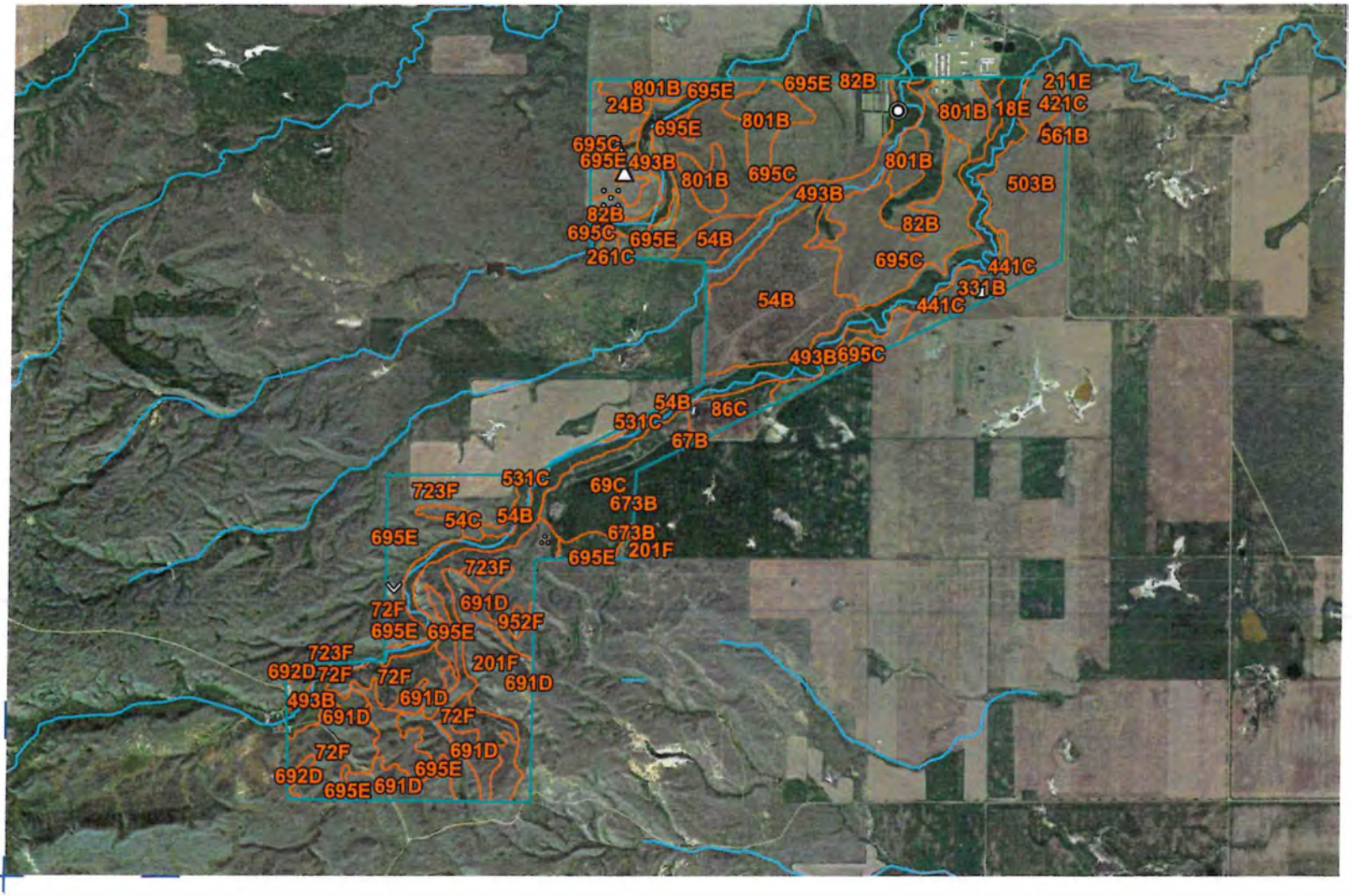
N

Map projection: Web Mercator Corner coordinates: WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
32B	Kobase silty clay loam, 0 to 4 percent slopes	1.4	0.0%
32C	Kobase silty clay loam, 4 to 8 percent slopes	17.0	0.5%
43B	Marmarth loam, 0 to 4 percent slopes	12.6	0.3%
60A	Havre clay loam, 0 to 1 percent slopes	123.4	3.4%
75C	Benz clay loam, 2 to 8 percent slopes	38.9	1.1%
79B	Yamacall loam, 0 to 4 percent slopes	91.8	2.5%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	71.9	2.0%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	241.9	6.6%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	396.1	10.8%
224B	Joplin-Hillon loams, 0 to 4 percent slopes	579.1	15.9%
224E	Hillon-Joplin loams, 8 to 25 percent slopes	78.6	2.2%
301C	Marvan-Vanda complex, 2 to 8 percent slopes	2.5	0.1%
304B	Marvan-Joplin, complex, 0 to 4 percent slopes	120.5	3.3%
306D	Marvan-Yawdim-Cabbart complex, 4 to 15 percent slopes	74.5	2.0%
323C	Sagedale silty clay, 4 to 8 percent slopes	6.6	0.2%
331B	Phillips-Elloam complex, 0 to 4 percent slopes	38.3	1.0%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	60.2	1.6%
441C	Kevin-Hillon clay loams, 2 to 8 percent slopes	234.5	6.4%
442C	Kevin-Elloam complex, 2 to 8 percent slopes	1.0	0.0%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	372.8	10.2%
561B	Scobey-Kevin clay loams, 0 to 4 percent slopes	593.0	16.2%

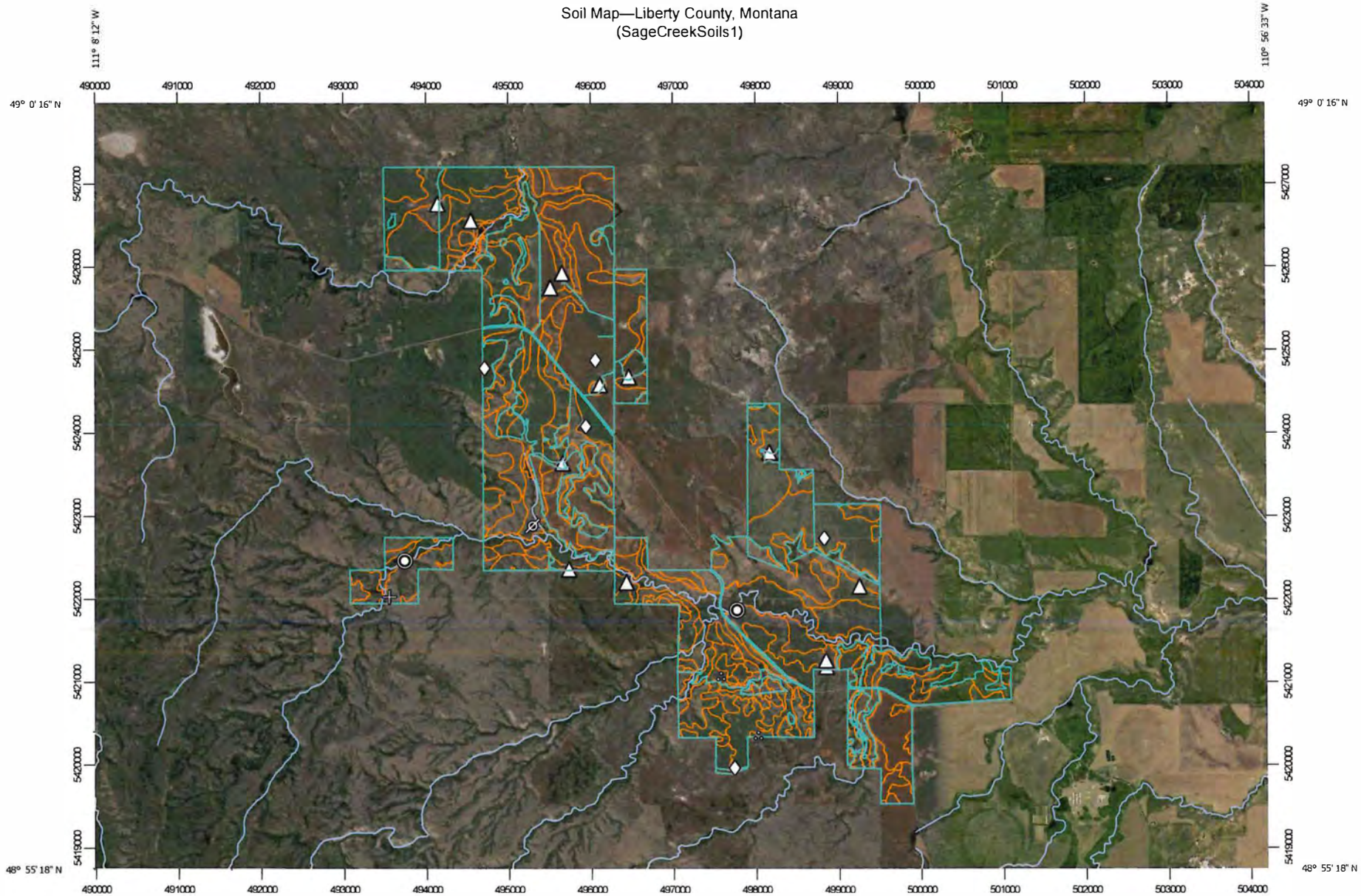
111° 3' 32" W
110° 56' 14" W
48° 55' 58" N
48° 52' 51" N



N

Map projection: Web Mercator Corner coordinates: WGS84

Soil Map—Liberty County, Montana
(SageCreekSoils1)



Map Scale: 1:64,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 500 1000 2000 3000

Feet
0 3000 6000 12000 18000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

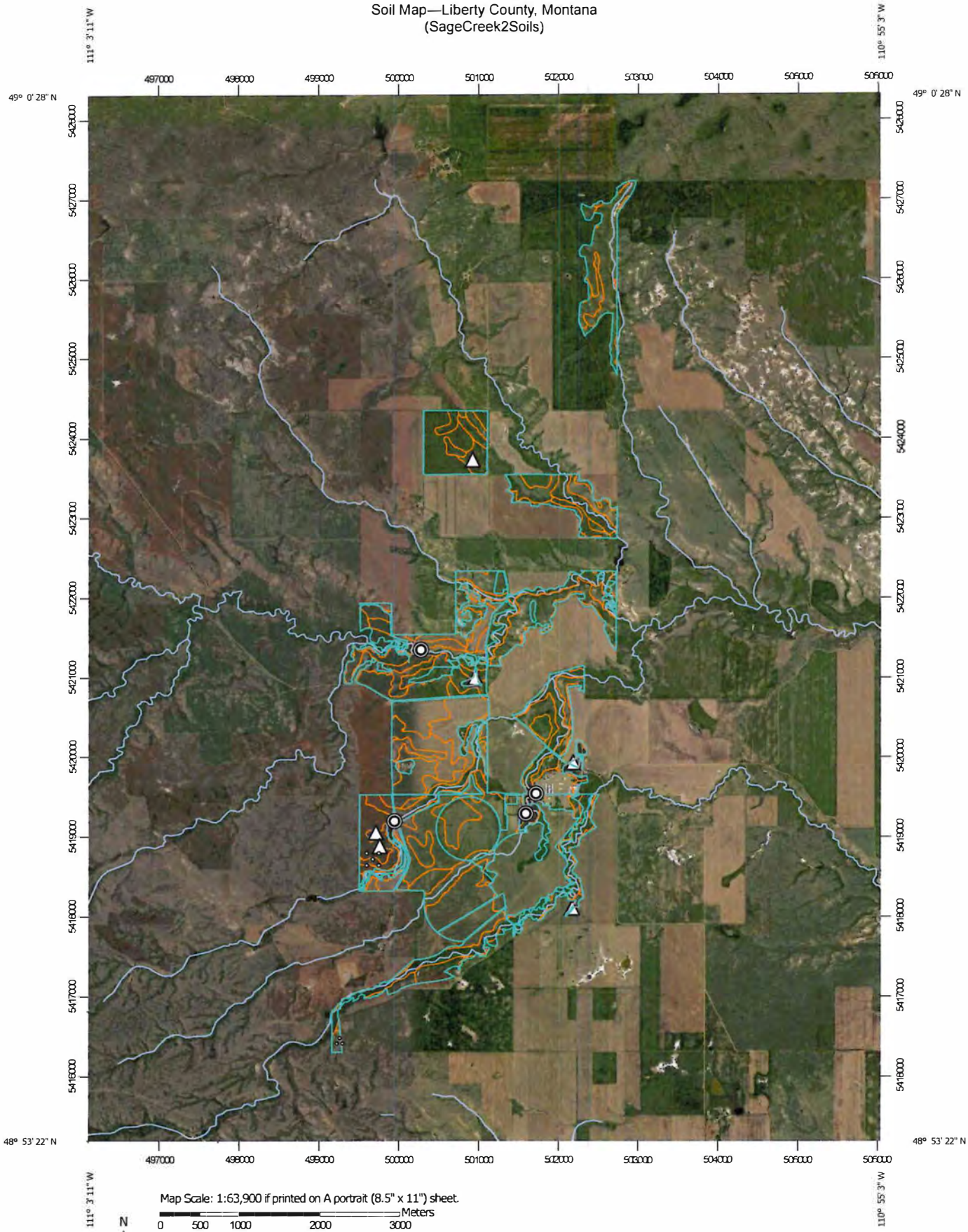
Soil Survey Area: Liberty County, Montana
Survey Area Data: Version 20, Aug 29, 2022

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

Date(s) aerial images were photographed: Sep 23, 2011—Jul 3, 2021

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

Soil Map—Liberty County, Montana
(SageCreek2Soils)



Map Scale: 1:63,900 if printed on A portrait (8.5" x 11") sheet.

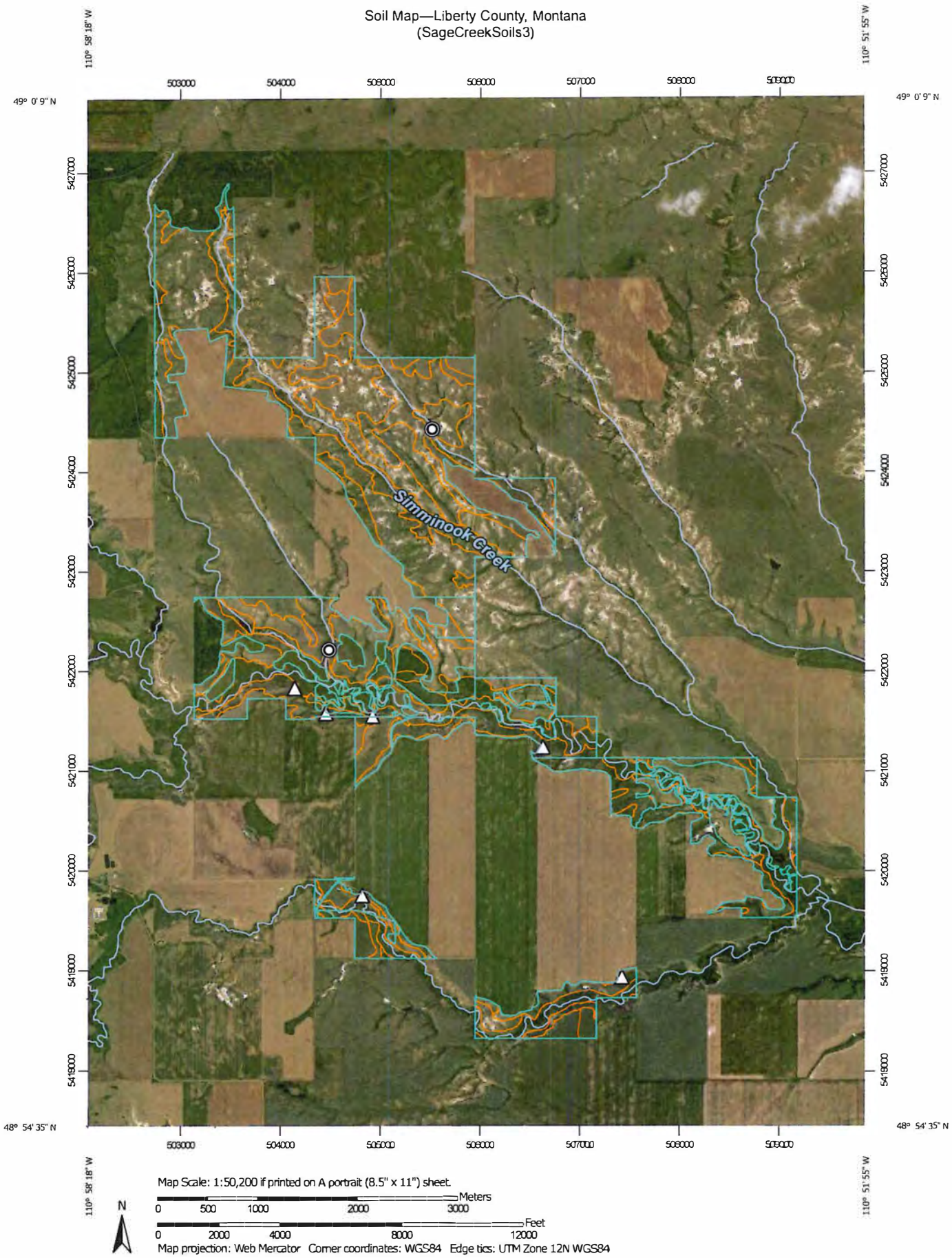
N

Meters
0 500 1000 2000 3000

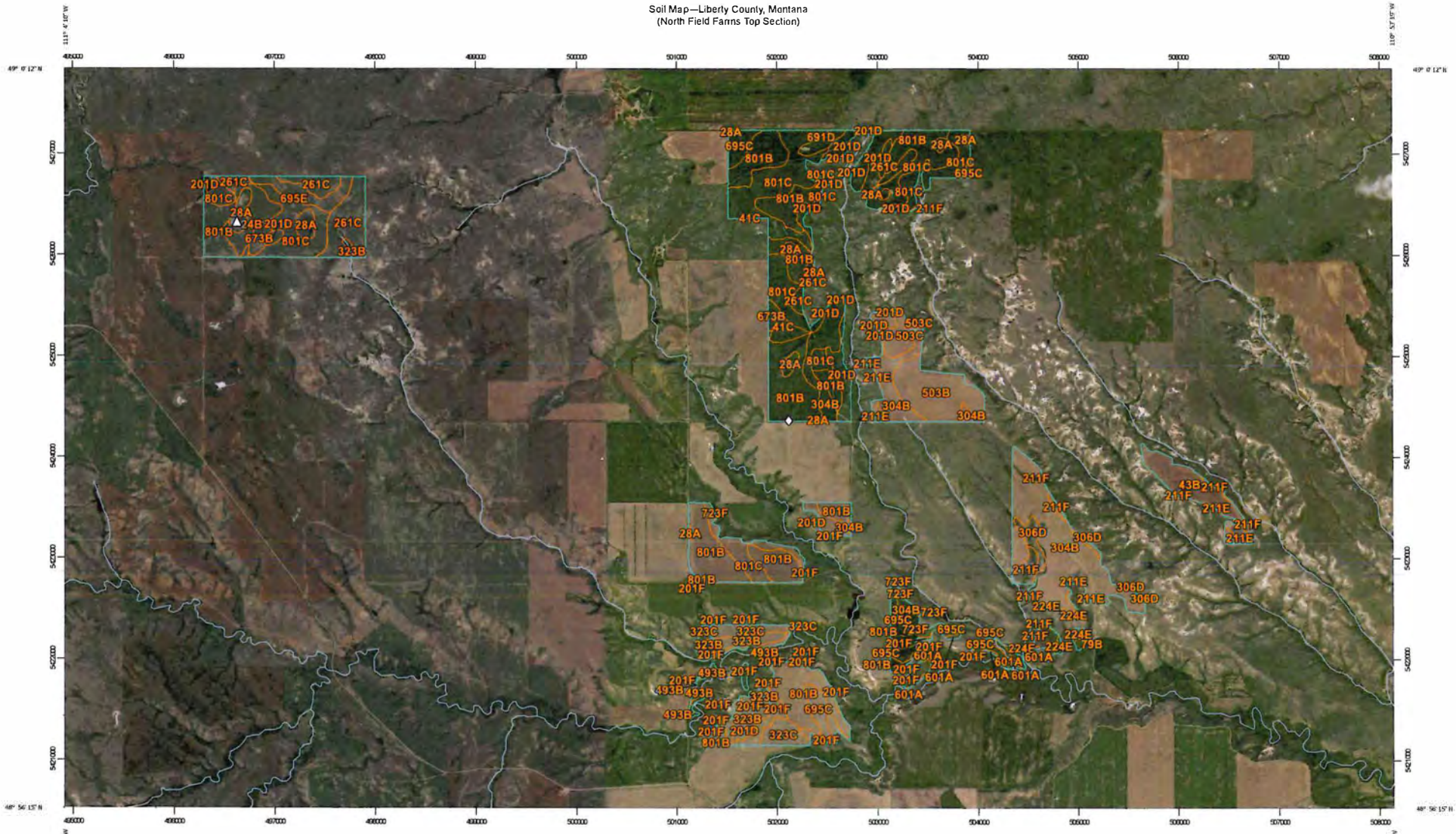
Feet
0 3000 6000 12000 18000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

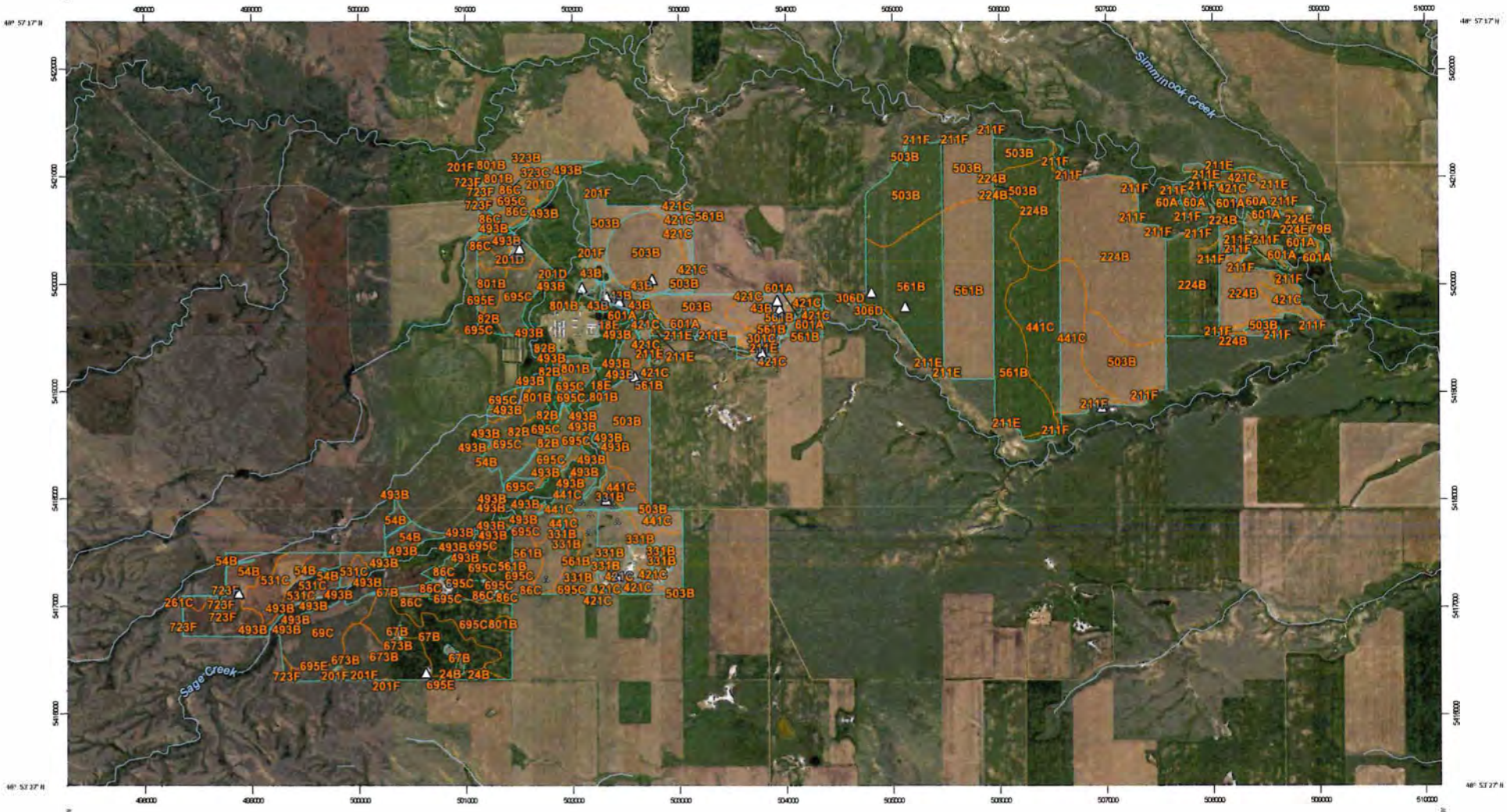
Soil Map—Liberty County, Montana
(SageCreekSoils3)



Soil Map—Liberty County, Montana
(North Field Farms Top Section)



Soil Map—Liberty County, Montana
(North Field Farms Bottom Section)



Map Scale: 1:34,600 if printed on B landscape (17" x 11") sheet.

N

Meters
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Feet
0 1500 3000 6000 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

11/15/2022

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18E	Yawdim silty clay, 8 to 25 percent slopes	6.7	0.2%
24B	Farnuf loam, 0 to 4 percent slopes	7.3	0.2%
43B	Marmarth loam, 0 to 4 percent slopes	80.6	2.0%
54B	Lawther clay, 0 to 4 percent slopes	113.9	2.9%
60A	Havre clay loam, 0 to 1 percent slopes	42.0	1.1%
67B	Bearpaw clay loam, 0 to 4 percent slopes	99.9	2.5%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	83.5	2.1%
79B	Yamacall loam, 0 to 4 percent slopes	29.8	0.8%
82B	Savage silty clay loam, 0 to 4 percent slopes	37.8	1.0%
86C	Work clay loam, 2 to 8 percent slopes	84.7	2.1%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	32.3	0.8%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	16.1	0.4%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	39.8	1.0%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	60.2	1.5%
224B	Joplin-Hillon loams, 0 to 4 percent slopes	571.7	14.5%
224E	Hillon-Joplin loams, 8 to 25 percent slopes	7.0	0.2%
261C	Auchard-Williams complex, 2 to 8 percent slopes	6.9	0.2%
301C	Marvan-Vanda complex, 2 to 8 percent slopes	8.9	0.2%
306D	Marvan-Yawdim-Cabbart complex, 4 to 15 percent slopes	0.1	0.0%
323B	Sagedale silty clay, 0 to 4 percent slopes	0.6	0.0%
323C	Sagedale silty clay, 4 to 8 percent slopes	12.4	0.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
331B	Phillips-Elloam complex, 0 to 4 percent slopes	181.5	4.6%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	101.8	2.6%
441C	Kevin-Hillon clay loams, 2 to 8 percent slopes	282.1	7.1%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	43.4	1.1%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	663.7	16.8%
531C	Turner-Beaverton complex, 2 to 8 percent slopes	65.8	1.7%
561B	Scobey-Kevin clay loams, 0 to 4 percent slopes	602.0	15.3%
601A	Havre-Glendive, complex, 0 to 2 percent slopes	65.2	1.7%
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	78.7	2.0%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	359.2	9.1%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	23.0	0.6%
723F	Zahill-Cabba complex, 15 to 45 percent slopes	61.6	1.6%
801B	Williams-Vida loams, 0 to 4 percent slopes	77.0	1.9%
Totals for Area of Interest		**3,947.3**	**100.0%**

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
24B	Farnuf loam, 0 to 4 percent slopes	38.4	1.9%
28A	Nishon clay loam, 0 to 1 percent slopes	45.1	2.2%
41C	Reeder loam, 2 to 8 percent slopes	17.9	0.9%
43B	Marmarth loam, 0 to 4 percent slopes	59.5	2.9%
60A	Havre clay loam, 0 to 1 percent slopes	8.5	0.4%
79B	Yamacall loam, 0 to 4 percent slopes	6.0	0.3%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	103.0	5.1%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	31.9	1.6%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	14.1	0.7%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	22.7	1.1%
224E	Hillon-Joplin loams, 8 to 25 percent slopes	10.2	0.5%
261C	Auchard-Williams complex, 2 to 8 percent slopes	105.1	5.2%
304B	Marvan-Joplin, complex, 0 to 4 percent slopes	306.3	15.1%
306D	Marvan-Yawdim-Cabbart complex, 4 to 15 percent slopes	25.7	1.3%
323B	Sagedale silty clay, 0 to 4 percent slopes	52.6	2.6%
323C	Sagedale silty clay, 4 to 8 percent slopes	56.3	2.8%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	11.8	0.6%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	12.1	0.6%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	91.3	4.5%
503C	Telstad-Joplin loams, 2 to 8 percent slopes	28.1	1.4%
601A	Havre-Glendive, complex, 0 to 2 percent slopes	9.3	0.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	13.1	0.6%
691D	Vida-Williams, Zahill-high precipitation loams, 4 to 15 percent slopes	12.7	0.6%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	63.9	3.2%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	34.4	1.7%
723F	Zahill-Cabba complex, 15 to 45 percent slopes	2.0	0.1%
801B	Williams-Vida loams, 0 to 4 percent slopes	525.7	25.9%
801C	Williams-Vida loams, 2 to 8 percent slopes	318.1	15.7%
Totals for Area of Interest		**2,026.1**	**100.0%**

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
24B	Farnuf loam, 0 to 4 percent slopes	141.5	3.0%
28A	Nishon clay loam, 0 to 1 percent slopes	55.5	1.2%
39C	Lisk sandy loam, 2 to 8 percent slopes	31.8	0.7%
39E	Lisk sandy loam, 8 to 25 percent slopes	68.5	1.5%
54B	Lawther clay, 0 to 4 percent slopes	168.8	3.6%
67B	Bearpaw clay loam, 0 to 4 percent slopes	28.5	0.6%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	303.3	6.4%
72F	Zahill-Zahl clay loams, 15 to 60 percent slopes	65.2	1.4%
82B	Wyola silty clay loam, 0 to 4 percent slopes	1.3	0.0%
86C	Work clay loam, 2 to 8 percent slopes	10.4	0.2%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	383.5	8.1%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	739.5	15.7%
261C	Auchard-Williams complex, 2 to 8 percent slopes	46.9	1.0%
323B	Sagedale silty clay, 0 to 4 percent slopes	227.6	4.8%
323C	Sagedale silty clay, 4 to 8 percent slopes	260.8	5.5%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	434.4	9.2%
531C	Turner-Beaverton complex, 2 to 8 percent slopes	1.3	0.0%
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	34.5	0.7%
692D	Vida-Bearpaw-Zahill clay loams, 4 to 15 percent slopes	9.7	0.2%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	377.0	8.0%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	191.9	4.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
723F	Zahill-Cabba complex, 15 to 45 percent slopes	120.2	2.5%
801B	Williams-Vida loams, 0 to 4 percent slopes	504.6	10.7%
801C	Williams-Vida loams, 2 to 8 percent slopes	508.3	10.8%
W	Water	8.6	0.2%
Totals for Area of Interest		**4,725.0**	**100.0%**

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18E	Yawdim silty clay, 8 to 25 percent slopes	9.0	0.4%
24B	Farnuf loam, 0 to 4 percent slopes	9.6	0.5%
54B	Lawther clay, 0 to 4 percent slopes	205.3	9.6%
54C	Lawther clay, 4 to 8 percent slopes	11.1	0.5%
67B	Bearpaw clay loam, 0 to 4 percent slopes	2.7	0.1%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	91.3	4.3%
72F	Zahill-Zahl clay loams, 15 to 60 percent slopes	156.4	7.3%
82B	Savage silty clay loam, 0 to 4 percent slopes	49.8	2.3%
86C	Work clay loam, 2 to 8 percent slopes	28.9	1.3%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	83.2	3.9%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	0.1	0.0%
261C	Auchard-Williams complex, 2 to 8 percent slopes	4.4	0.2%
331B	Phillips-Elloam complex, 0 to 4 percent slopes	13.3	0.6%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	9.3	0.4%
441C	Kevin-Hillon clay loams, 2 to 8 percent slopes	30.2	1.4%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	323.9	15.1%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	113.4	5.3%
531C	Turner-Beaverton complex, 2 to 8 percent slopes	5.0	0.2%
561B	Scobey-Kevin clay loams, 0 to 4 percent slopes	6.9	0.3%
673B	Bearpaw-Noonan complex, 0 to 4 percent slopes	0.9	0.0%
691D	Vida-Williams, Zahill-high precipitation loams, 4 to 15 percent slopes	81.4	3.8%

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18E	Yawdim silty clay, 8 to 25 percent slopes	12.1	0.5%
24B	Farnuf loam, 0 to 4 percent slopes	18.6	0.7%
39E	Lisk sandy loam, 8 to 25 percent slopes	18.2	0.7%
43B	Marmarth loam, 0 to 4 percent slopes	14.8	0.6%
54B	Lawther clay, 0 to 4 percent slopes	171.2	6.6%
67B	Bearpaw clay loam, 0 to 4 percent slopes	0.0	0.0%
69C	Bearpaw-Vida clay loams, 2 to 8 percent slopes	13.8	0.5%
82B	Wyola silty clay loam, 0 to 4 percent slopes	22.8	0.9%
86C	Work clay loam, 2 to 8 percent slopes	29.9	1.1%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	220.5	8.5%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	280.0	10.8%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	1.1	0.0%
261C	Auchard-Williams complex, 2 to 8 percent slopes	28.2	1.1%
304B	Marvan-Joplin, complex, 0 to 4 percent slopes	0.3	0.0%
323B	Sagedale silty clay, 0 to 4 percent slopes	60.0	2.3%
323C	Sagedale silty clay, 4 to 8 percent slopes	41.2	1.6%
331B	Phillips-Elloam complex, 0 to 4 percent slopes	3.9	0.1%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	0.0	0.0%
441C	Kevin-Hillon clay loams, 2 to 8 percent slopes	2.0	0.1%
493B	Enbar-Bigsandy-Korchea loams, 0 to 4 percent slopes	507.3	19.5%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	8.7	0.3%
531C	Turner-Beaverton complex, 2 to 8 percent slopes	0.8	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
601A	Havre-Glendive, complex, 0 to 2 percent slopes	0.0	0.0%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	393.4	15.1%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	176.7	6.8%
723F	Zahill-Cabba complex, 15 to 45 percent slopes	103.7	4.0%
801B	Williams-Vida loams, 0 to 4 percent slopes	419.0	16.1%
801C	Williams-Vida loams, 2 to 8 percent slopes	48.8	1.9%
W	Water	0.8	0.0%
Totals for Area of Interest		**2,598.1**	**100.0%**

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
32B	Kobase silty clay loam, 0 to 4 percent slopes	1.1	0.0%
32C	Kobase silty clay loam, 4 to 8 percent slopes	17.0	0.6%
41C	Reeder loam, 2 to 8 percent slopes	18.5	0.7%
43B	Marmarth loam, 0 to 4 percent slopes	13.4	0.5%
60A	Havre clay loam, 0 to 1 percent slopes	72.9	2.6%
75C	Benz clay loam, 2 to 8 percent slopes	140.4	5.0%
79B	Yamacall loam, 0 to 4 percent slopes	53.3	1.9%
201D	Cabba-Wayden complex, 4 to 15 percent slopes	214.3	7.6%
201F	Cabba-Wayden-Rock outcrop complex, 15 to 60 percent slopes	81.4	2.9%
211E	Cabbart-Yawdim complex, 8 to 25 percent slopes	291.1	10.3%
211F	Cabbart-Yawdim-Rock outcrop complex, 25 to 70 percent	799.1	28.4%
224B	Joplin-Hillon loams, 0 to 4 percent slopes	7.5	0.3%
224E	Hillon-Joplin loams, 8 to 25 percent slopes	60.9	2.2%
261C	Auchard-Williams complex, 2 to 8 percent slopes	1.2	0.0%
304B	Marvan-Joplin, complex, 0 to 4 percent slopes	80.1	2.8%
306D	Marvan-Yawdim-Cabbart complex, 4 to 15 percent slopes	329.6	11.7%
323C	Sagedale silty clay, 4 to 8 percent slopes	4.3	0.2%
331B	Phillips-Elloam complex, 0 to 4 percent slopes	12.1	0.4%
421C	Joplin-Hillon loams, 2 to 8 percent slopes	6.4	0.2%
441C	Kevin-Hillon clay loams, 2 to 8 percent slopes	23.4	0.8%
503B	Telstad-Joplin loams, 0 to 4 percent slopes	38.8	1.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
503C	Telstad-Joplin loams, 2 to 8 percent slopes	7.1	0.3%
561B	Scobey-Kevin clay loams, 0 to 4 percent slopes	37.2	1.3%
601A	Havre-Glendive, complex, 0 to 2 percent slopes	397.1	14.1%
695C	Vida-Zahill clay loams, 2 to 8 percent slopes	10.5	0.4%
695E	Zahill-Vida clay loams, 8 to 25 percent slopes	5.4	0.2%
723F	Zahill-Cabba complex, 15 to 45 percent slopes	16.6	0.6%
801B	Williams-Vida loams, 0 to 4 percent slopes	22.8	0.8%
801C	Williams-Vida loams, 2 to 8 percent slopes	34.1	1.2%
W	Water	16.4	0.6%
Totals for Area of Interest		**2,814.4**	**100.0%**