

Topsoil Protection Plan

Red Rocks 35-11

This Topsoil Protection Plan has been prepared by Desert Eagle Operating, LLC (DEO) for its Red Rocks 35-11 helium gas well location in Las Animas County, Colorado. The Plan addresses the Colorado Oil & Gas Conservation Commission (COGCC) requirement at Rule 304.c.(14) to prepare a Topsoil Protection Plan and COGCC Topsoil Protection Plan Guidance (March 25, 2022).

1.0 Disturbance Acreage

The extent of the disturbed area is shown on the Form 2A, Construction Layout Drawing and Form 2A, Related Location and Flowline Map. The figures show the Oil and Gas Location, access road, and off-location flowline. The estimated disturbance acreages are listed in Table 1.

Table 1. Estimated Disturbance Acreages

Area	Estimated Acreage	Description
Oil and Gas Location	1.10	New Disturbance
New Access Road	0.29	New Disturbance
Off-location Flowline	0.13	New Disturbance
Total New Disturbance	1.52	

Oil and Gas Location

DEO proposes to develop helium gas using a single conventional vertical helium gas well. The well will be approximately 1,800 feet deep. It will be drilled with air using a water well-sized drill rig. There will be no drilling mud, hydraulic fracturing, stimulation, or flowback. The well is not expected to produce hydrocarbons or water, based on results from wells already drilled in this area.

The Oil and Gas Location will be located on arid rangeland previously disturbed by ranching, dirt roads, and oil and gas well development. Dominant vegetation is Blue Grama, Sideoats Grama, Western Wheatgrass, Great Plains Yucca, One-seed Juniper, Plains Prickly Pear, and Tree Cholla.

Working Pad Surface

The location is relatively flat with approximately 6 feet of elevation change across the location. There will be no anticipated cut or fill needed to support well drilling. Minimal topsoil will be disturbed. Topsoil will be stockpiled on the location and will be restored on the reclaimed area.

Access Road

DEO will need approximately 1,040 feet of new dirt access road to the Oil and Gas Location. Based on the driller's experience drilling previous wells in the area, the new access will not require clearing or blading to support the water well-sized drill rig.

Off-Location Flowline

An 8-inch off-location flowline will be buried from the wellhead to a tie-in for an off-location helium processing unit.

2.0 Soil Types

The Natural Resources Conservation Service (NRCS) soil type at the Oil and Gas Location is:

DaE – Dalerose-Rock Outcrop complex, 3 to 25 percent slopes

VT – Villedry-Travessilla complex, 1 to 8 percent slopes

The new access road will be in:

VT – Villedry-Travessilla complex

The flowline corridor will be in:

DaE – Dalerose-Rock Outcrop complex

VT – Villedry-Travessilla complex

WC – Plughat-Villegreen complex, 1 to 4 percent slopes

A Soil Unit Map is attached. NRCS soil unit descriptions are provided with the Form 2A application.

3.0 Soil Evaluation

A topsoil pit evaluation was conducted at the proposed Oil and Gas Location in July 2022. The results of the onsite evaluation are shown in Table 2 and Figures 1 and 2. Topsoil depth is approximately 6 to 10 inches.

Table 2. Topsoil Pits

	Topsoil Pit 35-11-1	Topsoil Pit 35-11-2
Location	37.475210, -103.546772	37.475305, -103.547212
Soil Unit	VT-Villedry-Travesilla	DaE-Dalerose-Rock Outcrop
A Horizon 0"-10"	10YR 3/2 Sandy Loam; Granular Structure (Fine)	10YR 4/2 Clay Loam; Granular Structure (Fine)
B Horizon 6"-11"	10YR 6/3 Loamy Clay; Blocky Structure (Angular)	10YR 6/3 Loamy Clay; Blocky Structure (Angular)

Figure 1. Topsoil Pit 35-11-1

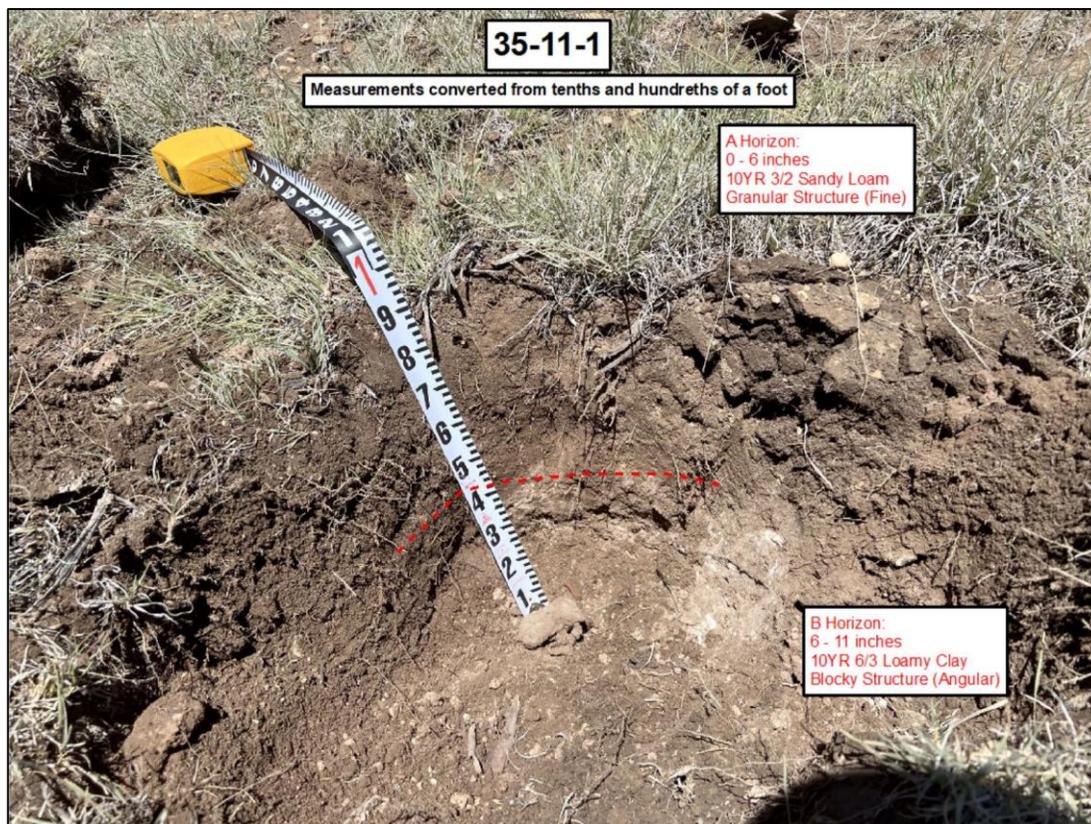
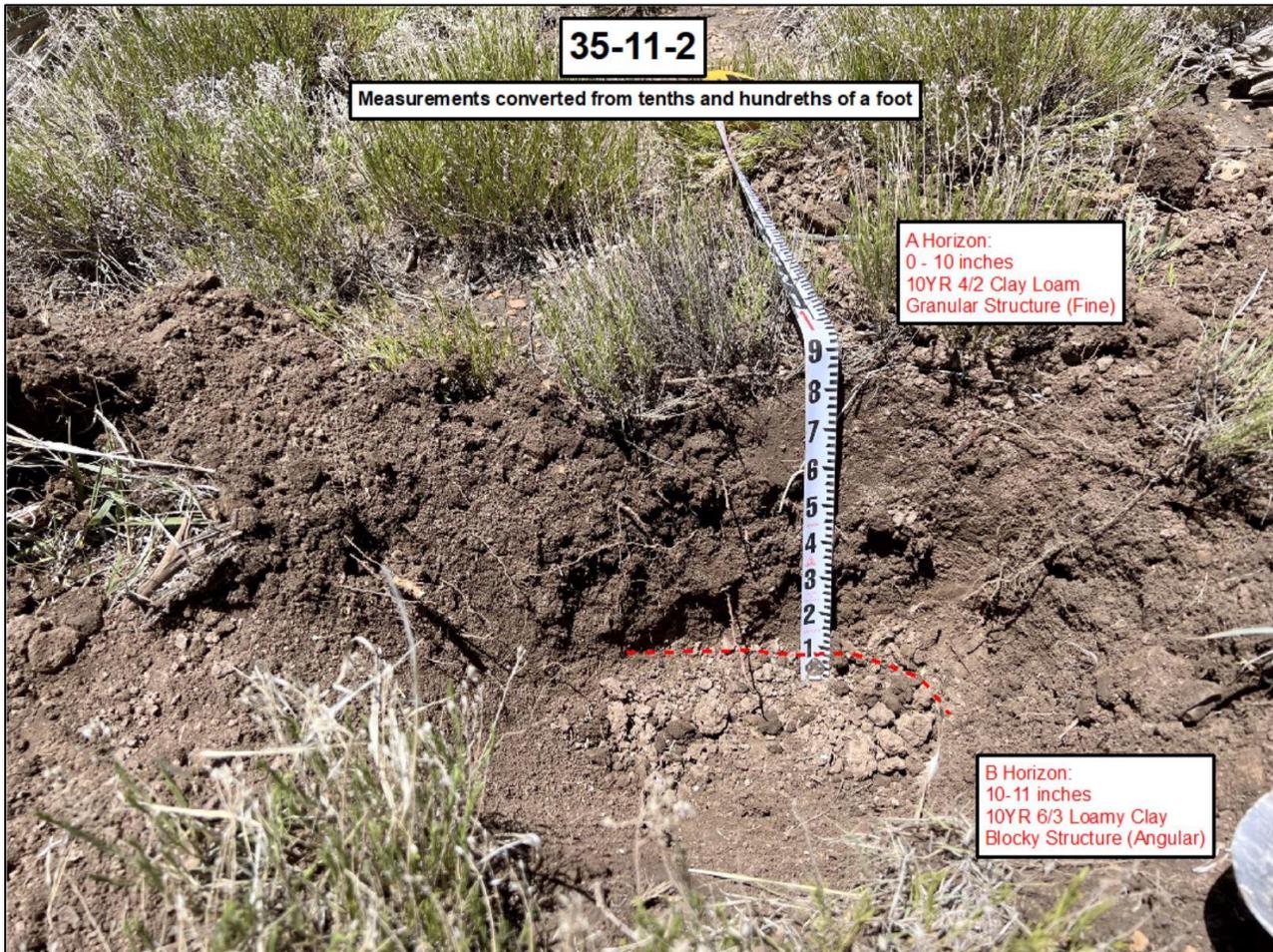


Figure 2. Topsoil Pit 35-11-2



4.0 Topsoil Stockpile Location

The topsoil stockpile location is shown on the attached Construction Layout Drawing and Soil Unit Map.

5.0 Topsoil to be Salvaged

The Oil and Gas Location will disturb portions of a 1.10-acre area. Land use is ranchland. An estimated 150 cubic yards of topsoil will be salvaged. Salvaged topsoil will be mounded on the Oil and Gas Location with a slope of approximately 2:1. The maximum height of the stockpile will be an estimated 4 feet. Areas for disturbance will be cleared of small brush. Topsoil will be segregated based on characteristics, such as texture, color, structure, and consistency. The topsoil will be protected by segregating it on the Oil and Gas Location. It will be marked with a labeled surveyor stake to distinguish it from the surrounding area. DEO will further protect the topsoil stockpile in the following ways:

Contamination

DEO will keep the area surrounding the stockpile clear of stored materials and vehicle parking.

Compaction

The topsoil stockpile will be placed on the edge of the Working Pad Surface to avoid the risk that equipment will be operated over the stockpile.

Wind and Water Erosion

The stockpile will be consolidated and mounded to minimize loose soils. It will be located on a portion of the Working Pad Surface that promotes natural drainage and avoids ponding and stormwater runnels. Surface roughening and an erosion control blanket will be used if needed to contain loose soils, while maintaining soil microbial activity.

An off-location flowline for helium gas will be buried underground from the wellhead to an off-location helium processing unit. The helium processing unit will be located on private property. The flowline will be 8-inch polyethylene. The flowline trench to its tie in will be approximately 2,765 feet long, 2 feet wide, and 4 feet deep, with approximately 3 feet of soil cover. Soil removed during flowline trenching will be segregated based on changes in physical characteristics. It will be windrowed alongside to the trench. After flowline installation and integrity testing, the trench will be backfilled. The soil layers will be replaced in the order in which they were removed.

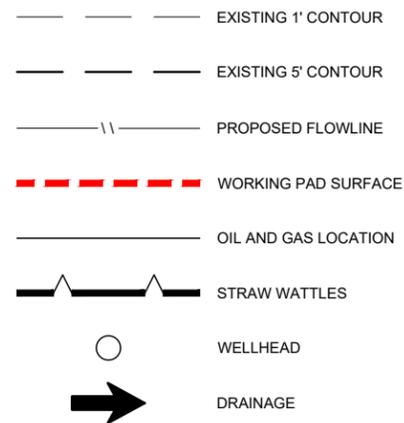
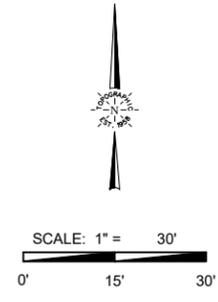
6.0 Best Management Practices

Table 3. Best Management Practices

Short-Term
<ul style="list-style-type: none"> Vegetation removal and soil disturbance on the Oil and Gas Location will be minimized to the area sufficient to site and level the drill rig and equipment.
<ul style="list-style-type: none"> The operator will salvage and segregate topsoil based on soil characteristics of texture, color, structure, and consistency.
<ul style="list-style-type: none"> Salvaged topsoil will be mounded on the Oil and Gas Location to a maximum height of approximately 4 feet and a slope of approximately 2:1.
<ul style="list-style-type: none"> Topsoil will be protected from contamination by stockpiling it in a location free from drilling, fuel storage, and parking.
<ul style="list-style-type: none"> Soil removed during flowline trenching will be segregated based on changes in physical characteristics. The soil layers will be windrowed adjacent to the trench.
<ul style="list-style-type: none"> Soils from the flowline trench will be replaced promptly in the order in which they were removed.
Long-Term
<ul style="list-style-type: none"> The topsoil stockpile will be protected from compaction by designating it with surveyor staking and flagging as topsoil for reclamation.
<ul style="list-style-type: none"> The topsoil stockpile will be protected from wind degradation by mounding at an approximately 2:1 steepness to prevent loose soils while promoting continued microbial activity.
<ul style="list-style-type: none"> The topsoil stockpile will be protected from erosion by ensuring that stormwater controls and diversions are installed, where needed, to divert stormwater away from the stockpile.
<ul style="list-style-type: none"> Surface roughening, crimped straw mulching, or an erosion control blanket will be used if needed to contain loose soils, while maintaining soil microbial activity.
<ul style="list-style-type: none"> Vegetation will be allowed to establish on the topsoil stockpile to stabilize it, outcompete weeds, and promote soil microbial activity.
<ul style="list-style-type: none"> The topsoil stockpile will be monitored and managed for weeds during weed management monitoring conducted at the Oil and Gas Location by the site operator.

Attachments

Construction Layout Drawing
Soil Unit Map

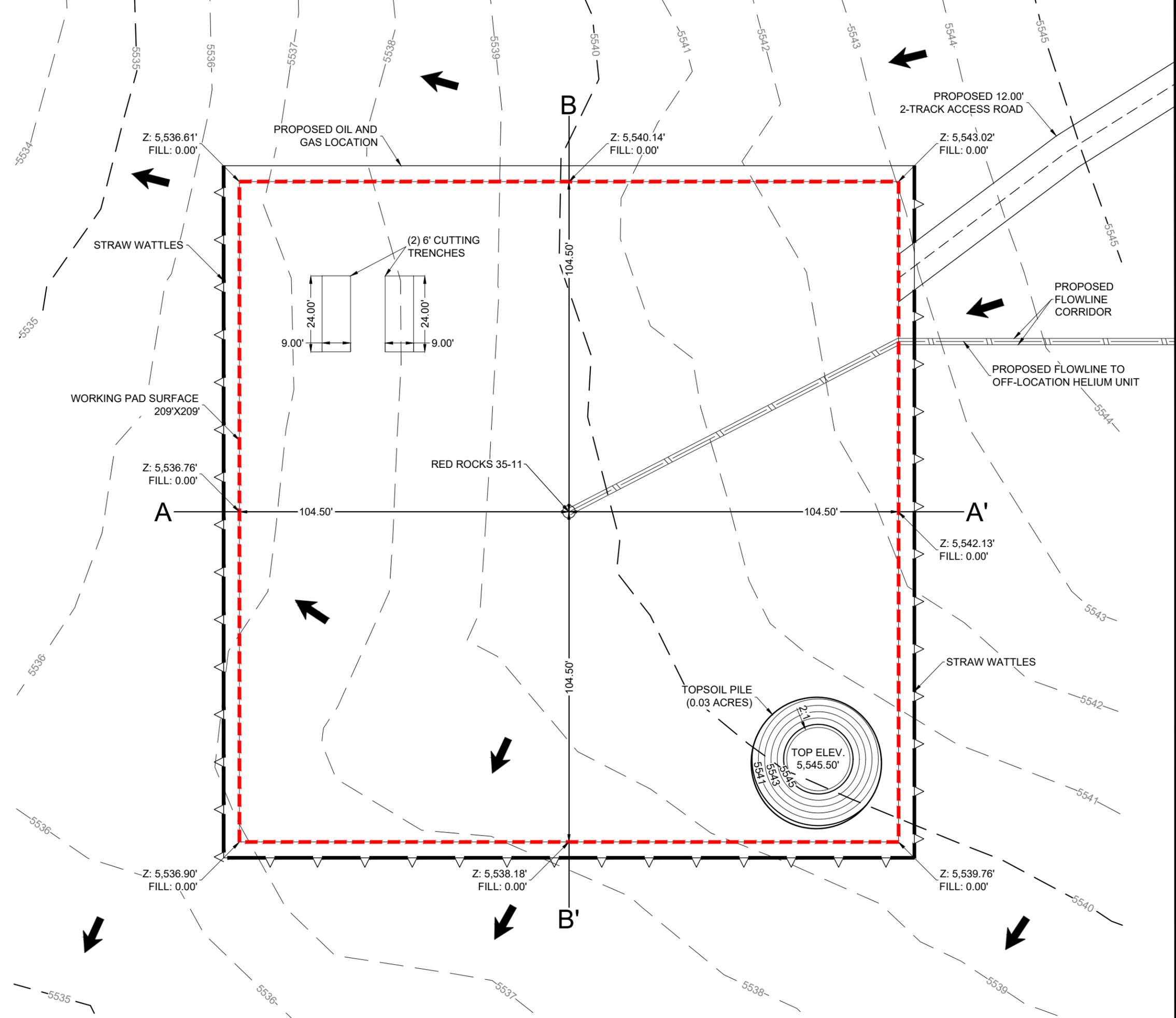


WELLHEAD ELEVATIONS
 GRADED ELEVATION: 5,539.62'
 UNGRADED ELEVATION: 5,539.62'

EARTHWORK QUANTITIES:
 CUT: 185 CY
 FILL: 35 CY
 TOPSOIL (6"): 150 CY
 EXPORT: 0 CY
 FILL FACTOR: 1.15

DISTURBANCE ACREAGES:
 WORKING PAD SURFACE (AC): 1.00
 OIL & GAS LOCATION (AC): 1.10
 PROPOSED ACCESS ROAD (AC): 0.29
 FLOWLINE CORRIDOR (AC): 0.13

- NOTES:
- THIS SITE HAS NO NECESSARY EXCAVATION, AS THE DRILL RIG IS SELF-LEVELING. ALL EARTHWORK FOR THE SITE IS TOPSOIL PRESERVATION ONLY.
 - FLOWLINE CORRIDOR ACREAGE ONLY INCLUDES ACREAGE OUTSIDE OF OIL AND GAS AREA.



CONSTRUCTION LAYOUT - PLAN VIEW
 RED ROCKS 35-11 LAS ANIMAS COUNTY
 SE 1/4 NW 1/4 SEC. 35 T29S R55W 6 TH P.M.
 DESERT EAGLE OPERATING

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL ENGINEERING OR SURVEY DOCUMENT.

DATE:	11/08/2022
DRAWN BY:	TJM
REVIEWED BY:	CCC
SCALE:	1" = 30'
SHEET:	1 OF 4
REVISION:	
	XXXXXX
	XXXXXX
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Data Source:
 COGCC GIS Online
 Natural Resources Conservation Service. Web Soil Survey

Aota Technical, LLC
Desert Eagle Operating Red Rocks 35-11 Soil Unit Map
Las Animas County SE¼NW¼ Sec.35, T29S R55W 6th P.M.
Date 10/19/22

Legend		NRCS Soil Survey		Soil Map Unit Description	
Conventional Vertical Helium Gas Well	Working Pad Surface	Soil Map Unit		DaE: Dalerose-Rock outcrop complex, 3 to 25 percent slopes	
Oil & Gas Location	Flowline Tie In to Helium Processing Unit			VT: Villedry-Travessilla complex, 1 to 8 percent slopes	
Access Road, Private Two-track				WC: Plughat-Villegreen complex, 1 to 4 percent slopes	