



# Topsoil Plan

Denova Project

Washington County, Colorado

*September 2022*

## PRESENTED TO

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**Denova Sequestration, LLC a wholly-owned  
subsidiary of Carbon America**

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Topsoil Plan Stockpile Area

## 1.0 INTRODUCTION

This is a Topsoil Plan for the Denova Project (Project) being conducted by Carbon America. The Topsoil Plan includes, by reference, additional environmental permits, plans, and protocols Carbon America developed to minimize and/or mitigate the potential impacts of construction of the Project on the environment. Topsoil management is also discussed in the Stormwater Management Plan and the NRCS Soils and Geology Evaluation. This Topsoil Plan was written to comply with the series 1000 rules by the Colorado Oil and Gas Conservation Commission.

## 2.0 PROJECT OVERVIEW

### 2.1 PROJECT DESCRIPTION

Carbon America wishes to locate and drill a stratigraphic test well to obtain geologic samples to evaluate the suitability of deep formations for injection and sequestration of CO<sub>2</sub>. The well location is anticipated to be located approximately 9 miles southwest of Yuma, Colorado, in Washington County. The Project Area is in rural, grazing lands on vegetated sand dunes.

See the attached figures for maps and additional location detail. Legal location descriptions crossed by the project detailed below in Table 1.

**Table 1. Project Legal Description**

Project Location	Section	Township	Range
40.027439, -102.851636	27, 28	1N	49W

### 2.2 PROJECT DISTURBANCE

Ground disturbance associated with the Project will largely consist of temporary access roadbed preparation and construction, temporary workspace for well pad construction, and staging/laydown areas. Estimated ground disturbances are located in Table 2 below.

**Table 1. Project Disturbance Areas**

Project Component	Disturbance Area (Acres)
Existing Road	4.63
New Road	3.43
Well Pad	2.57
<b>TOTAL</b>	<b>10.63</b>

## 3.0 EXISTING CONDITIONS

### 3.1 SOILS

Detailed soil characteristics were identified and assessed using the National Resource Conservation Service's (NRCS) Web Soil Survey (<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx> accessed January 26, 2021). Soil types and their locations on-site are identified in Figure 3. The Project area is located within rural grazing lands on vegetated sand dunes. Adverse impacts to topsoil as a result of surface disturbance associated with this project are not anticipated and will be avoided.

Project area soils and their characteristics are detailed below in Table 2.

**Table 2. Soil Types**

Map Unit Name	K Factor <sup>1</sup>	Erosion Hazard <sup>2</sup>	Rutting Hazard <sup>3</sup>	Hydrologic Group <sup>4</sup>
Valent sand, rolling	.02	Severe	Moderate	A
Valent sand, 3-9% slopes	.02	Moderate	Moderate	A
Haxtun loamy sand, 0-3%	.15	Slight	Moderate	C

<sup>1</sup> K Factor indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptibility there is to erosion.

<sup>2</sup> Slight = erosion is unlikely under ordinary climatic conditions; Moderate = some erosion is likely and that erosion-control measures may be needed; Severe = erosion is very likely and Very Severe = significant erosion is expected.

<sup>3</sup> Soil rutting interpretation indicates the hazard of surface rut formation through the operation of overland equipment and machinery. The hazard is described as slight, moderate, or severe, with "slight" indicating little to no threat of rutting and "severe" indicating that ruts may form readily.

<sup>4</sup> Hydrologic Soil Groups are used to estimate runoff from precipitation: A = high infiltration rate, low runoff potential; B = moderate infiltration rate; C = slow infiltration rate; D = very slow infiltration rate, high runoff potential.

### 3.2 VEGETATION

Tetra Tech performed a site visit on January 6, 2022, and confirmed that vegetation within the Project area consists primarily of upland rangeland vegetation including alkali sacaton (*Sporobolus airoides*), rubber rabbitbrush (*Ericameria nauseosa*), silver sagebrush (*Artemisia cana*), and soapweed yucca (*Yucca glauca*). There are currently no known weed infestations at the Project area. Adverse impacts to vegetative Communities as a result of surface disturbance associated with this project are not anticipated and will be avoided.

### 3.3 TOPSOIL PROTECTION SUMMARY

The road and pad construction and subsequent stratigraphy well activities are anticipated to take approximately 6 weeks. Necessary property easements have been acquired and construction will begin after regulatory approvals are obtained. The precise timing of construction will be dictated by agency permit conditions, environmental restrictions, and available workforce and materials.

The surface is located on Colorado State Land Board Property. Carbon America and the Colorado State Land Board have met in person on the site and signed Exploration Lease 114345. The State Land Board Team has reviewed and approved the Reclamation Plan, Stormwater Management Plan, and this Topsoil Plan. All surface disturbance would be reclaimed to a condition consistent with COGCC and surface owner requirements.

Topsoil will be segregated during construction to be redistributed during interim reclamation. Topsoil will be segregated in non-impervious areas adjacent to the well pad (Figure 4). The soil horizons will be separated from one another, and the contractor will mark or document stockpile locations to facilitate subsequent reclamation. When separating soil horizons, the contractor will segregate horizons based upon noted changes in physical characteristics such as organic content, color, texture, density, or consistency. Segregation will be performed to the extent practicable to a depth of six (6) feet or bedrock, whichever is shallower. Upon completion of excavation activities, the area will be backfilled and a minimum of 6 inches of Topsoil Plan will be replaced, or added if deemed necessary, prior to final stabilization. The anticipated Topsoil Plan stockpile area is located in Figure 4. Proper site preparation would be ensured by spreading of stored and salvaged topsoil or topsoil replacement to an adequate depth and by ripping, tilling, disking, harrowing, and dozer track imprinting where appropriate.

Reclamation will occur as soon as possible after the well is drilled. This would consist of recontouring and revegetation of all disturbed areas not needed for operations (including cut/fill slopes). After the topsoil has been returned to these areas and prepared for seeding, a landowner-approved weed-free seed mix would be planted to prevent erosion, preserve soil integrity, and resist weeds. Prior to interim reclamation, Carbon America would meet with the private landowner to inspect the disturbed area, review the reclamation plan, and agree on any revisions.

The objective of interim reclamation is to achieve stability objectives to insure erosion control and continued viability of the soils for future land use. The long-term objective of final reclamation is to return the land to approximately pre-project conditions. Erosion control would be deemed sufficient when adequate vegetation cover is reestablished, water naturally infiltrates into the soil, the site complies with the approved Stormwater Management Plan and when gullying, headcutting, slumping, and deep or excessive drilling is not observed.

## FIGURE

