DRAFT ENVIRONMENTAL ASSESSMENT
for the proposed
Superior Septic, Inc.
Land Application Site
Superior, Montana

Solid Waste Section
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ACRONYMS

SS – Superior Septic, Inc.

ARM – Administrative Rules of Montana

AAR– Annual Application Rate

Draft EA – Draft version of an environmental assessment before public comment

DEQ – Montana Department of Environmental Quality

DNRC – Montana Department of Natural Resources and Conservation

EA – Environmental Assessment

EIS – Environmental Impact Statement

GWIC – Ground Water Information Center

MBMG – Montana Bureau of Mines and Geology

MCA – Montana Code Annotated

MEPA – Montana Environmental Policy Act

MNHP – Montana Natural Heritage Program

O&M – Operation and Maintenance

Proposed Action – Approving a new septage land application site

Septic Rules– ARM Title 17, chapter 50, subchapter 8, "Cesspool, Septic Tank, and Privy Cleaners"

SDLA – "Septic Disposal Licensure Act", Title 75, chapter 10, part 12, MCA

Site – Approximately 30 acres of property located approximately 13 miles southeast of Superior in Mineral County, Montana, east of Interstate 90.

SWL – Static Water Levels

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

1. NEED FOR PROPOSED ACTION

1.1 SUMMARY

This draft environmental assessment (Draft EA) was prepared for the septage land application site proposed by Superior Septic, Inc. (SS), in accordance with the Montana Environmental Policy Act (MEPA). On November 15, 2018, the Department of Environmental Quality (DEQ) received an application from SS for a new septage land application site (Proposed Action). SS proposes the land application of septage, portable toilet waste, and grease trap waste on approximately 30 acres of property located approximately 13 miles southeast of Superior in Mineral County, Montana, east of Interstate 90 (Site, **Figure 1**).

1.2 BACKGROUND

SS obtained a license from DEQ to pump and land apply septage in Montana. SS is currently approved to land apply septage at one other land application site in Mineral County. SS is proposing to add the Site to their license. The Site is on private property which is currently undeveloped grassland.

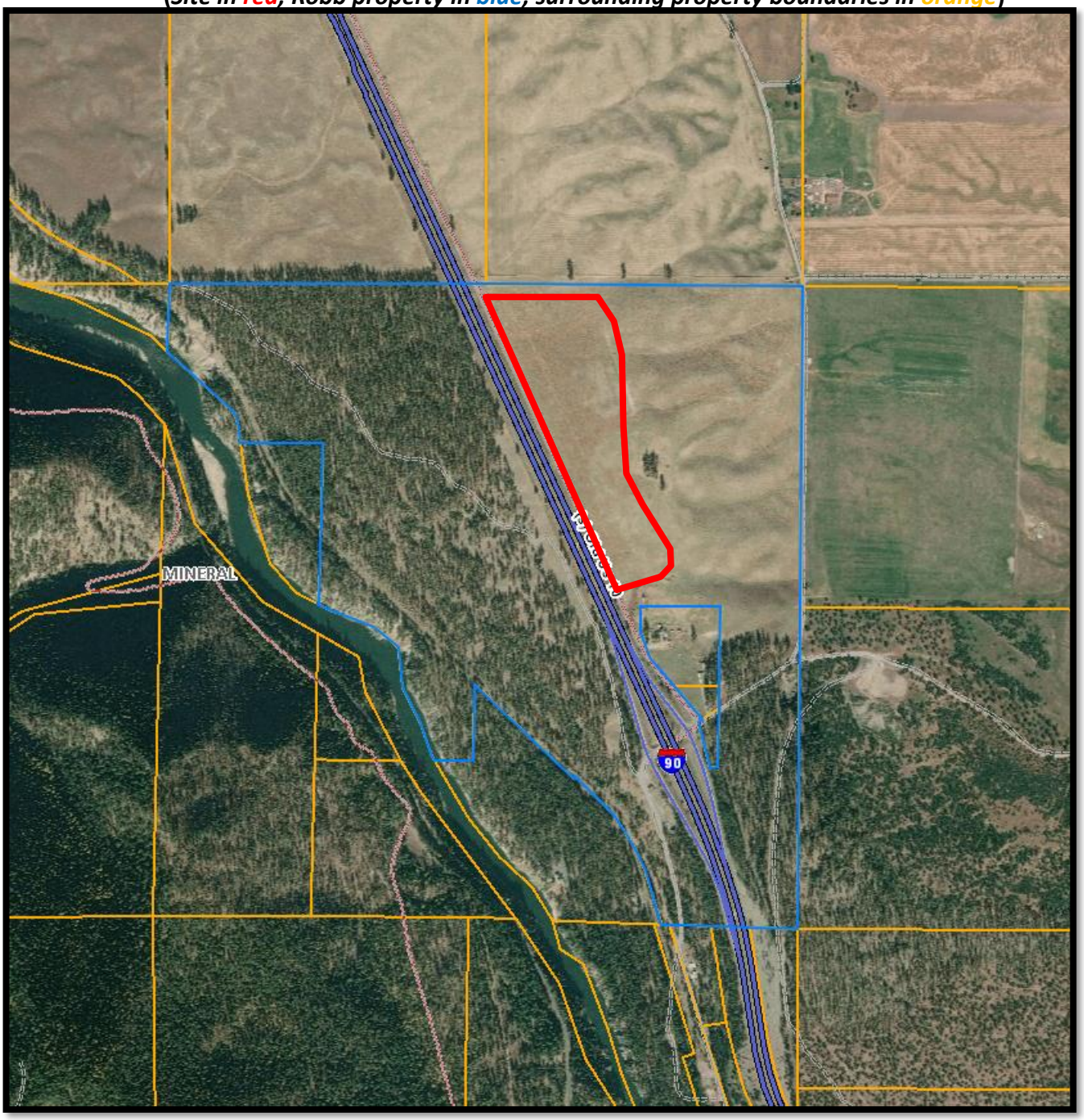
Septage is the liquid and solid material removed from a septic tank, cesspool, portable toilet, or similar treatment works that only receive domestic waste and wastewater from humans or household operations. As the population grows in Montana, the demand for disposal of septage increases. Wastewater treatment plants are limited by the amount of waste they can receive and process. Land application of septage allows for disposal to occur without overloading Montana's wastewater treatment plants. The Septic Rules establish minimum requirements for the pumping and land application of septage. Septage pumped from a homeowner's septic tank (or similar treatment works) can be land applied on the homeowner's property without obtaining a site license from DEQ if the rules for septage land application are followed in the process.

When properly managed, land application of septage is a beneficial resource, providing economic and environmental benefits with no adverse public health effects. A licensed land application program recognizes and employs practices that maximize those benefits. Septage does not include prohibited material (*e.g.*, garbage or tampons) removed from a septic tank or similar treatment works by pumping.

1.3 PURPOSE AND NEED

DEQ's purpose and need in conducting the environmental review is to act upon SS's application by evaluating potential impacts of the proposed disposal site. If DEQ approves SS's application, DEQ will add the Site to their existing license to pump and land apply septage in Montana. DEQ's decision to approve or deny the application depends upon the consistency of the application with the Septage Disposal Licensure Act (SDLA); the Administrative Rules of Montana (ARM) Title 17, chapter 50, subchapter 8, "Cesspool, Septic Tank, and Privy Cleaners" (Septic Rules); the Montana Clean Air Act; and the Montana Water Quality Act.

Figure 1: Proposed Land Application Site
(*Site in red; Robb property in blue; surrounding property boundaries in orange*)

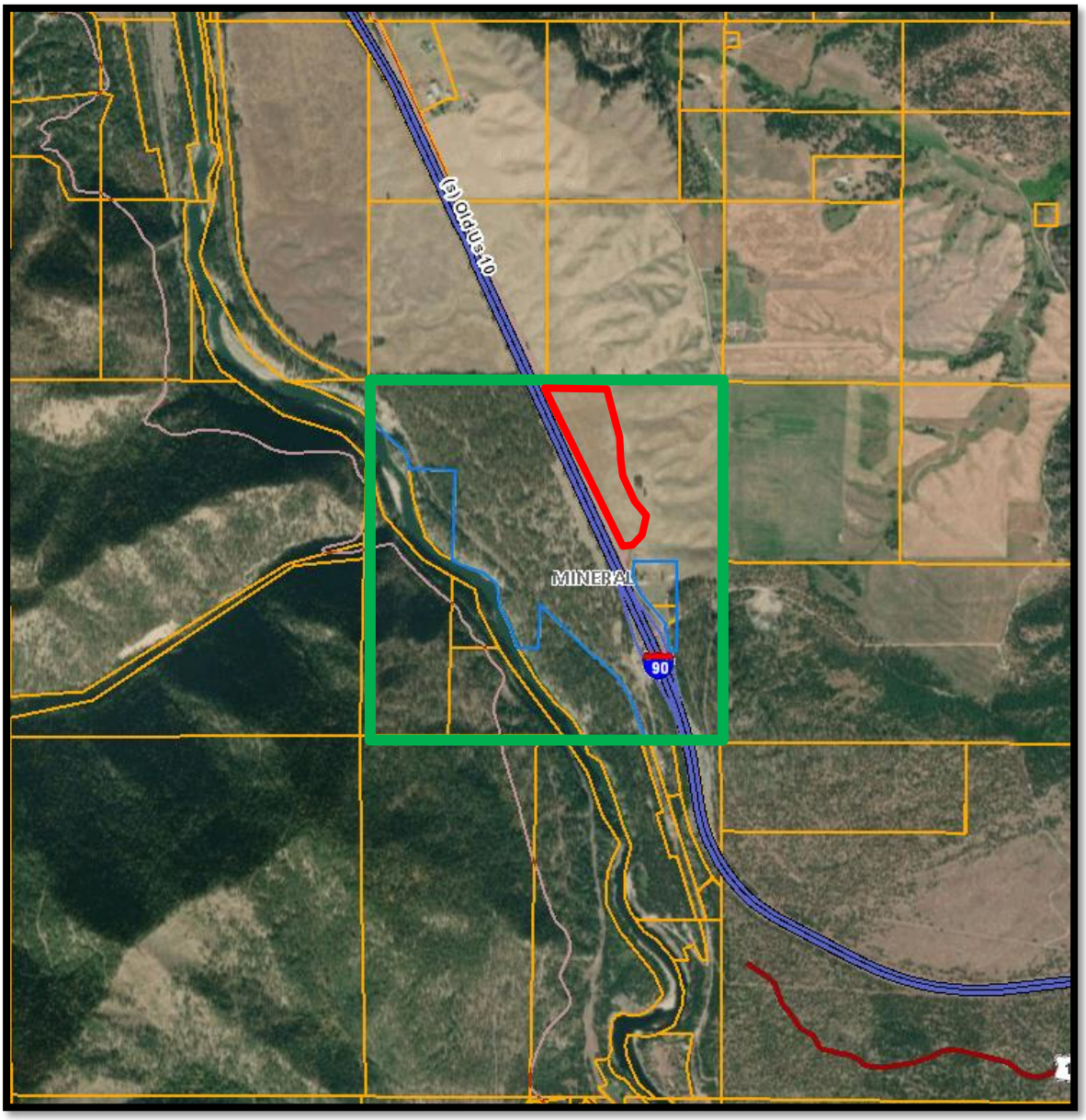


*Source: Montana Cadastral (**NOT TO SCALE**)*

1.4 LOCATION DESCRIPTION AND STUDY AREA

The Site is located approximately 13 miles southeast of Superior, east of Interstate 90. Nemote Creek Road would be used to access the Site (**Figure 1**).

Figure 2: Study Area
(Site in red; Section 27 in green; Robb property in blue)



*Source: Montana Cadastral (**NOT TO SCALE**)*

The study area perimeter (not shown) extends beyond the boundaries of the Site (**Figure 2**).

The Site is located on the Robb property, located in the NE ¼ of Section 27, Township 15 North, Range 25 West, in Mineral County, Montana (**Figure 1**). Currently, the Site is undeveloped grassland. The Site would be split into two equal parcels. Land application would be rotated annually between the parcels.

1.5 COMPLIANCE WITH MEPA

Under MEPA, Montana agencies are required to prepare an environmental review for state actions that may have an impact on the human environment. The Proposed Action is considered a state action that may have an impact on the human environment. Therefore, DEQ must prepare an environmental review. This Draft EA will examine the Proposed Action and reasonable alternatives to the Proposed Action, and will disclose potential impacts that may result from such actions. DEQ will determine the need for additional environmental reviews based on its consideration of the criteria set forth in ARM 17.4.608.

1.6 PUBLIC INVOLVEMENT

DEQ released this Draft EA to present its initial findings described in Section 4. A 30-day public comment period begins upon release of the document. The public comment period ends on May 8, 2020. A notice of availability for the Draft EA was sent to adjacent landowners and other interested parties. A public notice was published in the Missoulian and the Mineral Independent, and a hard copy was mailed to the Mineral County Public Library. The public notice and Draft EA may be viewed at: https://deq.mt.gov/public/ea/SepticPumpers.

2. DESCRIPTION OF ALTERNATIVES

This Section describes the Proposed Action and No Action alternatives. MEPA requires the evaluation of reasonable alternatives to the Proposed Action. Reasonable alternatives are achievable under current technology and are economically feasible, as determined by the economic viability of similar project goals with similar conditions and physical locations. Reasonable alternatives are determined without regard to the economic strength of the applicant, but may not include an alternative facility or an alternative to the proposed project itself.

According to ARM 17.4.609(3)(f), an environmental assessment (EA) must include reasonable alternatives whenever reasonable and prudent. DEQ has not considered any other alternatives to mitigate potential impacts because SS's application and operation and maintenance plan contain sufficient mitigating factors to protect human health and the environment.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Site would not be approved by DEQ. Therefore, the Site could not be used by SS, and the proposed disposal of septage would have to occur at another approved location or treatment works.

2.2 PROPOSED ACTION

2.2.1 LAND APPLICATION SITE OPERATIONS

The operational and setback requirements for land application of septage at this Site are provided in **Tables 1** and **2**:

Table 1: Land Application Operational Requirements

ARM Reference	Specific Restrictions
17.50.809(10)	All non-putrescible litter must be removed from the land application site within 6 hours of application.
17.50.809(12)	Pumpings may not be applied at a rate greater than the annual application rate (AAR) of the site for crop nitrogen requirement on an annual basis.
17.50.810(1)	Pumpings may not be applied to flooded, frozen, or snow-covered ground if the pumpings may enter state waters.
17.50.811(3)	Pumpings may be applied only if the person first performs one of the following vector attraction and pathogen reduction methods: • injection below the land surface so no significant amount remains on the land surface within one-hour of injection; • incorporation into the soil surface's plow layer within 6 hours of application; • addition of alkali material so that the pH is raised to and remains at 12 or higher for a period of at least 30 minutes; or, • management as required by 17.50.810 when the ground is frozen

Table 2: Land Application Site Setback Requirements

ARM Reference	Specific Restrictions
17.50.809(1)	Pumpings may not be applied to land within 500 feet of any occupied or inhabitable building.
17.50.809(2)	Pumpings may not be applied to land within 150 feet of any state surface water, including ephemeral or intermittent drainages and wetlands.
17.50.809(3)	Pumpings may not be applied to land within 100 feet of any state, federal, county, or city-maintained highway or road.
17.50.809(4)	Pumpings may not be applied to land within 100 feet of a drinking water supply source.
17.50.809(6)	Pumpings may not be applied to land with slopes greater than 6%.
17.50.809(8)	Pumpings may not be applied to land where seasonally high groundwater is 6 feet or less below ground surface.

Land application would be limited to areas approved by DEQ. Areas within the Site would not be used until their boundaries have been marked and approved by DEQ or the local county sanitarian. DEQ may also determine how and when the areas may be utilized based on potential runoff, precipitation, and frozen ground.

SS would be required to log the type and amount of septage land applied annually as well as the dates applied. Semiannually, disposal logs would be submitted to DEQ. DEQ would verify the Site's annual application rate (as discussed in Section 2.2.3) and periodically monitor the soils for adherence to the proposed maximum annual application rate (AAR).

2.2.2 EQUIPMENT AVAILABLE AND PUMPER TRUCK REQUIREMENTS

SS has the following equipment available for land application activities:

1. 1994 GMC White pumper truck
2. 2020 Kenworth pumper truck

The Septic Tank, Cesspool, and Privy Cleaner Vehicle Inspection Form was created by DEQ to guide the vehicle inspection. The county health officer's (or designated representative's) signature on the vehicle inspection form certifies that the vehicle is equipped with the necessary equipment to adequately screen garbage from the septage and sufficiently spread septage while land applying. The following questions are on the form to verify compliance with the Septic Rules:

1. Does the vehicle show signs of leakage?
2. Is the vehicle equipped with the proper spreading equipment?
3. Is the spreading equipment mounted on the vehicle or separate?
4. If required to screen septage before land applying, is the vehicle, or site, equipped with the proper screening equipment?
5. Is the spreading equipment approved for use?
6. Is the screening equipment approved for use?
7. Make/Model of Vehicle
8. Tank Size

SS would be required to submit this form to DEQ validating compliance of each pump truck prior land application.

2.2.3 AMOUNT AND EXTENT OF SEPTAGE APPLICATION

Land application must not exceed the AAR (gallons per acre per year) based on:

1. The nitrogen content of the waste applied at the Site; and
2. The crop nitrogen yield for the crop or other vegetation at the Site.

The AAR for portable toilet and vault type waste is calculated as follows:

$$\textbf{AAR} = \frac{\text{minimum crop nitrogen requirement (lbs/acre/year)}}{\textbf{0.0052 (lbs/gallon)}}$$

Because septage, portable toilet waste, and grease trap waste (or mixtures thereof) would be land applied by SS, the AAR is adjusted for the portable toilet and vault type waste which has the highest nitrogen concentrations.

The native prairie grass at the Site has an average crop nitrogen requirement of 125 pounds per acre per year. The resulting AAR for septage is 24,039 gallons per acre per year, which is equal to approximately 0.89 inches of liquid applied

annually per acre. For comparison, the average annual precipitation in the Superior area is 16.8 inches per year.

Land application of septage is alternated annually between separate parcels to allow agronomic crop uptake of all applied nitrogen. Plants utilize all available nitrogen each year when septage is applied at agronomic rates. When land application is rotated, one parcel is used every year. For example, if 100 acres are proposed for land application, 50 acres would be used one year and the other 50 acres would be used similarly the next year. In this case, SS would designate two equal areas of approximately 15 acres and rotate each parcel every year. DEQ would periodically monitor the soil for nutrient content to determine compliance with the AAR.

The Robb property could treat the proposed 294,000 gallons of waste without exceeding the AAR maximum on 15 acres each year.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES BY RESOURCE

3.1 LOCATION DESCRIPTION AND STUDY AREA

The Site is referenced in Section 1.1 of this Draft EA. The study area includes land and resources in and surrounding the Site.

3.2 IMPACTS

Table 3 shows a summary of the potential impacts of the No Action Alternative and the Proposed Action.

Table 3: Potential Impacts

Resource	Alternative 1 – No Action	Alternative 2 – Proposed Action
Wildlife and Habitats	No impact.	Minor impact. Wildlife tend to avoid land application sites due to human scent and activities and would relocate (See Section 3.2.1)
Soils and Vegetation	No impact.	Minor impact. The quality of soils and vegetations would be enhanced by the Proposed Action (See Section 3.2.2)
Geology	No impact	No impacts (See Section 3.2.3)

Hydrology and Hydrogeology	No impact.	No impacts. (See Section 3.2.4)
Aesthetics	No impact.	Minor impact. Land application activities resemble agricultural activities occurring in the surrounding area. (See Section 3.2.5). Odor would largely be controlled by daily tilling.
Human Health & Safety	No impact.	No impacts. (See Section 3.2.6)
Demand for Government Services	No impact.	Minor impact. Mineral County sanitarian and DEQ would conduct periodic inspections of the Site. (See Section 3.2.7)
Traffic	No impacts.	Minor impact. SS would access the Site via Nemote Creek Road, which currently supports traffic to homes and businesses in the area. (See Section 3.2.8)

3.2.1 WILDLIFE AND HABITATS

Transient wildlife tends to avoid land application sites due to human scent and activities. Montana Fish, Wildlife & Parks (FWP) manages the overall wildlife populations in the region. Species of fish and amphibians are not included on the following lists because land application activities will not impact nearby waters (see Section 3.2.4.1). There are no wetlands on the Site.

The applicant does not plan to expand the Site beyond what is described in the application. Therefore, no habitats outside the land application area would be impacted. The Site is adjacent to several agricultural fields, but is largely surrounded by the Lolo National Forest. Because of the limited development and low human population in the surrounding area, an adequate amount of similar habitat near the Site could accommodate species forced to relocate due to the Proposed Action.

Impacts to wildlife and habitats from the Proposed Action would be minor.

3.2.1.1 THREATENED AND ENDANGERED SPECIES

U.S. Fish & Wildlife Service's (USFWS) online databases were used to identify plant and animal species at the Site and study area (USFWS, 2020). The USFWS species and status listings for Mineral County, Montana, are shown in **Table 4**:

Table 4: Federally Established Species List

Scientific Name	Common Name	Status
Haliaeetus leucocephalus	Bald eagle	Recovery
Pinus albicaulis	Whitebark pine	Candidate
Canis lupus	Gray wolf	Recovery
Lynx canadensis	Canada lynx	Threatened
Gulo gulo luscus	North American wolverine	Threatened (proposed)

The Site does not provide the habitat necessary to independently sustain the species listed above. Nearby Lolo National Forest lands provide excellent habitat for the listed species. Riparian areas along the Clark Fork River provide additional habitat. The Proposed Action is not anticipated to impact these species.

3.2.1.2 SPECIES OF CONCERN

Designation as a species of concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers to make proactive decisions regarding species conservation.

The Montana Natural Heritage Program's (MNHP) online databases were accessed for listed species (MNHP, 2020). The MNHP species and status listing for Township 15 North, Range 25 West is shown in **Table 5**:

Table 5: Montana Recognized Animal Species List

Scientific Name	Common Name	Status	GRank/SRank
Gulo gulo	Wolverine	Species of concern	G4/S3
Lasiurus cinereus	Hoary bat	Species of concern	G3/S3
Ursus arctos	Grizzly bear	Species of concern	G4/S2

The MNHP uses a standardized ranking system developed by The Nature Conservancy and maintained by NatureServe. Each species is assigned two ranks; one represents its global status (GRank), and one represents its status in the state (SRank). The scale is from 1 through 5; 5 means common, widespread, and abundant; 1 means at high risk. Species with a GRank 5 are not included in **Table 5**. The Site does not provide the habitat necessary for the wolverine, hoary bat, or grizzly bear. The Proposed Action is not anticipated to impact these species.

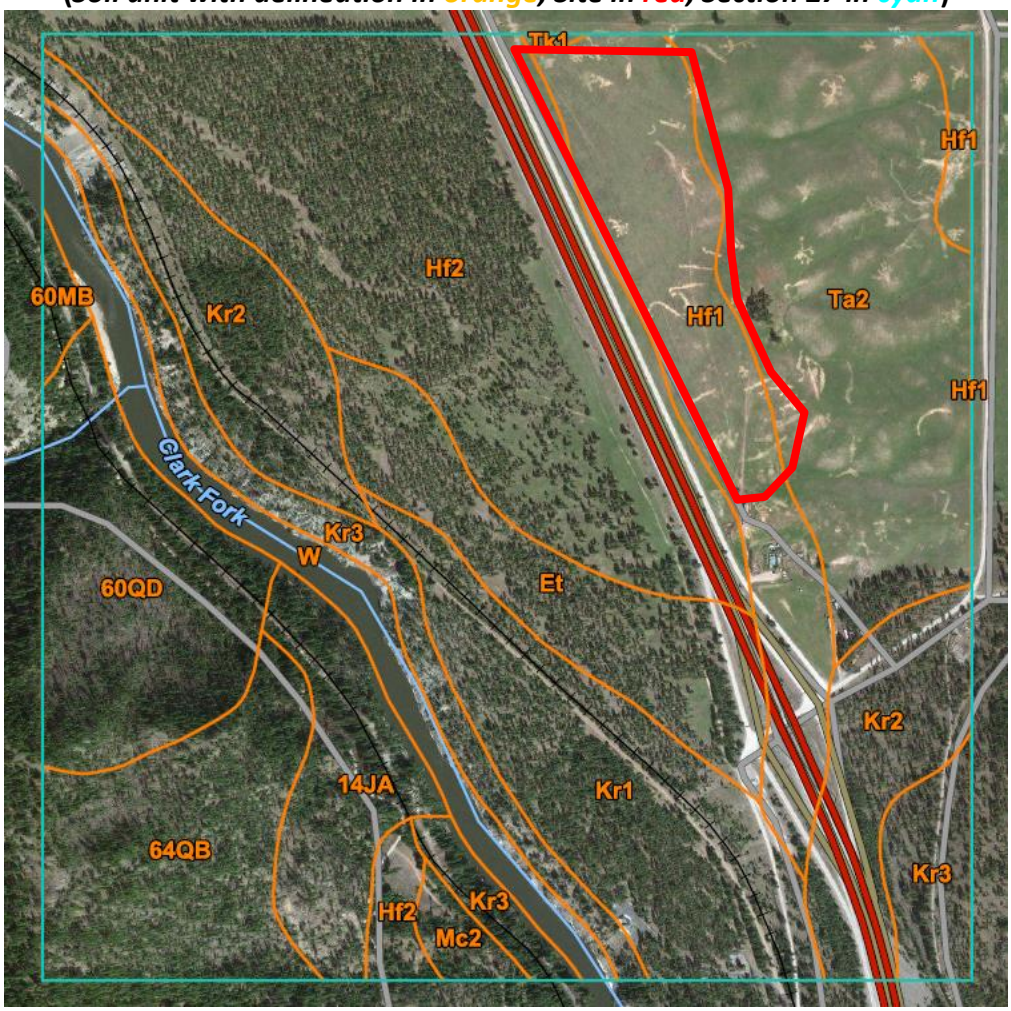
The Site is not located within a Core Area or any other recognized habitat level for sage grouse, as designated by the Department of Natural Resources and Conservation (DNRC).

3.2.2 SOILS AND VEGETATION

The impact of the Proposed Action to soils and vegetation would be minor.

The US Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) National Cooperative Soil Survey databases were accessed for information about the shallow subsurface soils at the Site and surrounding area (**Figure 3** and **Table 6**).

Figure 3: Soil Resource Map
(*Soil unit with delineation in orange, Site in red, Section 27 in cyan*)



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*Source: USDA, Natural Resources Conservation Service (NRCS), 2020 (**NOT TO SCALE**)*

Table 6: USDA-NRCS, Custom Soil Resource Report, 2020

Map Unit Symbol	*Map Unit Name*	*Soil Rating*
Hf1	*Half Moon silt loam, 0 to 4 percent slopes*	*Somewhat limited*
Hf2	*Half Moon silt loam, 4 to 15 percent slopes*	*Somewhat limited*
Tk1	*Tariko silty clay loam, 0 to 4 percent slopes*	*Very limited*
Ta2	*Tally fine sandy loam, 4 to 15 percent slopes*	*Very limited*

The predominant soil type where land application will occur is Half Moon silt loam (Hf1). Three other soil types (listed in **Table 6**) comprise the remainder of the Site. Ratings shown in **Table 6** are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the septage is applied, and the method by which the septage is applied. "Not limited" indicates that a soil type has characteristics which are favorable for the specified use. Good performance and low maintenance can be expected. "Somewhat limited" indicates that a soil type has characteristics which are moderately favorable for the specified use. "Very limited" indicates that a soil type has one or more characteristics which are unfavorable for the specified use (NRCS, 2019).

Pasture grasses currently make up most of the plant species present at the Site. Adjacent parcels of land north and east of the Site are used for row crop production or are maintained as grassland. Lands to the south and west of the Site primarily consist of undisturbed pine forests bordering the Lolo National Forest. The MNHP online databases were also accessed for listed plant species (MNHP, 2020). Listed species for the Township 15 North, Range 25 West study area are shown in **Table 7:**

Table 7: Montana Recognized Plant Species List

Scientific Name	Common Name	Status	GRank/SRank
Impatiens aurella	Pale-yellow jewel-weed	Species of concern	G4/S3
Noccaea parviflora	Small-flowered pennycress	Species of concern	G3/S3
Cypripedium fasciculatum	Clustered lady's-slipper	Species of concern	G4/S3

The MNHP ranking system for plants is the same as the one used for animals (see Section 3.2.1.2). The Site is not known to harbor the listed plant species of concern. The Proposed Action is not anticipated to impact these species.

Septage contains nutrients that can reduce the reliance of land managers on chemical fertilizers to improve soil. The Proposed Action would add valuable moisture, organic matter, and nutrients to the topsoil, improving the Site's soil tilth and vegetative cover. The quantity and quality of soils and vegetation at the Site would be enhanced by the Proposed Action.

DEQ analyzed how the land application of septage would impact the Site's environment given the semiarid weather of the region. The weather in the area is typical of western Montana and is classified as warm summer continental climate. The average annual precipitation in the Superior area is 16.8 inches per year. The average pan evaporation is listed as 30.83 inches per year. The hot, dry months of June, July, and August coincide with the average Montana septic tank pumper's busy season. Dry soils, vegetation, and crops would benefit from the added moisture.

3.2.3 GEOLOGY

No geological impacts are anticipated to result from the Proposed Action.

Periodic tilling of the surface topsoil to incorporate septage would not significantly affect the thickness or character of deeper geologic alluvium. Septage land application operations would not involve excavation.

The analysis area for geology is the Site and the surrounding area (beyond a mile). Some discussion of regional geology, based upon previous field work and other published reports and maps, is provided below. The analysis methods include reviewing geology field guidebooks, reviewing current United States Geological Survey (USGS) and Montana Bureau of Mines and Geology (MBMG) publications, and associated online maps (Esri/ArcGIS, 2020).

The geology of western Montana is characterized by extensive and thick sequences of ancient layered sedimentary rocks locally interrupted by mountainous igneous intrusives and recently faulted graben valleys. These highly folded and thrust-faulted ancient basement rocks are exposed adjacent to the Site in the narrow Clark Fork River canyon walls. The Site lies east of the Clark Fork River on the flat and recent alluvial plain where it is immediately flanked by steep outcrops of uplifted ancient Mesoproterozoic Belt Supergroup argillites (metamorphosed mudstones). These mudstones initially formed in a thick trough (rift) of deeply buried marine rocks almost 2 billion years ago; they were tightly folded much later and cut by a complex network of faults at the Site during the Late Cretaceous. At that time, the Laramide overthrust belt formed the northern Rocky Mountains as slabs of crust were pushed up and northeastward from subduction offshore to the west. During the late stages of mountain building, various granitoid intrusions arose from extensive melting at depth. Uplift has exposed the deep batholithic core in the Bitterroot Range extending

southeastward from the Site today. The entrenched ancient and present Clark Fork River channels have exploited several large thrust faults extending both northwest and southeast immediately beneath the Site where the river bends sharply from flowing west to northwest in **Figure 4**.

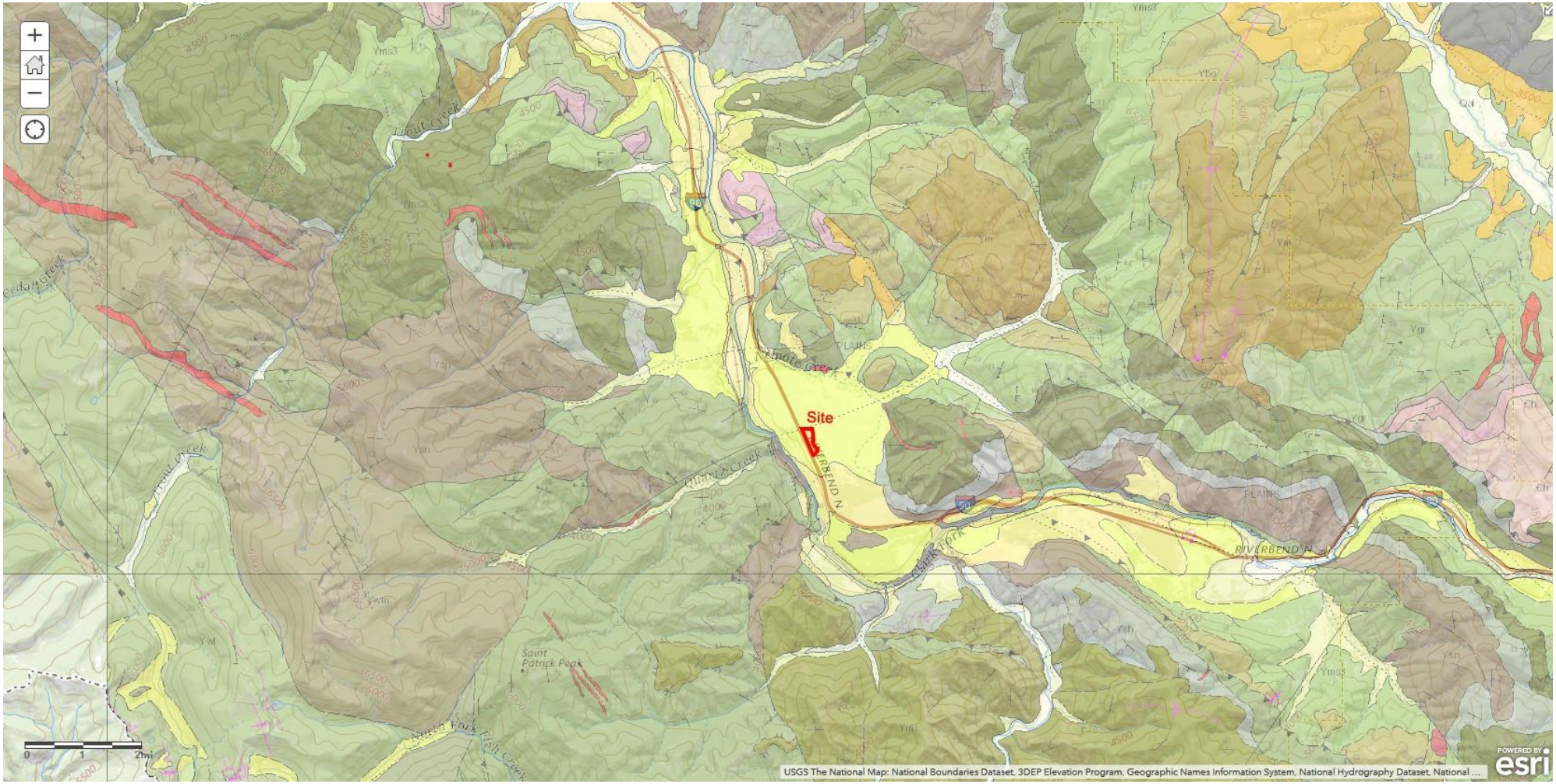
Table 8: Montana Geologic Map Rock Types (MBMG, 2000)

Map Unit Symbol	Map Unit Name	Rock Type
Qal	Quaternary alluvium	Gravel, sand, silt, & clay in channels of modern rivers and streams
Qat	Quaternary alluvial terrace	Moderately sorted, moderately to well-rounded, sand & gravel
Qac	Quaternary alluvium & colluvium	Dominantly sand, silt, & clay, subordinate gravel
Qaf	Quaternary alluvial fan deposit	Poorly sorted gravel, sand, silt, clay, & ash beds
Qgl	Pleistocene Glacial lake deposit	Light-brown laminated silt, fg sand, & clay*
Qgo	Quaternary glacial outwash	Moderately to well sorted cobble gravel, sand, & silt
Ts	Tertiary sediment or sedimentary rocks	Undivided
€h	Paleozoic Cambrian Hasmark Formation	Light gray or bluish gray limestone and dark-gray calcareous shale
ZYgb	Neo- or Mesoproterozoic gabbro	Gabbroic sills & dikes intruded active rift
Ym	Mesoproterozoic McNamara Formation	Dense green and red siltite & argillite couplets, mudcracks
Ybo	Mesoproterozoic Bonner Formation	Pink or buff, mg and cg feldspathic quartzite*
Yms	Mesoproterozoic Mount Shields Formation	Undivided; siltite, argillite, & quartzite
Yms2	Mesoproterozoic Mount Shields Formation	Member 2: quartzite
Yms3	Mesoproterozoic Mount Shields Formation	Member 3: mostly red siltite to argillite couples, mudcracks
Yw	Mesoproterozoic Wallace Formation	Undivided; black & tan siltite/quartzite couplets
Ysn	Mesoproterozoic Snowslip Formation	Green & red argillite grades upward into quartzite
Ywm	Mesoproterozoic Wallace Formation	Middle member: siltite, quartzite, & black argillite

*fg=fine grained, mg=medium grained, cg=coarse grained

Figure 4: Regional Geology Map

Symbols: Gray Brown—Ywm , Purple—Ysn, Blue—Ysh, Gray Green Ygr, Medium Green— Yw, Dk. Green—Yms2, Lt. Green—Yms3,Lt. Brown—Ybo, Dk. Brown—Ym, Red—ZYgb, Pink—€h, Gold—Ts, Dark Yellow —Qgo, Yellow—Qgl, Lt. Yellow—Qaf, Buff—Qac, Flesh—Qat, White—Qal



*Source: MBMG, State Geologic Map (2000), Esri/ArcGIS services (2020) (**NOT TO SCALE)***

Pleistocene age (up to 2.6 million years ago) glaciation was the primary erosional and depositional agent responsible for the physiography of western Montana as we see it today. Four major glacial advances affected Montana during the Pleistocene with ice covering the northern third of the state during the maximum extent of the glacial advance (Alden, 1932). The Site sits on an elevated bench northeast of the Clark Fork River channel, north of Alberton Gorge. Along this irregular canyon, the ancestral Clark Fork River scoured, sculpted, and polished barren bedrock when epic flood waters were released after multiple failures of the ice dam blocking Glacial Lake Missoula during cyclic glacial retreat. The riverbed continues to scour bedrock in the area near the Site, but a patchwork of alternating glacial drift, outwash, and lakebed deposits blanket the surface elsewhere in this entrenched stretch of river valley. Such complex Pleistocene deposits of mixed or alternating clay, silt, sand, and gravel were partially reworked and are now partly overlain by coarser alluvial gravels deposited by the Quaternary Clark Fork River.

3.2.4 HYDROLOGY AND HYDROGEOLOGY

The analysis area for hydrology and hydrogeology is the Site and the surrounding area (beyond a mile). Some discussion of regional geology, based upon published reports, is also provided. The analysis methods include reviewing wetland and jurisdictional waters information, onsite drilling reports, publications of the Montana Bureau of Mines and Geology (MBMG), and online maps (Esri/ArcGIS, 2020).

3.2.4.1 SURFACE WATER

No impacts to surface waters are expected due to the Proposed Action.

The Meadow Creek-Clark Fork watershed, hydrologic unit code (HUC) 170102040606, is the principal drainage in the area, with the Site draining directly to the mainstem of the Clark Fork River (**Figure 5**). Nemote Creek is located approximately a half-mile north of the Site, just prior to its confluence with the Clark Fork River, but does not receive water from the Site (**Figure 5**).

Setbacks will be maintained near the Site borders to ensure no septage enters any drainages.

3.2.4.2 GROUNDWATER

No impacts to groundwater or groundwater wells are expected due to the Proposed Action.

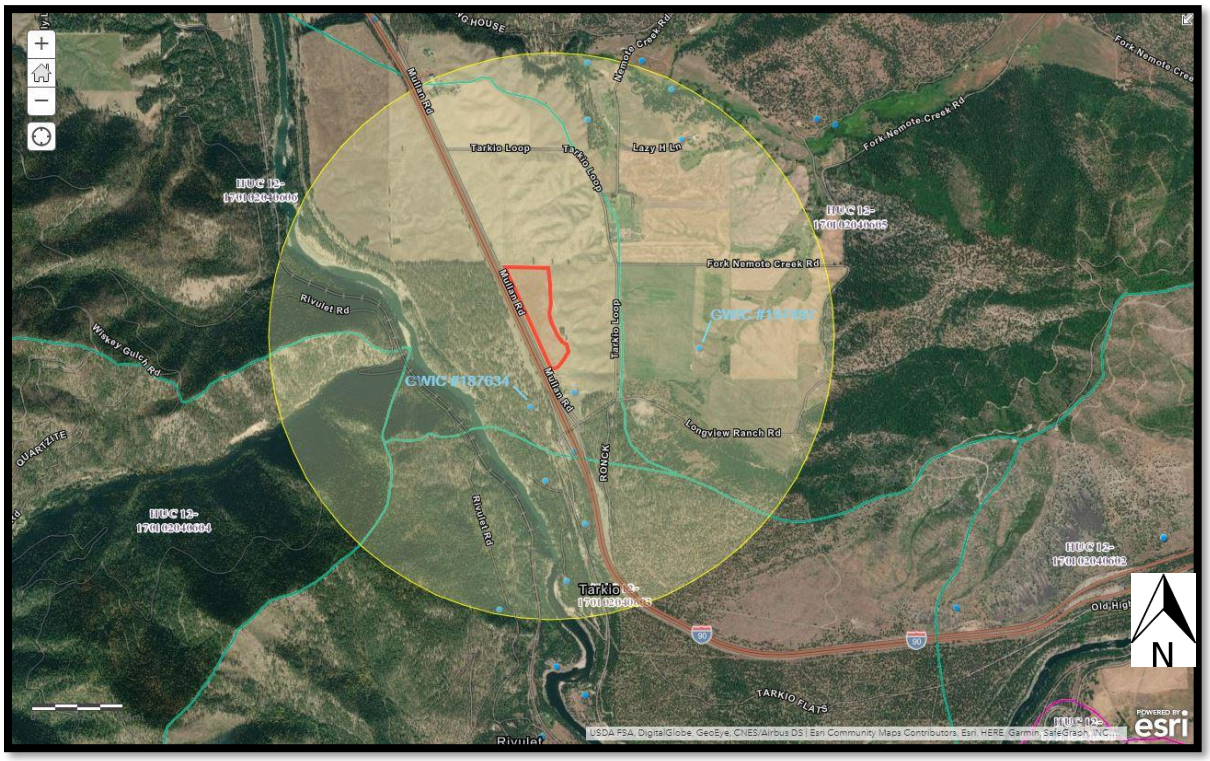
The Montana Bureau of Mines and Geology's Ground Water Information Center (GWIC) is DEQ's reference for well data in Montana. All wells located within one mile of the Site and documented by GWIC were considered when this Draft EA was written. Any well not documented by GWIC is not included in this Draft EA, but if wells are proven to be within setbacks, the Site boundaries would be adjusted to maintain the required distances.

Depth to groundwater in the Meadow Creek-Clark Fork watershed is variable and tends to increase with distance from the Clark Fork River. No groundwater wells are present at the Site. However, there are 11 groundwater supply wells located within a 1-mile radius of the Site (**Figure 5**). Documented well uses include: commercial, domestic, and fire protection (GWIC, 2020).

Glaciation and flooding cycles occurred repeatedly during the life of Glacial Lake Missoula and were the primary depositional mechanisms responsible for the alluvial material that exists beneath the Site and surrounding area. Well logs indicate subsurface material consisting of coarse sands, gravels, and boulders with tan to reddish clays. The static groundwater levels range from approximately 122 feet below ground surface (bgs) in GWIC #187634 to 320 feet bgs in GWIC #197497 (**Figure 5**). Extrapolated groundwater elevation data from GWIC #237465 (near the base of Round Mountain), #72217 (near Nemote Creek Road), and #197497 indicate the groundwater flow direction conforms with the west-southwest surface drainage patterns toward the Clark Fork River. Based on the data available in GWIC's database, estimated depth to groundwater beneath the Site is greater than the six-foot minimum required by ARM 17.50.809(8).

No impacts to groundwater or groundwater wells are expected due to the Proposed Action.

Figure 5: Location of Nearby Groundwater Production Wells
(GWIC wells in blue circles, approximate Site boundaries outlined in red, sub-watershed delineation green line, 1-mile radius yellow shaded circle)



*Source: Esri/ArcGIS and GWIC/MBMG (**NOT TO SCALE**)*

3.2.5 AESTHETICS

The impact to aesthetics from the Proposed Action would be minor.

Nemote Creek Road would be used to access the Site. The Site is not located on a prominent topographical feature. No other development is anticipated at the Site. Land application activities would resemble agricultural activities occurring in the surrounding area.

DEQ and/or the local county sanitarian would respond to complaints about odor to determine if wastes were not properly managed. With proper management, odors would be minimal. The naturally occurring bacteria in the soil uses carbon in the waste as a fuel source. This activity results in the breakdown of wastes, which include odors. Usually, odors are only detected at the time of the land application activity and are controlled by tilling (or harrowing) within six hours after septage application.

The Proposed Action would be visible from main roads; therefore, impacts to aesthetics would likely be minor.

3.2.6 HUMAN HEALTH & SAFETY

No impacts on human health and safety are expected due to the Proposed Action.

Septage would be land applied at the Site. Septage would be incorporated into the soil surface within six hours of application. No livestock grazing areas exist on the Site. No crops are harvested from the Site. The Site is grassland.

Access into the Site, via Nemote Creek Road, is controlled by a fence and gate.

Therefore, no impacts to human health and safety are expected due to the Proposed Action.

3.2.7 DEMAND FOR GOVERNMENT SERVICES

Impact on the demand for government services from the Proposed Action would be minor.

DEQ staff would provide guidance for land application activities at the Site, with assistance from the Mineral County sanitarian as needed. Disposal logs showing volumes of waste applied at the Site are submitted to DEQ twice a year. Disposal logs would be reviewed by DEQ to ensure the AAR is not exceeded. Site inspections are performed by DEQ at all septic tank pumper land application sites. DEQ would obtain periodic soil samples for testing of nutrient levels to ensure pumper compliance with the AAR for the Site.

Therefore, the impact on the demand for government services from the Proposed Action would be minor.

3.2.8 TRAFFIC

The impact to traffic from the Proposed Action would be minor.

There would be no significant increase in traffic on Nemote Creek Road or the Frontage Road. There is one other approved land application site approximately one-half mile east of the Site. The Site would be accessed from Nemote Creek Road. Nemote Creek Road and the Frontage Road currently support traffic to homes and businesses in the area.

Therefore, the impact to traffic from the Proposed Action would be minor.

3.3 REGULATORY RESTRICTIONS

MEPA requires state agencies to evaluate regulatory restrictions proposed to be imposed on private property rights because of actions of state agencies, including alternatives that reduce, minimize, or eliminate the regulation of private property (Section 75-1-201(1)(b)(iii), MCA). Alternatives and mitigation measures required by federal or state laws and regulations to meet minimum environmental standards, as well as actions proposed by or consented to by the applicant, are not subject to a regulatory restrictions analysis.

No aspect of the alternatives under consideration would restrict the use of private lands or regulate their use beyond the permitting process prescribed by the SLDA. The conditions that would be imposed by DEQ in issuing the license would be designed to make the Proposed Action meet minimum environmental standards or have been proposed and/or agreed to by SS. Thus, no further analysis is required.

3.4 CUMULATIVE IMPACTS

Cumulative impacts are the collective impacts on the human environment when a specific action is considered in conjunction with other past, present, and future actions by location and type. Cumulative impact analysis under MEPA requires an agency to consider all past and present state and non-state actions. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures. Cumulative impact analyses help to determine whether an action, combined with other activities, would result in significant impacts.

The Site is currently undeveloped grassland. The cumulative impacts of the Proposed Action would include improvements in soil health and vegetative growth at the Site. Limitations on the utilization of the Site for agricultural, recreational, and other activities would be upheld until the Proposed Action ceases.

4. FINDINGS

The depth and breadth of the project are typical of a land application site. DEQ's analyses of potential impacts from the Proposed Action are sufficient and appropriate for the complexity, environmental sensitivity, degree of uncertainty, and mitigating factors provided by the Septic Rules for each resource considered.

To determine whether preparation of an EIS is necessary, DEQ is required to assess the significance of impacts associated with the Proposed Action. The criteria that DEQ is required to consider in making this determination are set forth in ARM 17.4.608(1)(a) through (g):

(a) The severity, duration, geographic extent, and frequency of occurrence of the impact;

(b) The probability that the impact will occur if the Proposed Action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;

(c) Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;

(d) The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values;

(e) The importance to the state and to society of each environmental resource or value that would be affected;

(f) Any precedent that would be set because of an impact of the Proposed Action that would commit DEQ to future actions with significant impacts or a decision in principle about such future actions; and

(g) Potential conflict with local, state, or federal laws, requirements, or formal plans.

The Site's location is described in Section 1.4 of this Draft EA. It encompasses 30 acres of the Robb property. If SS renews their license and operations remain in compliance with ARM, land application activities and DEQ site inspections would continue indefinitely. The Site is not within sage grouse core habitat, general habitat, or connectivity area. It has no special agricultural designation. Operations would not adversely affect any threatened or endangered species.

The Proposed Action is expected to improve soils and vegetation at the Site, as described in Section 3.2.2.

The Proposed Action is not expected to impact surface water resources. Operational standards ensure that all the setback requirements from surface water and that no slopes exceed 6%, as described in Section 3.2.4.1 of this Draft EA. Runoff to state waters is not allowed.

The Proposed Action is not expected to impact groundwater, as described in Section 3.2.4.2. The Site is well within the setback requirements for groundwater supply wells, as described in **Table 2** of this Draft EA. The depth to groundwater is greater than 6-ft as required. Land application at agronomic rates would ensure that no septage could percolate below the surface treatment zone, as validated by DEQ via periodic monitoring of soils.

DEQ has not identified any growth-inducing or growth-inhibiting aspects of the Proposed Action. However, access to the parcels on the Site for utilization by human recreation, crops, and livestock would be limited to meet the regulatory restrictions necessary to protect human health. The Site was not previously used for these activities. DEQ's approval is not a decision regarding, in principle, any future actions that DEQ may perform. Furthermore, approval doesn't set any precedent or commit DEQ to any future action. Finally, the Proposed Action does not conflict with any local, state, or federal laws, requirements, or formal plans.

The Proposed Action would meet the requirements of the SDLA, Air and Water Quality Acts, and other applicable Montana environmental laws and regulations, as well as county ordinances. Adherence to the regulations and to the approved O&M plan would mitigate the potential for harmful releases and impacts to human health and the environment from the Proposed Action at the Site. Therefore, an EIS is not required.

5. OTHER GROUPS OR AGENCIES CONTACTED OR CONTRIBUTING TO THE EA

Mineral County Environmental Health Department
United States Department of Agriculture
Montana Natural Heritage Program
Montana Department of Environmental Quality
Montana Historical Society State Historic Preservation Office

United States Geological Survey
Montana Bureau of Mines and Geology
US Fish & Wildlife Service
Montana Sage Grouse Habitat Conservation Program

6. AUTHORS

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Date: April 8, 2020

7. REFERENCES:

MBMG, Geologic Map of Montana, Esri ArcGIS web services, 1: 100,000 scale, 2000 https://mbmgmap.mtech.edu/arcgis/rest/services/geology_100k/geology_100k_seamless/MapServer

Montana Tech of the University of Montana, Montana Bureau of Mines and Geology (MBMG), Ground Water Information Center http://mbmggwic.mtech.edu/

United States Department of the Interior, Geological Survey Professional Paper 174, Physiography and Glacial Geology of Eastern Montana and Adjacent Areas, William C. Alden, 1932

Alt, David D., and Donald Hyndman, *Roadside Geology of Montana*, Mountain Press Publishing, 1986

Alt, David, Glacial Lake Missoula and It's Humongous Floods, Mountain Press Publishing, 2001

Esri, "Imagery Hybrid" Basemap, Scale Not Given, ArcGIS Online Group: DEQ Solid Waste, "Superior Septic EA", Last Modified: February 25, 2020 https://mtdeq.maps.arcgis.com/home/webmap/viewer.html?webmap=9b75a35a3f52453dbd00566dbb297b78

United States Department of Agriculture, Natural Resources Conservation Service, Custom Soil Resource Report for Lolo National Forest Area, Superior Septic, Inc. Land Application Site, 2020

United States Fish & Wildlife Service, Environmental Conservation Online System, 2020 https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=30061

Montana Natural Heritage Program, 2020 http://mtnhp.org/default.asp

Montana Cadastral
http://svc.mt.gov/msl/mtcadastral

Superior, Montana Weather Averages Summary
https://www.weatherbase.com/weather/weather.php3?s=340842&cityname=Superior-United-States-of-America

Average Pan Evaporation Data by State
https://wrcc.dri.edu/Climate/comp_table_show.php?stype=pan_evap_avg