DENBURY CARBON SOLUTIONS, LLC

PLAN OF DEVELOPMENT

SNOWY RIVER CO2 SEQUESTRATION PROJECT

BMCD PROJECT NO. 137298

REVISION

JULY 31, 2025

CONTENTS

FIGURES

TABLES

1.0 Overview and Purpose and Need

1.1 Overview

Denbury Carbon Solutions, LLC, a wholly owned subsidiary of Denbury Inc. (collectively, Denbury), is at the forefront of the emerging Carbon Capture Use and Storage (CCUS) industry in the United States. Denbury proposes to construct the Snowy River Carbon Dioxide (CO_2) Sequestration Project, referred to as the Project hereinafter, in Carter County, Montana on land managed by the Bureau of Land Management (BLM) and the State of Montana (Montana Department of Natural Resources and Conservation, Trust Land Management Division) and private land. On November 18, 2021, Denbury submitted a rights-of-way (ROW) application for a 30 year-term for the construction and operation of the following elements: access roads, well pads, main bulklines (i.e., main supply pipelines), flowlines (i.e., branch supply pipelines), pump stations and offices, and for use of federal underground pore space to sequester CO_2. The proposed well pads will be used to operate Underground Injection Control (UIC) Class VI injection wells that will inject CO_2 that would be transported using the existing Denbury Cedar Creek Anticline (CCA) Pipeline, which is a 105-mile pipeline that currently transports CO_2 from the Bell Creek Oilfield in Powder River County, Montana, to the CCA Enhanced Oil Recovery (EOR) unit development in Fallon County, Montana. The permitting of the UIC Class VI injection wells would be under a separate review and authorization by the Environmental Protection Agency (EPA) Region 8. See Appendix A for UIC Class VI permitting details. The proposed Project elements and existing CO_2 pipeline are shown in Figure 1-1. This Plan of Development (POD) identifies the proposed activities, design measures and other features of the Project with a focus on lands administered by the BLM.

1.2 Purpose and Need

Development of CCUS projects is needed in the United States to combat climate change and to provide an economic driver in providing green jobs. The Utilizing Significant Emissions with Innovative Technologies (USE IT) Act, passed in December 2020, calls for advancements in the efficient, orderly, and responsible development of CCUS projects at an increased scale in the United States. Further, according to White House Council on Environmental Quality (CEQ), CCUS advancements are necessary “to avoid the worst impacts of climate change and reach [the Administration’s] goal of net-zero emissions by 2050, [the Administration needs] to safely develop and deploy technologies that keep carbon pollution from entering the air and remove pollution from the air.”

The Project is intended to help meet the Administration’s goals and priorities by providing a solution to reduce carbon emissions for multiple industries and to enable Denbury to meet its pledge to fully offset its CO_2 emissions by the end of 2029. The Project offers an opportunistic combination of a robust industry with CO_2 emissions sources and high-quality subsurface storage targets on federal-owned lands. Denbury estimates the Project area (also referred to as Area of Interest [AoI]) injection potential to be approximately 450 million cubic feet per day over the course of 20 years, for an estimated 150 million tons of CO_2 injected. This is equivalent to annual greenhouse gas emissions from more than 1.6 million cars.

Specific sources of CO_2 for the Project have not yet been identified. As detailed in Section 2.3, there are several Project stages that must occur before CO_2 injection can begin. Denbury would first need to obtain a ROW agreement from the BLM to gain access to a stratigraphic test well, which will be located on property managed by the State of Montana. Once Denbury has received a ROW grant and Notice to Proceed (NTP) from the BLM, ROW agreements from the Montana Department of Natural Resources & Conservation (DNRC), and drilling permits from the Montana Board of Oil and Gas Conservation (BOGC), Denbury can begin drilling the stratigraphic test well. Drilling would occur between July 16 and November 30 in accordance with timing restrictions designed to

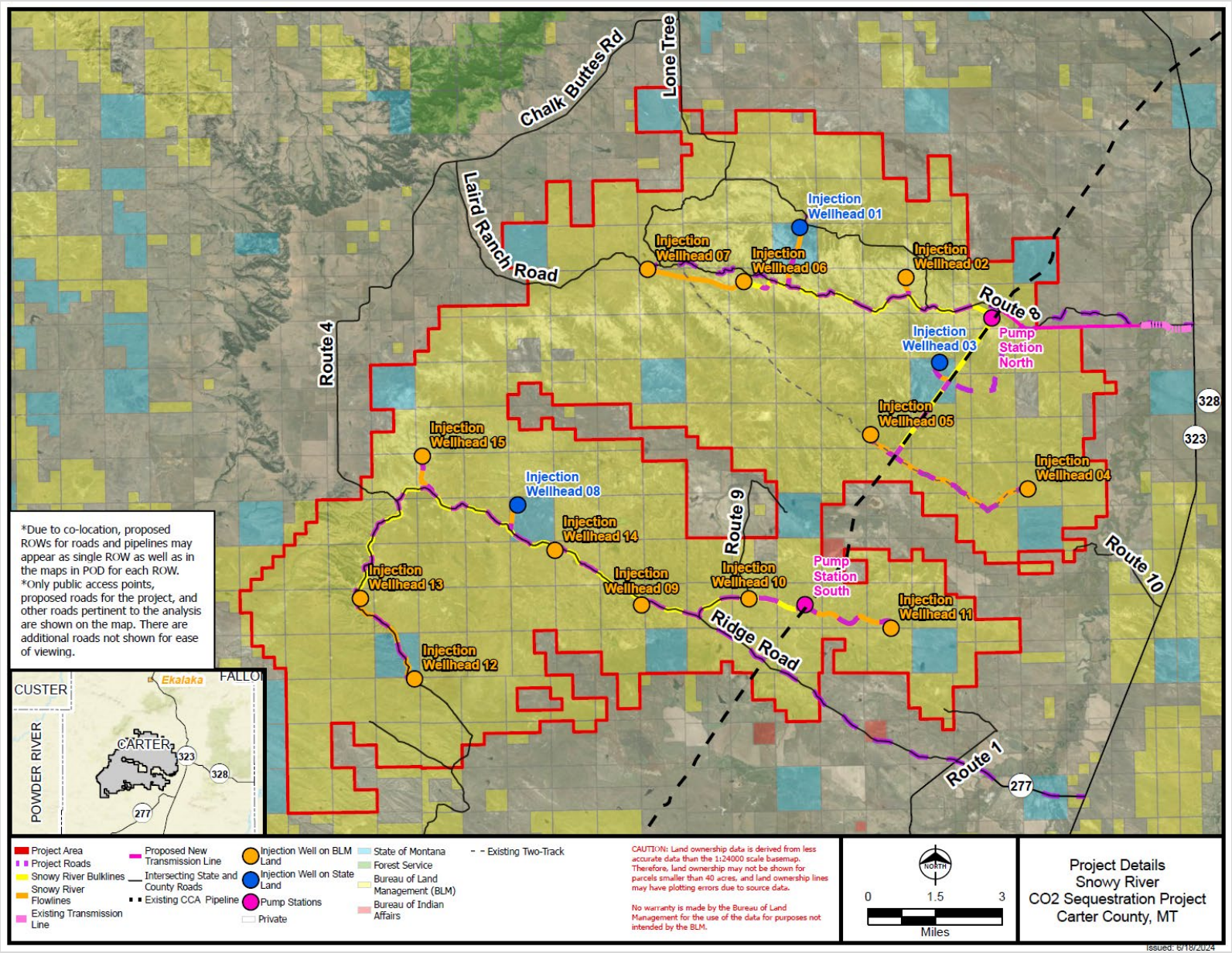
minimize potential impacts to wildlife species as further discussed in Section 4.1.1. Data obtained from the test well and a desktop review of existing seismic data will be used to refine the development plan and initiate the EPA's UIC Class VI permitting process. At this stage in the Project, Denbury anticipates that contracts with emitters who would like to permanently sequester CO_2 within the Project's pore space would be secured. Although Denbury has existing CO_2 agreements with emitters that transport CO_2 in Denbury's CCA Pipeline, those agreements are for EOR development in Fallon County, Montana. Separate agreements would be secured for the permanent sequestration of CO_2 within the Project's pore space.

1.3 Summary of Changes

The following revisions to this POD were made in response to public comments the BLM received on the Project. Only Appendix S was updated as a result of public comments; therefore, no changes were made to the remaining appendices published on February 15, 2024.

- Section 1.2 has been revised to clarify that CO_2 sources have not yet been identified for the Project. Denbury anticipates that contracts with emitters would occur after the stratigraphic test well is completed and the EPA UIC Class VI permitting process has been initiated.
- In Figure 1-1, the symbol for Project Roads was revised to a purple dashed line to help highlight roads that Denbury proposes to use for Project construction and operations. The previous solid purple lines were difficult to differentiate from intersecting county and state roads due to the overlap of proposed bulklines and flowlines that will be collocated with these existing disturbances.
- Section 4.5 has been revised to clarify that drill rigs will meet EPA Tier 4 emissions standards in accordance with the Approved Resource Management Plan (ARMP).
- Appendix S, the *2022-2023 Sampling and Analysis Report*, has been revised to correct a sample ID in the Groundwater Analytical Results table (Table 5-2).

Figure 1-1: Project Details



2.0 Proposed Project Elements

2.1 Subsurface Pore Space

At full Project build-out, Denbury would inject CO_2 into the pore space of subsurface formations within an approximately 110,100-acre AoI. Montana law grants title of the pore space in all strata underlying the surface of lands and waters to the overlying surface estate (i.e., the surface owner owns the pore space), but prioritizes mineral rights primacy over carbon storage (Montana Code Annotated [MCA] 82-11-180). The surface owners in the AoI include BLM, the State of Montana, and private landowners. The ownership acreages for the 110,100-acre AoI are provided in Table 2-1. The legal description of the pore space area is provided in Appendix B.

Table 2-1: Subsurface Pore Space Ownership within the Area of Interest

Project Element	BLM (acres)	State of Montana (acres)	Private (acres)	Total (acres)
Pore Space	100,600	8,300	1,200	110,100

All acreages are approximate and derived from GIS. Acreages are based on NAD 1983 Albers BLM MT ND SD projection.

The Project location and subsurface pore space formation were selected for the following reasons:

- Proximity to existing pipelines and CO_2 sources
- Reduced number of affected landowners
- Low mineral development potential in the Project area
- Suitable reservoir porosity, capacity, and seal continuity (further described in Section 3)
- Low risk of seismic activity (further described in Section 3)

The subsurface pore space that will be used for carbon storage may include the formations listed in Table 2-2. Details of the prospective injection formations and associated sealing formations are provided in Section 3.0. The injection intervals will be determined following the completion of the stratigraphic test well that is further described in Section 2.3.

Table 2-2: Storage Intervals and Approximate Depths Below Ground

Potential Storage Formation (in descending stratigraphic order)	Approximate Depth (feet below ground surface)
Minnelusa Group	5,200-5,700
Mission Canyon	6,100-6,500
Interlake	6,800-7,000
Red River	7,100-7,500
Black Island	7,700-7,800

Potential Storage Formation (in descending stratigraphic order)	Approximate Depth (feet below ground surface)
Upper Deadwood	7,900-8,100
Lower Deadwood/Flathead	8,300-8,400

2.2 Surface Elements

The locations of the proposed Project elements have been sited based on the results of desktop studies, review of new Light Detection and Ranging (LiDAR) imagery, environmental field surveys, and in consultation of the Miles City BLM Office. Each proposed Project element is described below. Permanent ROW requirements, short-term ROW requirements, and lengths of linear Project elements are provided for each surface element in Tables 2-3 to 2-7. Summaries of the overall Project requirements are provided in Tables 2-8 through 2-10. Legal descriptions are provided in Appendix B.

2.2.1 Well Pads

At full Project build-out, Denbury will construct 15 well pads as identified in Figure 2-1 and shown in greater detail in Appendix C. Twelve well pads are proposed on BLM land, and three on state lands. The well pads will be approximately 450-feet-wide by 450-feet-long (approximately 4.6 acres each) during construction. Well pads will be reduced to an operational area of 300-feet-wide by 300-feet-long (2.1 acres each). The acreages of permanent well pads that will be installed and associated temporary workspace on BLM and State of Montana land are provided in Table 2-3. No well pads will be constructed and operated on private land.

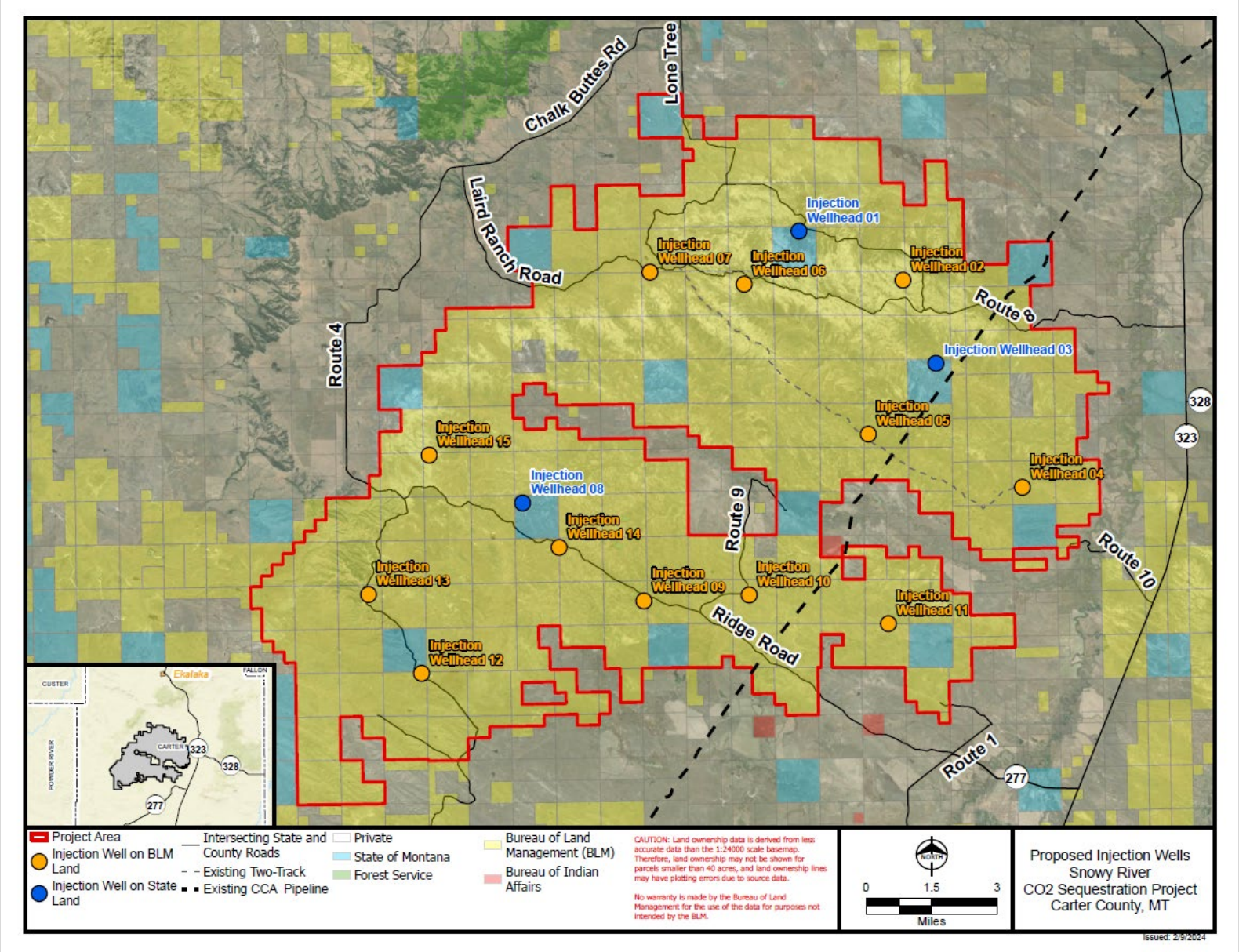
The proposed well pads will be used to drill UIC Class VI injection wells that will inject CO_2 from Denbury's existing CCA Pipeline. The permitting of the UIC Class VI injection wells would be under a separate review and authorization by the EPA Region 8. See Appendix A for UIC Class VI permitting details and Appendix D for Denbury's Well Construction Plan that describes the practices that will be used to protect federal resources.

Table 2-3: Well Pad Construction and Operation Requirements (acres)

Project Element	BLM	State of Montana	Private	Total
Well Pad Permanent ROW	24.80	6.20	0.00	31.00
Well Pad Short-term ROW	30.46	8.21	0.00	38.67
Total Well Pad ROW Requirements	55.26	14.41	0.00	69.67

All acreages are approximate and derived from GIS. Acreages are based on NAD 1983 Albers BLM MT ND SD projection.

Figure 2-1: Proposed Injection Wells



Well pad construction and operation are described in Section 4.4. Each 300 foot wide by 300 foot long well pad will be graveled during the operations stage of the Project. Gravel will be removed, contours restored to the extent practicable, and disturbed areas will be revegetated after the wells are abandoned and the site is reclaimed (Section 4.1.12).

2.2.2 Pipelines (Bulklines and Flowlines)

Approximately 40 miles of pipelines, including bulklines and flowlines, will be required for the Project. See Figure 2-2 and Appendix C. Approximately 23.7 miles of new 16-inch diameter bulklines will transport CO_2 from new pump stations to flowlines; 22.4 miles will be constructed and operated on BLM land, and 1.3 miles will be constructed on state land. Approximately 15.9 miles of 12-inch diameter flowlines will be constructed for full build-out of the Project, of which 12.5 miles will be on BLM land and 3.4 miles will be on state land. No bulklines or flowlines will be constructed on private property. Denbury has minimized impacts by collocating approximately 35.1 miles (89 percent) of the bulklines and flowlines along existing or proposed permanent access roads. The miles of bulklines and flowlines to be constructed and the ROW requirements to operate and construct each pipeline are provided in Table 2-4.

The ROW for 16-inch bulklines will consist of a 50-foot-wide permanent ROW with a 25-foot-wide short-term ROW for temporary workspace. For the 12-inch flowlines, the permanent ROW will also be 50 feet wide, and no temporary workspace will be required during construction due to the reduced workspace requirements for smaller diameter pipes.

Table 2-4: Pipeline Construction and Operation Requirements

Project Element	BLM	State of Montana	Private	Total
Bulkline Length (miles)	22.4	1.3	0.0	23.7
Bulkline Permanent ROW (acres)	134.46	7.91	0.00	142.36
Bulkline Short-term ROW (acres)	81.33	4.60	0.00	85.92
Flowline Length (miles)	12.5	3.4	0.0	15.9
Flowline Permanent ROW (acres)	76.36	20.38	0.0	96.74
Flowline Short-term ROW (acres)	0.00	0.00	0.00	0.00
Total Pipeline ROW Requirements (acres)	76.36	20.38	0.00	96.74

All mileages and acreages are approximate and derived from GIS. Acreages and mileages are based on NAD 1983 Albers BLM MT ND SD projection.

2.2.3 Access Roads

An estimated 57 miles of new and existing access roads will be required for the Project. Access roads are shown on Figure 2-3 and in Appendix C. Denbury will require a 25-foot-wide ROW along existing developed roads (Figure 2-4), existing two-tracks (Figure 2-5), and on new roads (Figure 2-6) to be created for the Project. Three (3) existing, developed roads (Lone Tree Road, Ridge Road, and Hammond Road) each currently have a 60-foot-wide ROW through BLM land. Denbury will only use a maximum of 42.5 feet of the

Figure 2-2: Proposed Pipelines

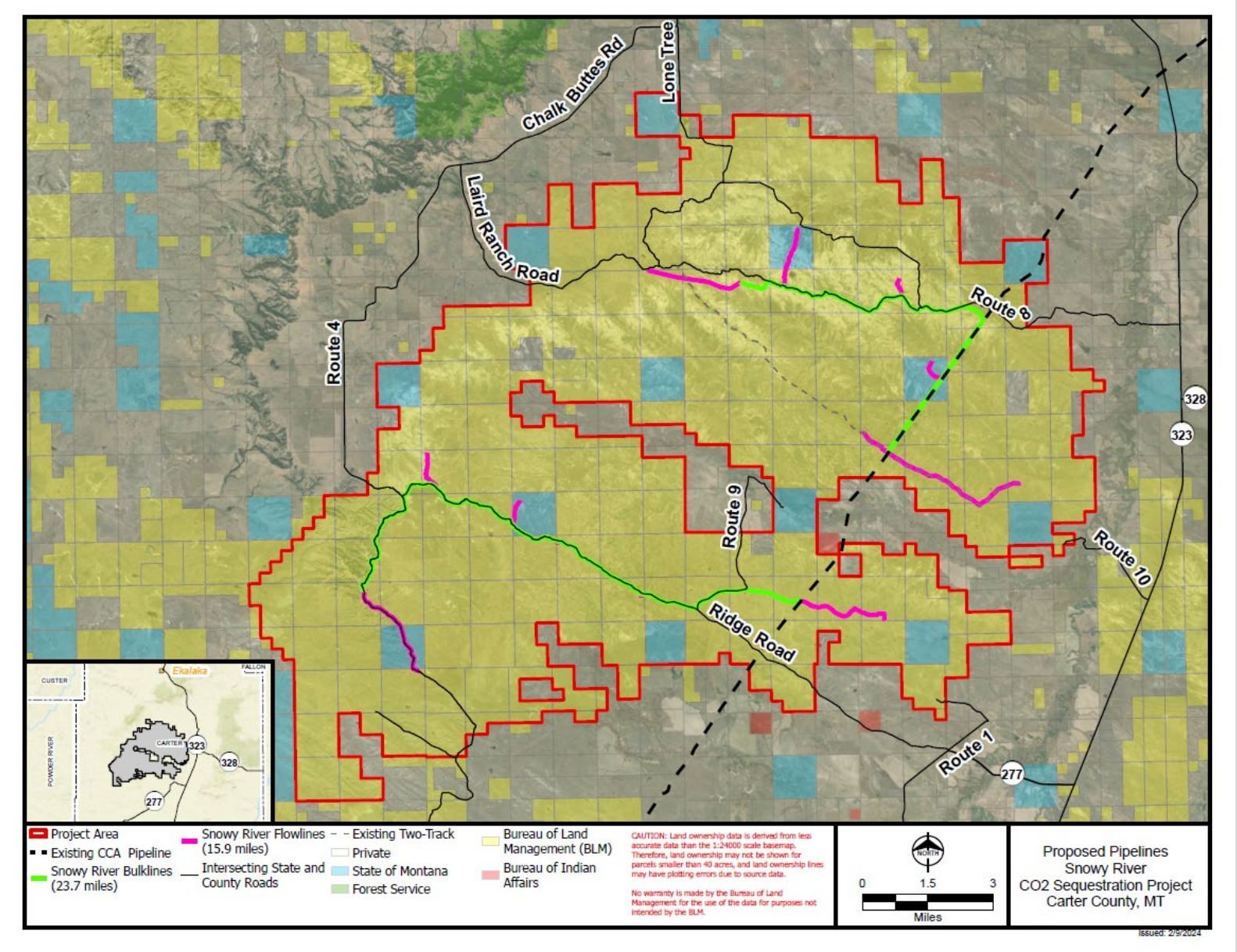


Figure 2-3: Proposed Access Roads

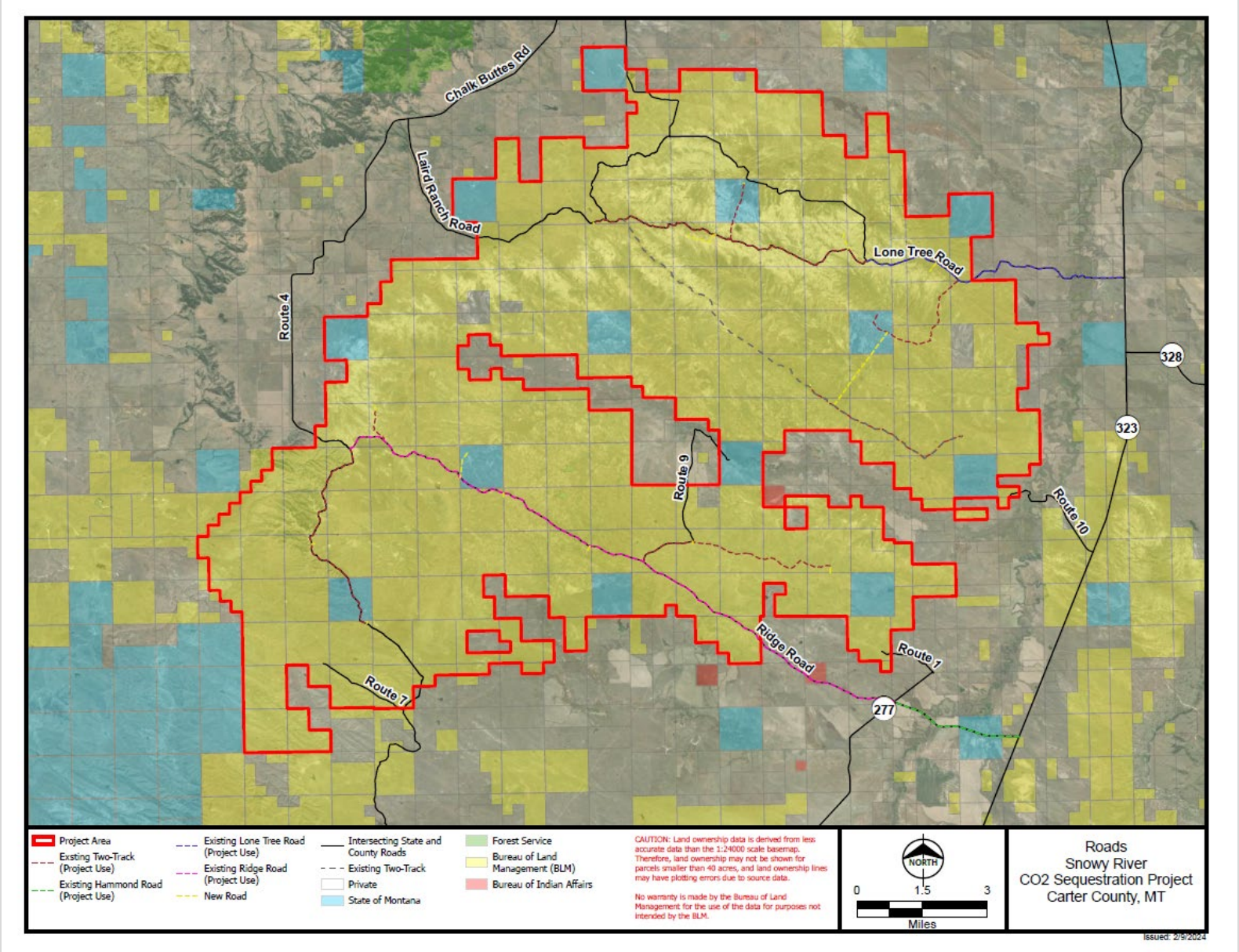


Figure 2-4: Existing Developed Roads

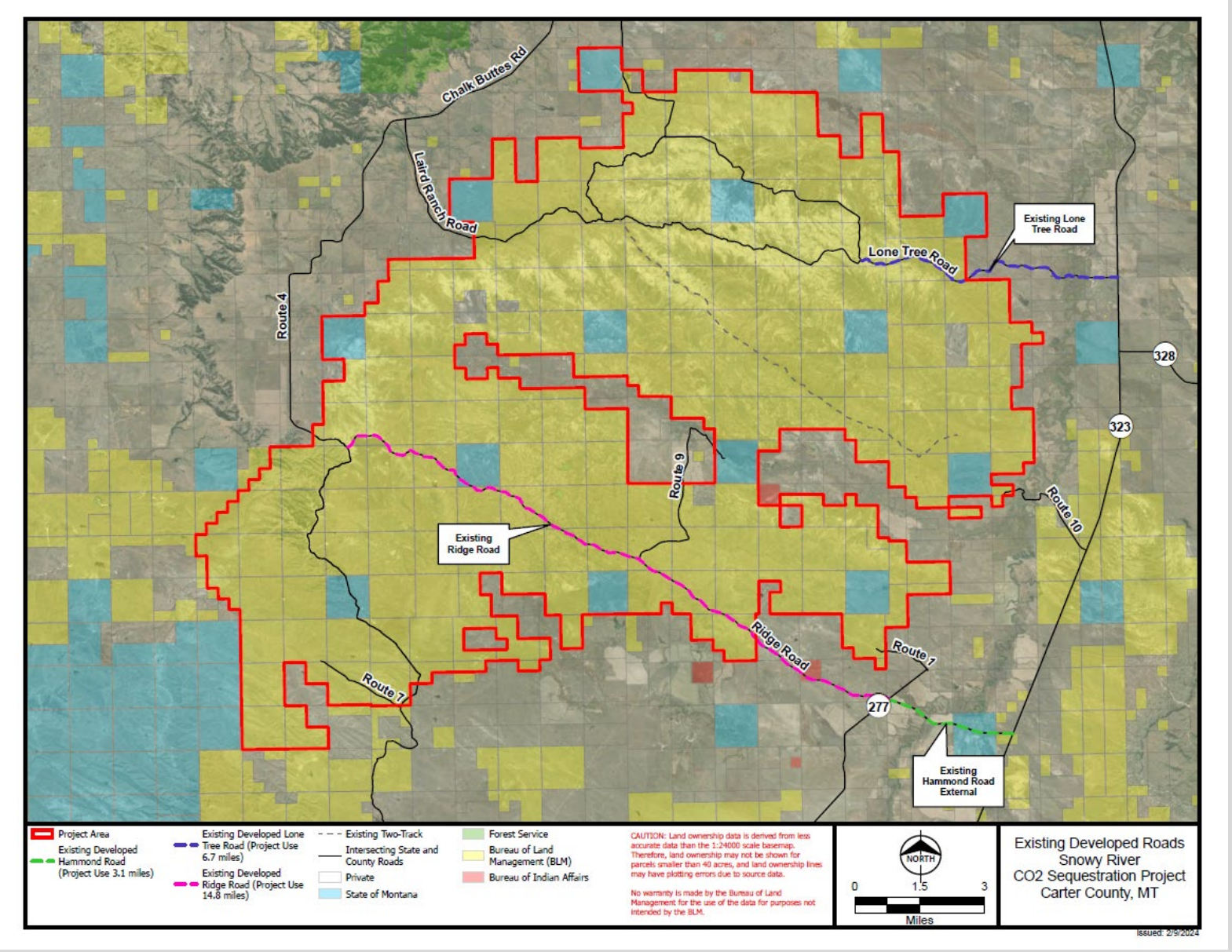


Figure 2-5: Existing Two-Track Roads

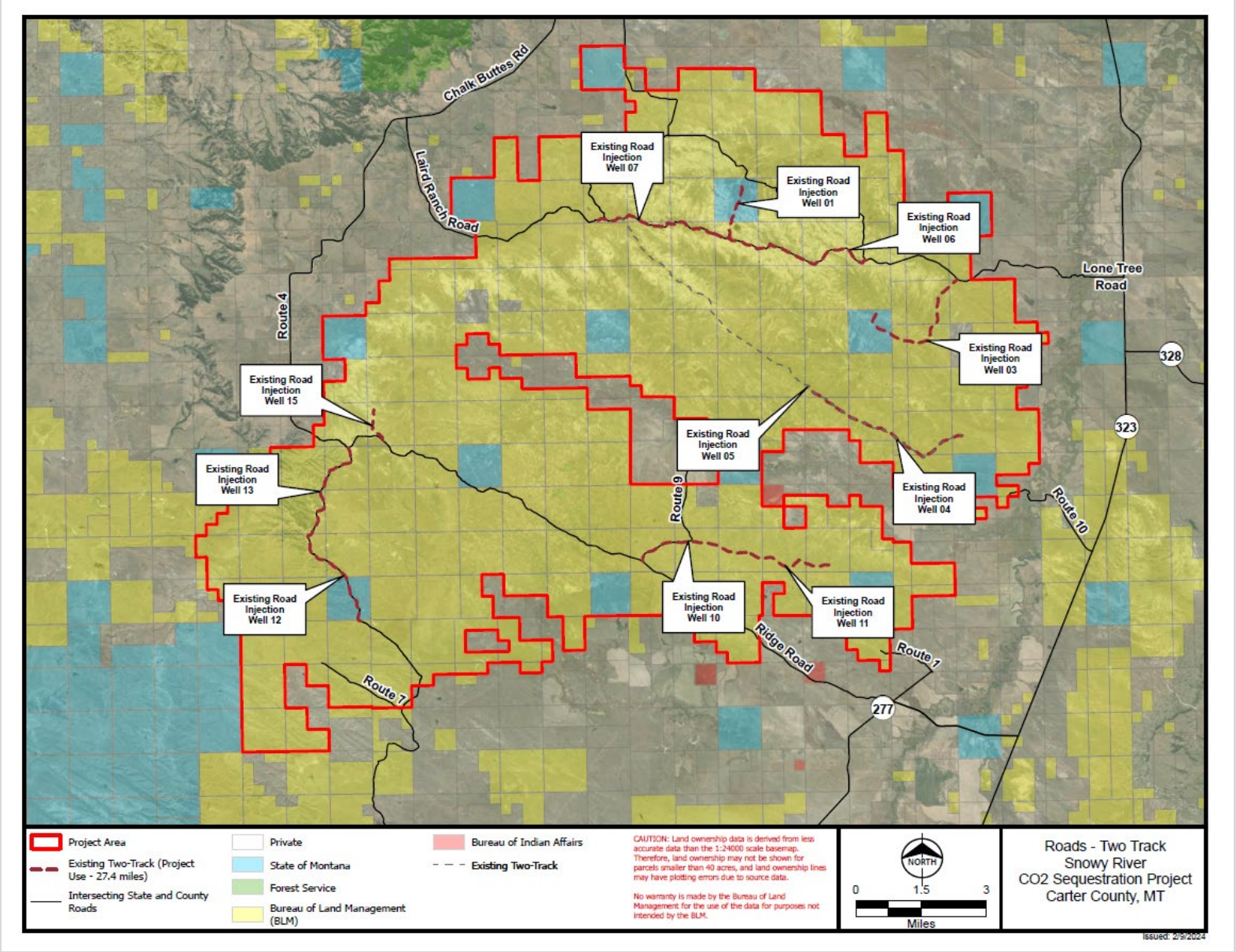
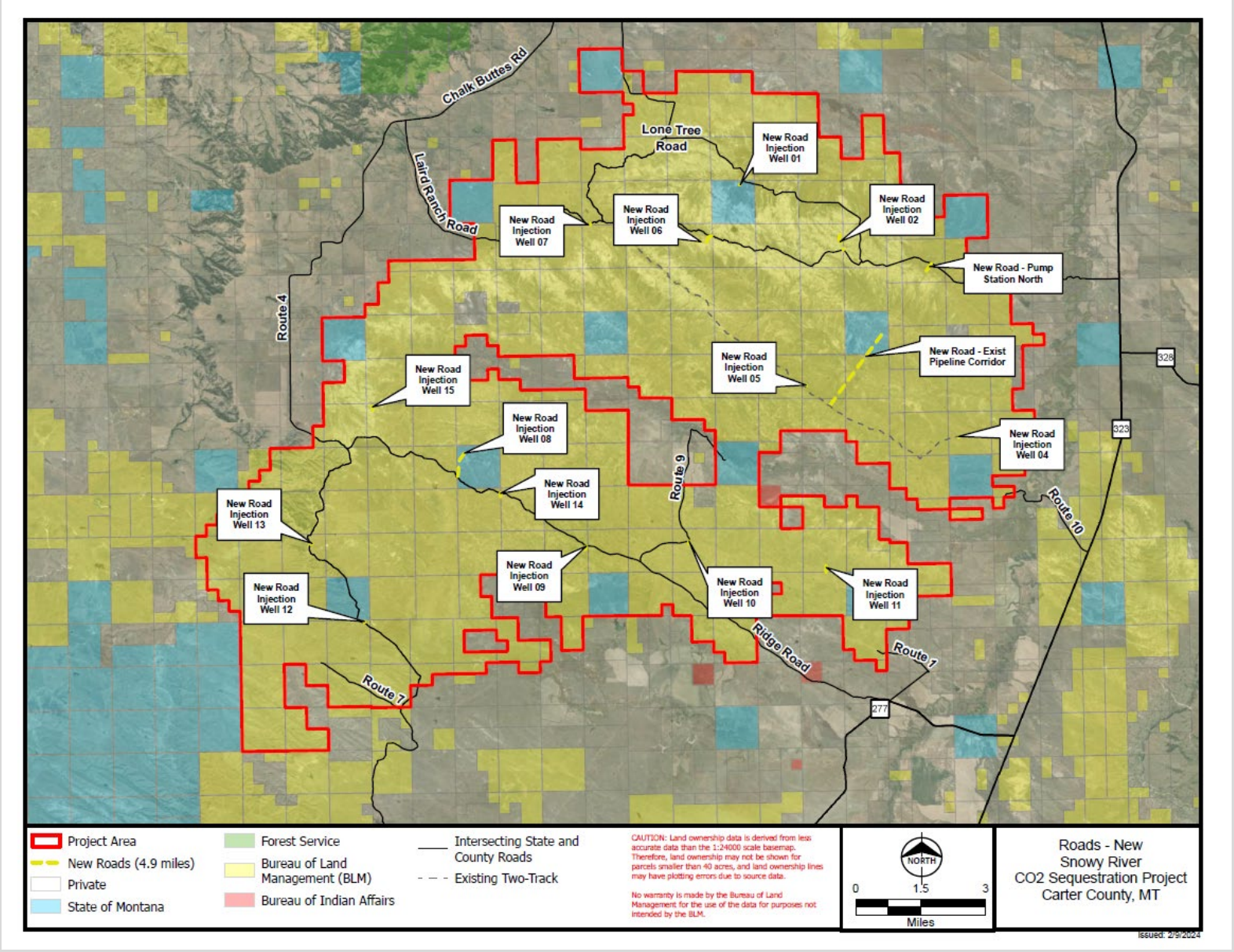
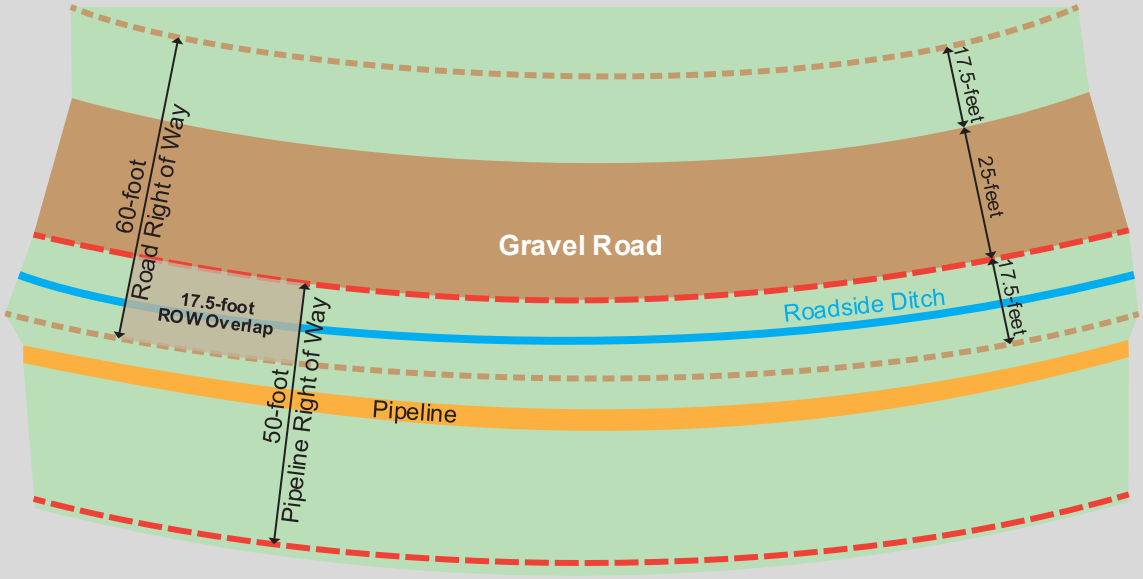


Figure 2-6: New Roads



existing 60-foot-wide ROWs for a 25-foot-wide road and the additional 17.5 feet will overlap with the bulkline and flowline ROWs, as described in Section 2.2.2 (see Figure 2-7 below). The remaining 17.5 feet of the existing road ROW will be outside of Denbury's proposed disturbance area. Existing developed roads may require surfacing material and maintenance to provide a safe surface for truck and equipment travel. Existing and new two-track roads will be maintained as two-track roads; no gravel will be used to improve two-track roads. Weed-free mats will be used to facilitate access for construction equipment and drilling rigs during wet conditions. One new 0.25-mile gravel road will be constructed to the Pump Station North. All roads will remain throughout Project operation to maintain and monitor the proposed facilities. See Section 4.3 for road construction and maintenance details.

Figure 2-7: Right of Way Overlap Illustration



The total acreage and linear feet of access roads by surface owner are provided in Table 2-5. A table that lists each access road is provided in Appendix E.

Table 2-5: Access Road Permanent ROW Requirements

Project Element	BLM	State of Montana	Private	Total
Existing Developed Road ROWs	13.6 miles 44.10 acres	1.5 miles 6.20 acres	9.5 miles 29.97 acres	24.6 miles 80.27 acres
Existing Two-Track ROWs	24.5 miles 74.33 acres	2.9 miles 8.66 acres	0.0 miles 0.00 acres	27.4 miles 82.99 acres
New Access Road ROWs	3.6 miles 10.97 acres	1.3 miles 3.80 acres	0.0 miles 0.00 acres	4.9 miles 14.77 acres

Project Element	BLM	State of Montana	Private	Total
Total Access Road ROW Requirements	41.7 miles 129.40 acres	5.7 miles 18.66 acres	9.5 miles 29.97 acres	56.9 miles 178.03 acres

All mileages and acreages are approximate and derived from GIS. Acreages and mileages are based on NAD 1983 Albers BLM MT ND SD projection. Short-term ROW for access roads will not be required.

2.2.4 Pump Station North and Pump Station South

A Project office and a CO_2 meter and pump station will be constructed near each of the two proposed connections with the CCA Pipeline on BLM land (Pump Station North and Pump Station South) as shown on Figure 2-8. The meter and pump stations will measure CO_2 flow from the CCA Pipeline and raise the CO_2 pressure for well injection, if necessary. Construction for each CO_2 meter and pump station will require a 5-acre permanent ROW, which will be maintained for the life of the Project (Table 2-6). Short-term ROWs will not be required to construct the pump stations or offices. As further described in Section 4.6, the 5-acre sites will be surfaced with gravel, and each will be surrounded by a 6-foot-tall chain link fence. Two single-story metal office buildings, each measuring approximately 12 feet wide by 42 feet long by 20 feet tall, will also be constructed at each site. The buildings will be constructed end to end as shown in Figure 2-9 and elevated to avoid build-up of snow drifts; office building figures are provided in Appendix F.

The office buildings will not have permanent occupancy. Potable water will be trucked in and held in storage tanks inside the building for office use. Portable septic tanks, similar to those used for recreational vehicles, will be installed at each office, and waste will be pumped and hauled off for disposal as needed.

Table 2-6: Pump Station Permanent ROW Requirements (acres)

Project Element	BLM	State of Montana	Private	Total
Pump Station North ROW	5.0	0.0	0.0	5.0
Pump Station South ROW	5.0	0.0	0.0	5.0
Total Pump Station ROW Requirements	10.0	0.0	0.0	10.0

All acreages are approximate and derived from GIS. The acreages are based on NAD 1983 Albers BLM MT ND SD projection. Short-term ROW for pump stations will not be required.

Upon completion of the Project and after injection wells are plugged, Denbury will remove the pump stations and reclaim the areas in accordance with terms and conditions of the ROW agreement with the BLM.

Figure 2-8: Proposed Pump Stations

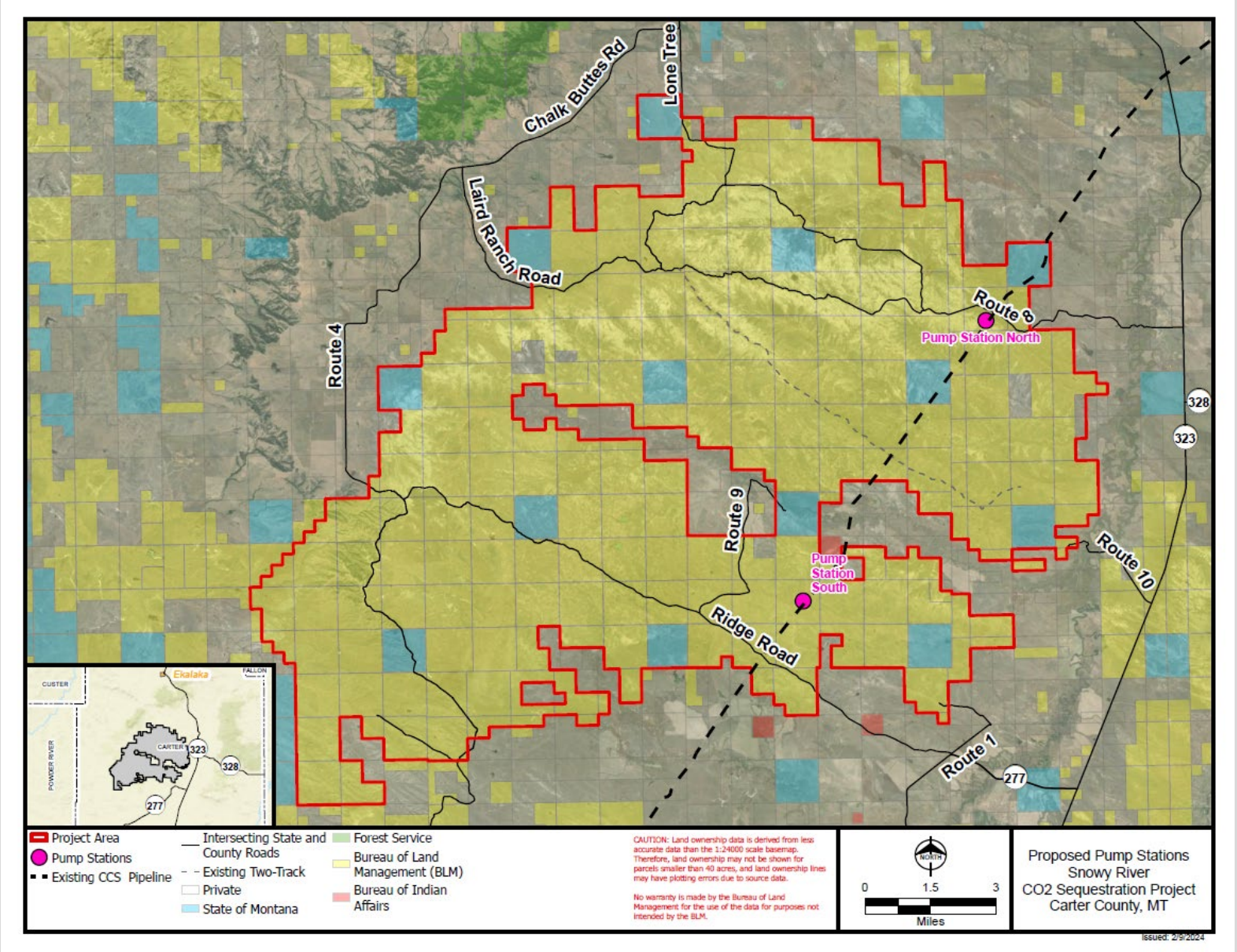
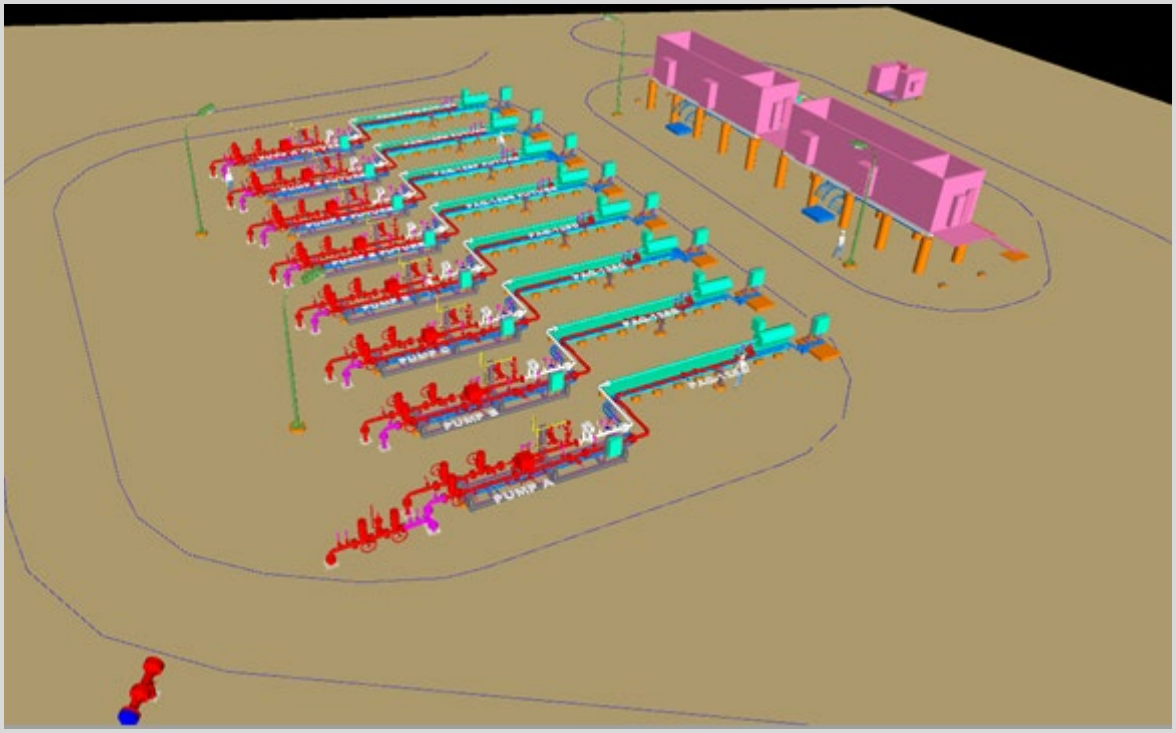


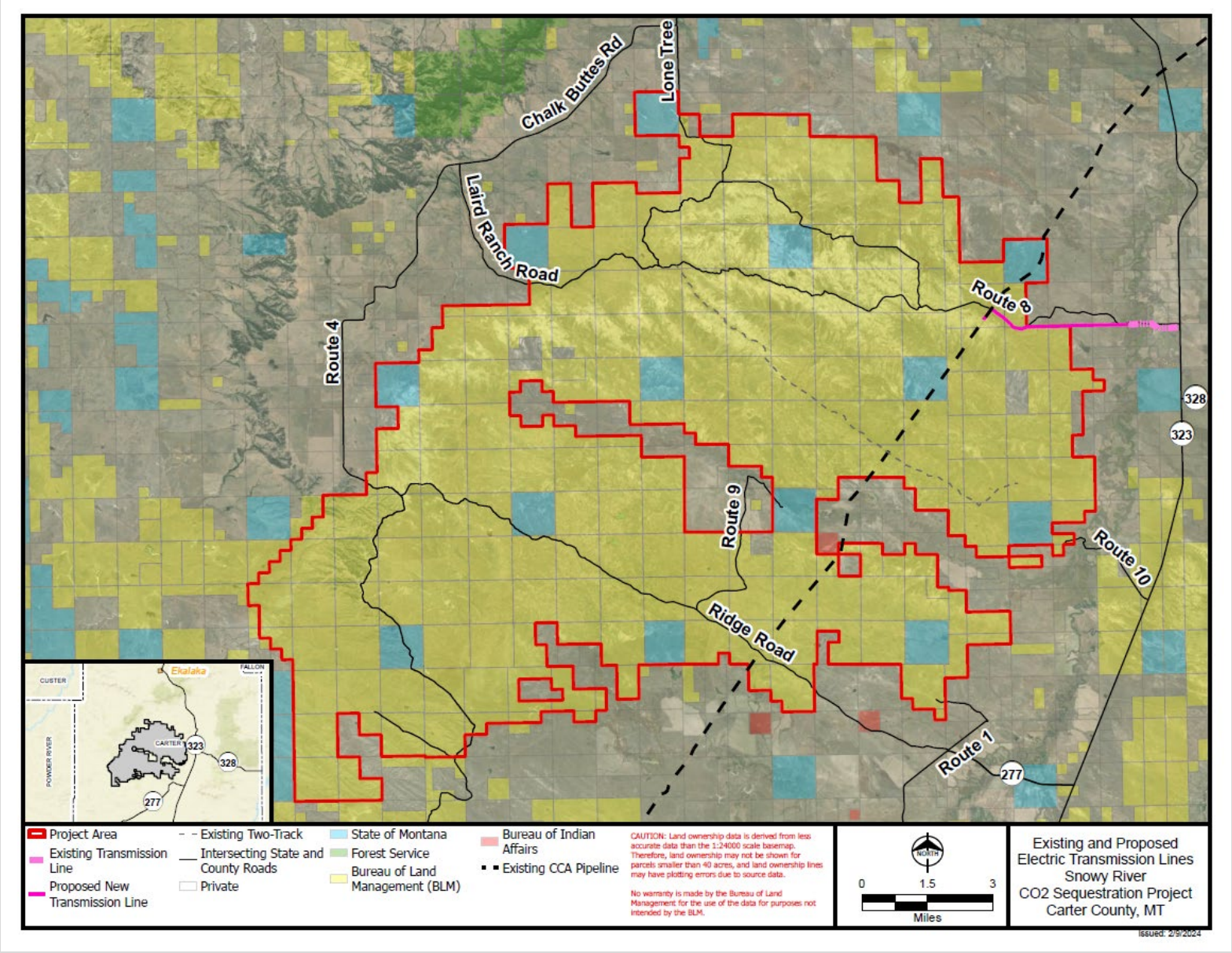
Figure 2-9: Pump Station Illustration



2.2.5 Electric Transmission Line Corridor

An approximately 4.8-mile-long 240 kilovolt electric transmission line will provide the 3-megawatt service required to supply power to the northern pump station (Figure 2-10). Approximately 1.2 miles of the proposed transmission line is an existing distribution line owned and operated by SE Electric that runs from Highway 323 to an existing residence / ranch. At the intersection of Highway 323 and Lone Tree Road, SE Electric has 3-phase power available. To meet the Projects' needs, SE Electric will connect to this 3-phase power, upgrade the existing distribution line, and construct 3.6 miles of new transmission line to Pump Station North. For the purposes of this POD and to support the National Environmental Policy Act (NEPA) analysis, Denbury evaluated an approximately 100-foot-wide corridor within which the powerline will be sited. The actual ROW width is expected to be narrower. SE Electric will submit a separate ROW application to the BLM for this electric transmission line ROW. Any BLM-requested design features associated with constructing and operating the transmission line, such as best practices listed in the Avian Power Line Interaction Committee's *Suggested Practices for Avian Protection on Power Lines* (Avian Power Line Interaction Committee, 2006), adherence to will be addressed in SE Electric's ROW application and review process.

Figure 2-10: Existing and Proposed Electric Transmission Lines



Proposed construction methods are further described in Section 4.7. Transmission line structures will be wood. All access for the construction, operations and maintenance of this transmission line will be within the 100-foot corridor crossing BLM land and private properties. The acreage of electric transmission line within the 100-foot-wide corridor proposed on BLM land is provided in Table 2-7. Actual short-term and permanent ROW requirements will be submitted in SE Electric's ROW application at a future date.

Table 2-7: Electric Transmission Line Corridor (North Pump Station)

Project Element	BLM	State of Montana	Private	Total
Existing Electric Transmission Line Length (miles)	0.0	0.0	1.2	1.2
Proposed Electric Transmission Line Length (miles)	2.3	0.0	1.3	3.6
Total Electric Transmission Line Length (miles)	2.3	0.0	2.5	4.8
Existing Electric Transmission Line 100-foot-wide Corridor[1] (acres)	0.0	0.0	14.5	14.5
Proposed Electric Transmission Line 100-foot-wide Corridor[1] (acres)	25.4	0.0	19.0	44.4
Total Electric Transmission Line Corridor Requirements (acres)	25.4	0.0	33.5	58.9

All acreages are approximate and derived from GIS. The acreages are based on NAD 1983 Albers BLM MT ND SD projection.

[1] Includes acreage within a 100-foot-wide corridor used for this analysis. Actual ROW width is expected to be narrower. The transmission line will be constructed, and the ROW will be maintained by SE Electric. Actual ROW impacts will be assessed in a separate ROW application.

A new transmission line or other power source will be required to provide power to the southern pump station. As discussed in Section 4.0 of this POD, Pump Station South will not be constructed until Group 5 facilities are constructed. The location and routing of the powerline for Pump Station South is currently unknown.

The electric transmission line for both pump stations will be sited, constructed, owned, maintained, and operated by SE Electric who will submit a separate application to obtain a ROW across BLM land and other properties, as required.

2.2.6 Bonding For All ROW Elements

Denbury will provide a surety bond for the permanent ROWs and short-term ROWs that the BLM grants for the Project. The performance and reclamation bond will cover the construction, operations, maintenance, and termination/reclamation of the ROWs. Denbury will provide the BLM Authorized Officer a reclamation cost estimate (RCE), as authorized in 43 Code of Federal Regulations (CFR) 2805.20(a)(3), and will coordinate with the Authorized Officer to provide additional information, as needed, during the BLM's review of the RCE. Once the BLM has determined the bond amount, Denbury will secure and maintain the bond until restoration of disturbed areas and other requirements relative to the construction phase of the Project have been accepted by the BLM Authorized Officer.

Pursuant to the UIC Class VI regulations, owners or operators of Class VI wells must demonstrate and maintain financial responsibility for corrective action on wells in each Area of Review (AoR), injection well plugging, post-injection site care (PISC) and site closure, and emergency and remedial response phases [40 CFR 146.85(a)]. Under

40 CFR 146.85(a)(1), specific qualifying independent third-party and self-insurance instruments are listed for use in financial responsibility demonstrations. Qualifying independent third-party instruments listed include trust funds, surety bonds, letters of credit, insurance, and escrow accounts.

The ROW requirements for proposed surface elements are summarized in Table 2-8. A summary of the workspace requirements that would require short-term ROWs is provided in Table 2-9. Table 2-10 summarizes the length of proposed linear surface elements.

Table 2-8: Summary of ROW Grants / Corridor (acres)

Project Element	BLM (acres)	State (acres)	Private (acres)	Total (acres)
Well Pad Permanent ROW (300-foot by 300-foot)	24.80	6.20	0.00	31.00
Bulklines Permanent 50-foot ROW	134.46	7.91	0.00	142.36
Flowlines Permanent 50-foot ROW	76.36	20.38	0.00	96.74
Existing Developed Permanent Road ROW (25-foot)	44.10	6.20	29.97	80.27
Existing Two-Track Permanent ROW (25-foot)	74.33	8.66	0.00	82.99
New Permanent Access Road ROW (25-foot)	10.97	3.80	0.00	14.77
Pump Station North Permanent ROW	5.00	0.00	0.00	5.00
Pump Station South Permanent ROW	5.00	0.00	0.00	5.00
Existing Electric Transmission Line 100-foot-wide corridor[1]	0.00	0.00	14.50	14.50
Proposed Electric Transmission Line 100-foot-wide corridor[1]	25.40	0.00	19.00	44.40
Total	**400.42**	**53.15**	**63.47**	**517.03**

All acreages are approximate and derived from GIS. Acreages are based on NAD 1983 Albers BLM MT ND SD projection. Includes the proposed permanent footprint of the Project facilities.

[1] Includes acreage within a 100-foot-wide corridor used for this analysis. Actual ROW width is expected to be narrower. The transmission line will be constructed, and the ROW will be maintained by SE Electric. Actual ROW impacts will be assessed in a separate ROW application.

Table 2-9: Summary of Short-Term ROW

Project Element[1]	BLM (acres)	State (acres)	Private (acres)	Total (acres)
Well Pads Short-Term ROW	32.50	8.22	0.00	40.73
Bulklines Short-Term ROW	81.33	4.60	0.0	85.92
Total	**111.8**	**12.8**	**0.0**	**124.6**

There is no temporary workspace proposed for construction of the flowlines, pump stations, or the electric transmission line. All work will take place within the proposed permanent impact area. No temporary access roads are proposed.
All acreages are approximate and derived from GIS. Acreages are based on NAD 1983 Albers BLM MT ND SD projection.
[1] Includes the area outside of the permanent ROW which will be temporarily disturbed and then reclaimed upon the completion of construction. The total construction area is the sum of permanent acreages in Table 2-8 and the temporary workspace requirements in this table.

Table 2-10: Summary of Lengths of Linear Project Elements

Project Element[1]	BLM (miles)	State (miles)	Private (miles)	Total (miles)
Bulklines	22.4	1.3	0.0	23.7
Flowlines	12.5	3.4	0.0	15.9
Existing Developed Permanent Road ROW (25-foot)	13.6	1.5	9.5	24.6
Existing Two-Track Permanent ROW (25-foot)	24.5	2.9	0.0	27.4
New Permanent Access Road ROW (25-foot)	3.6	1.3	0.0	4.9
Existing Electric Transmission Line	0.0	0.0	1.2	1.2
Proposed Electric Transmission Line	2.3	0.0	1.6	3.6

All mileages are approximate and derived from GIS. Mileages are based on NAD 1983 Albers BLM MT ND SD projection.

2.3 Project Sequence

This section describes the proposed sequence of events from the initial steps of obtaining ROW agreements from the BLM through the permitting, construction, and injection stages, to post-injection abandonment, reclamation, and monitoring. Denbury proposes to develop the Project in stages with the first group of activities involving construction of one stratigraphic test well, followed by a sequential build-out of up to 15 injection wells, associated infrastructure, and CO2 injection over a 20-year period. Because the full build-out of the Project will take place over a 20-year period, the Project sequence will not occur linearly for the overall project. The permitting, construction, and injection stages for any group of wells (and associated infrastructure) will overlap. The overall Project sequence is shown in Figure 2-11; each step is described below.

2.3.1 BLM ROW

Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) and its implementing regulations, 43 CFR Part 2800, authorize the U.S. Department of the Interior BLM to issue ROW authorizations to geologically sequester CO_2 in federal pore space, including for necessary physical infrastructure and for the use and occupancy of the pore space itself (BLM, 2022). As noted in the Project description, Denbury submitted a ROW application for a 30-year term to construct and operate the elements described in this POD. Denbury must obtain a ROW agreement from the BLM. Additionally, the terms and conditions of certain ROW grants will require Denbury to notify the BLM Authorized Officer prior to any ground disturbance or to obtain NTP.

2.3.2 Stratigraphic Test Well

In consultation with the EPA, Denbury will permit and drill a stratigraphic test well on property managed by the State of Montana. In addition, Denbury will obtain access for use and development of proposed roads, pipelines, and well pads on State lands. The Montana DNRC will be responsible for reviewing and issuing agreements for activities on State lands which may include leases, ROWs, and/or temporary use permits. The Montana BOGC is responsible for issuing drilling permits.

The well site will be accessed from Lone Tree Road and an existing two-track on BLM land. The technical insights gained from analyzing the test well data and a desktop review of existing seismic data will be used to refine the development plan and acquire permits for the injection wells. Denbury anticipates that field activities (e.g., drilling), laboratory testing, and evaluations during this stage will have a duration of approximately 18 months from the time BLM provides the NTP and the ecologically-based construction window opens. The stratigraphic test well, associated construction pad, and access road improvements are referred to as “Group 1” activities throughout this POD. Groups 2 and 7 also contain infrastructure (roads, well pads, pipelines) proposed on State lands.

2.3.3 EPA Permit to Convert and Construct Injection Wells

The injection and storage of CO_2 in geologic formations is regulated under the EPA Class VI UIC permit program codified at 40 CFR Part 146, Subpart H. In Montana, the Class VI UIC Permit program is administered by EPA Region 8. After data have been acquired from the stratigraphic test well, Denbury will apply for a UIC Class VI injection well permit from the

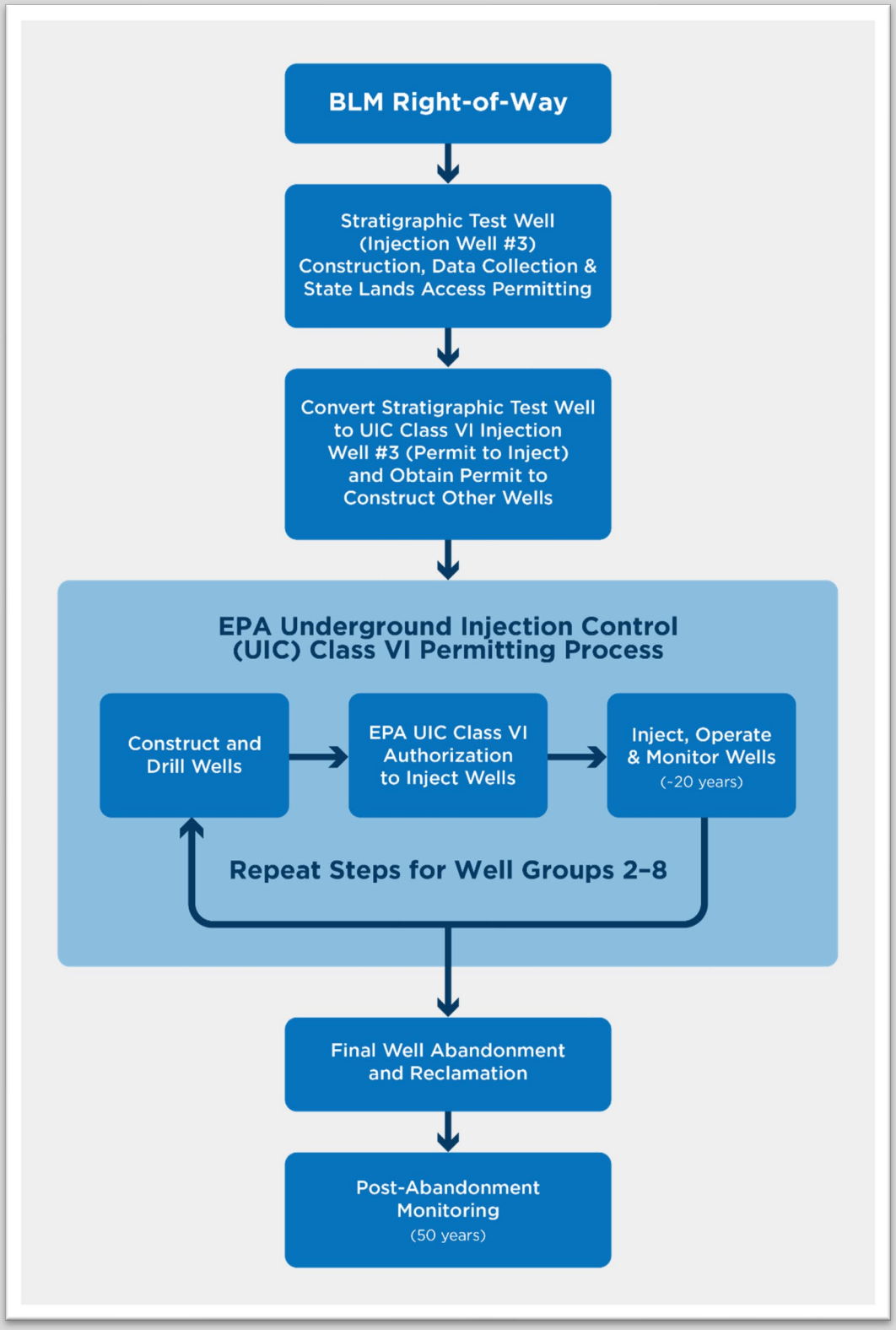


Figure 2-11: Project Sequence

EPA to convert the test well to an injection well. Concurrently, Denbury will apply for a Permit to Construct the remaining 14 wells. The Class VI UIC applications will provide detailed plans for all stages of the well's lifecycle including siting, construction, operation, integrity testing, monitoring, and closure. Details of the permitting process are provided in Appendix A.

Proper construction of a Class VI injection well is necessary for safe CO_2 injection into and containment within the targeted injection zones for the protection of underground sources of drinking water (USDWs). Denbury will provide design details to describe the construction, testing, and operating requirements for the Class VI injection well(s). The well construction plan for each well will include schematics or appropriate drawings of the surface and subsurface construction details of the well, casing and cement specifications intended for use within the Class VI wells, tubing details, and packer specifications.

2.3.4 Construct and Drill Injection Wells

Upon receipt of the EPA permits and BLM's NTP, Denbury will convert the stratigraphic test well to Injection Well 03 and will begin construction of the "Group 2" activities which include construction of the northernmost bulkline, two injections wells and associated flowlines, the Pump Station North, the powerline, and access roads associated with these facilities. Specific elements associated with Group 2 activities are detailed in Table 4-1 and Appendix C construction maps.

This step will be repeated for Group 3 through Group 8 activities, which generally include two wells per group and associated infrastructure, over a 20-year period. Specific elements associated with each Group activities are detailed in Table 4-1.

Throughout the EPA review and implementation of the Class VI UIC permit, Denbury will coordinate with the BLM Miles City Field Office (MCFO) for review of the Class VI UIC application and involvement in well construction, drilling, and injection, monitoring, and abandonment operations. The involvement of the BLM in the EPA Class VI process will allow Denbury and BLM to coordinate protection of hydrocarbons with development potential in the Project area.

2.3.5 EPA Authorization to Inject

Information gained during well construction will be used to support a request for EPA Authorization to Inject for each well. Applications will include the results of pre-operational formation testing, updated information about site geology, the final well-specific AoR[1], and as-built engineering drawings. Supporting plans will be updated based on the construction activities and will be provided to the EPA for review and approval. EPA UIC Class VI Permit requirements are summarized in Appendix A. Denbury will initially focus on permitting the Group 2 wells. Group 3 through 8 wells will follow an identical path, with EPA Permits and Authorizations to Inject being obtained while construction and drilling of each group is completed.

2.3.6 Inject, Operate, and Monitor Wells

The injection stage is the operational stage where CO_2 is actively injected into the geologic storage formations. There currently are no agreements in place for CO_2 sources. Agreements will be obtained when an EPA Class VI well injection permit is obtained. After Denbury obtains the Authorization to Inject for each injection well, and agreements are in place, CO_2 injection will commence. The injection stage will include routine monitoring of the system's performance in accordance with the EPA's Permit, Authorization to Inject, and Project plans including the Testing and Monitoring (T&M) Plan, Quality Assurance and Surveillance Plan (QASP), and Monitoring, Reporting,

[1] Each well will have an associated Area of Review (AoR) under the UIC Class VI permit. The AoR extents of all 15 proposed injection wells will be encompassed by the Area of Interest (AoI).

and Verification (MRV) Plan. Data will be provided to the EPA at specified intervals during the injection phase, as defined in permit conditions.

The information generated and submitted to the EPA would demonstrate that the well is designed to maintain integrity and the carbon dioxide plume and pressure front will behave as predicted to ensure containment and protection of USDWs. Testing and monitoring data which indicates integrity or containment concerns triggers additional evaluation and/or corrective action described in the Emergency and Remedial Response Plan. Reviewing data on Project performance or the position of the plume and pressure front can validate modeled predictions or identify the need for appropriate responses. Data generated during injection phase activities from each well will be used in conjunction with groundwater monitoring above the confining zone to inform UIC permits for subsequent well construction.

2.3.7 Final Well Abandonment and Reclamation

The final well abandonment and reclamation stage begins when the CO_2 injection phase ceases. During this stage, Denbury will implement tasks described in its Injection Well Plugging Plan, which will describe how the well will be flushed with a buffer fluid; how bottomhole reservoir pressure will be determined; how final external mechanical integrity tests will be performed; and what method, material, and depths for placement of plugs will be used within the injection wells. The Injection Well Plugging Plan will be submitted to the EPA with the Permit application and will be approved by the EPA as part of the UIC Class VI Well permitting process.

Denbury will restore the site in accordance with its project-specific Reclamation, Mitigation, and Monitoring Plan, provided as Appendix G, and as required by BLM ROW agreement conditions.

2.3.8 Post-Abandonment Monitoring

Denbury will maintain and implement a PISC and Site Closure Plan that meets the requirements of 40 CFR 146.93. The plan will include a description of post-injection monitoring locations, methods, and proposed frequency. Denbury will monitor the site to track the position of the CO_2 plume and pressure front and perform groundwater quality monitoring to demonstrate that USDWs are not endangered. The post-injection plugging, monitoring, and closure phase will extend for the timeframe established in the permit (e.g., 50 years) following the termination of CO_2 injection. This phase will conclude upon receipt of certificates of completion from the EPA and State of Montana.

Denbury will monitor reclaimed lands in accordance with its project-specific Reclamation, Mitigation, and Monitoring Plan, provided as Appendix G, and as required by BLM ROW agreement conditions. Monitoring will continue until success criteria defined by the ARMP for the BLM Miles City Office are met, and the BLM Authorized Officer releases Denbury from further monitoring requirements.

2.4 Permitting and Agency Involvement/List of Permits

The proposed Project crosses federal, state, and private land and is subject to federal, state, and local permit requirements. The Project will also require agreements with landowners for ROWs for surface elements and pore space on private property. Denbury will secure all required permits for the Project from applicable federal and state agencies. Denbury will coordinate early with the BLM for any subsequent permits or approvals on BLM administered lands. A list of permits and/or approvals that are required prior to construction is included in Table 2-11.

Table 2-11: Required Permits and Approvals

Administering Agency	Permit/Approval	Authorizing Action
Bureau of Land Management	Right-of-Way Grants	ROW grants for the sub-surface pore space and surface elements described in Section 2.2
Bureau of Land Management	Notice to Proceed	Following the issuance of a ROW grants, the terms and conditions on certain ROWs may require an NTP to be issued prior to the holder initiating any surface disturbance.
U.S. Army Corps of Engineers	Permit for Dredged or Fill Material (404 Permit)	Placement of fill or dredged material in waters of the U.S. (WOTUS), including jurisdictional wetlands
U.S. Environmental Protection Agency	Class VI UIC Well Permits	Federal Requirements Under the Underground Injection Control Program for Carbon Dioxide Geologic Sequestration Wells Final Rule (Class VI Rule) 40 CFR 144, 146
U.S. Environmental Protection Agency	Greenhouse Gas Reporting Rule 40 CFR 98 Subpart RR (RR) requires reporting of greenhouse gases (GHGs) from facilities that inject carbon dioxide underground for geologic sequestration	Certificate of Representation Proposed MRV plan Subpart RR final decision
U.S. Environmental Protection Agency	Clean Water Act	Spill Prevention, Control, and Countermeasure Plans
U.S. Fish and Wildlife Service	Consultation under Section 7 of the Endangered Species Act	Consultation with U.S. Fish and Wildlife Service for threatened and endangered species
U.S. Department of Transportation	Pipeline and Hazardous Materials Safety Administration (PHMSA) Compliance	Type F notification 60 days prior to commencing construction
Montana Board of Oil and Gas Conservation	Drilling permits and notifications	Drilling
Montana Department of Environmental Quality	Section 401 Water Quality Certification for Stream Crossings	State approvals for 404 Permits for stream crossings
Montana Department of Environmental Quality	Short-Term Water Quality Standard for Turbidity – 318 Authorization	Construction activities that will cause short-term or temporary violations of state water quality standard for turbidity
Montana Department of Environmental Quality	Individual Montana Pollutant Discharge Elimination System Discharge Permit	Discharges of hydrostatic test water
Montana Department of Environmental Quality	General Permit for Construction Dewatering	Discharges for construction dewatering

Administering Agency	Permit/Approval	Authorizing Action
Montana Department of Environmental Quality	Montana Air Quality Permit and/or Registration	Permits and/or registrations for emissions from new or modified sources; prevention of significant deterioration (if applicable); control of hazardous air pollutants, hydrogen sulfide, and volatile organic compounds.
Montana Department of Natural Resources and Conservation	Montana Water Use Act – Water Right Permit	Permit for diversion, appropriation, and beneficial use of surface and ground water
Montana Department of Natural Resources and Conservation	Authorization of Activities on State Trust Land	Approval of agreements (leases, ROWs, and Temporary Use Permits)
Montana Fish, Wildlife, and Parks	Montana Stream Protection Act – 124 Permit	Construction activities that alter the bed or banks of any stream, perennial or otherwise
Montana Department of Transportation	Transport Permits	Permit for oversize, over length, and overweight loads
Montana State Engineer	Water Agreement for Temporary Use of Water	Temporary water use for hydrostatic testing, and dust abatement
Montana State Historical Preservation Office	Cultural Resource Clearances	Cultural Resource Permit under the National Historic Preservation Act
Carter County	Road Use Authorization	Overweight and over length loads on county roads, and county road maintenance agreements.
Carter County	Conditional Use and Special Use Permits, Zoning	New structures
Carter County	County Road Departments	Crossing permits
Private Landowners	Underground Pore space	Landowner Agreement
Private Landowners	Access/Use of private lands	Landowner Agreement

3.0 Project Geology

The characterization of Project geology will be developed during the UIC Class VI permit process using an iterative process that begins with a review of literature sources and interpretation of available well logs. The initial characterization will be refined and verified as additional data becomes available by way of a stratigraphic test well, seismic studies, and geologic and reservoir model development. The geologic characterization will be updated periodically during the operational phase of the Project.

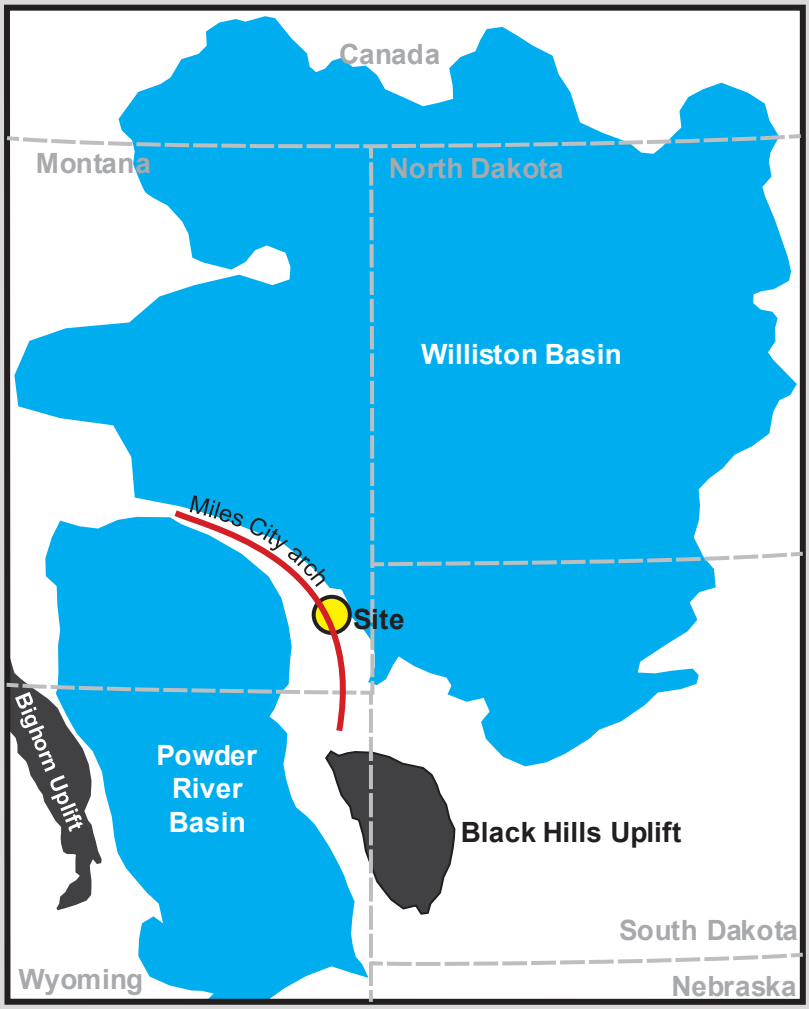
3.1 Site Characterization

The AoI is located within the Central Rocky Mountain Foreland physiographic province of the unglaciated Missouri Plateau. The province consists predominantly of gently rolling plains with shallow creek valleys and broad flat divides. The landscape is semiarid with infrequent badland areas. In this semiarid climate, landscape is directly controlled by the characteristics of underlying bedrock. Remnants of younger, relatively resistant sandstone formations form the prominent pinnacles and ridges of the Ekalaka Hills (to the north), the Blue Mud or Long Pine Hills (to the east), and the Chalk Buttes (to the northwest) (USDA-NRCS, c1992).

The AoI is situated along the Miles City arch between the Powder River basin to the southwest and the Williston basin to the northeast. The general basin extents are shown on Figure 3-1. The structural axis of the Miles City arch extends from Miles City, Montana to the south-southeast and merges into the Black Hills Uplift. The structure of the Miles City arch is shown on Figure 3-2. In the Project vicinity the arch exhibits a shallow dip to the north-northeast.

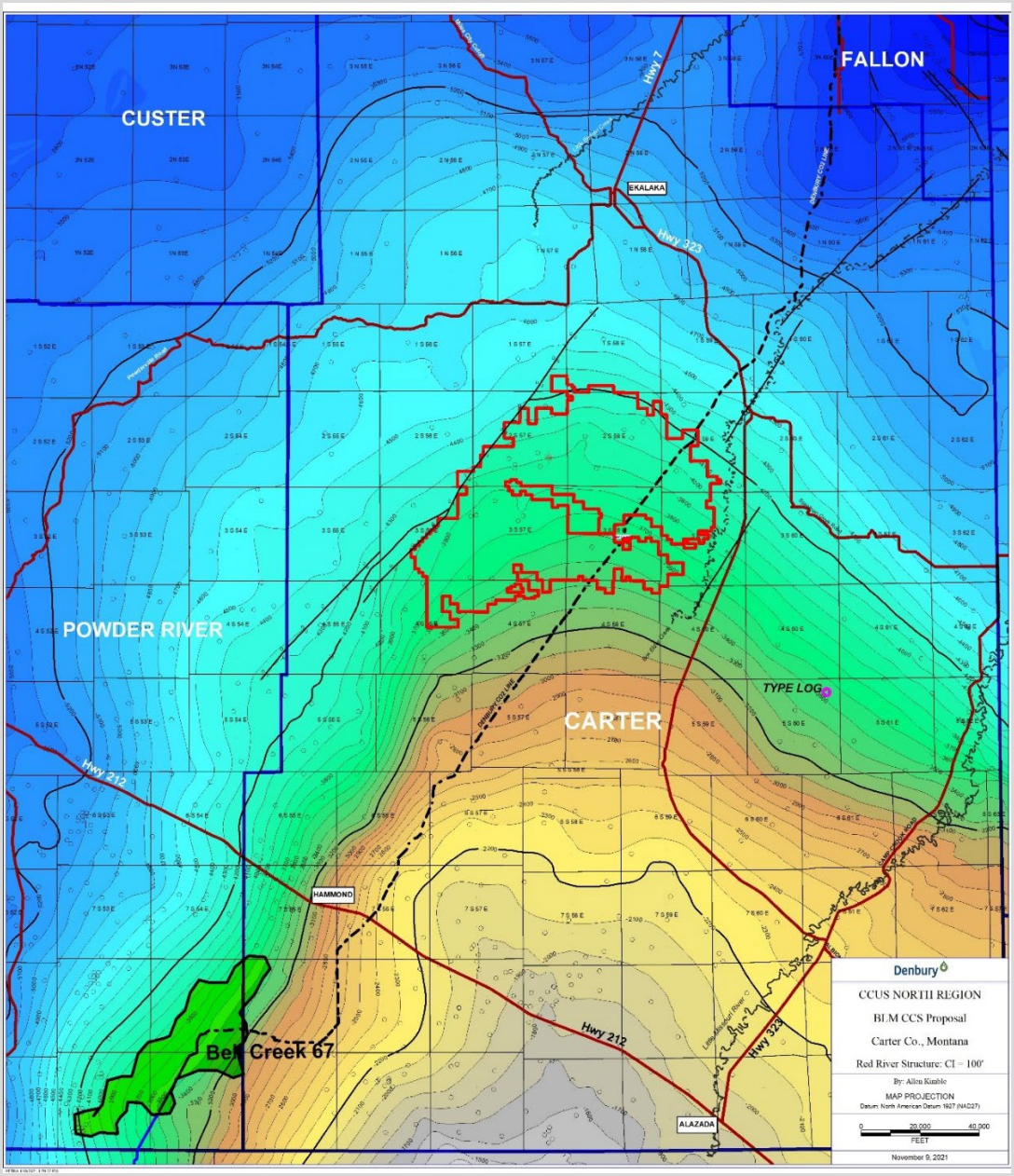
The area surrounding the AoI displays landforms associated with the breached anticline of the Miles City arch. The uppermost bedrock unit prevalent within the AoI is the Pierre Shale. Younger Upper Cretaceous formations comprised of the Fox Hills Formation and the Hell Creek Formation are present on the ridges the Ekalaka Hills, Blue Mud Hills, and the Chalk Buttes, and some buttes are also capped by Tertiary Fort Union Group and Arikaree Formations. A conceptual diagram of the breached anticline landforms is provided in Figure 3-3.

Figure 3-1: Geologic Setting



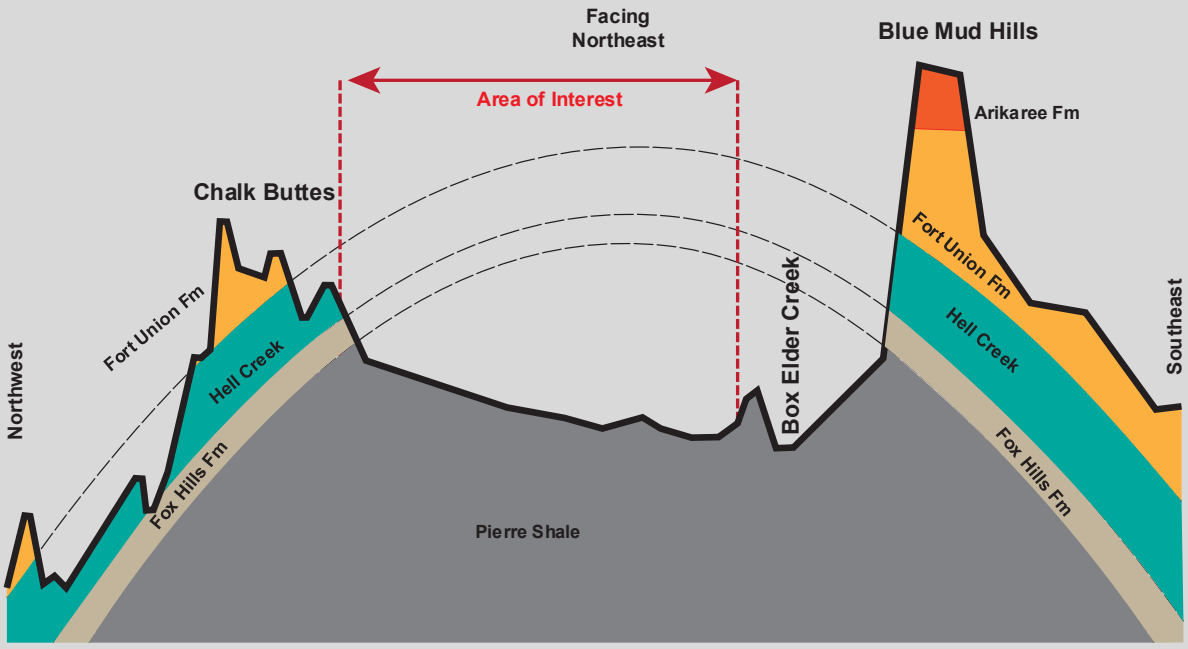
Source: modified from Thamke et al., Hydrogeologic Framework of the Uppermost Principal Aquifer Systems in the Williston and Powder River Structural Basins, United States and Canada (Thamke, LeCain, Ryter, Sando, & Long, 2014)

Figure 3-2: Project Area Subsurface Red River Structure Map



Contour interval 100 feet

Figure 3-3: Miles City Arch Landforms Conceptual Diagram



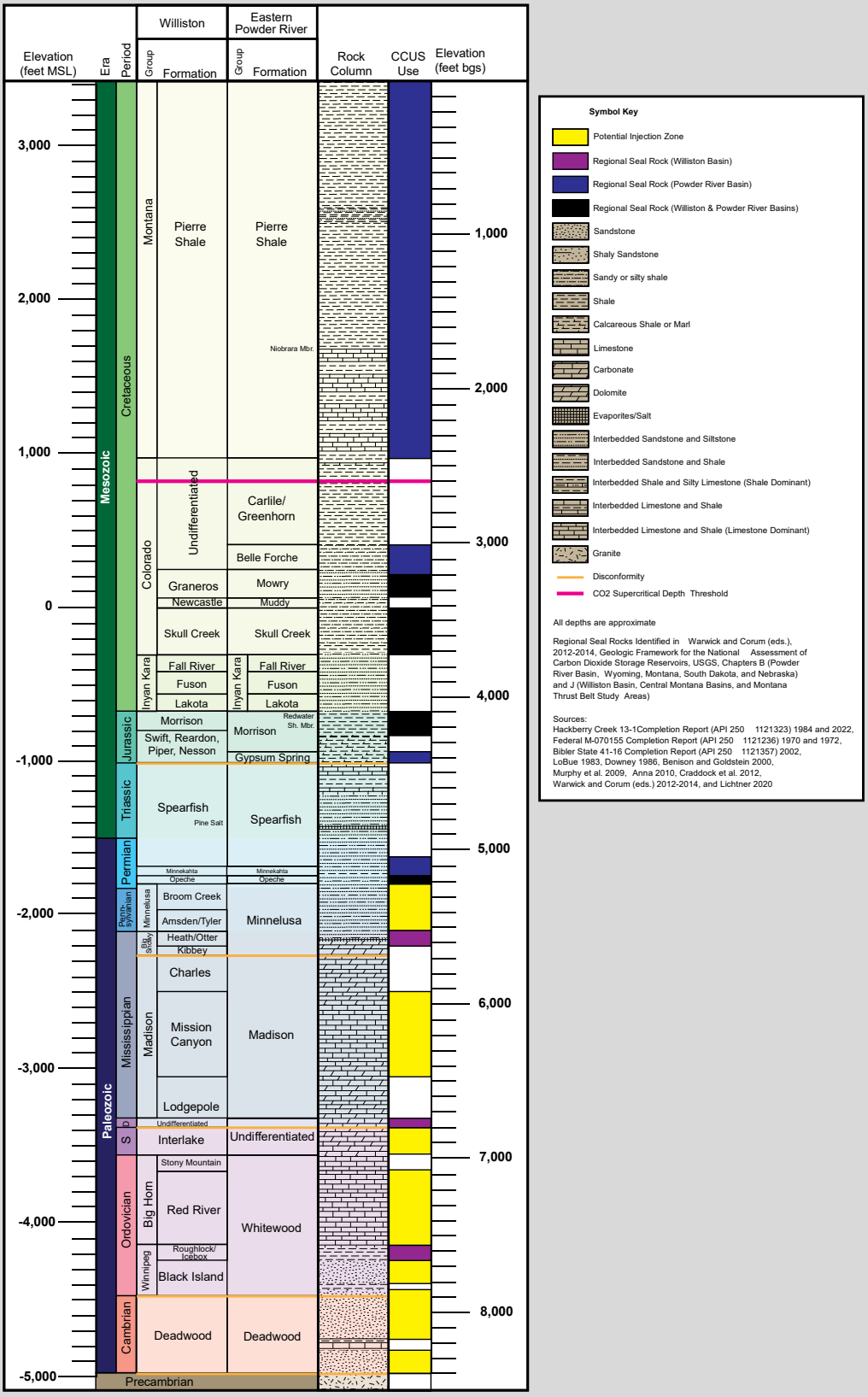
Not to scale. Vertical exaggeration is extreme.

The Miles City Arch has been extensively explored by the petroleum industry but has no significant commercial production from the major intervals as is seen in the adjacent Powder River and Williston basins. A summary of the water and petroleum exploration wells within one mile of the AoI is provided in Appendix H.

The Project area is underlain by approximately 8,400 feet of sedimentary deposits overlying granite basement rock. The sedimentary rocks are primarily of shallow marine origin and are comprised of shales, carbonates, and sandstones. A stratigraphic column representative of the Project area is provided in Figure 3-4.

The potential CO_2 storage intervals are located in Paleozoic zones ranging in depth from approximately 5,200 feet below ground surface (bgs) (-1800 feet Mean Sea Level [MSL]) to 8,400 feet bgs (-5,000 feet MSL). These Paleozoic zones stack up to provide a significant CO_2 storage opportunity in the Pennsylvanian, Mississippian, Silurian, Ordovician and Cambrian systems. These zones were selected based on the depth required for CO_2 to exist in a supercritical state (i.e., greater than 2,600 feet bgs) with sufficient porosity (e.g., sandstones and carbonates), and bounded by suitable sealing formations (e.g., shale and anhydrite).

Figure 3-4: Project Area Type Log, Carter County, Montana



3.2 Storage Intervals

CO_2 sequestration in deep saline aquifers can be suitable for high-capacity carbon storage. The geological selection criteria for storage intervals include reservoir depth, thickness, porosity, permeability, structure, seal integrity, salinity, and geochemical compatibility with the injectate. The injectate will originate from the Denbury CCA Pipeline, which transports CO_2 which has been processed to remove contaminants including water, hydrocarbons, and hydrogen sulfide (H_2S).

Storage intervals were identified based on the U.S. Geological Survey (USGS) *Geologic Framework for the National Assessment of Carbon Dioxide Storage Reservoirs* and existing petroleum exploration wells, which indicate that over 900 feet of storage thickness, in aggregate, is possible. The Paleozoic carbonates and sandstones of interest are stacked, cyclic, and vary in thickness.

The identified formations exceed the minimum depth requirements of 2,600 feet bgs for the storage of CO_2 in a supercritical state (van der Meer, Hofstee, & Orlic, 2009). The multiple stacked reservoir architecture increases the vertical heterogeneity, likely increasing the potential reservoir's storage efficiency. The zones targeted for potential storage and sequestration of CO_2 are, in descending order of capacity, the Madison (Mission Canyon and Lodgepole), Lower Deadwood/Flathead, Black Island, Red River, Minnelusa Group (Broom Creek, Amsden, and Tyler), Interlake, and the Upper Deadwood. The potential injection formations are summarized in Table 3-1.

Table 3-1: Storage Intervals and Sealing Formations

Potential Storage Formation (in descending stratigraphic order)	**Upper Sealing Formations**	**Lower Sealing Formations**
Minnelusa Group (Broom Creek, Amsden, and Tyler)	Opeche, Minnekahta, and Spearfish	Heath, Otter
Lodgepole and Mission Canyon	Heath, Otter	Devonian
Interlake	Devonian	Roughlock and Icebox
Red River	Devonian	Roughlock and Icebox
Black Island	Roughlock and Icebox	Precambrian
Upper Deadwood	Winnipeg Group	Precambrian
Lower Deadwood/Flathead	Winnipeg Group	Precambrian

3.2.1 Minnelusa Group (Broom Creek, Tyler, and Amsden Formations)

The youngest prospective injection targets are the Broom Creek, Amsden, and Tyler Formations of the Permian to Pennsylvanian Minnelusa Group, which include eolian sand dunes interbedded with low-porosity shallow marine dolomite, lagoonal mudstone, and evaporites from shallow marine environments. The Broom Creek is described as fine- to medium-grained sandstone, locally dolomitic, anhydritic, or chelty, interbedded with microcrystalline dolomite. The Amsden is described as being dominated by a dolomite facies and the Tyler formation was deposited in a shallow, restricted environment and is a mix of sandstone, dolomite and evaporite (Murphy, Nordeng, Juenker, & Hoganson, 2009).

The sand dune sequence is top sealed by the Permian Opeche Shale and shallower sealing units. The laterally continuous top seal is composed of variegated red mudstone, siltstone, sandstone and evaporite (Anna, Geologic Assessment of Undiscovered Oil and Gas in the Powder River Basin Province, Wyoming and Montana, 2010) (Benison & Goldstein, 2000).

3.2.2 Lodgepole and Mission Canyon Formations

The next prospective injection targets are the Mississippian Lodgepole and Mission Canyon shallow marine platform carbonates of the Madison Group. The Mission Canyon formation has an exceptional development of porosity and permeability that can be traced across Wyoming, Montana, and North Dakota. The thickness of this porous interval can range between 150 to 250 feet. Local correlations to the proposed site show over 200 feet of net reservoir (see Figure 3-4). These combined characteristics provide for an ideal target with substantial storage capacity.

A mixed sequence of tight carbonates and evaporites of the Charles Formation provide a regionally continuous top seal for the Madison.

3.2.3 Interlake Formation

The Silurian Interlake Formation is composed of a succession of dolostone and limestone beds. Multiple transgressive-regressive sequences, containing a wide variety of shallow water to subaerial environments, are quite common to this formation. The depositional systems active during Interlake time were very dynamic, resulting in extreme vertical variations of lithofacies (LoBue, 1982). This injection zone may include the underlying dolomitic members of the Stony Mountain Formation (equivalent to the Stonewall Formation and the Gunton Member of the Stony Mountain Formation) (Roehl, 1967) (Anna, Geologic Assessment of Undiscovered Oil and Gas in the Williston Basin Province, Montana, North Dakota, and South Dakota, 2013).

An impermeable and undifferentiated erosional Devonian section cap and seal this prospective injection formation.

3.2.4 Red River

Within the selected Project Area, the Ordovician is believed to have a complete section as described by Downey (Downey, 1986). The Red River formation is a porous limestone facies and a sequestration target. Previous work from Bighorn mapping isopachs suggests that changing tectonic elements account for non-deposition toward the central part of the Williston Basin. In this geological period, the Williston Basin was undergoing a transgression event resulting in a restricted epeiric sea (Treviño & Nicholson, 2017).

3.2.5 Black Island

The Black Island Formation is composed of quartzarenite and quartzwacke sandstones with finely laminated mudstone interbedding occurring in the lower part (Macke, 1993) (Murphy, Nordeng, Juenker, & Hoganson, 2009).

The Black Island was deposited in terrestrial fluvial and delta plain environments with the sandstones representing channel and bank deposits, and the mudstone representing flood-plain deposits (Macke, 1993).

3.2.6 Deadwood and Flathead Formations

The Cambrian Deadwood Formation is the result of a fluctuating shoreline associated with offshore bars, lagoons, beaches, and tidal flats on an embayed coastline. The Deadwood composed of fine to coarse-grained sandstone interbedded with dolomitic limestone, glauconite and shale (Macke, 1993).

The Cambrian Flathead Formation contains a lower unit of cross-bedded, medium-grained, clean sandstone that is locally shaly or conglomeratic at the base. The upper, parallel-stratified unit is coarse- to fine-grained, moderately clean sandstone at the base grading upward to interbedded fine-grained, shaly sandstone, siltstone, and shale. The Flathead overlies Precambrian granite basement rock (Macke, 1993).

3.3 Sealing Formations

The geological selection criteria for sealing formations are based on their ability to protect overlying USDWs from leakage of CO_2 and brine, and geochemical changes that could affect the USDW's water quality, such as the dissolution of heavy metals or leaching of organic compounds. The sealing formations will be evaluated for thickness, porosity, permeability, and geochemical compatibility with the injectate.

The major sealing formations within the AoI share similar evaporitic lithologies dominated by a halite mineralogy due to warm shallow seas in a restricted Williston Basin. In addition, there are numerous higher order sealing intervals interbedded between these primary confining units that will provide natural redundancy for CO_2 attenuation, greatly reducing the risk of a breach.

USGS's *Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources* has identified multiple regional seals within the Williston and Powder River Basins. Historically these same confining units have been known and are described by others as aquitards for the known deep saline aquifers in the region.

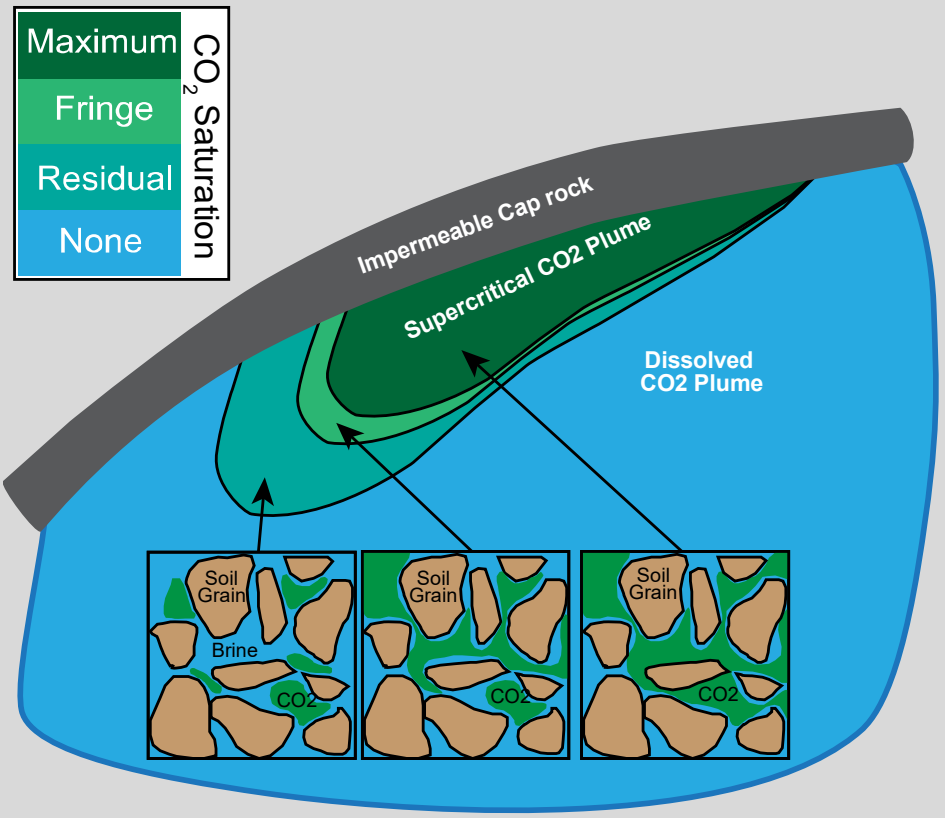
Three major seals, differentiated as upper, middle, and lower, have been identified for the AoI.

- The upper sealing formation is the Permian Opeche Shale which overlies the Madison. This lower Permian interval in conjunction with the overlying Minnekahta and halite beds of the Spearfish, create a final top seal with redundancy of over 500 feet. A series of additional sealing formations are present at depths shallower than the Spearfish, including the Jurassic Swift and Morrison Formations and the Cretaceous Skull Creek, Niobrara, and Pierre Shale Formations.
- The intermediate seal is composed of the Mississippian Heath and Otter Formations which overlies the Madison Group. The Heath Formation is composed of various marine lithologies including mostly black micritic shale interbedded with thin fossiliferous limestone and dolomite stringers, and minor gypsum/anhydrite occurrences (McClave, 2012). The Otter Formation consists predominantly of greenish-gray shale; locally it also contains interbeds of argillaceous limestone and dolomite and gypsum (Maughan & Roberts, 1967).
- The lower seal is the undifferentiated Devonian, which overlies intervals of Silurian age and older.
- The basement granite provides an additional regional seal below the Deadwood/Flathead.

The sealing intervals present within the AoI will be identified and delineated during the detailed evaluation phase using seismic attributes and well log data. Once delineated, Denbury will further analyze the sealing intervals using both empirical methods (notably, analysis of the environment of deposition/petrophysical properties) and quantitative methods (such as capillary pressure and fracture gradient analysis) to rank the quality of potential seals. More intensive analysis will occur once an injection site is selected, a stratigraphic test well is drilled, and conventional cores are taken. This will allow for more detailed laboratory analysis of the seals at in-situ conditions.

The horizontal migration of CO_2 in a supercritical state is limited due to the pressure necessary to displace brine from the pore space between grains of earth materials (e.g., sand grains in sandstone). This limitation may be estimated by a model and confirmed by plume monitoring.

Figure 3-5: Conceptual Diagram of Capillary Trapping



Modified from (Krevor, et al., 2015)

3.4 Faulting & Seismicity

The AoI displays some evidence of high angle reverse faulting as noted in the initial review of publicly available geologic surface mapping products. The faults identified in available maps are shown in Figure 3-6. Somewhat obscured, the northeast to southwest surface fault traces are likely associated with transgressional crystalline basement movement, dating back to the Archean – Early Proterozoic which were later reactivated during the early Cenozoic. Fault boundaries can act both as seals for CO_2 injected into the identified storage site, and as pathways for CO_2 leakage into adjoining porous strata, or as pathways for leakage and escape to the surface in areas where faults intersect the surface (Treviño & Nicholson, 2017). “Fault boundaries can limit fill capacity for storage targets through structural spill and juxtaposition of reservoirs …, fault-seal capillary-entry pressure, and fault–seal mechanical failure and fault re-activation” (Treviño & Nicholson, 2017).

The Williston basin faults are minor and localized, mostly caused by the dissolution of salt. The deeper the fault, the easier it is to be closed due to a uniform stress condition.” (Zhou, Zeng, Belobraydic, & Han, 2008). Faulting within the AoI will be mapped and analyzed regionally for verification of hydrocarbon column height sealing capacity, then converted to CO_2 column height equivalents with fault seal analysis methods such as Allen diagrams, shale-gouge ratio (SGR), capillary entry pressure calculations, and fault-slip stability estimations (Treviño & Nicholson, 2017).

The faults present in the area are not anticipated to affect CO_2 movement due to the distance from the proposed injection wells. Additional information on faults will be obtained by way of the iterative process described in

Section 3.0, including an evaluation of data acquired by the stratigraphic test well and 3D seismic studies. The faults will be included in the geologic and simulation models used to predict CO_2 movement to verify that CO_2 will be contained and USDWs will be protected.

Regarding seismicity, the USGS has proposed the AoI located in the lowest tier of predicted peak horizontal acceleration (Frankel, et al., 2005). Significant induced and/ or naturally occurring seismicity is considered a low-risk event in this portion of southeastern Montana. A seismic hazard map for the State of Montana is provided in Figure 3-7.

Figure 3-6: Desktop Review of Geologic Structural Features

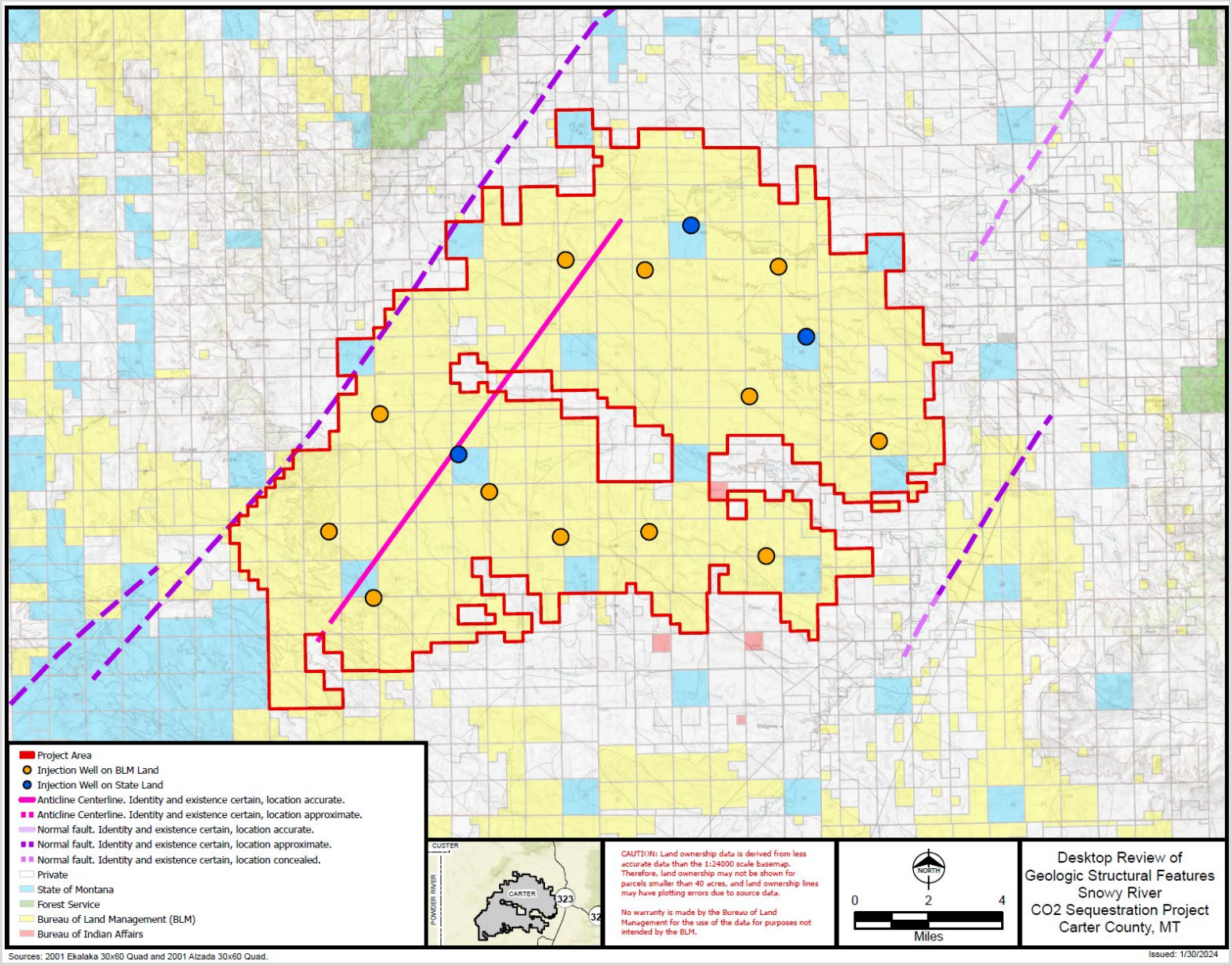
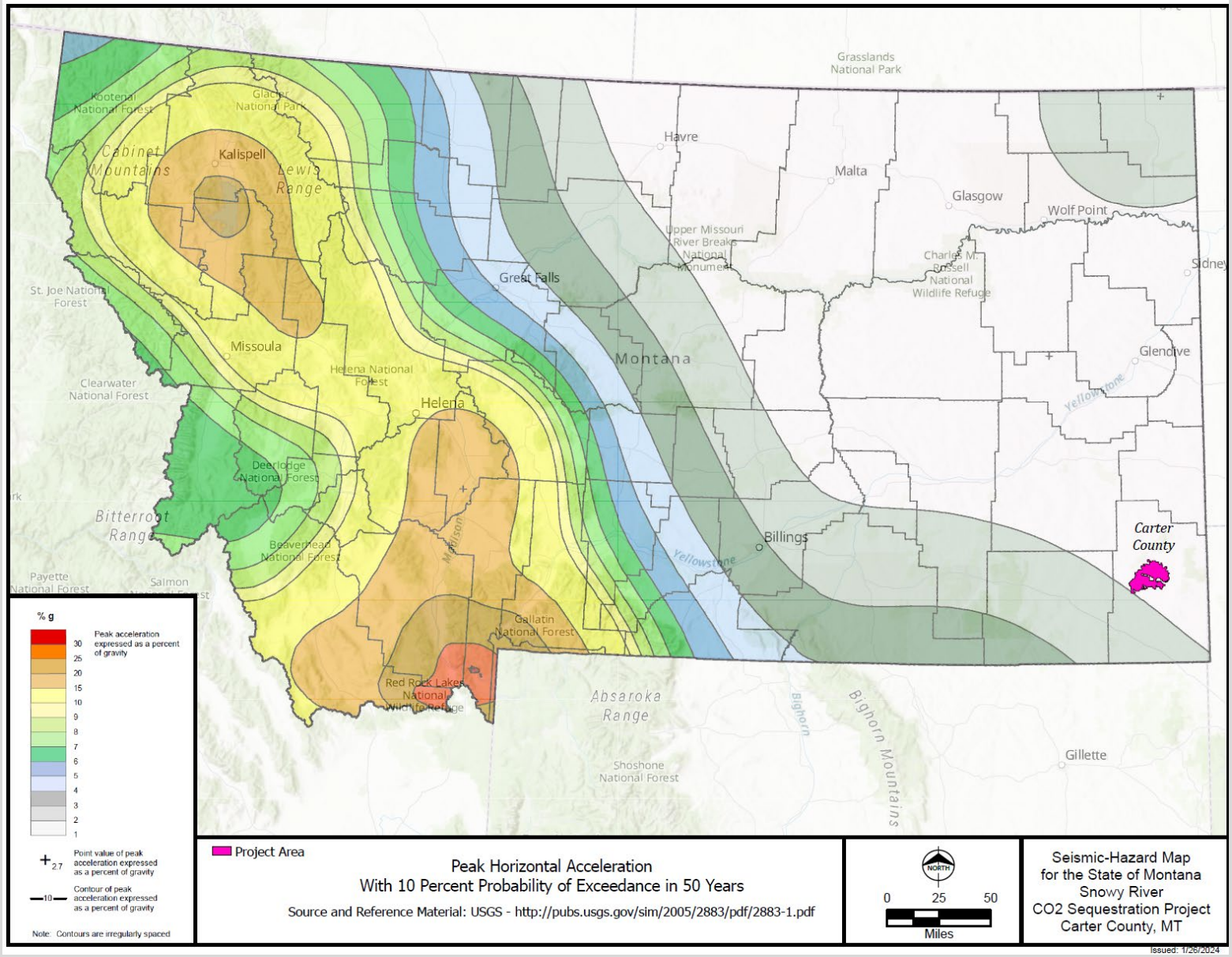


Figure 3-7: Seismic Hazard Map for the State of Montana



4.0 Project Construction and Operation

As described in the Project Sequence in Section 2.3, Denbury will construct the Project in stages. Specific elements associated with each Group activities are detailed in Table 4-1 and described below. Figure 4-1 illustrates the construction sequence for the overall Project. Figure 4-2 provides a closer view of the surface elements that will be constructed in the northern portion of the Project, and Figure 4-3 shows the elements in the southern portion of the Project. The maps in Appendix C provide a closer view of the proposed elements that will be constructed in each Group.

The northern portion of the Project includes Group 1 through Group 4 construction activities (Figure 4-2). Group 1 activities include construction of the stratigraphic test well, associated construction pad, and access road improvements. After data have been acquired from the stratigraphic test well and Denbury has obtained a UIC Class VI injection well permit from the EPA to convert the test well to Injection Well 03 and a Permit to Construct the remaining 14 wells, Denbury will proceed with Group 2 activities. This would include construction of the northernmost bulkline, two injections wells and associated flowlines, Pump Station North, the powerline, and access roads associated with these facilities. Group 3 and Group 4 activities each include construction of two injection wells, associated flowlines, and access roads to those facilities. Upon the completion of Group 4 construction activities, the northern portion of the Project, as shown in Figure 4-2, will be fully constructed.

Group 5 through Group 8 activities include the buildout of wells and associated infrastructure in the southern portion of the AoI. As shown in Figure 4-3 and detailed in Table 4-1, Group 5 activities include the construction of the second bulkline, Pump Station South, two injections wells and their flowlines, and associated access roads. Groups 6 through 8 each include construction of two injection wells, associated flowlines, and access roads.

This section describes overall Project design features that will mitigate environmental impacts, how each Project surface element will be constructed, and inspection and monitoring during the 20-year operational period and the 50-year post-injection monitoring period. Additional construction and restoration details are included in the Reclamation, Mitigation, and Monitoring Plan (Appendix G). Operational monitoring requirements that will be required as part of the EPA UIC Class VI permitting process are further described in Appendix A.

The Project will be constructed in compliance with applicable federal regulations, the specific requirements of required permits listed in Table 2-11 above, and in accordance with Denbury standards. Construction will not begin until all required federal, state, and local permits and approvals are obtained, including the BLM Decision Record, permanent and short-term ROW agreements, and NTP.

Figure 4-1: Overview of Proposed Construction Stages for Specific Project Elements

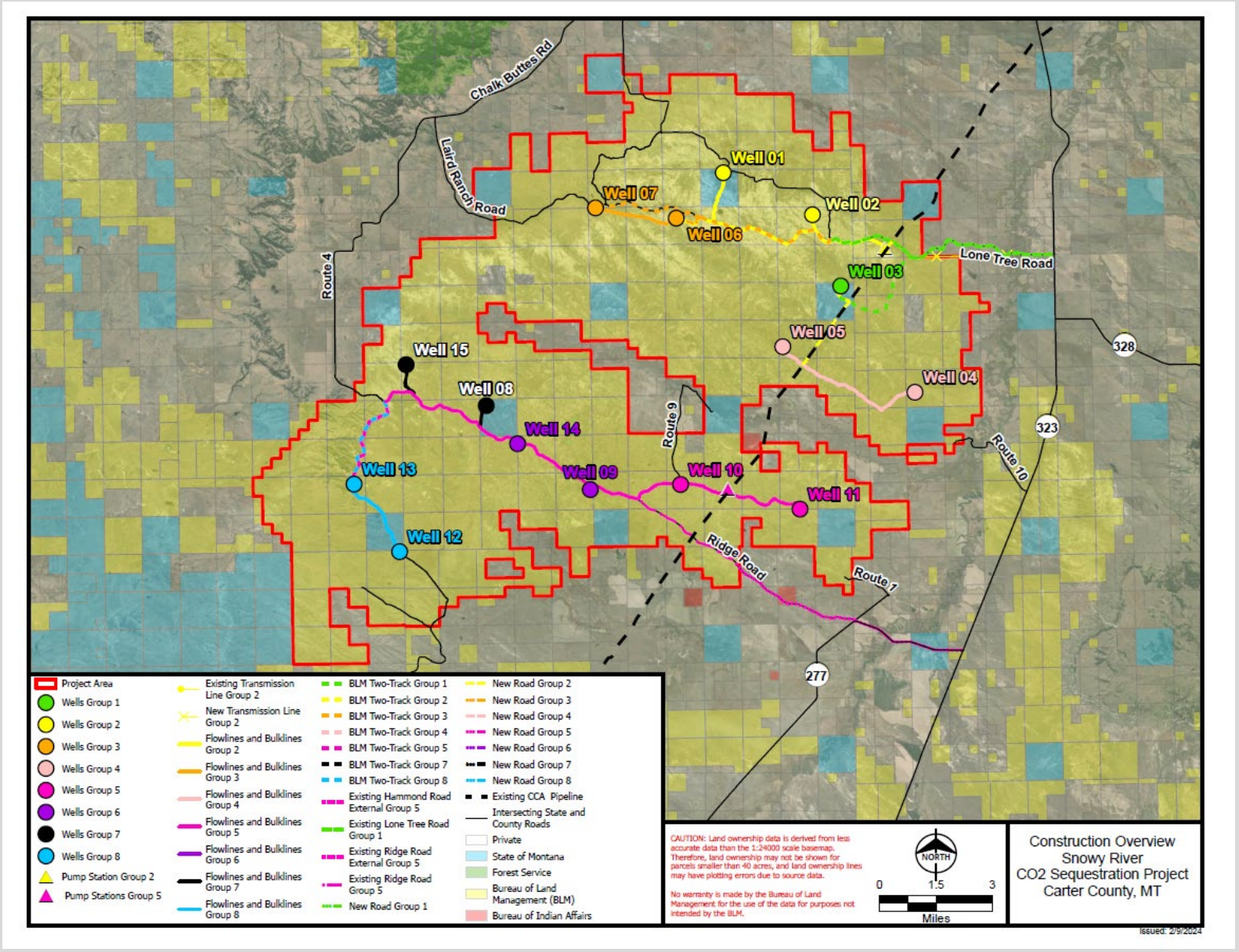


Figure 4-2: Proposed Construction Stages for Specific Project Elements (Northern Project Area)

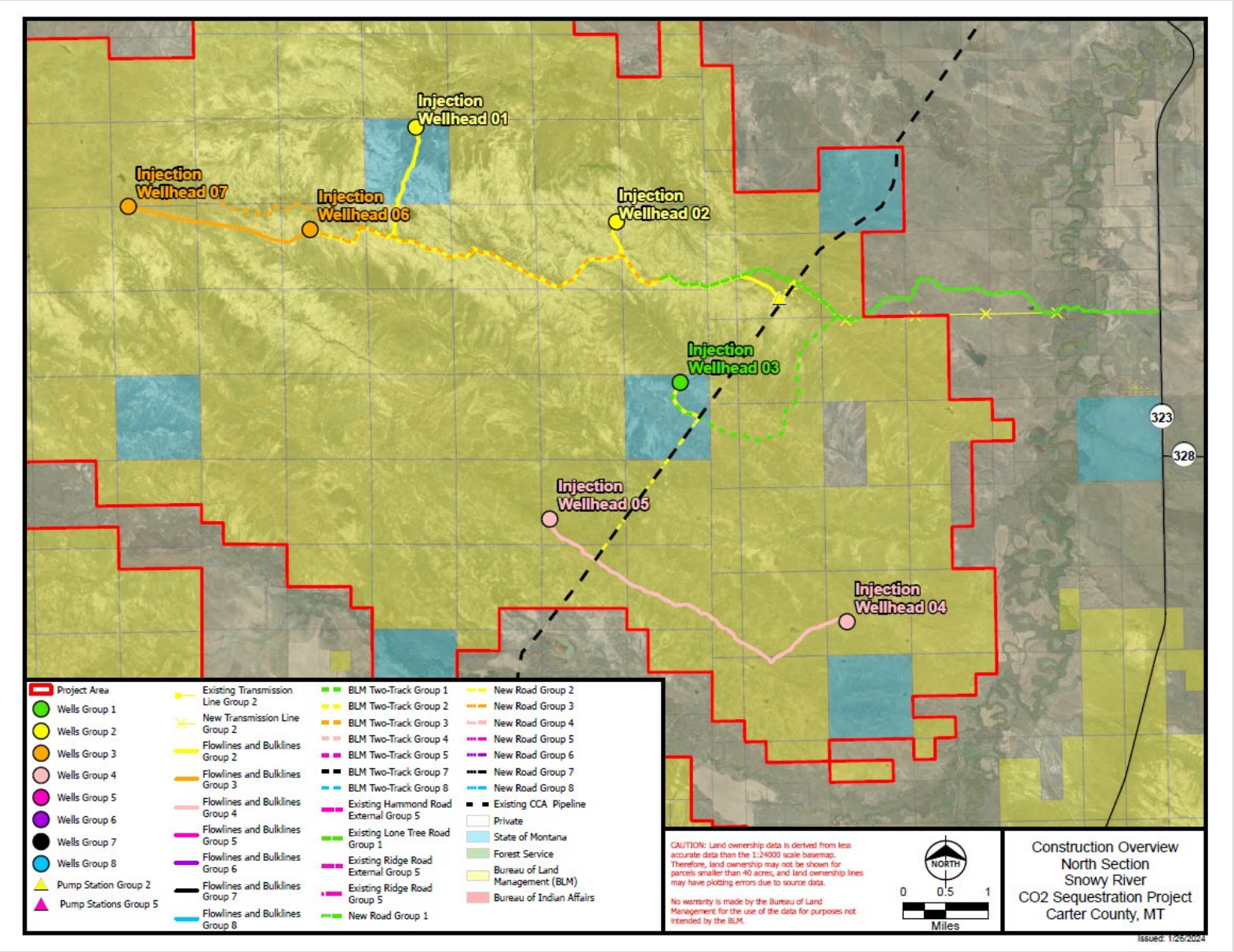


Figure 4-3: Proposed Construction Stages for Specific Project Elements (Southern Project Area)

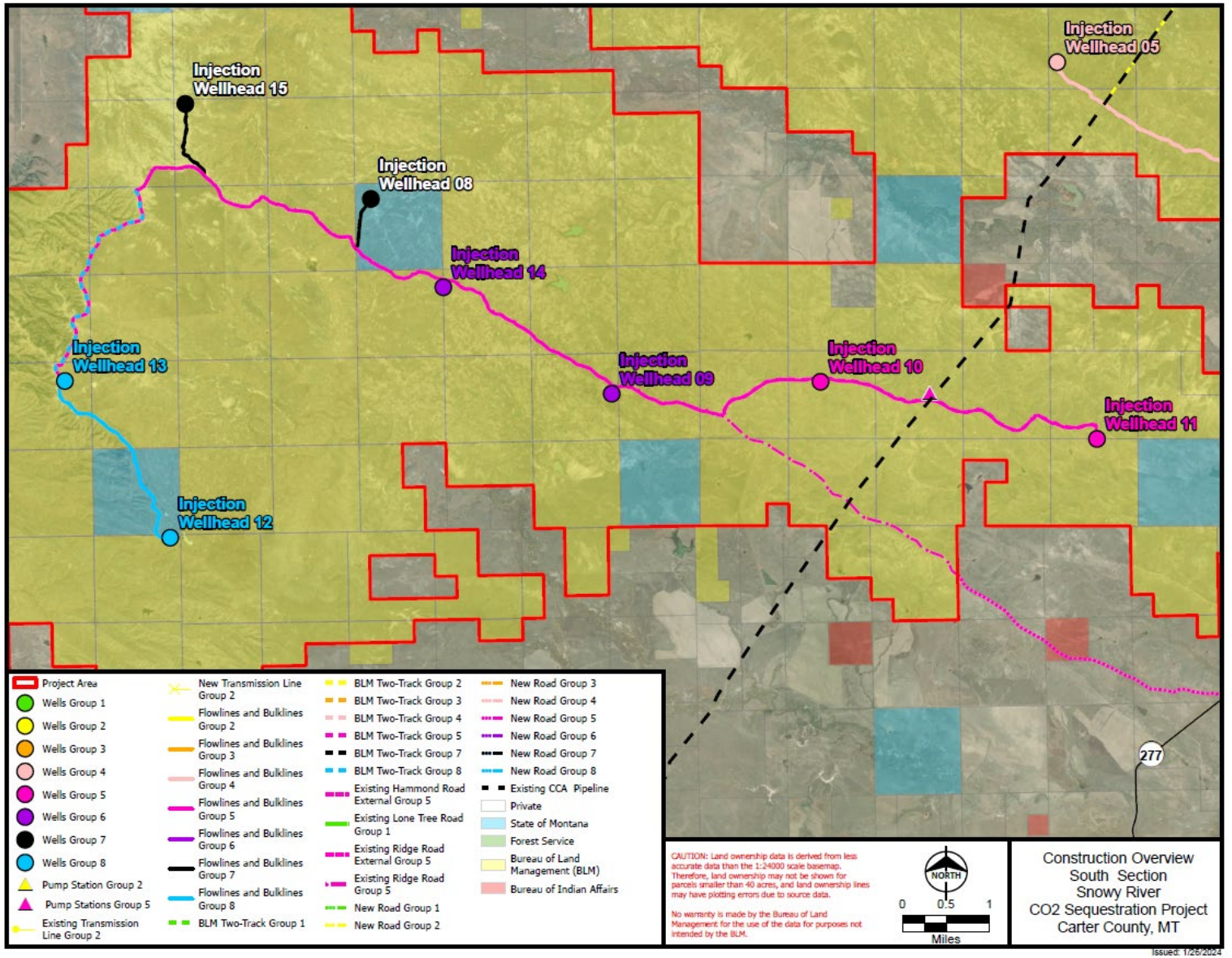


Table 4-1: Specific Elements Construction Schedule

ROW Group	Project Element to be Constructed	Access
Group 1	• Injection Well 03	• Lone Tree Road (Existing Developed Road) • Existing Two-Track to Injection Well 03
Group 2	• Injection Wells 01 and 02 • Bulklines (1 and 1A) • Flowlines to Injection Wells 01, 02, and 03 • Pump Station North • Electric Transmission Line to Pump Station North (ROW to be obtained by SE Electric)	• Lone Tree Road (Existing Developed Road) • Existing Two-Tracks to Injection Wells 01 and 03 • New Road to Injection Well 01 (0.03 mile long) • New Road to Injection Well 02 (0.39 mile long) • New Road to Pump Station North (0.25 mile long) • New Road along Existing CCA Pipeline ROW (2.08 miles long)
Group 3	• Injection Wells 06 and 07 • Flowline to Injection Well 07	• Lone Tree Road (Existing Developed Road) • Existing Two-Track to Injection Wells 06 and 07 • New Road to Injection Well 06 (0.78 mile long) • New Road to Injection Well 07 (0.03 mile long)
Group 4	• Injection Wells 04 and 05 • Flowline to Injection Wells 04 and 05	• Lone Tree Road (Existing Developed Road) • Existing Two-Track to Injection Wells 04 and 05 • New Road to Injection Well 04 (0.03 mile long) • New Road to Injection Well 05 (0.05 mile long)
Group 5	• Injection Wells10 and 11 • Bulkline (2) • Flowline to Injection Wells 10 and 11 • Pump Station South	• Ridge Road (Existing Developed Road) • Hammond Road (Existing Developed Road) • Existing Two-Track to Injection Wells 10 and 11 • New Road to Injection Well 10 (0.07 mile long) • New Road to Injection Well 11 (0.16 mile long)
Group 6	• Injection Wells 09 and 14 • Flowline to Injection Wells 09 and 14	• Ridge Road (Existing Developed Road) • Hammond Road (Existing Developed Road) • New Road to Injection Well 09 (0.10 mile long) • New Road to Injection Well 14 (0.10 mile long)

ROW Group	Project Element to be Constructed	Access
Group 7	• Injection Wells 08 and 15 • Flowline to Injection Wells 08 and 15	• Ridge Road (Existing Developed Road) • Hammond Road (Existing Developed Road) • Existing Two-Track to Injection Well 15 • New Road to Injection Well 08 (0.60 mile long) • New Road to Injection Well 15 (0.12 mile long)
Group 8	• Injection Wells 12 and 13 • Flowline to Injection Wells 12 and 13	• Ridge Road (Existing Developed Road) • Hammond Road (Existing Developed Road) • Existing Two-Track to Injection Wells 12 and 13 • New Road to Injection Well 12 (0.04 mile long) • New Road to Injection Well 13 (0.06 mile long)

4.1 Design Features to Mitigate Environmental Impacts

Denbury will implement several overall design features that will mitigate environmental impacts, which are described in this section. To ensure that the committed design features are completed as described in the POD, Denbury will hire a third-party environmental inspector to oversee and document compliance during construction, reclamation, and drilling activities for the BLM. Reports will be provided to the BLM.

4.1.1 Construction Schedule

Denbury will conduct construction, drilling, routine maintenance, and reclamation activities, including vegetation clearing, between July 16 and November 30 in any given year to minimize potential Project effects on nesting and habitats associated with migratory birds, bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), and greater sage-grouse (*Centrocercus urophasianus*), as further discussed in Section 5.2 and the Grouse Mitigation Approach in Appendix I. Limiting the construction duration each year and staging construction over multiple years will substantially reduce disturbances.

4.1.2 Vegetation Clearing

Most of the AoI is mixed grass prairie with a few small trees and shrubs. No tree clearing is proposed. Where shrubs and small woody vegetation exist within short-term ROWs, stumps will be left in place where practicable to promote restoration upon the completion of construction.

4.1.3 Traffic Control

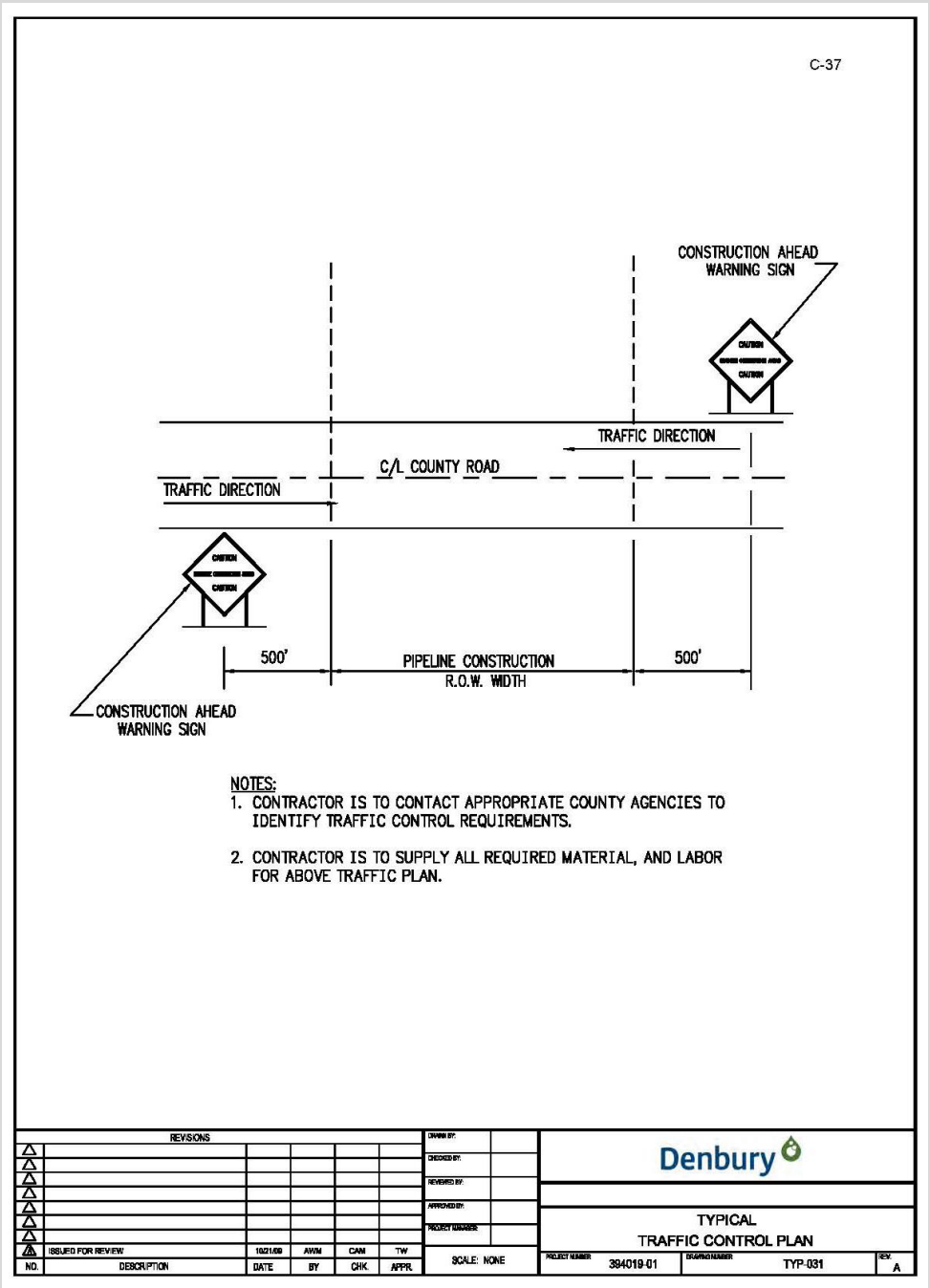
Public safety is the primary concern associated with active construction and drilling activities within or near recreation or other public use areas. Denbury will prepare a Project-specific traffic plan to be implemented during the construction and injection well drilling stage of the Project. Signage will be used along public roads, Project access roads, and the construction ROW to indicate where the public and/or construction/drilling contractor are

allowed access. Construction warning signs will also be used along public roads to warn the public when they are approaching a construction work area (Figure 4-4).

Public access to open excavations will be limited by either installation of BLM-approved locked gates at public access points, installation of barbed wire fences or temporary gates, or use of other approved means of limiting public access. Additional information about fences and gates, including construction typicals, are included in the Reclamation, Mitigation, and Monitoring Plan (Appendix G). Flag persons will be used to control traffic (as needed) for ingress and egress from the construction workspace.

Designated hard-surfaced roads used during Project construction and drilling activities will be maintained in an operable condition to allow access for the public and/or landowners during construction. However, construction activities may in some cases require temporary lane or road closure. Partial closure or closure and detouring of existing roads will be performed only following authorization by the appropriate agency (BLM, Carter County, Montana Department of Transportation, etc.). An alternate route will be provided to residents, contractors, and the emergency response organizations for their approval prior to any road closures. Proper signage will be provided, and signage locations will be approved prior to any change in traffic flow. Notification of road closure with detour routes and reopening of roads will be communicated to the appropriate agencies, emergency response personnel, operators, and contractors working onsite prior to closures. Proper signage such as detour and road closure signs will be placed before the roads are taken out of service.

Figure 4-4: Typical Traffic Control Plan



4.1.4 Signage and Fence Modifications

Denbury Environmental Inspectors will install signs and BLM-compliant wildlife friendly fencing within the Project workspace and along access roads to indicate wetland boundaries, refueling setbacks, waterbody boundaries, approved/unapproved construction access roads, or any other sensitive areas or features deemed appropriate by Denbury or BLM.

Existing fences crossing the Project workspace will be braced, cut, and temporarily fitted with gates to permit construction traffic passage. Typical fence installation drawings are included in the Reclamation, Mitigation, and Monitoring Plan (Appendix G), and fencing will be designed to be wildlife friendly as directed by the BLM. Signage installation and fencing efforts will commence prior to ground-disturbing activities, as coordinated with the BLM, State of Montana, and private landowners. Signage and fencing crews will access the ROW via approved, existing access roads using pickup trucks and utility task vehicles (UTVs).

All temporary gates installed during construction will be replaced with permanent fence unless otherwise requested by the BLM Authorized Officer, State of Montana representative, or private landowner. All fences and culverts existing prior to construction will be restored to meet or exceed approximate pre-construction conditions and in accordance with BLM specifications.

4.1.5 Erosion and Sediment Control

The Project will be designed, constructed, operated, and maintained in a manner that meets or exceeds applicable industry standards and regulatory requirements, including the BLM Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book). Temporary erosion and sediment control devices that will be installed in uplands include:

- Silt fence and/or certified weed seed free straw bale sediment barriers;
- Trench breakers;
- Temporary and permanent slope breakers (e.g., water bars);
- Drainage channels or ditches;
- Temporary and permanent mulching; and,
- Tackifier to prevent wind erosion of topsoil stockpiles.

Appendix G provides details and installation methods of the temporary erosion and sediment control devices listed above, including installation of these devices in and around sensitive resources (e.g., wetlands, waterbodies, riparian areas). These erosion and sediment controls will be inspected and maintained throughout the construction and restoration phases of the Project, as appropriate.

4.1.6 Soil, Aggregate, and Mineral Material Erionite Evaluation and Management

Portions of Carter County are known to contain geologic formations containing erionite. Erionite has been detected in samples from the Arikaree Sandstone (Beaucham, King, Feldmann, Harper, & Dozier, 2018); a formation which is present at the crest of the Ekalaka Hills, Blue Mud Hills, and the Chalk Buttes. Although the Arikaree Formation is not known to be present within the AoI, there is a potential for AoI soils to contain detritus from the weathering of the surrounding hills and buttes. To evaluate and manage erionite risks:

- Aggregate and other mineral materials (e.g., scoria, sand, gravel, etc.) known or suspected to contain erionite will not be used to build or repair roads or be brought onto the site for any other purpose. Aggregate and mineral material sources will be tested for erionite content prior to acceptance or obtained from a source certified to be erionite free. The testing will include one sample collected for every 1,000 tons of piled gravel. Aggregate and other mineral materials will be obtained from permitted sources and will not contain weeds or originate from federal mineral reserves (unless otherwise permitted). Gravel

sources in Gillette, Wyoming or Belle Fouche, North Dakota will be evaluated for potential use on the Project.

- Soil samples will be collected from areas prone to fugitive dust emissions, including existing and proposed dirt roads, prior to construction activities. One surface soil sample will be collected per five acres of soil prone to dust emissions and submitted for erionite analysis.

Soil, aggregate, and mineral materials testing for erionite will be performed using the EPA 600/R93/116 or International Organization for Standardization (ISO) 22262 methods for transmission electron microscopy mass analysis.

If erionite is known or suspected to be present in an area, the following, additional controls will be implemented:

- Keep windows and doors to equipment closed while operating and driving down dirt roads.
- Maintain equipment air filters regularly as recommended by the equipment manufacturer.
- Ensure an effective hazard communication program to educate employees on the health effects and hazards of crystalline silica and the potential health effects of erionite.
- Wet the soil or aggregate before disturbing to reduce dust generation.
- Wash protective clothing and other equipment regularly to remove dust, dirt, and other contaminants.

4.1.7 Fugitive Dust Control

Construction activities and the use of unpaved roads can result in varying degrees of fugitive dust emissions. Best management practices that will be used to control fugitive dust during construction, when necessary or during periods of dry conditions, include the following:

- Water and/or non-toxic chemical dust suppressant, alone or in combination with mulches, will be applied to areas of disturbance to minimize fugitive dust emissions. Note: Chemical dust suppressant will not be used on BLM-managed lands.
- Use of wind fences, berms, or covering material such as gravel or textiles in areas of disturbance will minimize fugitive dust emissions. If needed, a soil tackifier would be applied to control wind erosion. Areas with wind erosion controls in place will be inspected for structural integrity and coverage and repaired or replaced as appropriate.
- Unpaved roads in the construction area that pass within 0.25 mile of inhabited dwellings will be watered and/or treated with non-toxic chemical dust suppressant.

Water for fugitive dust control purposes will be obtained prior to construction, through permits or purchase contracts with owners of valid existing water rights, as necessary. Water for dust abatement and hydrostatic testing will be obtained from Baker, Ekalaka, and/or Broadus.

Federal, state, and local air quality standards will be met during construction. Site revegetation will be conducted in accordance with Denbury's reclamation procedures, which will also reduce dust emissions.

4.1.8 Topsoil Management

The objective of topsoil handling is to maintain topsoil capability by conserving topsoil for future replacement and reclamation and to minimize the degradation of topsoil from compaction, rutting, loss of organic matter, or soil mixing so that successful reclamation of the construction workspace can occur. Topsoil will be stripped and stockpiled in a windrow along the workspace edges near the disturbance area. Topsoil piles will be situated above the high water mark of any stream, away from riparian areas, floodplains, and wetlands.

Available topsoil depths vary across the proposed Project. The Environmental Inspector will determine the depth of available topsoil per site conditions. Topsoil will be stockpiled separately from subsoil and will not be used for any other purpose other than being restored as the final layer of soil during reclamation. Stockpiles will remain undisturbed until reclamation.

Topsoil stockpiles will be seeded, mulched, or otherwise stabilized to reduce potential erosion. A soil tackifier may be used in lieu of mulch. The stabilization treatment will be commensurate with the length of time that the topsoil will be stockpiled and the site conditions. For example, topsoil piles along the pipeline ROW may be stabilized with a more temporary method such a mulch or a tackifier, and stockpiles at well pads, and pump stations will be seeded and mulched to promote revegetation.

Topsoil will be redistributed over the subsoil during the reclamation stage described in Section 4.1.12.

4.1.9 Horizontal Direction Drilling

Denbury will minimize surface impacts in wetlands and waterbodies (discussed in Section 5.4) by installing the pipeline under these features using the horizontal directional drill (HDD) trenchless installation method. This process involves drilling a pilot bore, reaming the bore (with multiple passes) to a certain diameter, swabbing the bore to gauge the condition of the drilled bore, and pulling in a product pipe to complete the installation. Drilling fluids (consisting of water and bentonite) are pumped downhole during all phases of the installation process.

Design of an HDD installation must consider the depth of cover beneath the critical feature, the entry and exit locations, the allowable bend radius, the anticipated geotechnical materials, and the setback distance from the critical feature. Denbury will complete the design and evaluate site-specific conditions and risks upon the completion of geotechnical investigations. If HDD is determined to be infeasible, Denbury will evaluate and implement alternative trenchless crossing methods such as an auger bore.

4.1.10 Mosquito Control

Denbury will reduce the spread of West Nile virus by implementing the following design features that will reduce the potential to create mosquito habitat in shallow standing water:

- During grading, Denbury will retain gaps between rows of topsoil and subsoil to prevent accumulation of water on the land.
- Temporary erosion controls will be installed to prevent sediment-laden water from being transported into wetlands and streams.
- Impoundments, such as the reserve pits described in Section 4.4.2. will be constructed with steep shorelines to reduce shallow water and aquatic vegetation at the reserve pit perimeter.
- Reserve pits will be fenced to prevent livestock and wildlife from trampling the perimeter, avoiding hoof print pockets of water that may serve as habitat for breeding mosquitos.

- Treating standing water in reserve pits with larvicides to reduce mosquito production.

4.1.11 Invasive and Noxious Weed Control

Denbury will implement the following best management practices throughout construction and operation to help prevent non-local weed and exotic species invasion:

- Denbury will be responsible for the treatment and eradication of any noxious weed populations within the construction and permanent ROW, ancillary disturbance footprints, and along access roads where improvements will be made.
- Prior to vegetation clearing, the construction ROW and ancillary disturbance footprints will be inspected for noxious weeds by the Environmental Inspector, County weed districts, or a qualified botanist. All noxious weed occurrences will be identified and documented with Global Positioning System (GPS) devices for pre-treatment and post-construction monitoring purposes.
- Preventative measures on private lands will be discussed with individual landowners.
- Prior to being allowed access to the construction ROW and ancillary disturbance footprints, the Environmental Inspector will ensure that vehicles and equipment are free of soil and debris capable of transporting noxious weed seeds, roots, or rhizomes. Vehicles found transporting noxious weed species will not be allowed to enter the Project area.
- Chemical pre-treatment will be used prior to ground-clearing activities, as appropriate. Pre-treatment methods are discussed in Section 3.2 of the Noxious Weed Management Plan (Appendix J).
- Selective vegetation clearing and soil stripping methods will be used during reclamation to minimize the transport of noxious weed seeds, rhizomes, or roots from infested areas into areas where noxious weeds are not present.
- During the reclamation phase of the proposed Project, all areas disturbed by construction will be reseeded. With the exception of permanent aboveground facility footprints, all temporary disturbance areas will be reseeded with an approved seed mixture within the proper growing season to ensure appropriate vegetative cover/species and further reduce the establishment of noxious weeds.
- Denbury will verify that all straw bales, mulch, matting, and seed are certified noxious weed-free before being used on the proposed Project.
- All gravel and fill material imported on-site will be source-identified by Denbury to ensure that the originating site is noxious weed-free.

Additional details on management practices are included in the Noxious Weed Management Plan in Appendix J.

4.1.12 Reclamation

The final step in the construction process for any surface element is restoring the disturbed workspace as closely as possible to its original condition. The objective of cleanup activities will be to prepare the ROW and other disturbed areas to approximate pre-activity ground contours to the extent practicable and to replace spoil and stockpiled material in a manner which preserves soil capability and quality to a degree reasonably equivalent to the original or that of representative undisturbed land.

Denbury will mitigate compacted soils through ripping a minimum of two perpendicular passes (in cross patterns, to the extent practical) to a minimum depth of 18 inches prior to topsoil replacement. After ripping, the subsoil surface will be graded smooth, and any subsoil clumps broken up (disc and harrow) to avoid topsoil mixing. Denbury will test for compaction at regular intervals using penetrometers or other appropriate devices. Topsoil will be replaced to pre-existing depths once ripping and discing of subsoil is complete, up to a maximum depth of 12 inches.

Large rocks that are exposed on the surface due to construction activity will be removed from the ROW prior to and after topsoil replacement. This effort will result in an equivalent quantity, size, and distribution of rocks to that found on adjacent lands.

Denbury will apply soil amendments, as needed, and will seed all disturbed areas in accordance with the seeding requirements described in the Reclamation, Mitigation, and Monitoring Plan (Appendix G), including specialized seed mixes for clay-based and saline soils on BLM land. Denbury will spread mulch uniformly over the area to cover at least 80 to 90 percent of the ground surface (typically 1.5 to 2.0 tons per acre of straw or its equivalent), over the top of the seed prior to crimping. The Environmental Inspector may reduce the application rate or forego mulching an area altogether if there is an adequate cover of rock or organic debris to protect the slope from erosion. Erosion-control matting made of biodegradable, natural fiber such as straw or coir (coconut fiber) will be used, where appropriate, to stabilize slopes and along restored waterbodies.

Additional detail on final clean up and reclamation is provided in the Reclamation, Mitigation, and Monitoring Plan in Appendix G. Requirements related to seeding, mulching, slope and trench breaker installation, relieving compaction, restoration of stream banks and slopes, etc. are also included in the Reclamation, Mitigation, and Monitoring Plan.

4.2 Pipeline Construction Sequence

The following sections identify the general procedures for routine construction, as well as the specific construction techniques that will be utilized in environmentally sensitive areas for the Project. Construction of the pipelines will follow industry-standard practices and procedures for conventional overland pipeline construction techniques. Typically, construction of the pipelines will follow a set of sequential operations, as further described below.

The bulklines and flowlines will be designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation (USDOT) PHMSA regulations in 49 CFR Part 195. PHMSA is responsible for regulating CO_2 pipelines that are associated with interstate or foreign commerce, and the agency has oversight in ensuring that the facilities are designed and constructed according to the applicable PHMSA safety standards. Additionally, once the facilities are placed into service, PHMSA assumes oversight responsibility during the operational life of the pipeline and supporting appurtenances. These regulations cover all phases of a pipeline or facility's lifecycle, including materials, design, construction, operation, maintenance, integrity management, and abandonment. Denbury will comply with the standards specified in 49 CFR Part 195, which include selecting materials that meet or exceed federal standards, complying with minimum design and construction requirements, pressure testing to verify piping integrity before placing the pipelines in service, incorporating protection from internal, external, and atmospheric corrosion, and establishing an integrity management program that assures the pipeline integrity.

As discussed in Section 2.2.2, the bulklines and flowlines will require a 50-foot-wide permanent ROW to construct and operate the pipelines. An additional 25 feet of temporary workspace will be required to construct the bulklines due to the larger diameter pipe. Construction typicals are provided in Appendix K.

4.2.1 Surveying and Staking

Affected landowners will be notified before the preconstruction survey and staking are conducted. After these notifications, civil engineering surveys will be conducted to identify the centerline of each pipeline and the boundaries of both sides of the approved working limits before construction. Wetland boundaries and other environmentally sensitive areas will also be marked at this time.

Survey and staking crews will access the ROW via approved, existing access roads using pickup trucks and UTVs. Denbury's construction inspectors will be responsible for verifying that the limits of authorized construction work areas are staked prior to construction. Flagged and/or painted stakes will be set at 200-foot intervals (maximum), or as required to maintain line of sight, along the proposed centerline. The edges of the work limits will be marked with flagged or painted stakes at 200-foot intervals (maximum), or as required to maintain a line of sight. Temporary workspace boundaries will be marked in a similar fashion, and all four corners of each temporary use area will be flagged or marked. This staking will clearly define the boundary of the area that can be used or accessed by construction personnel. Equipment will not be parked or driven beyond these stakes. The edges of work limits will also be marked along access roads that require improvements (maximum 25-foot disturbance). This staking effort will commence prior to ground-disturbing activities, as coordinated with the BLM and/or private landowners.

4.2.2 Clearing

Once the Project workspace has been clearly staked, signage has been installed and fences have been modified as described in Section 4.1.4, equipment will be brought in to clear the existing vegetation. All vegetation will be removed. Erosion and sediment controls will be installed as described in Section 4.1.5, and the methods described in Section 4.1.7 will be employed, as needed, to control fugitive dust. Clearing and all subsequent earth-moving activities will commence.

As described in Section 4.1.9, Denbury will minimize surface impacts in wetlands and waterbodies by installing the pipeline under these features using the HDD construction method. In wetlands and at waterbody crossings, the Contractor will limit clearing of vegetation to the areas needed to install mats for temporary equipment crossings and culverts along access roads. Vegetation adjacent to wetlands and waterbodies that will be crossed by HDD will not be disturbed except by hand clearing as necessary for drilling operations.

4.2.3 Topsoil Stripping

Topsoil will be stripped, stockpiled, and stabilized in a windrow along workspace edges prior to grading operations, as described in Section 4.1.8. Topsoil will be stockpiled separately from subsoil and will not be used to pad the pipeline trench or construct trench breakers.

4.2.4 Grading

Following clearing, in locations where side sloping terrain exists, grading will occur to create a flat, level work area for construction equipment. The grading crew will install timber mats in wetlands or where soil conditions cannot support construction equipment; no temporary equipment bridges will be required over flowing waterbodies. After the trench is backfilled (during the rough grade phase of construction), pre-construction contours will be restored to the extent practicable.

As described above, in areas disturbed by grading, temporary erosion and sediment controls will be installed within the ROW to minimize erosion per the Reclamation, Mitigation, and Monitoring Plan (Appendix G). These erosion and sediment controls will be inspected and maintained throughout the construction and restoration phases of the project. Inspections will occur daily in areas of active construction or equipment operation, weekly in

areas with no construction or equipment operation, and within 24 hours of each significant rainfall event of 0.5 inch or greater.

The following mitigative measures will be implemented during grading unless otherwise approved or directed by the Environmental Inspector, the BLM Authorized Officer, State of Montana representative, or private landowner based on site-specific conditions or circumstances. All work will be conducted in accordance with applicable permits.

- All grading will be undertaken with the understanding that original contours and drainage patterns will be re-established to the extent practicable.
- On 3:1 or steeper slopes, or wherever erosion potential is high, temporary erosion-control measures will be implemented.
- Bar ditches adjacent to existing roadways to be crossed during construction will be adequately ramped with grade or ditch spoil to prevent damage to the road shoulder and ditch.
- Where the construction surface remains inadequate to support equipment travel, timber mats and timber riprap will be used to stabilize surface conditions.

The Contractor will limit the interruption of the surface drain network in the vicinity of the ROW using the following methods as appropriate.

- Provide gaps in the rows of subsoil and topsoil to prevent any accumulation of water on the land.
- Prevent obstructions in furrows, furrow drains, and ditches.
- Install flumes and ramps in furrows, furrow drains, and ditches to facilitate water flow across the construction right-of-way and allow for construction equipment traffic.
- Install flumes or dam and pump over the trench for any watercourse where flow is continuous during construction.

In each wetland, Denbury would only grade the temporary equipment access path if needed to provide a safe working surface for timber mats. No other grading in wetlands would be required. Near waterbodies, the construction ROW adjacent to the waterbody will be graded so that soil is pushed away from the waterbody rather than toward it whenever possible.

4.2.5 Trenching

Civil engineering survey crews will re-stake the centerline of the pipeline trench after clearing, topsoil stripping, and grading. Trenches will be excavated using a wheel trencher or backhoe; the method selected will be based on soils, rock, terrain, and/or other related factors. Special excavation equipment or techniques may be used if large quantities of solid rock are encountered.

Trenches will be excavated to a depth sufficient to provide the minimum 4 feet of cover required by federal, state, and local municipalities as well as landowner requirements. The minimum cover depth (and therefore the total depth of the trench) will vary depending on soil type and existing conditions/land use. The different depth of cover requirements are listed in Table 4-2. Trenches will be excavated to approximately 3 to 4 feet wide at the bottom with the sides sloped according to Occupational Safety and Health Administration specifications (up to approximately 8 feet wide).

Temporary ramps will be constructed within trenches to provide an escape route for wildlife or livestock that may inadvertently enter a trench. Open trenches will be inspected daily for trapped animals.

Trenching in wetlands and waterbodies is not proposed. Denbury will install pipelines beneath wetlands and waterbodies using the HDD construction method described in Section 4.1.9.

Table 4-2: Minimum Depth of Pipeline Cover Requirements

Crossing Type	Not Rock (minimum inches)	Rock Trench (minimum inches)
Standard Trench	48	48
Agricultural Land	60	60
Water Crossings	60	60
Drainage or Ephemeral Waterways	60	60
Wetlands	60	60
Road Crossings	60	60
Drainage Ditch at Public Road Crossings	48	48

4.2.6 Stringing

If a union contractor is selected for construction, it is standard practice for them to excavate the trench prior to stringing. If a non-union contractor is hired, they typically string pipe prior to trenching.

The objective of stringing is to place the line pipe along the construction ROW for bending and welding in an expedient and efficient manner. Once the pipe is strung in the ROW, gaps will be left at the same intervals as the soft plugs for livestock and wildlife crossing. Stringing trucks will collect and deliver the pipe to the ROW from staging areas and/or pipeyards. Each individual joint of pipe will be unloaded with a side-boom or trackhoe and placed (strung) parallel to the trench in a continuous line. Pipe for road, waterbody, and/or wetland crossings will be stockpiled within workspace near the crossings. Gaps will be left at access points across the trench to allow for ROW crossing.

4.2.7 Bending

After joints of pipe are strung along the trench, but before the joints are welded or pressed together, individual joints of pipe will be bent to accommodate horizontal and vertical changes in direction. Field bends will be made using a hydraulically operated bending machine. The bending machine uses a series of clamps and hydraulic pressure to make a smooth, controlled bend in the pipe. All bending is performed in strict accordance with federal standards to secure integrity of the bend. Pipe will be bent at the mill when necessary for sharp bends. All pipes will be pre-coated at the mill with a fusion-bonded epoxy external coating (or other coating technique) to provide corrosion protection.

4.2.8 Welding

After pipe joints are bent, the joints will be lined up end-to-end into one continuous length and clamped into position. Each welder will be required to pass an approved qualification test to work on the pipeline. The qualification tests will be conducted using Project-specific welding procedures, which are developed in accordance with federally adopted welding standards. Pipeline joints will be welded together in conformance with 49 CFR Part 195 Subpart D.

Welds will be visually inspected by an American Welding Society-certified inspector who is part of the construction management staff. Nondestructive radiographic inspection methods will be conducted to secure structural integrity and compliance with the applicable USDOT regulations. The percentage of welds radiographically inspected will be in accordance with 49 CFR § 195.234 (Welds: Nondestructive Testing). Any defect will be repaired or cut out as required under the specified regulations and standards. Documents that verify the integrity of each pipeline will be kept on file by Denbury for inspection by the USDOT Office of Pipeline Safety.

Field joints will be coated with a tape wrap, brush grade urethane epoxy, or field-applied fusion bond epoxy.

4.2.9 Cathodic Protection

Cathodic protection test sites will be installed at accessible locations, at intervals of two (2) miles or less, to measure the pipe to soil potential for the establishment and maintenance of an effective cathodic protection system.

4.2.10 Inspection and Repair of Coating

Before the pipe is lowered into the trench, pipeline coatings will be visually inspected and tested with an electronic detector, and any faults or scratches will be repaired.

4.2.11 Padding and Lowering In

Specialized padding machines may be used to sift the excavated subsoils to provide rock-free pipeline padding and bedding. In rocky areas, sandbags may be used to pad the bottom of the trench instead of, or in combination with, using soil fines for padding. Rock shields also may be used to protect the pipe from rocks. No topsoil will be used to pad the pipe.

Before a pipe section is lowered into the trench, inspection will be conducted to verify that the trench bottom is free of rocks and other debris that could damage the external pipe coating. A series of side-boom tractors will simultaneously lift welded sections of the pipe and carefully lower the sections into the trench. Non-metallic slings will protect the pipe and its coating as it is raised and moved into position. A second inspection will be done to verify that the pipe is properly fitted and installed in the trench and that minimum cover is provided.

4.2.12 Backfilling and Rough Grade

Backfilling will begin after a section of pipe has been successfully placed in the trench. Prior to backfilling, trench breakers will be installed on slopes where necessary to minimize the potential for water movement down the ditch and potential subsequent erosion. Additionally, the equipment operator will check the trench for wildlife and/or livestock; any wildlife or livestock found in the trench will be removed through mechanical and non-mechanical methods before backfilling begins. The viability of the livestock will be maintained. The backfilling process will use a bulldozer, rotary auger backfiller, padding machine, or other suitable equipment.

Excessive water accumulated in the trench will be eliminated prior to backfilling. In the event it becomes necessary to pump water from open trenches, the Contractor will pump the water and discharge it in accordance with the requirements of Reclamation, Mitigation, and Monitoring Plan, provided as Appendix G, to avoid damaging adjacent land. Filter bags and/or dewatering structures will be used to filter trench water prior to discharge. All pumping of water will comply with existing drainage laws and local ordinances relating to such activities and comply with the provisions of the Clean Water Act.

Backfill material will be subsoil previously excavated from the trench, except in rocky areas where imported select fill material may be needed (sand pits for borrow material may need to be identified and used). During backfill, the

stockpiled subsoil will be placed back into the trench before replacing the topsoil. Topsoil will not be used for padding the pipe. Backfill will be compacted to a minimum of 90 percent of pre-existing conditions where the trench line crosses tracks of wheel irrigation systems (pivots). To reduce the potential for ditch line subsidence, spoil will be replaced and compacted by backhoe bucket or by the wheels or tracks of equipment traversing down the trench. The lesser of four (4) feet or the actual depth of topsoil cover will not be backfilled with soil containing rocks of any greater concentration or size than existed prior to pipeline construction in the pipeline trench, bore pits, or other excavations.

Backfill will be graded and compacted by tamping or walking with a wheeled or tracked vehicle to provide ground stability. Compaction will be done to the extent that there are no voids in the trench. In irrigated agricultural areas, the backfill will be replaced at the same compaction density as the adjacent undisturbed soil. Backfilling at road crossing will be in accordance with the crossing permit. Excavated materials or materials unfit for backfill will be used elsewhere or properly disposed of in conformance with applicable laws or regulations.

Slurred muck or debris will not be used for backfill. At locations where the excavated native material is not acceptable for backfill or must be supplemented, the Contractor will provide granular material approved by Denbury.

4.2.13 Hydrostatic Testing

The entire length of each pipeline will be hydrostatically tested in compliance with USDOT regulations (49 CFR Part 195 Subpart E) before being placed into service. Denbury will procure water for dust suppression and hydrostatic testing from off-site sources in Baker, Ekalaka, and/or Broadus. Water will be transported to the site using water trucks. Denbury may utilize temporary water tanks located within the approved ROWs to support water requirements during construction activities.

Denbury will obtain permits from the jurisdictional agencies for the discharge of hydrostatic test water. Denbury also will comply with the rules and regulations of the USDOT and the Montana Department of Environmental Quality (MDEQ). Water will be discharged to well vegetated upland areas. Water will be reused to the extent possible between test sections. Dewatering will be conducted in accordance with all governing agency permits and/or private landowner and USDOT requirements.

Additional information is provided in the Hydrostatic Test Plan in Appendix L.

4.2.14 Final Cleanup and Reclamation

Final cleanup will occur immediately following backfilling operations when weather or seasonal conditions allow. All garbage and construction debris will be collected and disposed of at approved disposal sites. The ROW will be re-contoured with spoil material to the approximate pre-construction contours and as necessary to limit erosion and subsidence. The topsoil will be replaced on the subsoil storage area and over the trench so that after settling occurs, the approximate original depth and contour of the topsoil will be achieved. Subsoil will not be placed on top of topsoil.

During cleanup, temporary sediment barriers such as silt fence and hay bale diversions will be removed; accumulated sediment will re-contoured with the rest of the ROW; and permanent erosion controls will be installed as necessary.

In wetlands, all timber riprap, timber mats, and prefabricated equipment mats and other construction debris will be removed upon completion of construction. The Contractor will stabilize wetland edges and adjacent upland areas by establishing permanent erosion-control measures and revegetation, as applicable, during final clean up.

For each standard wetland crossed, the Contractor will install a permanent slope breaker and trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. The Contractor will install the trench breaker immediately upslope of the slope breaker.

The Contractor will not use fertilizer, lime, or mulch in wetlands unless required in writing by the BLM Authorized Officer, State of Montana representative, or private landowner. All wetland areas within conservation lands or easements will be restored to a level consistent with any additional criteria established by the relevant managing agency.

All materials used to support construction activities will be removed from waterbodies and wetlands, including, but not limited to, flumes, mats, plastic sheeting, and sandbags. Approach slopes will be graded to an acceptable slope for the particular soil type and surface runoff controlled by installation of permanent slope breakers. Where considered necessary, the integrity of the slope breakers will be secured by lining with erosion-control blankets.

4.2.15 Permanent Pipeline Markers

The pipeline location will be marked with 3-foot-tall pipeline markers placed at each road crossing and along the bulkline and flowline ROWs at a sufficient spacing so that the location is accurately known; the markers will be inter-visible in accordance with 49 CFR § 195.410. Six-foot-tall aerial markers will be placed at 3-mile intervals along the ROW and will be larger so that milepost numbers can be seen from the air. Variances for placement of both types of markers will be allowed in waterbodies or where restricted by special habitats or other resource considerations. No pipeline markers will be placed within 0.6 mile of active sage-grouse leks. Typical drawings for these markers are provided as Figures 4-5 and 4-6.

Figure 4-5: Typical aerial marker.

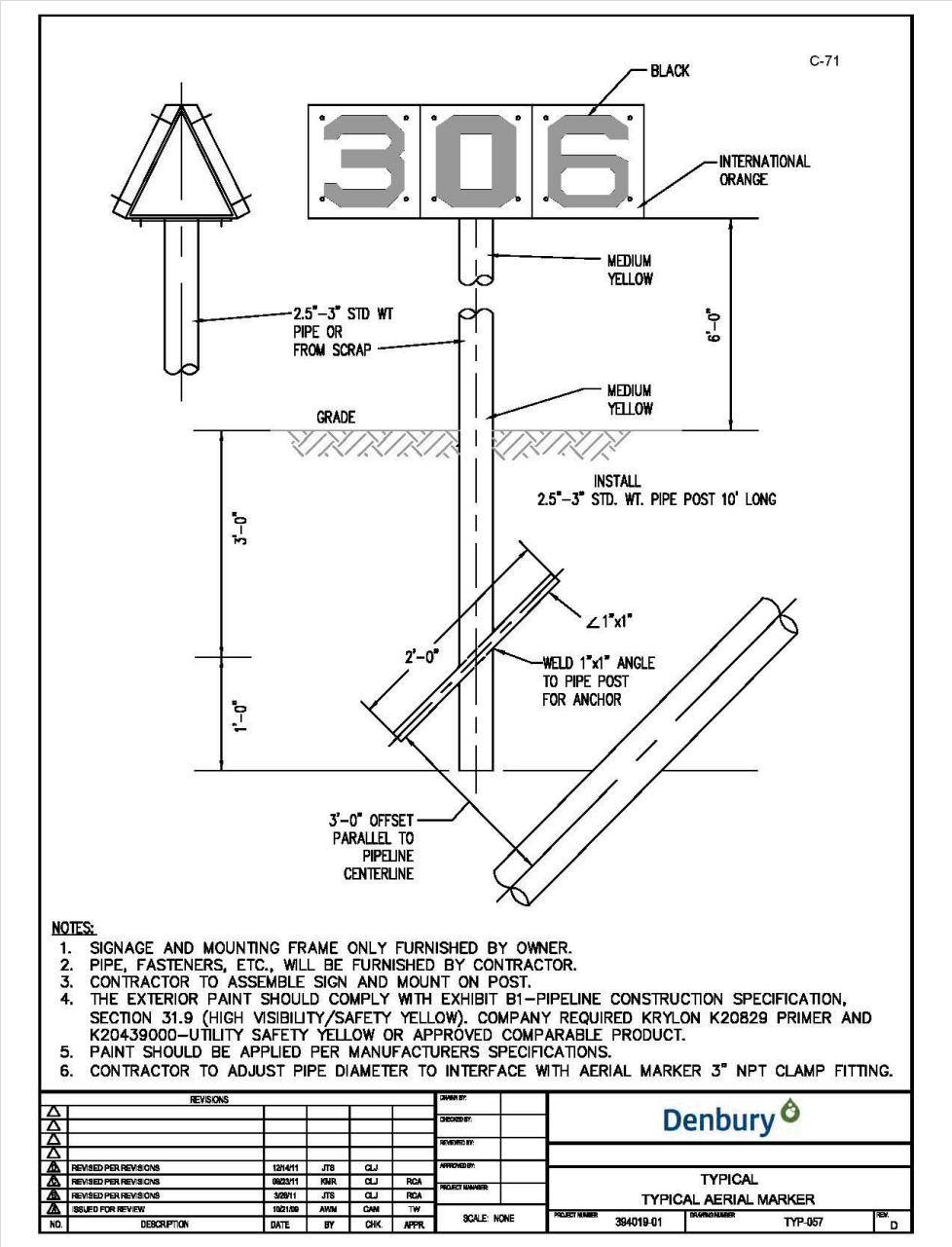
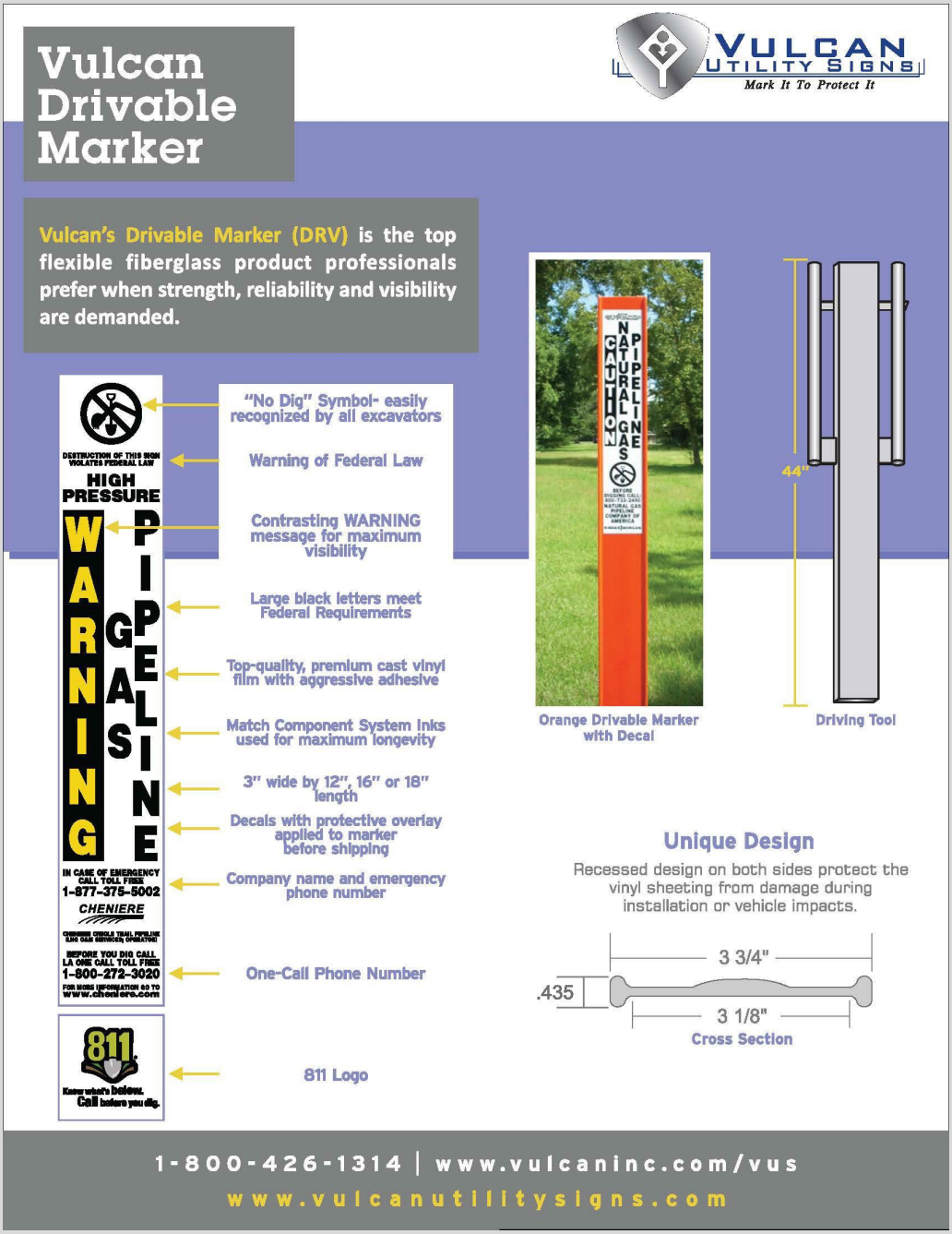


Figure 4-6: Typical drivable marker.



4.3 Access Road Construction

To limit the amount of new road construction for the Project, existing two-track roads and existing developed roads will be used to the extent practicable for the transportation of material and equipment to the areas where they will be needed throughout the AoI. Some new roads will need to be constructed, as described below. After Project construction is completed, existing and new permanent access roads will be used by maintenance crews

for inspection and maintenance activities. Day-to-day operational use will generally be limited to pickup trucks and UTVs, but periodic inspection, maintenance, and repair work will require transport of larger equipment. Permanent roads on BLM, state, and private land will be maintained for the life of the ROW in accordance with specifications provided by the BLM, State of Montana, and private landowners. All planned construction, drilling, routine maintenance, and reclamation activities on access roads during the lekking season (March 15 – July 15) will occur only during the hours of 8:00 a.m. and 7:00 p.m. local time. Daily pipeline and injection well operations would be remotely monitored, and operational vehicle traffic for monitoring may is expected be up to one vehicle visit per well per day, or less, depending on weather and operation conditions.

4.3.1 Existing Developed Roads

Denbury will use three existing, developed roads to construct and operate the Project: Lone Tree Road, Ridge Road, and Hammond Road (Figure 2-4). As noted in Section 2.2.3, the Project will use approximately 24.6 miles of these existing roads, 13.6 miles of which are located on BLM land. These roads may require maintenance including surface grading, rolling, and/or gravel additions. If gravel is needed to top dress existing roads, scoria aggregate will not be used as a surface treatment. Denbury will purchase gravel from a permitted offsite source in Gillette, Wyoming or Belle Fourche, South Dakota to minimize visual impacts.

Denbury will not need to widen, reroute, or realign these existing roads. Approximately 17.5 feet of each road's existing 60-foot-wide ROW will be used for the pipeline ROW as depicted in Figure 2-1.

4.3.2 Existing Two-Track Roads

The Project will use approximately 27.4 miles of existing two-track roads, of which 24.5 miles are on BLM land (Figure 2-5). Access road typical dimensions are proposed to be 25-feet-wide. Denbury will not need to reroute or realign existing two-track roads. Weed free mats will be installed, as needed, to provide a safe surface to move equipment and to minimize rutting and compaction during construction and operations.

4.3.3 New Roads

Denbury will create approximately 4.9 miles of new access roads, of which 3.6 miles will be on BLM land (Figure 2-6). The majority of the new roads will be maintained as two-tracks; they will not be graveled. Approximately 0.75 miles of these new roads are generally short lengths of road branching from existing developed roads and existing two-track roads to the injection wells. The longest new two-track road will be approximately 2.1 miles long and will parallel the existing CCA Pipeline ROW to provide access to Injection Wells 04 and 05.

The only new road that Denbury will construct as a new, graveled road is a 0.25-mile-long access road, which will connect the Pump Station North to Lone Tree Road. It will be constructed using best engineering controls to minimize runoff and erosion, following the engineering specifications in BLM's H-9113-1 Road Design Handbook (BLM, 2011). Scoria aggregate may be used as a base, but it will not be used as a surface treatment. Denbury will purchase gravel for the surface treatment from a permitted offsite source to minimize visual impacts. Aggregate and other mineral materials will be sampled for erionite as described in Section 4.1.6. Aggregate and other mineral materials containing detectable levels of erionite will not be accepted for use on the Project.

4.3.4 Culverts or Low-Water Crossings

Denbury anticipates that four new culverts or low-water crossings will need to be installed along access roads, as shown on the figures in Appendix R. A culvert or low-water crossing will be needed under the existing two-track road to Injection Well 03 to maintain surface water connection and to avoid impounding a wetland that currently crosses the road. A second culvert or low-water crossing will be required within a wetland that crosses a proposed new access road that will be constructed adjacent to the existing CCA Pipeline and the adjacent proposed bulkline.

A third culvert or low-water crossing will be necessary to maintain flow through an approximately 2-foot-wide ephemeral stream on a new road to Injection Well 08. The fourth culvert or low-water crossing will be installed under the existing two-track road to Injection Well 01 to allow for potential surface water connection during stormwater events between wetlands WC-4 and WC-5, as further discussed in Section 5.4. Additionally, Denbury will repair or replace non-functional, existing culverts along proposed access routes. Culverts and low-water crossings will be designed using standard hydrologic and hydraulic design methods, and they will be designed, installed, and maintained following the engineering specifications for drainage culverts in BLM's H-9113-1 Road Design Handbook (BLM, 2011).

4.4 Well Pad Construction

A well pad will be constructed at each well location to prepare for the drilling process. Well pads are flat level areas where drilling and support structures are located. The drilling rig and platform, water tanks, generators, fuel tanks, mud component storage, reserve pits, pipe racks, and trailers will be situated on the well pad. Civil survey drawings for each well site will be provided prior to construction. Stormwater runoff and pad drainage will be addressed in those drawings.

4.4.1 Site Preparation

To minimize surface disturbance, construction equipment appropriately sized to the scope and scale of the proposed operation will be used. Topsoil will be stripped, segregated, and stored separately from subsurface materials, and protected from wind and water erosion as described in Section 4.1.8. Topsoil stockpile locations will be shown on the construction diagrams that will be prepared prior to Project construction.

Excavation of the cut and fill slopes is normally guided by information on the slope stakes. Fills will be compacted to minimize the chance of subsidence or slope failure. If excess cut material exists after fill areas have been brought to grade, the excess material will be stockpiled and reused at the well pad. There will be no transfer of material from the well pad to other locations. Snow and frozen soil material will not be used in construction of fill areas, dikes, or berms. To reduce areas of soil disturbance, the surface management agency may allow mowing or brush beating of vegetation for parts of the well location where excavation is not necessary.

The area of the well pad where the drilling rig substructure is located will be level and capable of supporting the rig. The drill rig, tanks, heater-treater, and other production equipment will not be placed on uncompacted fill material. The area used for mud tanks, generators, mud storage, and fuel tanks will be at a slight slope, where possible, or a suitable alternative, such as ditching, will be used to provide surface drainage from the work area to the pit.

To reduce erosion and soil loss, stormwater may be diverted away from the well location with ditches, berms, or waterbars above the cut slopes and to trap well location runoff and sediments on or near the location through the use of sediment fences or water retention ponds.

The site preparation work itself is expected to take three to four months to complete per group depending on how much earth-moving work needs to be completed but would be completed within the wildlife timing restriction window. The area required for each well pad will be 450 feet by 450 feet (4.6 acres) in size. The construction sequence for the well pad is similar to that described in Section 4.2 above, and includes clearing, topsoil stripping, grading, and surface preparation, as further discussed below.

4.4.1.1 Clearing

Equipment will be brought in to clear the existing vegetation. Erosion and sediment controls will be installed as described in Section 4.1.5, and the methods described in Section 4.1.7 will be employed, as needed, to control fugitive dust.

4.4.1.2 Topsoil stripping

Topsoil will be stripped, segregated, and stored separately from subsurface materials, and protected from wind and water erosion as described in Section 4.1.8.

4.4.1.3 Grading

Grading will be performed to create a flat, level work area for construction equipment. The grading crew will install timber mats where soil conditions cannot support construction equipment. All grading will be undertaken with the understanding that original contours and drainage patterns will be re-established to the extent practicable.

4.4.1.4 Surface preparation

A compacted earth and/or gravel surface (e.g., CA6) will be constructed using a bulldozer or grader, followed by a roller to compact and smooth the area.

4.4.2 Support Features

A shed that will house monitoring equipment and valving will be constructed at each well. The sheds are anticipated to be metal sided and approximately 20-feet-wide by 20-feet-long by 8-feet-tall. They will be painted Carlsbad Canyon in accordance with BLM requirements to minimize impacts and blend in with the surroundings.

Impermeable padding, lined impoundments, and secondary containment structures would also be constructed as needed within the well pad.

4.4.2.1 Secondary Containment Structures

Containment structures sufficiently impervious to prevent a discharge to waters of the United States, such as containment dikes, containment walls, drip pans, or equivalent protection actions will be constructed and maintained around all qualifying bulk oil storage facilities, including tank batteries, consistent with the EPA's Spill Prevention, Control, and Countermeasure (SPCC) regulation (40 CFR 112). The containment structures would have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the containment structure and sufficient freeboard to contain precipitation, unless more stringent protective requirements are deemed necessary by the BLM Authorized Officer. Drip pans will be routinely checked and cleaned of petroleum or chemical discharges and designed to prevent access by wildlife and livestock.

Containment dikes will not be constructed with topsoil or coarse, insufficiently impervious spoil material. Chemicals will be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazard labels are not exposed to weathering.

4.4.2.2 Reserve Pits

Reserve pits would be used for storage or disposal of water, drill mud, and cuttings during drilling operations. The pit will be located entirely in cut material and in areas that avoid shallow groundwater, to the extent practicable. Reserve pits will not be constructed in natural watercourses or conveyances.

For reserve pit construction on sloping sites, the preferred method is to locate the pit on the drill pad next to the high wall. Pits would be constructed totally in cut at such locations. If this is not possible, at least 50 percent of the

reserve pit would be constructed below original ground level to help prevent failure of the pit dike. Fill dikes will be properly compacted in lifts. The necessary degree of compaction depends on soil texture and moisture content. The pit will be designed to contain all anticipated drilling muds, cuttings, fracture fluids, and precipitation while maintaining at least two (2) feet of freeboard.

Pits improperly constructed on slopes or poor soil types may leak along the plane between the natural ground level and the fill. There is a significant potential for pit failure in these situations. When constructing dikes for pits or impoundments with fill embankment, a keyway or core trench will be excavated to a minimum depth of two (2) to three (3) feet below the original ground level. The core of the embankment can then be constructed with compacted, water-impervious material.

To prevent contamination of ground water and soils or to conserve water, Denbury will use a closed-loop drilling system or line reserve pits with an impermeable liner when it is anticipated that pits will contain moderate or high levels of hydrocarbons and chloride, or when the pits are located in areas of shallow groundwater or porous soils over fractured bedrock aquifers.

Pits would be lined with synthetic liners or other materials such as bentonite or clay. Impermeable liners would have a permeability of less than 10^{-7} cm/sec. Liners will be installed so that they will not leak and will be composed of materials compatible with all substances to be placed in the pit. Synthetic liners with resistance to ultraviolet radiation, weathering, chemicals, punctures, and tearing would be used. Suitable bedding material, such as sand, clay, or felt liners would be used in areas where the base rock might puncture the liner.

Depending on the proposed contents of the pit and sensitivity of the environment, a leak detection system or the use of self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas may be required.

Reserve pits will be appropriately fenced to prevent access by persons, wildlife, or livestock. During drilling in active livestock areas, the reserve pit will be fenced with an exclusion fence on three sides and then fenced on the fourth side once drilling has been completed. The fence would remain in place until pit reclamation begins. After cessation of drilling and completion operations, any visible or measurable layer of oil will be removed from the surface of the reserve pit and the pit kept free of oil. When reserve pits are needed because a closed-loop drilling system is not possible, precautions such as netting would be used to prevent access and mortality of birds and other animals.

4.4.3 Reclamation

Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for production operations (BLM and Forest Service, 2007). Interim reclamation will be initiated upon completion of the drilling and demobilization of the equipment and structures. The interim reclamation will include:

- The portions of the cleared well site not needed for operational and safety purposes will be recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible.
- A level area sufficient for the setup of a workover rig and to stage associated equipment will be reserved for operational use. In some cases, rig anchors will need to be pulled and reset after recontouring to allow for maximum reclamation.
- Areas that are not graveled and are not needed for all-weather operations will be revegetated following the reclamation procedures described in Section 4.1.12 and Appendix G.

- To inspect and operate the well or complete workover operations, Denbury may need to drive, park, and operate on restored, interim vegetation within the previously disturbed area. Vegetation damage will be repaired and reclaimed as needed. Under some situations, such as the presence of moist, clay soils, vegetation and topsoil would be removed during workover operations and restored following operations to prevent soil compaction.

During final reclamation, gravel, topsoil, and interim vegetation will be stripped from portions of the site that are not at the original contour, the well pad will be recontoured, and the topsoil respread over the entire disturbed site to promote successful revegetation as described in Section 4.1.12 and in Appendix G.

4.5 Well Construction (Drilling)

The injection wells will be constructed in compliance with Class VI UIC injection well construction requirements outlined in 40 CFR 146.86 and documented in a Well Construction Plan. All phases of the project's well construction will be supervised by a skilled professional experienced in practical drilling engineering and who is familiar with the requirements of injection well construction. All materials and equipment used in the construction of the wells and related appurtenances will be designed and manufactured to exceed the operating requirements of the specific project, including flow induced vibrations. In accordance with the ARMP, drill rigs will meet EPA Tier 4 emissions standards. The injection wells will target a permeable and porous zone suitable for storage. A preliminary wellbore diagram is provided in the Well Construction Plan in Appendix D.

The casing set depths and cement plan will protect the lowermost USDW. Formation tops based on the logging program will be confirmed at the time of drilling. Denbury will install electronic temperature, pressure, and flowmeter transmitters to continuously monitor the CO_2 stream and annulus pressure.

The casing at the injection zone will be perforated to allow CO_2 to flow into the formation. Tubing to convey CO_2 to the injection zone will be installed in the well to the depth of the perforations. A packer will be installed above the perforated zone to isolate the injection zone from the rest of the well annulus. A quartz-type permanent downhole gauge will be set above the packer.

Injection will generally begin at the base of the targeted interval and move upward throughout the life of the project. Injecting into different intervals may help to manage the horizontal migration of the CO2 plume. This will involve raising the tubing and packer above the new targeted zone, creating new perforations of the well casing, and plugging the lower interval with a cast iron bridge plug and 20 feet of CO2 resistant cement placed above the newly abandoned perforation interval(s).

4.6 Pump Station Construction

Pump Station North and Pump Station South will consist of well pumps and office buildings. Each pump station will occupy an approximately 5-acre ROW on BLM land. The construction sequence will begin with site preparation similar to the process described for well pad construction in Section 4.4.1. Once the station workspace has been clearly staked, equipment will be brought in to clear the existing vegetation. All vegetation will be removed. Erosion and sediment controls will be installed as described in Section 4.1.5, and the methods described in Section 4.1.7 will be employed, as needed, to control fugitive dust. Topsoil will be stripped, segregated, and stored separately from subsurface materials, and protected from wind and water erosion as described in Section 4.1.8. Grading will be performed to create a flat, level work area for construction equipment. The grading crew will install timber mats where soil conditions cannot support construction equipment. The pump, metering, and office area will be level and capable of supporting the facilities.

Pumps and meters that measure CO_2 flow from the CCA Pipeline and raise the CO_2 pressure for well injection will be installed. Office buildings will be constructed, and the buildings will be elevated to avoid snow drifts during the winter months. The buildings will be painted Carlsbad Canyon to minimize visual effects. A chain link fence will be constructed to surround the entire facility and will be painted the same as the building. An illustration of the pump station layout is provided in Figure 2-2 in Section 2.2.4, and office building figures are provided in Appendix F.

The majority of the 5-acre permanent ROW for each pump station will be surfaced with gravel. Scoria aggregate may be used as a base, but it will not be used as a surface treatment. Denbury will purchase gravel for the surface treatment from a permitted offsite source in Gillette, Wyoming or Belle Fourche, South Dakota to minimize visual impacts. Aggregate and other mineral materials will be sampled for erionite as described in Section 4.1.6. Aggregate and other mineral materials containing detectable levels of erionite will not be accepted for use on the Project. As noted in the Noxious Weed Management Plan (Appendix J), all gravel and fill material imported on-site will be source-identified by Denbury to ensure that the originating site is noxious weed-free.

4.7 Electric Transmission Line Corridor Proposed Construction

Denbury will coordinate with SE Electric on the upgrade and extension of and existing overhead electric line that will supply power to Pump Station North. As described in Section 2.2.5, Denbury will coordinate with SE Electric and BLM to upgrade approximately 1.2 miles of overhead electric distribution line on private property and construct approximately 3.6 miles of new electric transmission line to Pump Station North. Approximately 2.3 miles of the new powerline and its associated ROW will be on BLM land. As a part of this POD, Denbury analyzed a 100-foot-wide corridor for the electrical transmission line, but no ROW grant will be issued to Denbury for this portion of the Project. SE Electric will pursue and submit a ROW application for a ROW to service this Pump Station North.

The site preparation stage of the powerline construction will be similar to the pipeline construction sequence described in Section 4.2. The centerline and ROW boundaries will be surveyed and staked to define workspace limits. Signs will be installed and existing fences modified, as needed, as described in Section 4.1.4. Equipment will be brought in to clear the existing vegetation and strip topsoil along construction access routes and where the 30-foot power poles will be installed by truck mounted augers to a depth of 6 feet. Erosion and sediment controls will be installed as described in Section 4.1.5, and the methods described in Section 4.1.7 will be employed, as needed, to control fugitive dust. As described in Section 5.4, no power poles will be installed within wetlands or waterbodies.

After the powerline has been constructed, disturbed areas will be restored as described in the reclamation procedures in Section 4.1.12.

4.8 Project Operations

This section outlines procedures that will be employed during the operation and maintenance phase of the Project after construction and restoration have been completed. Operation and maintenance activities would include routine monitoring of well pressures, and regular inspections of Project equipment and infrastructure (e.g., roads). Denbury would keep necessary work areas around all structures clear of vegetation as needed for safe construction and fire control.

4.8.1 Pipeline Operations

Flowlines and bulklines will be operated and mainlined maintained in accordance with USDOT's minimum requirements for operating and maintaining pipeline systems contained in 49 CFR Part 195 Subpart F. Denbury will operate under a manual that outlines the procedures for conducting normal operations and maintenance activities

and handling abnormal operations and emergencies, as specified in 49 CFR § 195.402. This plan will include details for conducting and documenting operations and maintenance activities for the flowlines and bulklines. The plan will include procedures for handling start-up, shut-down, repair, and abnormal operations. ROWs will be patrolled, and leakage surveys will be conducted at the minimum frequencies defined in 49 CFR § 195.414-416. Provisions will be included in the plan to ensure required reporting is accomplished accurately and on time, to document the completion of the above-listed activities, and to ensure appropriate review and updates occur on an annual basis. The plan will be available to applicable operations personnel, and Denbury will provide training to personnel on the plan's contents and requirements.

In addition to periodic ROW patrols, Denbury will equip the flowlines and bulklines with a Supervisory Control and Data Acquisition system that will allow remote monitoring of the pipelines and transmittal of the data to its pipeline control center. The control center will have the ability to open and close pipeline valves remotely when a pressure anomaly or flow rate change is observed.

4.8.2 Injection Well Operations

4.8.2.1 Injection and Monitoring of CO_2 Plume

During the injection phase, Denbury will conduct injection activities and perform testing and monitoring as described in the EPA UIC permit and project plans (Appendix A). In the unlikely event that the pressure plume front were to affect pore space outside of the proposed AoI, Denbury would execute an agreement with the affected landowner as part of the Class VI UIC permitting process.

4.8.2.2 Inspection and Maintenance Schedule and Level of Use

The site will be patrolled on a regular basis by a Denbury employee or contractor in a pickup truck, UTV, snowcat, or on foot, depending on access. As noted in Section 4.3, access road use during the lekking season (March 15 – July 15) will occur only during the hours of 8:00 a.m. and 7:00 p.m. local time. Daily operations would be remotely monitored, and operational vehicle traffic for monitoring is expected to be up to one vehicle visit per well per day, or less, depending on weather and operation conditions. Denbury's inspector will observe the conditions of all access roads, well pads and Project equipment to identify and correct any damage or mark it for future repair.

The well sites will generally be inspected during daylight hours. Access for inspections will be along the approved ROW. All inspectors will carry spill cleanup kits and fire suppression tools in their vehicles while inspecting the ROWs.

The injection wells will be inspected and maintained in accordance with the EPA UIC permit, as further described in Appendix A.

4.8.3 Post-Injection Plugging, Monitoring, and Closeout Phase

At the time of abandonment, Denbury will obtain any needed authorizations from the BLM Authorized Officer or Montana State Lands Agent to abandon the injection wells, pipelines, and pump stations. Post-injection plugging, monitoring, and injection well closeouts will be completed in accordance with the EPA UIC permit. Denbury will acquire GPS data for all locations on BLM-administered land and submit the GPS data to the BLM for their records. All infrastructure and facilities will be removed and disposed of or recycled in approved locations.

Re-grading and revegetation of disturbed areas will be completed according to BLM standards and requirements, the procedures described in Section 4.1.12, and the Reclamation, Mitigation, and Monitoring Plan in Appendix G.

4.9 Project Labor Estimate

Table 4-3 shows estimates of labor for the Project construction and operation stages. Denbury estimates that 25 percent of the employees hired for construction (annual full-time equivalents [FTE]s) would come from Carter County, with the remaining 75 percent of FTEs coming from outside of the county. Permanent positions during Project operations may be filled by local appropriately skilled persons or through skilled hires from outside of the Project area.

Table 4-3: Project Construction and Operation Labor Estimate

Construction Group	Worker Type	Duration of Work	Annual Full-Time Equivalent (FTE)
Group 1	Engineering/Planner	18 months	4
Group 1	Well Pad Construction	5 months	35
Group 1	Well Drilling	5 months	20G
Groups 2-8	Well Pad Construction	5 months each year for 8 years	35
Groups 2-8	Well Drilling	5 months each year for 8 years	20
Groups 2-8	Flowline Construction	5 months each year for 8 years	35
Groups 2-8	Bulkline Construction	5 months in Year 2 and Year 5	35
Groups 2-8	Facilities Construction	5 months in Year 2 and Year 5	35
Groups 2-8	Electric Transmission Line Construction (by SE Electric)	5 months in Year 2	35
Groups 2-8	Access Road Construction	5 months each year for 8 years	35
Group 9	Well Pad Construction	5 months	35
Group 9	Well Drilling	5 months	20
Operation	**Worker Type**	**Duration of Work**	**Annual Full-Time Equivalent (FTE)**
Injection Phase	Engineer/Planner	20 years	4
Injection Phase	O&M Staff	20 years	3
Post-Injection/Closeout	Engineering/Planner	50 years	1
Post-Injection/Closeout	O&M Staff	50 years	1

4.10 Anticipated Construction Equipment

Table 4-4 summarizes the anticipated equipment that will be required to construct each Project Group.

Table 4-4: Anticipated Construction Equipment by Project Group

Equipment List	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	GROUP 9
Air Compressor	0	3	2	2	3	2	2	2	0

Equipment List	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	GROUP 9
Air Compressor/Dryer	0	2	2	2	2	2	2	2	0
Backhoe	0	9	7	7	8	7	7	7	0
Blade	6	13	8	8	12	8	8	8	1
Blader	0	8	8	8	8	8	8	8	0
Crane	0	1	0	0	1	0	0	0	0
RT Crane	0	2	2	2	2	2	2	2	0
Dozer	9	24	21	21	24	21	21	21	3
Dump Truck	4	7	4	4	7	4	4	4	0
Excavator	1	17	16	16	17	16	16	16	1
Excavator w/ Vacculift	0	2	2	2	2	2	2	2	0
Farm Tractor	0	4	4	4	4	4	4	4	0
Forklift	0	1	0	0	1	0	0	0	0
RT Forklift	0	6	6	6	6	6	6	6	0
Generator	0	10	7	7	10	7	7	7	0
Generator	0	5	5	5	5	5	5	5	0
Loader	0	0	0	0	0	0	0	0	0
Manlift	0	0	0	0	0	0	0	0	0
Paint Truck	0	3	2	2	2	2	2	2	0
Roller	0	2	2	2	2	2	2	2	0
Roller Compactor	1	1	1	1	1	1	1	1	1
Scraper	9	15	9	9	15	9	9	9	3
Sideboom	0	10	10	10	10	10	10	10	0
Skid Truck	0	4	4	4	4	4	4	4	0
Tack Rig	0	2	2	2	2	2	2	2	0
Trencher	0	5	3	3	4	3	3	3	0
Water Pump	0	0	0	0	0	0	0	0	0
Water Truck	0	10	10	10	10	10	10	10	0
Welding Machine	0	14	14	14	14	14	14	14	0
Welding Truck	0	10	10	10	10	10	10	10	0
X-Ray Truck	0	4	4	4	4	4	4	4	0

5.0 Resources and Resource Uses

The BLM and U.S. Fish and Wildlife Service (USFWS) cooperatively manage federally listed and special status wildlife resources over the AoI with the goal of avoiding or minimizing impacts from Project development. In addition, these agencies will also work with other state and federal agencies, Denbury, and landowners to implement protective measures within the AoI.

Denbury coordinated with the BLM and USFWS regarding potential impacts to federally listed and special status species protected under the Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA), and Migratory Bird Treaty Act (MBTA) that may inhabit the AoI. Based on the Project location, and as a result of discussions with each agency, Denbury conducted surveys or assessments for raptor nests, greater sage-grouse and sharptailed grouse (*Tympanuchus phasianellus*) leks, northern long-eared bat (*Myotis septentrionalis*) [NLEB]) habitat, acoustic bat activity, winter concentrations of eagles, sage-grouse, and big game, and wetlands. Additional information regarding agency coordination, survey methods, and results can be found in Appendices L, M, O, and P of this POD.

Denbury utilized the information gathered from the surveys to design and reroute the Project to avoid and minimize impacts to sensitive resources (e.g., habitat, nests, leks) to the greatest practicable extent. Denbury has further committed to construction and operation measures that avoid and minimize disturbances to the resources that could not be avoided, as discussed in this section. These measures are described in Section 4.

5.1 Federally Listed, Proposed Threatened or Endangered, and Candidate Species

Denbury evaluated federally protected species that may occur in the AoI using the Information for Planning and Consultation (IPaC) system. Denbury requested a protected species review from the USFWS in a letter submitted on April 22, 2022. In its May 4, 2022 response, the USFWS confirmed that listed, proposed and candidate species that may be present in the AoI are the federally endangered NLEB and the candidate monarch butterfly (*Danaus plexippus*). The USFWS indicated that additional efforts for protected butterfly species (e.g., Dakota skipper [*Hesperia dacotae*]) would not be needed for the Project in conjunction with ESA Section 7 informal consultation. The agency also provided recommendations for habitat assessments and acoustic surveys that could be conducted to determine bat species present. The results of Denbury's habitat assessment and acoustic surveys are discussed below.

In its May 4, 2022, consultation response letter, the USFWS also noted that the federally threatened Dakota skipper has not been documented in Montana, but it has been documented in North Dakota within a few miles of the Montana border. The USFWS indicated take prohibitions apply under the ESA for the Dakota skipper if occurrence is documented within the AoI. This species requires high quality mixed and tallgrass prairie habitats for all of its life cycles. Denbury reviewed desktop information, conducted on-site evaluations, and did not locate any high quality mixed or tallgrass prairie in the AoI.

5.1.1 Northern Long-Eared Bat

When the completed Project application was submitted in January 2022, the NLEB was listed as threatened under the ESA; however, on March 31, 2023, the NLEB was reclassified to be a federally endangered species. The USFWS has created an interim NLEB effects determination key (an online tool) to assist planners in determining the

potential impacts of a project on the species; however, the interim consultation process is scheduled to be valid only until April 1, 2024. Projects which have phased construction, such as the Snowy River CO_2 Sequestration Project, may be required to reinitiate consultation with the USFWS to reassess the potential impacts of ongoing or future construction of the Project on the NLEB to comply with ESA. The BLM determined that the proposed Project activities that are under the authority of the BLM would have no effect on the NLEB. However, because the proposed action would be constructed in stages over a 20-year period, permitting agencies would be required to revisit and determine if ongoing or future construction may affect the NLEB, other listed species, and/or any newly listed species based on new information and listing decisions and initiate consultation if needed to comply with ESA.

The species hibernates in caves or abandoned mines during the winter. During the summer, NLEBs may roost beneath loose bark of live, dead, or dying trees. Additionally, the NLEB may roost in barns, in sheds, under bridges, or in other buildings that have little human disturbance. Female NLEBs typically roost in a maternity colony, while male NLEBs tend to roost singly or in small groups. Roosting and foraging habitat includes forests, wooded fence rows, and riparian areas.

In Montana, this species is only known to occur near the North Dakota border along the Missouri and Yellowstone Rivers, approximately 100 miles north of the Project area (Montana Natural Heritage Program, 2022). This species is typically found in the interiors of more extensive forests, and generally avoids large open areas such as sage brush, pasture, and row crop fields. Mist-netting surveys were conducted along Box Elder Creek near the eastern border of the Project area by the BLM in 2021, 2022, and 2023. No NLEBs were captured during those surveys.

As described in the Biological Survey Report in Appendix M, Denbury conducted a habitat assessment in the AoI in 2022, with a focus on NLEB. The habitat assessment included both a desktop review and field survey. The desktop assessment included a review of aerial imagery to locate forested areas that may support NLEBs. The field-based habitat assessment focused on those areas of potentially suitable habitat and was conducted in coordination with other field efforts.

The AoI is primarily comprised of sagebrush (*Artemisia tridentata*) and pasture, with forests restricted to a few slopes near the western edge of the AoI. The total amount of forest within the AoI is approximately 750 acres. In the field, these areas were determined to be evergreen forests dominated by ponderosa pine (*Pinus ponderosa*). The forests included snags of sufficient size (at least 3 inches diameter at breast-height) to serve as potential roosts for NLEBs, resulting in less than 1 percent of the AoI as suitable habitat.

5.2 Special Status Species

Acoustic surveys were generally conducted in accordance with the BLM survey protocol and the North American Bat Monitoring Program (NABat) official guidance for stationary acoustic surveys (Loeb et al. 2015). Survey methodology was revised for this Project in coordination with the BLM, based on the lack of suitable bat habitat in the AoI. In coordination with the BLM, two sites were selected for acoustic monitoring and were sampled for six months. Sites were selected based on proximity to habitat features that may attract bats and accessibility. The north site was along a stream surrounded by sagebrush habitat. The south site was next to a pond and surrounded by sagebrush habitat. Trees were not present near either of the sites.

Acoustic surveys were completed in 2022 and 2023. For the 2022 survey, a total of 2,170 bat passes were recorded at the north site, and a total of 1,190 bat passes were recorded at the south site (Appendix M). Eight species were identified through a manual review of the acoustic data at the north site and five species were identified through manual review at the south site. The acoustic survey methodology, including the use of software to classify calls and manual call identification, is included in Section 4 of the 2022 Biological Survey Report in Appendix M. For the

2023 survey, at total of 516 bat passes were recorded at the north site, and a total of 677 pat passes were recorded at the south site (Appendix N). The Project is not anticipated to remove any NLEB habitat. Six species were identified through a manual review of the acoustic data at the north site and seven species were identified through manual review at the south site. The acoustic survey methodology, including the use of software to classify calls and manual call identification, is included in Section 2 of the 2023 Acoustic Survey Report in Appendix N.

5.2.1 Grouse Species

The Project occurs within the range of two native grouse species: greater sage-grouse and sharp-tailed grouse. The Miles City Field Office of the BLM requested surveys for grouse leks (e.g., congregation areas) in the Project vicinity. The BLM lists only the greater sage-grouse as a sensitive species, but survey efforts were completed for both species.

Grouse lek surveys were conducted via helicopter in spring 2022. A total of nine leks were observed during the surveys. Seven of the leks were previously documented greater sage-grouse leks. Two of the leks were newly documented sharp-tailed grouse leks. Photographs and datasheets from the 2022 surveys are included in Appendix M. Additional grouse lek surveys were conducted via helicopter in spring 2023. A total of four leks were observed. Two of the leks were previously documented greater sage-grouse leks. Two of the leks were newly documented sharp-tailed grouse leks. The Biological Survey Report that documents the 2023 survey results is included in Appendix N.

Denbury also conducted winter aerial surveys between December 1, 2022, and February 28, 2023, to document the occurrences and concentrations of greater sage-grouse in the AoI. Forty-six greater sage-grouse were observed in five groups during the aerial surveys. Additional information is provided in the Biological Winter Habitats and Concentrations Survey Report in Appendix N. The proposed Project ROWs will not disturb any Confirmed Active[2] leks. All proposed ROWs are outside of the 0.6-mile No Surface Occupancy (NSO) buffers that surround Confirmed Active leks.

Greater sage-grouse habitat will be disturbed by construction activities. The Project crosses the 0.6-mile NSO buffer of one historic, Never Confirmed Active[3] lek, which was last observed in 1990 (Lek ID 3135506). No active leks were observed near this historic lek during Project surveys. Approximately 20.6 acres of the 0.6-mile NSO buffer that surrounds the historic lek will be disturbed during construction and operation of a bulkline, a flowline, and Well 14.

Additionally, the 0.6-mile NSO buffer that surrounds an Unconfirmed[4] lek is crossed by Hammond Road, approximately 3 miles southeast of the Project AoI (Lek ID 7889965). This Unconfirmed lek was last observed in 2017. Hammond Road is an existing County Road that Denbury will use to support the Project, however, no improvements to the road are proposed, and a minor increase in traffic associated with construction is anticipated to occur on the road.

[2] Confirmed Active = Data supports existence of a lek. Supporting data defined as 1 year with 2 or more males lekking on site followed by evidence of lekking (Birds - male, female or unclassified; -OR- Sign - vegetation trampling, feathers, or droppings) within 10 years of that observation.

[3] Never Confirmed Active = An Unconfirmed lek that was never confirmed active. Requires 3 or more survey years with no evidence of lekking (Birds - male, female or unclassified; -OR- Sign - vegetation trampling, feathers, or droppings) over any period of time.

[4] Unconfirmed = Possible lek. Grouse activity documented. Data insufficient to classify as Confirmed Active status.

To mitigate the disturbance of lek priority habitat, Denbury proposes to secure mitigation credits at three locations in Carter County to mitigate the disturbance of sage grouse habitat in Core Area, use the 13,204.55 mitigation credits from the Ringling Ranch II Mitigation Site (Project # 2980) to provide a portion of the required credits for the Project. The Ringling Ranch III Mitigation Site (Project # 3354) has 349,318.83 credits available, which the Project anticipates using in its entirety. To fulfill the remaining credit requirements, Denbury will use a portion of the credits that are available at the LO Ranch, operated by the Montana Land Reliance (MLR). The easement consists of 6,212 acres of perpetual conservation easement containing up to 337,976.01 credits. Denbury has funded MLR for long-term monitoring of the LO Ranch. Removal of greater sage-grouse habitats through construction activities, and a mitigation planning approach is discussed further in Appendix I.

5.2.2 Raptors

A raptor nest survey was conducted via helicopter on May 4 and 5, 2022 and on April 5 and 6, 2023. North-south oriented transects with 1-mile spacing were flown, with a focus on potential nesting structures such as rock outcroppings and trees. The survey area included the AoI and a 1-mile buffer. A total of six nests were documented in the 2022 survey. Two of the nests were determined to be unknown raptor nests. One nest appeared to have been originally built by a raptor but was inhabited by a Canada goose (*Branta canadensis*) at the time of the survey. Three nests were determined to be bald eagle (*Haliaeetus leucocephalus*) nests but were inactive and located outside of the AoI. Photographs and datasheets from the 2022 surveys are included in Appendix M. Following the 2023 survey, a total of eight nests were documented. Five of the nests were determined to be inactive unknown raptor nests. One nest was determined to be an eagle nest but was inactive at the time of the survey. One active bald eagle nest and one active golden eagle (*Aquila chrysaetos)* nest were documented within the survey area. Three of the nests observed during the 2023 survey were previously documented in 2022.

During subsequent pedestrian surveys in 2022, one additional nest was located. The nest was inactive, but based on the location and nest structure, was believed to be a golden eagle nest. The ROW for Well 11 is within 0.5 mile of the nest. This nest was not present during aerial or pedestrian surveys in 2023. The nest was noted in 2022 as not being maintained, as such weather or other factors may have removed the nest during the period between the 2022 and 2023 surveys.

Denbury also conducted surveys to identify eagle winter roosts between December 1, 2022, and February 28, 2023. Five golden eagles were observed during the winter surveys. The results of the 2023 raptor surveys are further detailed in the Biological Winter Habitats and Concentrations Survey Report in Appendix N. Raptor nest locations and their 0.5-mile buffers are shown in the figures in Appendix O.

Denbury does not anticipate removing trees or rock outcroppings to construct or operate the Project. Construction, drilling, routine maintenance, and reclamation activities will be conducted between July 16 and November 30, which is outside of raptor nesting season.

5.2.3 Migratory Birds

Migratory bird presence in the AoI is discussed in the 2022 Biological Survey Report (Appendix M) and the 2023 Biological Survey Reports (Appendix N).

The USFWS has statutory authority and responsibility for enforcing the MBTA (16 U.S.C. 703-712). Most native bird species (e.g., birds naturally occurring in the United States) are protected under the MBTA, and the list of protected species is identified in 50 CFR 10.13, which is reviewed and updated regularly. Denbury evaluated migratory birds that may occur in the AoI using the IPaC system, which identified three birds which may occur in this area of Carter County: marbled godwit (*Limosa fedoa*); western grebe (*Aechmophorus occidentalis*); and willet (*Tringa semipalmata*).

The marbled godwit is a large shorebird which breeds in Montana, North and South Dakota, and parts of Canada. The species winters along both coasts and the Gulf of Mexico. The breeding season is from May to July throughout its range, and the species is most likely to occur in Montana in July (USFWS, Marbled Godwit, 2023). Breeding habitat includes marshes and flooded plains, while migrants typically utilize mudflats and beaches. While the AoI does contain scattered PEM wetlands, they are unlikely to provide suitable habitat. Further, there is no suitable breeding habitat available within the ROW, and no mudflats or beaches within the AoI. Due to a lack of suitable habitat within the ROW, the Project is not anticipated to disturb the marbled godwit.

The western grebe is a large waterbird which breeds on freshwater lakes and marshes with extensive open water bordered by emergent vegetation. The breeding season is from May to July throughout its range, and the species is most likely to occur in Montana in July. The species winters in saltwater or brackish bays, estuaries, or sheltered seacoasts along the Pacific coast from southeastern Alaska to northwestern Mexico (USFWS, Western Grebe, 2023b). The AoI does not contain freshwater lakes, and the PEM wetlands within the AoI are unlikely to support the species. There is no suitable habitat available within the ROW. Subsequently, the Project is not anticipated to disturb the western grebe.

The willet is a large shorebird, which utilizes beaches and rocky coasts, as well as mudflats and marshes (Lab, 2023). The breeding season is from mid-April to early August, and the species is most likely to occur in Montana in late May. During the breeding season, willets migrate inland to nest in grasslands and prairie near freshwater (Montana Natural Heritage Program and Montana Fish, 2023). The AoI is within the species known summer range (e.g., breeding), and may provide suitable breeding and nesting habitat for the species; however, there is no suitable habitat within the ROW. Subsequently, the Project is not anticipated to disturb the willet.

Denbury will minimize disturbance to migratory birds by conducting construction, drilling, routine maintenance, and reclamation activities between July 16 and November 30 (e.g., outside of the nesting bird season in Montana, which is from approximately May 15 through July 15) in any given year and avoiding tree clearing as discussed in Section 4.1.

5.2.4 Other BLM Special Status Species

BLM Manual 6840 provides policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are: (1) species listed or proposed for listing under the ESA, and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the State Director(s). The BLM will use the Special Status Species list in project planning and NEPA analysis. The list includes species occurrences by field office; the MCFO is the field office closest to the Project.

Based on the Special Status Species list provided in Appendix P, the following are considered by MCFO: 1 amphibian; 30 birds; 4 fish; 2 invertebrates; 7 mammals; 6 reptiles; and 2 plants. Denbury has coordinated with biologists from the MCFO, and based on guidance received from the MCFO, three special status species should be considered for the AoI. The three species are discussed below.

Nuttall desert parsley (*Lomatium nuttallii*) grows on open, rocky slopes on sandstone, siltstone, or clayey shale, in open pine woodlands. In Montana, populations have been found in or closely bordering drainages. Visher's buckwheat (*Eriogonum visheri*) typically occurs in barren, sedimentary rock outcrops. In Carter County, the species grows on vesicular silt (derived from bentonite) in sparsely vegetated outwash flats below eroding bentonite bandland slopes of the Hell Creek Formation. No suitable habitat for either species was observed within the Project ROW during the field surveys. Subsequently, it is unlikely the Project will disturb either the nuttall desert parsley or Visher's buckwheat.

The western bumble bee (*Bombus occidentalis*) is a ground-nesting species found in open grassy areas, prairie, urban parks and gardens, sagebrush steppe, mountain meadows, and alpine tundra. The Montana Natural Heritage Program created a predicted suitable habitat model in 2022 for the western bumble bee. According to the model, the AoI has low suitability to unsuitable habitat available for the species. Further, no suitable habitat was observed within the Project ROW during the field surveys. Subsequently, it is unlikely the Project will disturb the western bumble bee.

5.3 General Wildlife

Wildlife baseline information will be used to facilitate the BLM's ability to identify concerns; provide guidance for the design of Project plans that encourage conservation; monitor the effectiveness of decisions; and make recommendations to adjust management to address specific situations.

In addition to the wildlife species discussed above, Denbury conducted winter aerial surveys between December 1, 2022, and February 28, 2023, to document the occurrences and concentrations of pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), and (incidentally) coyotes (*Canis latrans*). During the survey a total of 100 pronghorn were observed in six groups, 70 mule deer were observed in five groups, and six coyotes were observed in five locations. Additional information regarding the survey methodology and results is provided in the Biological Winter Habitats and Concentrations Survey Report in Appendix N.

5.4 Aquatic Resources

5.4.1 Wetlands

A wetland desktop review was completed using publicly available Geographic Information System (GIS) data to identify potential wetland and water features in the AoI prior to conducting a site visit. The data was used to identify probable locations of wetlands within the AoI. The U.S. Army Corps of Engineers (USACE) defines wetlands as areas that contain hydric soils, hydrophytic vegetation, and wetland hydrology. This desktop review used existing information to identify areas where these indicators are likely to be present including overlapping areas of National Wetland Inventory (NWI) and National Hydrography Dataset (NHD) features, hydric soils, lower elevations in the landscape, and saturation or inundation visible on aerial imagery.

An onsite wetland delineation was conducted in September 2022 to verify and update the findings of the desktop review. The delineation identified 15 wetlands, comprised of three wetland types (palustrine emergent, [PEM], palustrine unconsolidated bottom [PUB], and palustrine aquatic bed [PAB]) encompassing a total of 2.48 acres of wetlands delineated within the survey area. A full description of wetlands that have been delineated within the AoI, including survey methods, overview maps, wetland determination data forms, and site photographs, is provided in Appendix Q.

Some of the delineated wetlands were located within areas mapped on U.S. Geologic Survey (USGS) topographic maps as Dead Boy Creek and North Fork Dead Boy Creek. As shown in the photographs and noted on forms in Appendix Q, the features were classified as wetlands due to the lack of a discernible ordinary high water mark (OHWM) or a defined bed and bank. At the time of survey, these areas were pockets of pooled water, with or without vegetation, surrounded by berms or other landforms that disrupted water flow and created wetlands.

Of the 15 wetlands delineated in the survey area, eight are located within the proposed ROWs and electric transmission line corridor. Table 5-1 lists the wetlands that are within the proposed ROWs and electric transmission line corridor and describes the impacts and/or avoidance measures at each crossing. Corresponding figures are provided in Appendix R.

Table 5-1: Delineated Wetlands Within the Proposed ROWs / Corridor

Wetland ID	Wetland Type	Temporary Impacts (acres)	Permanent Impacts (acres)	Surface Management Agency	Impact Description	ROW Group	Mapbook Page†
WC-2	PEM	0.00	0.06	State of Montana	Wetland within permanent ROW for Well 1 will be filled for well pad construction and operation.	2, 3	6 of 8
WC-3	PEM	0.02	0.01	State of Montana	Wetland within permanent and short-term ROW for Well 1. 0.01 acre will be filled for well pad construction and operation. 0.02 acre will be temporarily impacted and restored after pad construction.	2, 3	6 of 8
WC-4	PEM	0.00	0.00	State of Montana	Wetland will be bored under with HDD. No temporary equipment mats are needed, as the ROW abuts an existing two-track road.	2	7 of 8
WC-5	PEM	0.00	0.01	State of Montana	Wetland located along the existing two-track road to Well 1 will be culverted to construct and operate the road. A culvert will be installed to allow for flow between the unaffected portion of WC-5 and WC-4 during stormwater events.	2	7 of 8
WC-6	PUB	0.02	0.00	BLM	Wetland will be bored under with HDD. Temporary equipment mats are needed to cross the wetland.	2	3 of 8
WC-7	PEM	0.04	0.00	BLM	Wetland will be bored under with HDD. Temporary equipment mats are needed to cross the wetland.	2	3 of 8
WC-8	PUB	0.00	0.01	BLM	Wetland will be bored under with HDD. A culvert will be installed under a new access road to maintain connections with wetlands upstream and downstream of the crossing.	2	4 of 8

Wetland ID	Wetland Type	Temporary Impacts (acres)	Permanent Impacts (acres)	Surface Management Agency	Impact Description	ROW Group	Mapbook Page†
WC-9	PEM	0.00	0.00	BLM	Wetland will be bored under with HDD. No temporary equipment mats are needed. Equipment will use the new access road that crosses the abutting WC-8.	2	4 of 8
WC-10	PEM	0.00	0.01	BLM	Wetland located along the existing two-track road to Well 3 will be filled to construct and operate the road. A culvert will be installed to maintain connections with wetlands upstream and downstream of the crossing.	1	5 of 8
WC-11	PUB	0.00	0.00	BLM and Private Landownership	Wetland located along the transmission line ROW will be avoided. Poles will not be installed within the wetland, and no access across the wetland is required.	2	2 of 8
WC-12	PEM	0.00	0.00	BLM and Private Landownership	Wetland located along the transmission line ROW will be avoided. Poles will not be installed within the wetland, and no access across the wetland is required.	2	2 of 8
WC-14	PEM	0.07	0.00	BLM and Private Landownership	Wetland located along the transmission line ROW will be matted to construct the transmission line. Poles will not be installed within the wetland.	2	2 of 8
-	***Total***	***0.15***	***0.10***		-	-	-

5.4.2 Waterbodies and Riparian Areas

A waterbody includes any natural or artificial stream, river, canal, or drainage with perceptible OHWM, as well as other permanent waterbodies such as ponds or lakes. Streams include those with perennial, intermittent, or ephemeral flow as defined in the Wetland Delineation Report in Appendix Q. Two streams and their riparian areas will be crossed by the proposed Project: a perennial stream (SC-3; Boxelder Creek) on private property outside of the AoI, and an ephemeral stream (SC-1; Flat Creek) on land administered by the State of Montana. Neither Boxelder Creek nor Flat Creek are listed as Section 303(d) impaired waters for the state of Montana.

The substrate of Boxelder Creek was comprised of silt, sand, and rock. The stream flowed through a wooded riparian area where the common vegetation included eastern cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), and smooth brome (*Bromus inermis*). Boxelder Creek flows under Lone Tree Road through an existing culvert on private property. Denbury will not need to replace or improve the culvert to construct or operate the Project. The electric transmission ROW also crosses Boxelder Creek; however, Denbury anticipates that SE Electric can avoid impacts to the stream. This portion of the powerline is an existing distribution line that will be upgraded for the Project. No new poles will be needed at this location. SE Electric can access poles on each side of Boxelder Creek via the ROW from Lone Tree Road; therefore, a temporary equipment crossing of the stream will not be required.

Flat Creek was characterized by a defined bed and bank but had limited or no flow during the site visit, indicating the stream largely carries water only during and after precipitation events. The substrate generally consisted of silt and sand. The stream flowed through an upland pasture where common riparian vegetation included western wheatgrass (*Pascopyrum smithii*), smooth brome, sand dropseed (*Sporobolus cryptandrus*), and purple three-awn (*Aristida purpurea*).

Flat Creek will be bored under using the HDD crossing method during construction of the flowline to Injection Well 08 as described in Section 4.1.9, thereby avoiding instream impacts. The ephemeral stream will be impacted by the construction of the new access road to Injection Well 08, which will be on State of Montana controlled land. Denbury will install a culvert under the access road as described in Section 4.3.4.

A full description of the waterbodies that have been delineated within the Project's survey area is provided in Appendix Q. The streams that were delineated within the proposed ROWs and electric transmission line corridor and the potential impacts are summarized in Table 5-2 below. Corresponding figures are provided in Appendix R.

Table 5-2: Delineated Waterbodies within the Proposed ROWs / Corridor

Waterbody ID	Flow Regime	Temporary Impacts (linear feet)†	Permanent Impacts (linear feet)†	Surface Management Agency	Impact Description	ROW Group	Mapbook Page‡
SC-3 (Boxelder Creek)	Perennial	0	0	Private Landownership	Stream will be avoided during construction of the powerline. Poles will be accessed on either side of the stream, and no temporary equipment crossing is required.	2	1 of 8
SC-1 (Flat Creek)	Ephemeral	0	51	State of Montana	Stream will be bored under with HDD. A culvert will be installed where the stream crosses the new access road to Well 8.	7	8 of 8

5.5 Surface and Subsurface Water Quality

A field reconnaissance was performed in July 2022 to identify and inspect existing wells and borings within a mile of the AoI, including 38 borings or wells identified by the BLM. The inspection results are summarized in Appendix H. Based on the results of the field reconnaissance, a Sampling and Analysis Plan (SAP) was developed which outlined procedures for the collection and analysis of surface water and groundwater samples in support of the BLM's ROW permit review under 43 CFR Part 2800 and to establish a baseline geochemical dataset for subsurface formations as required under the UIC Class VI requirements codified at 40 CFR 146.82(a)(6) (Burns & McDonnell, 2023).

In September and October 2022, surface water and groundwater samples were collected and submitted for analysis pursuant to the SAP. Surface water samples were collected from three locations along Boxelder Creek, and groundwater samples were collected from six water wells. The seasonal tributaries of Boxelder Creek and Powder River which run through the AoI could not be sampled during this event because they were dry. A second sampling event for surface water and groundwater was conducted in 2023 to complete the baseline characterization program. In May and June 2023, surface water samples were collected from nine locations along Boxelder Creek and tributaries of Boxelder Creek and Powder River, and groundwater samples were collected from five water wells.

The Sampling and Analysis Report in Appendix S summarizes the results of the sampling events and establishes a baseline geochemical dataset for the overburden and Fox Hills Sandstone aquifers as USDWs. The analytical results did not indicate unacceptable water quality for livestock watering, which is the primary use of both surface water and groundwater in the area. There were minimal indications of anthropogenic contamination. The concentrations of total dissolved solids (TDS) and detections of uranium make the water less desirable for human consumption.

Sampling to be performed during the operational phase of the Project will be determined under the UIC Class VI regulations in a Testing and Monitoring Plan and under the Greenhouse Gas Reporting Rule in a Monitoring, Reporting, and Verification Plan.

The closest town to the Project is Ekalaka, Montana. Ekalaka's water source for wells is from streams located in the Hell Creek formation, which is a closed aquifer and would not be impacted by the Project. There are no sole source aquifers within the Project.

5.6 Cultural Resources

Treatment of cultural resources will follow the procedures established for compliance with Section 106 of the National Historic Preservation Act (NHPA) in consultation with the Tribes and Montana State Historic Preservation Office (SHPO). Treatment plans for tribal resources will be developed separately and confidentially as dictated by tribal preference. Under Section 106 of the NHPA of 1966, as amended, the BLM must take into account the direct and indirect effects of their actions on historic properties, defined as properties in or eligible for the National Register of Historic Places (NRHP) and give the Advisory Council on Historic Preservation the opportunity to comment. To be in compliance with the NHPA, the BLM must identify and evaluate NRHP eligibility of properties within the Project area of potential effect (APE) and to assess direct and indirect effects of the action on historic properties. Denbury is committed to identifying and avoiding historic properties and to mitigating adverse effects findings.

The Project's cultural resource identification requirements were derived from information available in the POD and using the extent of the Project AoI, comprising 110,100 acres, which encompasses all proposed facilities and infrastructure, well locations, and a preliminary subsurface extent of the stored CO_2. This AoI boundary serves as

the physical APE for the Project. The auditory visual (AV) APE for the Project covers 114,181 acres; 19,007 acres are outside the AoI boundary. The AV APE is based on 5.5 minute of angle distance from the proposal well infrastructure and is based on the maximum height of the proposed structures.

Identification of historic properties within the APE included an official field search encompassing the entire APE and a review of known field office site and inventory data. This review found that previously conducted cultural resources inventories have covered approximately 4,002 acres of the Project, previously identified resources occur at one site per 263 acres. Modeling of the cultural environment to assess the potential of 93,153 acres of un-inventoried lands within the APE found that the Project APE has the potential to have 355 unrecorded sites. This baseline information led to the development of a Cultural Resource Surface Disturbance Classification (CRSDC) GIS dataset to identify and delineate areas in the 110,100-acre APE meeting state and/or federal criteria for exclusion for intensive inventory either due to environmental conditions, extensive soil disturbance due to BLM Range Improvements, or adequate previous surveys and where cultural resource inventory requirements may differ or be waived from intensive survey. These areas were identified using file search data, LiDAR data and aerial imagery collected for the Project, BLM and Natural Resources Conservation Service (NRCS) soils data, and BLM Range Improvement files.

Through the CRSDC GIS dataset, the lands within the APE were categorized as follows: Category 1, Unbroken/Undisturbed Lands (79,952 acres), Category 2, Observably Disturbed Lands (17,198 acres), Category 3, Previous Inventory per Montana State Protocol VII.B.6 (4,002 acres), Category 4, Soils-Environmental Conditions per BLM Handbook H8110-1.11.C.5 (4,054 acres) and Category 5, BLM Range Improvements per H8110-1.11.C (4,809 acres).The findings of the land classification were field verified prior to the commencement of pedestrian surveys utilization field verification methods developed concurrently with the CRSDC.

On March 30, 2022, and on August 5, 2022, respectively, a project notification and a tribal outreach letter were sent by the BLM Miles City Field office to 17 tribes. Tribal Historic Preservation Officers (THPOs) from the Standing Rock Sioux Tribe (Standing Rock), Rosebud Sioux Tribe (Rosebud), and Crow Tribe (Crow) responded to the outreach communications expressing interest in the Project and to coordinate participation in discussions and surveys. Treatment plans for tribal resources will be developed separately and confidentially as dictated by tribal preference.

On September 12, 2022, Traditional Cultural Specialists (TCSs) from Rosebud, Standing Rock, and Crow, representatives from the BLM, Burns & McDonnell, and Denbury participated in a Project kickoff meeting in Baker, Montana to discuss the Project. From September 12 to 23, 2022, the Rosebud, Standing Rock, and Crow TCS and archaeologists from Burns & McDonnell completed Class III intensive survey of 1,543 acres centric to the submitted plan infrastructure of the POD.

As part of the Class III cultural resource inventories specific to Project infrastructure, Burns & McDonnell re-visited two previously recorded precontact archaeological sites (24CT212 and 24CT722), two historic roads (24CT1532 and 24CT1072), one historic pipeline (24CT900/24FA963), and one historic farmstead (24CT1538) within the Class III Survey Corridor. Burns & McDonnell also recorded four newly identified precontact archaeological sites (24CT998, 24CT999, 24CT1561 and 24CT1562), one new historic road, Lone Tree Road (site number to be assigned by the Montana SHPO during its review of the cultural resource evaluation report) and 21 newly documented precontact isolated finds in the Survey Corridor. Of the resources documented in the Class III Survey Corridor, 24CT722, 24CT900/24FA963, 24CT1072, 24CT1532, and 24CT1538 overlap with the Project infrastructure ROW. All of these resources have been previously determined as not eligible for the NRHP. All of the previously recorded resources documented during the Class III survey, three of the newly recorded sites (24CT998, 24CT999, 24CT1561), and all

of the isolated finds do not meet the criteria for NRHP eligibility and are recommended not eligible for listing in the NRHP.

One site documented during the Class III inventory is recommended eligible for the NRHP under Criterion D. 24CT1562 is a stone circle with an interior feature documented by a TCS from the Standing Rock THPO. The site comprises an irregular configuration of stones with a concentration of stones in its approximate center. The site was noted in the field by the TCS as a disturbed stone circle and possible cairn. Per Montana SHPO stone circle guidelines, the site is recommended eligible for the NRHP under Criterion D and avoidance is recommended. The site is on the edge of the Class III Survey Corridor and 45 meters (143 feet) from the 25-foot access road buffer for an existing improved access road (Existing Road Injection Well 10). The site will be fenced during construction and avoided. A Treatment Plan will be prepared to identify methods of avoiding or mitigating effects to known resources. Treatment plans for tribal resources will be developed separately and confidentially as dictated by tribal preference. A cultural resources evaluation report will be submitted to BLM and Bureau of Indian Affairs for review and for consultation purposes as part of the POD.

Between September 23 and October 18, 2022, Burns & McDonnell attempted to locate and document the 41 previously recorded sites located within the APE outside the 1,543 acres centric to the submitted plan infrastructure of the POD. Of these 41 previously recorded sites, 21 sites were reidentified. The remaining 20 sites were not reidentified by the survey. None of the previously recorded resources outside the Class III Survey Corridor are within the submitted infrastructure of this POD and will not be directly impacted by the project.

A total of 152 Range Improvement Projects System (RIPS) projects were documented during the survey of the APE. Of these, 31 consist of large-scale RIPS projects and 119 consist of small-scale RIPS projects. The remaining two are RIPS projects that were not documented as archaeological sites due to the lack of features, artifacts, or visible surface expression within the range improvement area. One historic road, Lone Tree Road (site number to be assigned by the Montana SHPO during its review of the cultural resource evaluation report) is recommended individually eligible for the NRHP and eligible as a contributing element of the Lone Tree Range Management Historic District. Portions of the road that retain integrity are not within the submitted infrastructure of this POD and will not be directly impacted by the Project. One large-scale RIPS project, Lone Tree Water Spreaders (24CT1571), is recommended individually eligible for the NRHP and eligible as a contributing element of a potential historic district. A further 17 large-scale RIPS projects are recommended to be NRHP eligible as contributing elements of the Lone Tree Range Management Historic District (site number to be assigned by the Montana SHPO during its review of the cultural resource evaluation report). None of the RIPS projects that are recommended to be NRHP eligible are located within areas of ground disturbance for the proposed Project, and they will not be directly impacted by the Project. The remaining 13 large-scale RIPS projects and all 119 small-scale RIPS projects are recommended not eligible for the NRHP.

All treatments, avoidances, and effects will be resolved and consulted on prior to Project approval. In the interest of cultural resources protection, a Plan for Unanticipated Discovery of Historic Properties of Human Remains during Construction was developed (Appendix X).

5.7 Paleontological Resources

Paleontological resources (fossils) are the only source of information about past life on Earth. A fossil is any evidence of past life and includes body fossils such as shells and bones. Other evidence of past life includes footprints, trails, burrows, gastroliths (stomach stones), and certain impressions, and all can be informative and add to our knowledge of the past. Along with other sources of evidence, fossils reveal Earth's history and help tell the story of past environmental conditions.

The Project will have bedrock-disturbing impacts; therefore, fossils might be encountered. Denbury conducted a paleontological survey for the Project, and results were provided directly to the BLM. The Carter County Geological Society identified fossil-bearing localities near the following surface elements: the existing two-track road to Injection Wells 01 and 07, Group 2 flowlines and bulklines, and Injection Wells 05 and 13. Denbury will coordinate with the Carter County Museum prior to initiating construction of the eight construction groups.

An Unanticipated Discoveries Plan for Paleontological Resources (UDP) has been prepared to help prepare everyone involved with the Project to know what to look for, and what to do in the event that something of potential scientific interest is discovered. The UDP is provided in Appendix T. Additionally, a BLM-approved paleontologist will monitor construction activities during all ground disturbance activities.

5.8 Special or Sensitive Soil Locations

Denbury will minimize impact to soils through implementation of its Reclamation, Mitigation, and Monitoring Plan (Appendix G). Design features include minimizing the extent and duration of soil exposure; protecting critical areas during construction by reducing the velocity of and redirecting runoff; installing and maintaining erosion and sediment control measures during construction; re-establishing vegetation as soon as possible following final grading; and inspecting and maintaining erosion and sediment controls as necessary until final stabilization is achieved.

5.8.1 Prime Farmland and Farmland of Statewide Importance

The Farmland Protection Policy Act was created to protect farmland and minimize the conversion of farmland to nonagricultural purposes. In accordance with 7 CFR 657, the NRCS maintains an inventory of prime farmlands, unique farmlands, and farmlands of statewide and local importance. There are no prime farmland or unique farmland soils within the Project workspace. Farmland of statewide importance within the Project's area of earth disturbance is identified in Table 5-3. None of these areas would be permanently converted to a nonagricultural use as a result of the Project.

Table 5-3: Farmland of Statewide Importance within the Project Workspace

Soil Map Unit Name	Map Symbol	Acres	Percent of Total Workspace
Eapa loam, 2 to 8 percent slopes	84C	3.9	0.6
Yamacall loam, warm, 0 to 2 percent slopes	86A	4.0	0.6
Harlake silty clay loam, 0 to 2 percent slopes	157A	7.2	1.2

5.8.2 Erodible Soils

Soil erosion is defined by the NRCS as the breakdown, detachment, transport, and redistribution of soil particles by forces of water, wind, or gravity (USDA-NRCS, 2020). Erosion is a natural process, which over time may remove all or part of soils formed in the natural landscape. The process may be accelerated by human activity that disturbs the soil, such as construction, removal of vegetation, tillage, over-grazing, or timber harvesting. Soil susceptibility to erosion is determined by many physical and environmental characteristics, including texture and structure, topography and slope, surface roughness, vegetative cover, and climate.

Soils most susceptible to erosion by water are due to bare or sparse vegetative cover, non-cohesive soil particles with low infiltration rates, and moderate to steep (3:1 or steeper) slopes. Water erosion results from the removal of soil material by flowing water. The soil material is suspended in runoff water and carried away. Three kinds of accelerated water erosion are commonly recognized: sheet, rill, and gully.

Wind erosion processes are less affected by slope angles than water erosion processes. Wind induced erosion often occurs on dry soil where vegetative cover is sparse and strong winds are prevalent. Clearing, grading, and equipment movement could accelerate the erosion process and, without adequate protection, has potential to result in the discharge of sediment to adjacent sensitive resources.

The BLM has mapped soils on BLM-administered lands that are vulnerable to soil productivity loss when disturbed. Slope and soil erodibility are factors in the sensitive soil designations. BLM-mapped sensitive soils in the Project workspace are identified in Table 5-4.

Table 5-4: Sensitive Soils in the Project Workspace

Soil Map Unit Name	Map Symbol	Acres	Percent of Total Workspace
Absher-Gerdrum complex, 0 to 4 percent slopes	168B	5.8	0.9
Arsite clay, 0 to 8 percent slopes	79C	119.2	18.6
Arsite-Rock outcrop complex, 8 to 25 percent slopes	179E	69.0	10.8
Gerdrum clay loam, 0 to 2 percent slopes	65A	1.1	0.2
Gerdrum-Absher complex, 0 to 2 percent slopes	165A	3.2	0.5
Gerdrum-Absher complex, 2 to 8 percent slopes	165C	35.7	5.6
Moyerson-Orinoco silty clay loams, 4 to 15 percent slopes	277D	7.7	1.2
Neldore-Rock outcrop complex, warm, 15 to 60 percent slopes	58E	24.8	3.9
Vanda silty clay loam, 0 to 2 percent slopes	97A	19.8	3.1
Vanda-Marvan complex, 0 to 2 percent slopes	197A	2.6	0.4
Vanda-Marvan complex, 2 to 8 percent slopes	197C	1.7	0.3
Weingart silty clay, 2 to 8 percent slopes	15C	1.6	0.3

5.9 Livestock Grazing

Grazing allotments and associated permit infrastructure (e.g., fences, gates, cattle guards, water pipelines, etc.) are present within the AoI on private, state, and BLM-administered lands. Denbury will maintain current permit operations for grazing permittees during construction and will re-establish permit operations and disturbed infrastructure following construction. Prior to construction, fences crossing the Project workspace will be braced, cut, and temporarily fitted with gates to permit construction traffic passage. During construction, the opening will be controlled to prevent the escape of livestock. If necessary, gates would be installed with chained locks to allow access to the ROW after construction, as negotiated with landowners. Locked gates will not restrict public access to areas with legal public access. Care will be taken to not obstruct or damage existing gates or cattle guards. All livestock facilities (gates, cattle guards, corrals, fences, water sources, etc.) damaged or made inoperable will be repaired to BLM and private landowner satisfaction (per BLM specifications on public land). Any new stock water

pipelines proposed that will cross the CO_2 pipeline ROW will be required to work with Denbury on any crossing design details and permit crossing needs.

5.10 Invasive / Noxious Plants

The BLM requested inventory and mapping of noxious weeds, specifically ventenata (*Ventenata dubia*) within the Project disturbance footprint. Ventenata is a highly invasive annual grass species native to southern Europe, western Asia, and north Africa. Ventenata is beginning to replace perennial grasses and forbs in the western U.S., thus it is a management priority for the BLM.

Denbury consulted with the BLM resource specialists prior to the noxious weed surveys to determine the appropriate methodology, timing, and extent of the survey area. The Survey was conducted in accordance with the BLM Ventenata Inventory and Mapping Statement of Work, issued February 2022. Four areas of ventenata infestation were discovered, and three small populations of Canada thistle (*Cirsium arvense*) were identified. The survey methodology and results are further described in the Ventenata Survey Report in Appendix U. Ventana observations are also shown on the figures in Appendix O.

Denbury will continue to conduct annual noxious weed surveys within the proposed Project ROWs and the areas outside of the ROWs where BLM has requested noxious weed inventory and mapping in accordance with the Noxious Weed Management Plan (Appendix J). Monitoring will occur annually during the Project's planning and construction phases and throughout the life of the Project. If noxious weeds are found within the disturbance area after 5 years, Denbury will be responsible for continued monitoring and treatment.

Denbury prepared a Pesticide Use Proposal (PUP) for noxious weed species that were discovered; treatment began in 2022 and will continue annually throughout Project construction, operation, and reclamation phases. If any additional noxious weed species are identified during annual surveys, they will be added to the PUP and treated accordingly.

Invasive and noxious weed control methods are summarized in Section 4.1.11 and detailed in the Noxious Weed Management Plan in Appendix J.

5.11 Recreation Areas

Areas of public recreation and outfitter use exist within the AoI and could be temporarily impacted by construction of the Project. BLM lands with legal public access that could be used for dispersed recreation (e.g., hunting, birding, fishing, hiking, etc.) are located within the AoI. Hunting is the predominant recreational use most affected on BLM land. Construction and reclamation work will occur during hunting season on BLM land. Denbury will not prevent access on publicly accessible BLM lands, and all Denbury staff and its contractors will be made aware of hunting seasons, as applicable. Access to public roads will be maintained during construction.

5.12 Visual Resource Management

Visual Resource Management (VRM) classes, along with the corresponding VRM objectives, have been established for BLM lands within the Project area. These VRM objectives provide standards for evaluating and analyzing proposed projects as well as identifying mitigating measures that serve to minimize visual impacts.

The majority of the AoI falls within VRM Class IV, but portions of the AoI also fall within VRM Class III. The objective of Class IV is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. The portions of the AoI within Class III will partially

retain the existing character of the landscape and allow a moderate level of change that may attract attention but should not dominate the view of a casual observer. Every attempt will be made to minimize the impact of these activities on the landscape through careful location, minimal disturbance, and repeating the basic elements.

The BLM completed the visual analysis for cultural resources, and all project elements will be painted Carlsbad Canyon to match the surrounding landscape. In areas where gravel is used as a surface treatment (described by facility in Section 4), Denbury will purchase gravel for the surface treatment from a permitted offsite source that is approved by the BLM to minimize visual impacts.

5.13 Noise Quality

Denbury conducted a noise analysis to determine sound level impacts to greater sage-grouse leks and neighboring residences from operation of the two pump stations. The distance from each pump station to the edge of the nearest greater sage-grouse lek buffers (0.6-mile No Surface Occupancy buffers) are approximately 1.41 miles from Pump Station North and 2.98 miles from Pump Station South. The distances from each pump station to the nearest residential structure are approximately 3.43 miles from Pump Station North and 2.18 miles from Pump Station South. Noise modeling determined that there would be no changes to existing ambient sound levels at the nearest leks or nearest residential receptors. Details of the noise study are provided in the noise analysis report in Appendix V.

5.14 Mineral Resources

Carter County has no lode-type metallic mineral deposits and little gas and oil resources. There are some deposits of lignite coal and uranium. Sand and gravel are widely present, and bentonite has been successfully mined in the south of the county (NRCS Ekalaka Field Office, 2020).

The Project area has a low mineral resource development potential (BLM Miles City Field Office, 2015, pp. 3-111). The Project does not propose development or production of hydrocarbons in the Project area. Construction plan for UIC Class VI wells on BLM lands will ensure hydrocarbons with development potential are protected during review of the Class VI UIC application. No mines are located within the AoI (mindat.org, 2023). Several closed mining claims have been filed for locations more than 5 miles to the south or east of the AoI, but no claims (active or closed) are listed within the AoI (BLM, 2023). Thirty petroleum exploration wells located within 1 mile of the AoI were listed in the Montana BOGC or Montana Ground Water Information Center (GWIC) databases, with total depths ranging from 1,190 to 7,350 feet bgs. The wells were inspected during site visits in 2022. Eleven were capped with a monument, thirteen showed indirect evidence of abandonment, and one was observed as open casing. Five of the thirty wells were not inspected due to lack of access or because they could not be found at or near the documented location. A list of the existing wells within the AoI are provided in Appendix H.

The targeted injection formations are not used for oil of gas production, and there is no indication that economically recoverable mineral resources would be affected by the injection of CO2.

5.15 Existing ROWs

There are several existing road and utility ROWs within the AoI. These include:

- Utilities: CCA, Grassland, and Bison pipelines, and existing Southeastern Electric powerline
- Roads: Hammond Road, Lone Tree Road, Ridge Road

For ROWs that will be shared or crossed by the Project, Denbury will coordinate with the ROW holders to confirm the Project will not interfere with existing ROWs.

6.0 Spill Prevention and Containment

Spill prevention and containment applies to the use and management of hazardous materials within the Project workspace during construction and the secure storage of CO_2 during Project operation.

6.1 Spill Prevention and Containment During Construction

Prior to construction, Denbury or its contractors will prepare a Project-specific SPCC Plan that addresses the handling of construction fuel and other materials such as lubricating oils, grease, and hydraulic and other fluids. The contractor will provide information to complete an SPCC Plan for each construction spread (if applicable) and will provide site-specific data that meet the requirements of 40 CFR Part 112 for every location used for staging fuel or oil storage tanks and for every location used for bulk fuel or oil transfer. Each SPCC Plan will be prepared prior to introducing the subject fuel, oil, or hazardous material to the subject location.

6.1.1 Staging Areas

Bulk fuel and storage tanks used during construction will be placed in staging areas that will be designated within the proposed construction workspace. Hazardous materials will be stored in compliance with federal and state laws. The following spill prevention measures will be implemented by the contractor within staging areas to reduce the potential of a spill to impact federal lands:

- Fuels and lubricants will be stored only at designated staging areas. Storage of fuel and lubricants in the staging area will be at least 500 feet away from the water's edge. Refueling and lubrication of equipment will be restricted to upland areas at least 500 feet away from perennial streams and wetlands.
- Contractor fuel trucks will be loaded at existing bulk fuel dealerships or from bulk tanks set up for that purpose within the staging area. In the former case, the bulk dealer is responsible for preventing and controlling spills.
- The Environmental Inspector will inspect the tank site for compliance with the 500-foot setback requirement and approve the tank site prior to installing bulk fuel or storage tanks within the staging area.
- Contractors will be required to perform all routine equipment maintenance at the staging area and recover and dispose of wastes in an appropriate manner.
- Fixed fuel dispensing locations will be provided with secondary containment to capture fuel from leaks, drips, and overfills.
- Temporary liners, berms, or dikes (secondary containment) will be constructed around the aboveground bulk tanks, providing 110 percent containment volume of the largest storage tank or trailer within the containment structure, so that containment structures may consist of temporary earthen berms with a chemical resistant liner, or a portable containment system constructed of steel, PVC, or other suitable material.

Denbury may allow modification of the above specifications as necessary to accommodate specific situations or procedures. Any modifications must comply with all applicable regulations and permits.

6.1.2 Construction ROW

The contractor will verify that all equipment is free of leaks prior to use on the Project and prior to entering or working in or near waterbodies or wetlands. Throughout construction, the contractor will conduct regular maintenance and inspections of the equipment to reduce the potential for spills or leaks.

Rubber-tired vehicles will refuel at the construction staging areas or commercial gas stations. Tracked machinery (backhoes, bulldozers) may be refueled and lubricated on the construction ROW. Equipment maintenance may be conducted in staging areas when practical. When impractical, repairs to equipment can be made on the pipeline ROW and associated temporary workspace when approved by a Denbury representative.

Each fuel truck that transports and dispenses fuel to construction equipment or Project vehicles along the construction ROW or within equipment staging and material areas will carry an oil spill response kit and spill response equipment onboard at all times. In the event that response materials are depleted through use, or their condition is deteriorated through age, the materials will be replenished prior to placing the fueling vehicle back into service.

The following preventive measures apply to refueling and lubricating activities on the construction ROW:

- Construction activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials. Each construction crew, including cleanup crews, will have on hand sufficient tools and material to stop leaks and supplies of absorbent and barrier materials to allow rapid containment and recovery of spilled materials. Crew members must know and follow the procedure for reporting spills.
- Refueling and lubricating of construction equipment will be restricted to upland areas at least 500 feet away from waterbodies, perennial streams, and wetlands located on federal lands. Where this is not possible (e.g., trench dewatering pumps), the equipment will be approved in advance by the BLM Authorized Officer and fueled by designated personnel with special training in refueling, spill containment, and cleanup. The Environmental Inspector will confirm that signs are installed identifying restricted areas. Spent oils, lubricants, filters, etc. will be collected and disposed of at an approved location in accordance with state and federal regulations.
- Equipment will not be washed within 500 feet of waterbodies, streams, or wetlands.
- Stationary equipment will be placed within a secondary containment if it will be operated or require refueling within 500 feet of a wetland or waterbody boundary.

Denbury may allow modification of the above specifications as necessary to accommodate specific situations or procedures. Any modifications on federal lands must comply with all applicable regulations and permits and be approved by BLM Authorized Officer.

If a spill occurs on navigable waters of the United States, Denbury will notify the National Response Center at 1-800-424-8802. For spills that occur on federal lands, which includes surface waters or into sensitive areas, the BLM Authorized Officer will also be notified. Additional information on notifications in the event of spills can be found in the Emergency Response Plan (Appendix W).

6.1.3 Spill Response

In the event of a spill of hazardous material, contractor personnel will complete the following steps:

- Notify the appointed Denbury representative.

- Identify the product hazards related to the spilled material and implement appropriate safety procedures, based on the nature of the hazard.
- Control danger to the public and personnel at the site.
- Implement spill contingency plans and mobilize appropriate resources and manpower.
- Isolate or shutdown the source of the spill.
- Block culverts to limit spill travel.
- Initiate containment procedures to limit the spill to as small an area as possible to prevent damage to property or areas of environmental concern (e.g., watercourses).
- Commence recovery of the spill and cleanup operations.

When notified of a spill, the Denbury representative will immediately verify that the following procedures are completed.

- Action is taken to control danger to the public and personnel at the site.
- Spill contingency plans are implemented and necessary equipment and manpower are mobilized.
- Measures are taken to isolate or shutdown the source of the spill.
- All resources necessary to contain, recover, and clean up the spill are available.
- Any resources requested by the contractor from Denbury are provided.
- The appropriate agencies are notified. For spills that occur on federal lands, which includes surface waters or into sensitive areas, the BLM Authorized Officer will also be notified and involved in the incident.

For a land spill, berms will be constructed with available equipment to physically contain the spill. Personnel entry and travel on contaminated soils will be minimized. Sorbent materials will be applied or, if necessary, heavily contaminated soils will be removed to an approved facility. Contaminated sorbent materials and vegetation will also be disposed of at an approved facility.

For a spill threatening a waterbody, berms or trenches will be constructed to contain the spill prior to entry into the waterbody. Deployment of booms, skimmers, and sorbent materials will be necessary if the spill reaches the water. The spilled product will be recovered, and the contaminated area will be cleaned up in consultation with spill response specialists and appropriate government agencies.

7.0 Emergency Procedures

Denbury has prepared an Emergency Response Plan (ERP) for the Project, which meets EPA Class VI Rule [40 CFR 146.94(a)] and PHMSA [§ 195.402(e)] requirements, and incorporates best practices recommended in the in the *Carbon Dioxide (CO_2 Emergency Response Tactical Guidance Document: Best Practice Guidelines for Preparedness and initial Response to a Pipeline Release of Carbon Dioxide (CO_2)* (American Petroleum Institute, 2023). The ERP in Appendix W provides techniques and guidelines for achieving an efficient, coordinated, and effective response to emergencies involving Denbury's personnel or facilities. Denbury has an established Incident Command Structure that spells out the appropriate person(s) responsible for various tasks in case of an emergency situation that triggers the Incident Command System to be utilized. Denbury's Environmental & Safety Manager is responsible for maintaining and distributing the ERP. The Environmental & Safety Manager will review the ERP to verify its accuracy at least once every 12 months. The updated ERP will be provided to BLM once completed.

Denbury will use a tiered approach when responding to emergencies. This means first using equipment and personnel available locally, then increasing the response by bringing in resources from outlying areas. The incident's size, Denbury's ability to control it, and the gravity of the situation will dictate the response level. The severity of an emergency will determine the degree of management involvement and resource mobilization.

The primary emergency concerns for the Project site are fire during construction and operation; fluid leakage to the surface; natural disasters (e.g., tornado, blizzard); and spills and releases. These emergencies and Denbury's responses are summarized below. Additional information, including other potential emergencies that may occur in association with the Project, are contained in the ERP in Appendix W.

Every incident will include a post-incident evaluation. Responders will maintain records of incident details. This will include such items as response actions taken, search and rescue results, and headcounts. It will also include a final report that summarizes lessons learned; specific recommendations for preventing future incidents; and specific recommendations for improving the response to future incidents. A logical, sequential evaluation of the facts, the causes, and the associated effects can lead to a new and deeper understanding of the incident's root causes and needed prevention measures.

The following are events related to the Snowy River CO_2 Sequestration Facility that could potentially result in an emergency response:

- A CO_2 release to the atmosphere from any Snowy River Project Facility (pumpstation, well, equipment, or pipeline).
- An equipment integrity failure, such as damage to a wellhead, valve, pipe, or flange connection on a well, equipment, or pipeline that may cause a CO_2 release to the atmosphere.
- A control system failure, such as a shut-down device on a well, equipment, or pipeline.
- A monitoring system failure, such as a pressure, temperature, or flow indicating device on a well, equipment, or pipeline.
- A natural disaster (e.g., tornado, lightning strike, floods).
- Fluid (e.g., brine) leakage to USDW or land surface.

- CO_2 leakage to USDW or land surface.

Detailed instructions on how to address each of these potential emergencies is provided in the ERP (Appendix W) and summarized in the following sections.

7.1 Safety/Public Notification

Safety is a primary concern in the design and execution of this Project. Worker training and daily safety discussions prior to each working day during construction will help to establish a culture of safety that permeates the Denbury staff but also any contractors or visitors to the Project site.

Safety is always Denbury's first priority. If an unsafe activity occurs, the operation must be shut down immediately. The Safety Officer must be satisfied that all is in order before work may resume. All responders must be familiar with the safety rules, health rules, and emergency procedures for the Project site.

Foremen will verify that the ERP is reviewed and updated annually with personnel to verify emergency training is effective. New employee orientation shall include training on the ERP.

Each pipeline foreman must have a thorough knowledge of the emergency response plan for their assigned areas. Specifically, each pipeline foreman will be certified annually by the Training Program Administrator as having successfully completed all required HAZWOPER training, to include Denbury emergency response procedures.

In accordance with CFR §195.440, Denbury will develop and implement a continuing public education program that educates the public and appropriate government organizations on damage prevention (i.e., one-call notification systems), potential hazards from unintended releases, steps that should be taken in the event of a release, and reporting procedures. Denbury would perform community and stakeholder outreach following the guidelines included in the *CO_2 Emergency Response Tactical Guidance Document: Best Practice Guidelines for Preparedness and initial Response to a Pipeline Release of Carbon Dioxide (CO_2)* (API, 2023). Emergency response contact information including 911 and Denbury's 24-hour emergency contact information (888-651-7647 or 972-673-2222) will be distributed to stakeholders and will be posted on signs at each of the proposed injection wells and at pipeline markers.

Once a year, each Denbury Operations District hosts a table-top drill for pipeline personnel and local response officials. Denbury will invite BLM to these meetings. During the table-top drill, the foremen will review performance, make appropriate changes, and verify that all pipeline personnel maintain a thorough knowledge and understanding of policies and procedures. Any deficiencies must be identified and investigated to establish effectiveness.

At a minimum, training shall include the following:

- Understanding roles in various emergency response scenarios
- Using Company communication systems
- Locating isolation valves
- Responding to specific failures
- Responding to media questions
- Where to meet in the event roads to the station are impassable and/or communications are unavailable

- Control, containment, and clean-up procedures
- Know the characteristics and hazards associated with the product being transported.

7.2 Coordination with Local Emergency Responders and Law Enforcement

Denbury will notify the USEPA, MDEQ, and Carter County Disaster and Emergency Services of any event that requires an emergency response and has potential to impact the public within 24 hours. Denbury will also file a report with PHMSA in accordance with 49 CFR §195.45-58. The amount of information, timing, and communication method(s) will be appropriate to the event, its severity, its impact(s) to drinking water or other environmental resources, and any other impacts to the surrounding community. If an event has potential to impact a waterway, the National Response Center (NRC) will be contacted within 24 hours.

Denbury will describe what happened, any impact(s) to the environment or other local resources, how the event was investigated, what responses were taken, and the status of the response. For long-term responses, (e.g., ongoing cleanups) Denbury will provide periodic updates on the progress of the response action(s).

Local response officials will be provided training on how to respond to Project-related emergencies, and as described in Section 7.1, they will be invited to participate in annual table-top drills.

7.3 Fire Control

All applicable fire laws and regulations will be observed during the operation and maintenance period. All personnel would be advised of their responsibilities under the applicable fire laws and regulations, including taking practical measures to report and suppress fires. In some cases, the vegetation management required within the Project area could help act as a firebreak in the event of a fire.

BLM fire safety standards will be followed. Requirements for fire tool availability, spark arresters/mufflers on equipment, and coordination of extreme fire conditions with BLM representatives will be coordinated. When extreme fire conditions occur, BLM representatives will be contacted, and access will be restricted.

Denbury personnel will only use portable fire extinguishers to fight small (incipient) fires. The local fire department will be notified of all other fire emergencies. When possible, Denbury personnel will confine a fire prior to attempting to extinguish it. The ERP describes the steps that will be taken in the event of a fire at the Project site. These steps include assessing the situation; developing an action plan; securing the scene; and identifying the hazards (e.g., utilize safety data sheets, placards, container labels, etc.). Denbury has also established a procedure for overhaul (when the main body of a fire is extinguished) and clean up.

7.4 Severe Weather and Natural Disaster

Severe weather or a natural disaster (e.g., tornado, earthquake, blizzard, thunderstorm) affecting the normal operation of the injection well could impact site operations by loss of well integrity, fluid leakage, and/or equipment malfunction. An earthquake may disturb surface and/or subsurface facilities, and weather-related events may affect surface facilities; however, based on the geologic site characterization, it is highly unlikely that the injection operations would induce a felt seismic event. Severe storms (e.g., blizzards, thunderstorms) are the most likely natural disasters/severe weather events to occur at the facility.

The ERP outlines potential emergency scenarios associated with severe weather and natural disasters, provides clear instructions for how to address or respond to each emergency, and outlines the applicable first aid steps for

each scenario. This includes keeping personnel safe from danger, as well as potential impacts and mitigation measures for the facility itself.

7.5 Emergency Response for Spills and Pipelines

General spill response is discussed in Section 6.1.3 above. Emergencies are any event requiring immediate response to a condition. These may include, but are not limited to, vehicular accidents, fires, leakages, or injuries during drilling. Responding crews would vary in number and equipment needs depending on the size and severity of the emergency. Construction crews may be required to respond to an emergency in a remote area without roads. In areas without vehicle access, helicopters may be used to respond quickly to emergencies.

In the event CO_2 and/or reservoir fluids breach the ground surface or impact a public water supply, Denbury will immediately enact the agency notification procedures and containment and cleanup methods outlined in the site-specific SPCC Plan (located at the field office). Denbury would investigate the source and extent of the leak in order to determine an appropriate course of action to repair and/or remediate the issue. Denbury would also determine the severity of the event based on the information available within 24 hours of notification. The UIC Program Director would be notified of the leak within 24 hours of the emergency event, per 40 CFR 146.91 (c).

In the event of a serious leak, Denbury would initiate the facility shutdown plan and proceed with efforts to remediate or mitigate any unsafe conditions (e.g., surface cleanup methods such as removal of brine via vacuum truck, soil excavation, or in situ soil treatment as approved by MDEQ). Denbury would continue groundwater remediation and monitoring on a frequent basis (frequency to be determined by Denbury and the UIC Program Director) until unacceptable adverse surface impact has been fully addressed.

8.0 Unanticipated Discovery Plans

Denbury prepared separate monitoring and treatment plans for cultural resources (Appendix X) and paleontological resources (Appendix T) that detail the procedures to be followed by Environmental Inspectors, construction personnel, and cultural and paleontological resource monitors in the event of cultural or paleontological resource discoveries during construction. The cultural resource plan has been submitted to the BLM as the lead federal agency for the Montana SHPO and other consulting party review and concurrence. Procedures outlined in the plan will be reviewed during construction contractor training.

9.0 Glossary

Abbreviation	Term/Phrase/Name
AoI	Area of Interest
AoR	Area of Review
APE	Area of Potential Effect
ARMP	Approved Resource Management Plan
AV	auditory visual
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
bgs	below ground surface
BOGC	Board of Oil and Gas Conservation
CCA	Cedar Creek Anticline
CCUS	Carbon, Capture, Utilization & Storage
CEQ	Council for Environmental Quality
CFR	Code of Federal Regulations
CO_2	carbon dioxide
Crow	Crow Tribe
CRSDC	Cultural Resource Surface Disturbance Classification
dBA	decibels
Denbury	Denbury Carbon Solutions, LLC
EOR	Enhanced Oil Recovery
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FTE	full time equivalent
GHG	greenhouse gases
GPS	Global Positioning System

Abbreviation	Term/Phrase/Name
GIS	Geographic Information System
Gold Book	Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development
GWIC	Montana Ground Water Information Center
H_2S	hydrogen sulfide
HDD	horizontal directional drill(ing)
IPaC	Information for Planning and Consultation
ISO	International Organization for Standardization
LiDAR	Light Detection and Ranging
MBTA	Migratory Bird Treaty Act
MCA	Montana Code Annotated
MCFO	BLM Miles City Field Office
MDEQ	Montana Department of Environmental Quality
MLR	Montana Land Reliance
MRV	Monitoring, Reporting, and Verification
MSL	Mean Sea Level
NABat	North American Bat Monitoring Program
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NLEB	Northern long-eared bat
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NTP	Notice to Proceed
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
PAB	Palustrine Aquatic Bed
PEM	Palustrine Emergent

Abbreviation	Term/Phrase/Name
PHMSA	Pipeline and Hazardous Materials Safety Administration
PISC	post-injection site care
POD	Plan of Development
Project	Snowy River CO_2 Sequestration Project
PUB	Palustrine Unconsolidated Bottom
PUP	Pesticide Use Proposal
QASP	Quality Assurance and Surveillance Plan
RCE	Reclamation Cost Estimate
RIPS	Range Improvement Project System
Rosebud	Rosebud Sioux Tribe
ROW	Right-of-way
RR	Greenhouse Gas Reporting Rule Subpart RR
SAP	Sampling and Analysis Plan
SGR	shale-gouge ratio
SHPO	Montana State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasure
Standing Rock	Standing Rock Sioux Tribe
T&M	Testing and Monitoring
TCS	Traditional Cultural Specialists
TDS	total dissolved solids
THPO	Tribal Historic Preservation Officers
TVD	True vertical depth
UDP	Unanticipated Discoveries Plan for Paleontological Resources
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USDW	Underground source of drinking water
USE IT	Utilizing Significant Emissions with Innovative Technologies

Abbreviation	Term/Phrase/Name
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTV	utility task vehicle
VRM	Visual Resource Management
WOTUS	Waters of the United States

10.0 References

American Petroleum Institute. (2023). *Carbon Dioxide (CO2) Emergency Response Tactical Guidance Document: Best Practice Guidelines for Preparedness and initial Response to a Pipeline Release of Carbon Dioxide (CO2).* Washington, DC: API Publishing Services.

Anna, L. O. (2010, April). Geologic Assessment of Undiscovered Oil and Gas in the Powder River Basin Province, Wyoming and Montana. *Total Petroleum Systems and Geologic Assessment of Oil and Gas Resources in the Powder River Basin Province, Wyoming and Montana*. Reston, Virginia: U.S. Geological Survey.

Anna, L. O. (2013). Geologic Assessment of Undiscovered Oil and Gas in the Williston Basin Province, Montana, North Dakota, and South Dakota. Reston, Virginia: U.S. Geological Survey.

Avian Power Line Interaction Committee. (2006). S*uggested Practices for Avian Protection on Power Lines: The State of the Art in 2006.* Washington, D.C. and Sacramento, CA: Edison Electric Institute, APLIC, and the California Energy Commission.

Beaucham, C., Harper, M., King, B., & Dozier, A. (2015, November). Evaluation of Erionite and Silica Exposure During Forestry Activities. *Health Hazard Evaluation Program*. Washington, DC: National Institute for Occupational Safety and Health.

Beaucham, C., King, B., Feldmann, K., Harper, M., & Dozier, A. (2018). Assessing occupational erionite and respirable crystalline silica exposure among outdoor workers in Wyoming, South Dakota, and Montana. *Journal of Occupational and Environmental Hygiene*. Abingdon-on-Thames, Oxfordshire, United Kingdom: Taylor & Francis Group.

Benison, K., & Goldstein, R. H. (2000, January). Sedimentology of Ancient Saline Pans: An Example from the Permian Opeche Shale, Williston Basin, North Dakota, U.S.A. *Journal of Sedimentary Research, 70(1)*, 159-169. Broken Arrow, Oklahoma: Society for Sedimentary Geology.

BLM. (2022, June 8). National Policy for the Right-of-Way Authorizations Necessary for Site Characterization, Capture, Transportation, Injection, and Permanent Geologic Sequestration of Carbon Dioxide in Connection with Carbon Sequestration Projects. *Instruction Memorandum IM 2022-041*. Washington, DC: U.S. Department of the Interior Bureau of Land Management.

BLM. (2023, June 29). Mineral & Land Records System. Washington, DC: U.S. Department of the Interior Bureau of Land Management. Retrieved from https://mlrs.blm.gov/s/research-map

BLM and Forest Service. (2007). Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition. Washington, DC: U.S. Bureau of Land Management.

BLM Miles City Field Office. (2015, June). Proposed Resource Management Plan and Final Environmental Impact Statement. Miles City, Montana: U.S. Bureau of Land Management, Miles City Field Office.

Burns & McDonnell. (2023, May 4). Sampling and Analysis Plan for Existing Water Wells and Surface Water (revision 3a). Downers Grove, Illinois: Burns & McDonnell Engineering Company, Inc.

Downey, J. S. (1986). Geohydrology of Bedrock Aquifers in the Northern Great Plains in Parts of Montana, North Dakota, South Dakota, and Wyoming. Washington, DC: U.S.Geological Survey.

EMSL. (2021, March 15). Erionite Information (revision 2.2). Cinnaminson, New Jersey: EMSL Analytical, Inc.

EPA. (2016, December). Geologic Sequestration of Carbon Dioxide - Underground Injection Control (UIC) Program Class VI Well Plugging, Post-Injection Site Care, and Site Closure Guidance. Washington, DC: U.S. Environmental Protection Agency.

Frankel, A. D., Petersen, M. D., Mueller, C. S., Haller, K. M., Wheeler, R. L., Leyendecker, E. V., . . . Rukstales, K. S. (2005). Peak Horizontal Acceleration With 10 Percent Probability of Exceedance in 50 Years Seismic-Hazard Maps for the Conterminous United States. *Scientific Investigations Map 2883*. Denver, Colorado: US Geological Survey.

Krevor, S., Blunt, M. J., Benson, S. M., Pentland, C. H., Reynolds, C., Al-Menhali, A., & Niu, B. (2015). Capillary trapping for geologic carbon dioxide storage – From pore scale physics to field scale implications. *International Journal of Greenhouse Gas Control*. Amsterdam, Netherlands: Elsevier B.V.

Lab, T. C. (2023). *Willet Identification*. Retrieved from All About Birds: https://www.allaboutbirds.org/guide/Willet/id

LoBue, C. (1982). Depositional Environments and Diagenesis of the Silurian Interlake Formation, Williston Basin, Western North Dakota. *Fourth International Williston Basin Symposium*. Regina, Saskatchewan, Canada: Saskatchewan Geological Society.

Macke, D. L. (1993). Cambrian through Mississippian Rocks of the Powder River Basin, Wyoming, Montana, and Adjacent Areas. Denver, Colorado: U.S. Geological Survey.

Maughan, E. K., & Roberts, A. E. (1967). Big Snowy and Amsden Groups and the Missippian-Pennsylvanian Boundary in Montana. Washington, DC: U.S. Geological Survey.

McClave, G. A. (2012). Stratigraphy and Source Rock Analysis of the Heath Formation in Fergus, Garfield, Golden Valley, Musselshell, Petroleum, and Rosebud Counties, Central Montana. Ann Arbor, Michigan: ProQuest LLC.

mindat.org. (2023, June 5). *Mines and Minerals Database, Carter Co., Montana, USA*. Retrieved June 5, 2023, from mindat.org: https://www.mindat.org/loc-131417.html

Montana Natural Heritage Program and Montana Fish, W. a. (2023). *Willet*. Retrieved from Montana Field Guide: https://fieldguide.mt.gov/speciesDetail.aspx?elcode=ABNNF02010

MTDEQ. (2013, December). Montana Base Numeric Nutrient Standards and Nutrient Standards Variances. *Circular DEQ-12, Parts A and B*. Helena, Montana: Montana Department of Environmental Quality. Retrieved from https://deq.mt.gov/files/Water/WQPB/Standards/NutrientWorkGroup/PDFs/CircularDEQ12_v6.7.pdf

MTDEQ. (2019, June). Montana Numeric Water Quality Standards. *Circular DEQ-7*. Helena, Montana: Montana Department of Environmental Quality.

Murphy, E. C., Nordeng, S. H., Juenker, B. J., & Hoganson, J. W. (2009). North Dakota Stratigraphic Column. *Miscellaneous Series 91*. Bismark, North Dakota: North Dakota Geological Survey.

NDDoH. (2007, November). Erionite Bulk Sampling Guidelines for North Dakota. Bismarck, North Dakota: North Dakota Department of Health.

NDDoH. (2007, November). Overview: Erionite Bulk Sampling Guidelines for North Dakota. Bismarck, North Dakota: North Dakota Department of Health.

NRCS Ekalaka Field Office. (2020, May). Carter County, MT, Long Range Plan, May 2020. Ekalaka, Montana: U.S. Department of Agriculture Natural Resources Conservation Service, Ekalaka Field Office.

Roehl, P. O. (1967, October). Stony Mountain (Ordovician) and Interlake (Silurian) Facies Analogs of Recent Low-Energy Marine and Subaerial Carbonates, Bahamas. *The American Association of Petroleum Geologists Bulletin v. 51, no. 10*. Tulsa, Oklahoma: American Association of Petroleum Geologists.

Thamke, J. N., LeCain, G. D., Ryter, D. W., Sando, R., & Long, A. J. (2014, December). Hydrogeologic Framework of the Uppermost Principal Aquifer Systems in the Williston and Powder River Structural Basins, United States and Canada (ver 1.1). Reston, Virginia: U.S. Geological Survey.

Treviño, R., & Nicholson, A. (2017). Geological CO2 Sequestration Atlas for Miocene Strata Offshore Texas State Waters: Report of Investigations. Austin, Texas: University of Texas, Austin.

USDA-NRCS. (2020, June). Web Soil Survey Download, June 2020. Available at: . Accessed April 2023. Washington, DC: U.S. Department of Agriculture, Natural Resources Conservation Service. Retrieved April 2023, from https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

USDA-NRCS. (c1992). MT011 - Soil Survey of Carter County, Montana. Washington, DC: U.S. Department of Agriculture Natural Resources Conservation Service.

USFWS. (2023). *Marbled Godwit*. Retrieved from ECOS Environmental Conservation Online System: https://ecos.fws.gov/ecp/species/9481

USFWS. (2023b). *Western Grebe*. Retrieved from ECOS Environmental Conservation Online System: https://ecos.fws.gov/ecp/species/6743

van der Meer, L. G., Hofstee, C., & Orlic, B. (2009). The fluid flow consequences of CO2 migration from 1000 to 600 metres upon passing the critical conditions of CO2. *Energy Procedia*. Amsterdam, Netherlands: Elsevier.

Warwick, P. D., & Corum, M. D. (2012). Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources–Powder River Basin, Wyoming, Montana, South Dakota, and Nebraska. *Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources*. Reston, Virginia: U.S. Geological Survey.

Warwick, P. D., & Corum, M. D. (2014). Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources–Williston Basin, Central Montana Basins, and Montana Thrust Belt Study Areas. *Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources*. Reston, Virginia: U.S. Geological Survey.

Zhou, X., Zeng, Z., Belobraydic, M., & Han, Y. (2008). Geomechanical Stability Assessment of Williston Basin Formations for Petroleum Production and CO2 Sequestration. Alexandria, Virginia: American Rock Mechanics Association.


BURNS McDONNELL