



**COYOTE FED 0397-14 PAD
NRCS SOILS REPORT
COGCC RULE 304.B(10)**

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INTRODUCTION

Pursuant to Rule 304.b.(10), a Natural Resource Conservation Service (NRCS) soil map unit description is required with the submittal of the Location Assessment, Form 2A.

Description of Coyote Well Pad

This project consists of the development of the Coyote Fed 0397-14 Pad with six horizontal wells. These wells are designated as Coyote Fed 0397-14-3-1 NH, Coyote Fed 0397-14-2-3 NH, Coyote Fed 0397-14-2-4 NH, Coyote Fed 0397-14-23-13 NH, Coyote Fed 0397-14-23-14 NH, and Coyote Fed 0397-14-2-3 WNH. The Coyote Fed 0397-14 Pad will be a new location developed on private land owned and managed by the Pierce, John R. Revocable Trust and the access is on private land owned and managed by Buffalo Horn Properties, LLC.

The Coyote Fed 0397-14 Pad will initially generate 6.82 acres of new short-term disturbance. However, the site will be reduced by approximately 2.84 acres at the time of interim reclamation. The long-term disturbance associated will be 3.98 acres for the working pad surface. Interim reclamation will begin after all wells are drilled and completed as planned with production facilities installed at the pad. During interim reclamation, the cut and fill slopes will be reshaped and contoured. The graveled-access road to the well pad will generate approximately 6.65 acres of long-term disturbance.

Location of Coyote Fed 0397-14 Pad

The site is located on Parcel No. 114914200003 within Moffat County, Colorado. The parcel is located approximately 21 miles northwest of Meeker, Colorado. The site is situated along the northwestern edge of this parcel.

Legal Description: NWNW of Section 14, T03N-R97W, 6th P.M

Location Coordinates: 40.235181, -108.253523 (NAD 83)

Elevation: 5,897 feet

SOILS REPORT

Soils information derived from the Moffett County Area (CO686) and Rio Blanco County Area (CO685) Natural Resources Conservation Services (NRCS) SSURGO database indicated that soils at the proposed location and access road are described below and are summarized in Table 1.

Map Unit 204: Typic Natrargrids, 0 to 5 percent slopes Description

The Typic Natrargrids component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on alluvial fans, stream terraces. The parent material consists of alluvium derived from sandstone, siltstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 28 within 30 inches of the soil surface.

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Components: Typic Natrargrids, 0-5% slopes

Typic Natrargrids soils which make up 80% of the Map Unit have a typical profile of:

H1 - Fine sandy loam	0 to 2 inches
H2 - Sandy clay loam	2 to 18 inches
H3 - Sandy clay loam	18 to 35 inches
H4 - Silty clay loam	35 to 60 inches

Minor Components that make up the remainder of the Map Unit are Deaver 5%, Turzo 5%, Massadona 5% soils

Map Unit 77: Forrelle loam, 3 to 12 percent slopes Description

The Forelle component makes up 85 percent of the map unit. Slopes are 3 to 12 percent. This component is on structural benches. The parent material consists of loess and in alluvium derived from shale and sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R034AY298CO Rolling Loam ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 3 within 30 inches of the soil surface.

Components: Forelle loam 3-12% slopes

Forelle Loam soils which make up 85% of the Map Unit have a typical profile of:

H1 - Loam	0 to 5 inches
H2 - Clay loam	5 to 23 inches
H3 - Loam	23 to 51 inches
H4 - Sandy loam	51 to 60 inches

Minor Components that make up the remainder of the Map Unit are Yamo 8%, Pinelly 7% soils

Map Unit 34: Forelle loam, 8 to 15 percent slopes Description

The Forelle component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on terraces, uplands. The parent material consists of alluvium derived from sedimentary rock and/or eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R048AY306UT Upland Loam (Wyoming Big Sagebrush) ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 3 within 30 inches of the soil surface.

Components: Forelle loam 8-15% slopes

Forelle Loam soils which make up 85% of the Map Unit have a typical profile of:

H1 - Loam	0 to 4 inches
H2 - Sandy clay loam	4 to 21 inches
H2 - Loam	4 to 21 inches
H2 - Clay loam	4 to 21 inches
H3 - Clay loam	21 to 60 inches
H3 - Sandy clay loam	21 to 60 inches
H3 - Loam	21 to 60 inches

Minor Components that make up the remainder of the Map Unit are "Other" 15% soils

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Map Unit 91: Grieves-Yamo-Crestman association, 3 to 45 percent slopes Description

The Grieves component makes up 40 percent of the map unit. Slopes are 5 to 25 percent. This component is on hills. The parent material consists of alluvium and residuum derived from sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R034AY331CO Sandy Slopes ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. There are no saline horizons within 30 inches of the soil surface.

The Yamo component makes up 25 percent of the map unit. Slopes are 3 to 15 percent. This component is on hills. The parent material consists of alluvium derived from sandstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R034AY204WY Clayey (foothills And Basins West) ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 6 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

The Crestman component makes up 20 percent of the map unit. Slopes are 15 to 45 percent. This component is on hills. The parent material consists of residuum derived from sandstone. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R034AY146WY Sands (Green River - Great Divide Basins) ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent.

Components: Grieves-Yamo-Crestman association, 3-45% slopes

Grieves and similar soils which make up 40% of the Map Unit have a typical profile of:

H1 - Loamy fine sand	0 to 2 inches
H2 - fine sandy loam	2 to 60 inches

Yamo and similar soils which make up 25% of the Map Unit have a typical profile of:

H1 - Clay loam	0 to 5 inches
H2 - Sandy clay loam	5 to 60 inches

Crestman and similar soils which make up 25% of the Map Unit have a typical profile of:

H1 - Loamy sand	0 to 2 inches
H2 - Gravelly loamy sand	2 to 14 inches
H3 - Weathered bedrock	14 to 18 inches

Minor Components that make up the remainder of the Map Unit are Moyerson 8% soils and Rock outcrop 7%

Map Unit 104: Yamac loam, 2 to 15 percent slopes Description

The Yamac component makes up 85 percent of the map unit. Slopes are 2 to 15 percent. This component is on fans, terraces, rolling uplands. The parent material consists of alluvium and/or eolian deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This

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component is in the R048AY306UT Upland Loam (Wyoming Big Sagebrush) ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 3 within 30 inches of the soil surface.

Components: Yamac, 2-15% slopes

Yamac and similar soils which make up 85% of the Map Unit have a typical profile of:

H1 - Loam	0 to 4 inches
H2 - Silt Loam	4 to 22 inches
H2 - Clay loam	4 to 22 inches
H2 - Loam	4 to 22 inches
H3 - Silt loam	22 to 60 inches
H3 - Clay loam	22 to 60 inches
H3 - Loam	22 to 60 inches

Minor Components that make up the remainder of the Map Unit are "Other" 15% soils

Map Unit 75: Rentsac-Piceance complex, 2 to 30 percent slopes

The Rentsac component makes up 60 percent of the map unit. Slopes are 8 to 30 percent. This component is on broad ridges, foothills, uplands. The parent material consists of residuum weathered from sandstone. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the F048AY448CO Mountain Pinyon ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. There are no saline horizons within 30 inches of the soil surface.

The Piceance component makes up 30 percent of the map unit. Slopes are 2 to 15 percent. This component is on broad ridges. The parent material consists of residuum weathered from sandstone. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R048AY306UT Upland Loam (Wyoming Big Sagebrush) ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 6 percent.

Components: Rentsac-Piceance complex, 2-30% slopes

Rentsac and similar soils which make up 60% of the Map Unit have a typical profile of:

H1 - Channery loam	0 to 5 inches
H2 - Very flaggy loam	5 to 16 inches
H2 - Extremely gravelly sandy loam	5 to 16 inches
H2 - Extremely channery loam	5 to 16 inches
H3 - Unweathered bedrock	16 to 20 inches

Piceance and similar soils which make up 30% of the Map Unit have a typical profile of:

H1 - Fine sandy loam	0 to 4 inches
H2 - Clay loam	4 to 22 inches
H2 - Sandy clay loam	4 to 22 inches
H2 - Loam	4 to 22 inches

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H3 - Channery sandy clay loam	22 to 30 inches
H3 - Channery loam	22 to 30 inches
H3 - Channery sandy loam	22 to 30 inches
H4 - Unweathered bedrock	30 to 34 inches

Minor Components that make up the remainder of the Map Unit are "Other" 10% soils

Map Unit 93: Gullied land

Generated brief soil descriptions are created for major soil components. The Gullied land is a miscellaneous area.

Components: Gullied land

Gullied land which make up 85% of the Map Unit have a typical profile of:

H1 - Variable	0 to 60 inches
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Minor Components that make up the remainder of the Map Unit are "soils from adjacent units" 15%

ATTACHMENTS

Table 1. Soils Report Summary

Location	Percent of Location	Soil Map Unit	Ecological Site
Coyote 0397-14 Pad	100	204 - Typic Natrargrids, 0-5% slopes	Not provided
Access to pad	31	77 - Forelle loam, 3-12% slopes	R034AY298CO - Rolling Loam
	21	34 - Forelle loam, 8-15% slopes	R048AY306UT - Upland Loam (Wyoming Big Sagebrush)
	19	91 - Grieves-Yamo-Crestman assoc., 3-45% slopes	R034AY331CO - Sandy Slopes
	19	104 - Yamac loam, 2-15% slopes	R048AY306UT - Upland Loam (Wyoming Big Sagebrush)
	4	75 - Rentsac-Piceance complex, 2-30% slopes	F048AY448CO - Mountain Pinyon
	3	204 - Typic Natrargrids, 0-5% slopes	Not provided
	3	93 - Gullied land	Not provided

REFERENCES

Natural Resources Conservation Service (NRCS). 2004. *Soil Survey of Moffat County Area, Colorado*. Available at the NRCS website, https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/colorado/CO686/0/CO686%20Moffat.pdf

Natural Resources Conservation Service (NRCS). 1982. *Soil Survey of Rio Blanco County Area, Colorado*. Available at the NRCS website, https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/colorado/CO685/0/rioblanco.pdf

Natural Resources Conservation Service (NRCS). Current. *Web Soil Survey (WSS Tool)*. Available at the NRCS website, <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>