



November 27, 2024

Dan Peterson
Environmental Specialist
Chevron Rockies Business Unit
Noble Energy, Inc.
2115 117th Avenue
Greeley, CO 80631

Re: **Wells Ranch AE20 Flowline
Reclamation Plan
SWNW, Section 20, Township 6N, Range 62W
Weld County, Colorado**

Mr. Peterson:

Tasman, Inc. (Tasman) has prepared this Reclamation Plan (Plan) on behalf of Noble Energy, Inc. (Noble) for the Wells Ranch AE20 Flowline in Weld County, Colorado (Site). The Colorado Energy and Carbon Management Commission (ECMC) has assigned this project Remediation Project No. 26241. Surface areas disturbed by remediation activities shall be reclaimed per ECMC Rules 1003 *Interim Reclamation* and 1004 *Final Reclamation of Well Sites and Associated Production Facilities*. Additional remedial activities and assessment results associated with this project were presented to and approved by the ECMC in previously submitted Form 27 reports. In anticipation of reclamation activities, Tasman completed a Site inspection on October 15, 2024; the associated field notes and photo logs are included as Attachment A.

Site Description

The Site is located in Weld County in northeastern Colorado, in the SWNW Quarter-Quarter of Section 20, Township 6 North, Range 62 West near the intersection of County Road (CR) 68 and CR 67, approximately 11 miles south of the town of Briggsdale (Figure 1 and Figure 3-A). There is one mapped Fish and Wildlife Service (FWS) Wetlands (R4SBc: Riverine) located within 500 feet of the Site (Figure 2). The current landowner is Wells Ranch, LLC.

Site Background

In April 2022, during routine operations at the Wells Ranch AE20 Facility, a belowground combined-fluids flowline adjacent to the northeastern most separator on-Site daylighted and soil impacts were identified. Following the ECMC approval of Supplemental Form 19 Document No. 403007874, an initial remediation investigation was conducted by Fremont Environmental, Inc. (Fremont) in April 2022. During initial remediation activities, four confirmation soils samples (TP-N 3 Ft, TP-S 5 Ft, TP-Mid 4 Ft, and TP-E 2Ft) and one background soil sample (BKG-1 1 Ft) were collected and submitted to Origins Laboratory, Inc. (Origins) for analysis of ECMC Table 915-1 Organic Compounds in Soils, total petroleum hydrocarbons (TPH) as total volatile hydrocarbons (C₆-C₁₀), total extractable hydrocarbons (C₁₀-C₃₆), Table 915-1 Metals, and Soil Suitability for Reclamation constituents. Analytical results indicated that all four confirmation soil samples were in full compliance with ECMC Table 915-1 standards for Soil Suitability for Reclamation constituents; however, the arsenic values in all confirmation soil samples (TP-N 3 Ft, TP-S 5 Ft, TP-Mid 4 Ft, and TP-E 2 Ft) were above the applicable Table 915-1 regulatory standards and Site-specific background



concentrations. Confirmation and background soil sample locations are illustrated on Figure 3-B, analytical results are presented in Table 1, and arsenic results are presented in Table 2.

Immediately following, a supplemental investigation was conducted in April 2022, to delineate the horizontal and vertical extents of the unintentional release. During the supplemental Site investigation, eighteen confirmation soil samples were collected and submitted to Summit Scientific Laboratory (Summit) for analysis of ECMC Table 915-1 Organic Compounds in Soils, TPH as total volatile hydrocarbons (C₆-C₁₀), total extractable hydrocarbons (C₁₀-C₃₆), Table 915-1 Metals, and Soil Suitability for Reclamation constituents. In March 2023, five background soil samples (BKG E-N 6FT, BKG E-S 6FT, BKG N 6FT, BKG S 6FT, and BKG W 6FT) were collected and submitted to Summit for analysis of ECMC Table 915-1 Metals, and Soil Suitability for Reclamation constituents. Analytical results indicated that the electrical conductivity (EC) and sodium adsorption ratio (SAR) values in three confirmation soil samples (W Pit N Wall 5 Ft, W Pit S Wall 5 Ft, and W Pit W Wall 5 Ft) and the pH values observed in four confirmation soil samples (E PIT-N WALL 6FT, METER-FLOOR 3FT, METER-W WALL 2FT, and W PIT-W WALL 6FT) were above the applicable regulatory standards and Site-specific background concentrations. The remaining confirmation soil samples were in full compliance with the applicable regulatory standards. Confirmation and background soil sample locations are illustrated on Figures 3-B and 3-C, respectively, and analytical results are presented in Table 1.

Following ECMC approval of Supplemental Form 27 Document No. 403900515, a supplemental Site investigation was conducted in August 2024 to collect background samples to further delineate the horizontal and vertical extents of pH exceedances observed in the subject confirmation soil samples (E-PIT-N WALL 6FT, METER-FLOOR 3FT, METER-W WALL 2FT, and W PIT-W WALL 6FT). Nineteen background soil samples were collected and submitted to Summit for analysis of ECMC Table 915-1 pH, EC, and SAR. Analytical results indicated that the pH values observed in the subject confirmation soil samples were above the applicable regulatory standards but within Site-specific background concentrations. Background soil sample locations from the supplemental Site investigation are illustrated on Figure 3-D and analytical results are presented in Table 1.

Soils and Vegetation Information

The primary soil type at Site is Vona Loamy Sand with a 5-9% slope (Attachment B). Vona Loamy Sand soils consist of very deep, well or excessively drained soils that formed in eolian deposits or partly wind reworked alluvial materials. Vona soils are found on hills, ridges, plains, and uplands frequently parallel to major river channels. Native vegetation in such soils are big bluestem, sand bluestem, little bluestem, prairie sandreed, sideoats gramma, blue grama, sagebrush, and yucca. Such soils are used for native rangeland or as dryland and irrigated crop production.

Tasman completed a Site inspection on October 15, 2024, to evaluate general soil and vegetive conditions. Current land use surrounding the Site is active oil and gas production associated with the Wells Ranch AE20 Facility; as such, background reference vegetation was collected in the northeastern corner of the facility pad. Existing vegetation on-Site is a mix of weeds and native grasses. Buffalo grass, green needlegrass, blue gramma, Russian thistle, and *kochia* were observed during the Site inspection.



Reclamation Operations and Erosion Control

As the Site and surrounding area is an active oil and gas facility, reclamation seeding will not be completed. Excavation of the contaminated road base was completed in July 2023. Following excavation of the contaminated soils and road base, clean fill soil and new road base were emplaced to match pre-existing conditions.

Stormwater compliance to prevent soil erosion shall be maintained by a combination of earthwork practices and placement of non-erodible surfaces. No stormwater inspections related to remediation or reclamation activities will be required. If stormwater management is required, it will be implemented.

Annual Final Reclamation Monitoring

The Site will continue to operate as an active oil and gas facility; therefore, Final Reclamation annual inspections and/or monitoring will not be completed at this time.

Conclusion

Based on an understanding of the conditions of the native Vona soils, which are violently to strongly effervescent from 30 to 60 inches below ground surface (bgs) and slightly saline in nature, the analytical results collected during the April 2022, March 2024, and August 2024 supplemental Site investigations, and an understanding that the Site will remain an active oil and gas facility, there will be no long-term impacts to soil suitability at the Site and surrounding rangeland. Analytical results collected during the August 2024 supplemental Site investigation indicated that the pH exceedances observed during the 2022 supplemental remediation activities investigation were horizontally and vertically delineated, are within Site-specific background concentrations, and any remaining exceedances are located below the rooting zone.

If you have any questions, do not hesitate to contact me at 303.726.9642 or acook@tasman-geo.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Alex Cook", is written over a light blue rectangular background.

Alex Cook, TECS, QSM
Environmental Scientist



Figures:

1. Site Location Map
2. Site Overview Map
3. Soil Sampling and Boring Location Maps (Fremont)
 - A. Site Map
 - B. Inorganic Soil Chemistry Map
 - C. pH Soil Chemistry Map
 - D. Background Sample Soil Chemistry Map

Table:

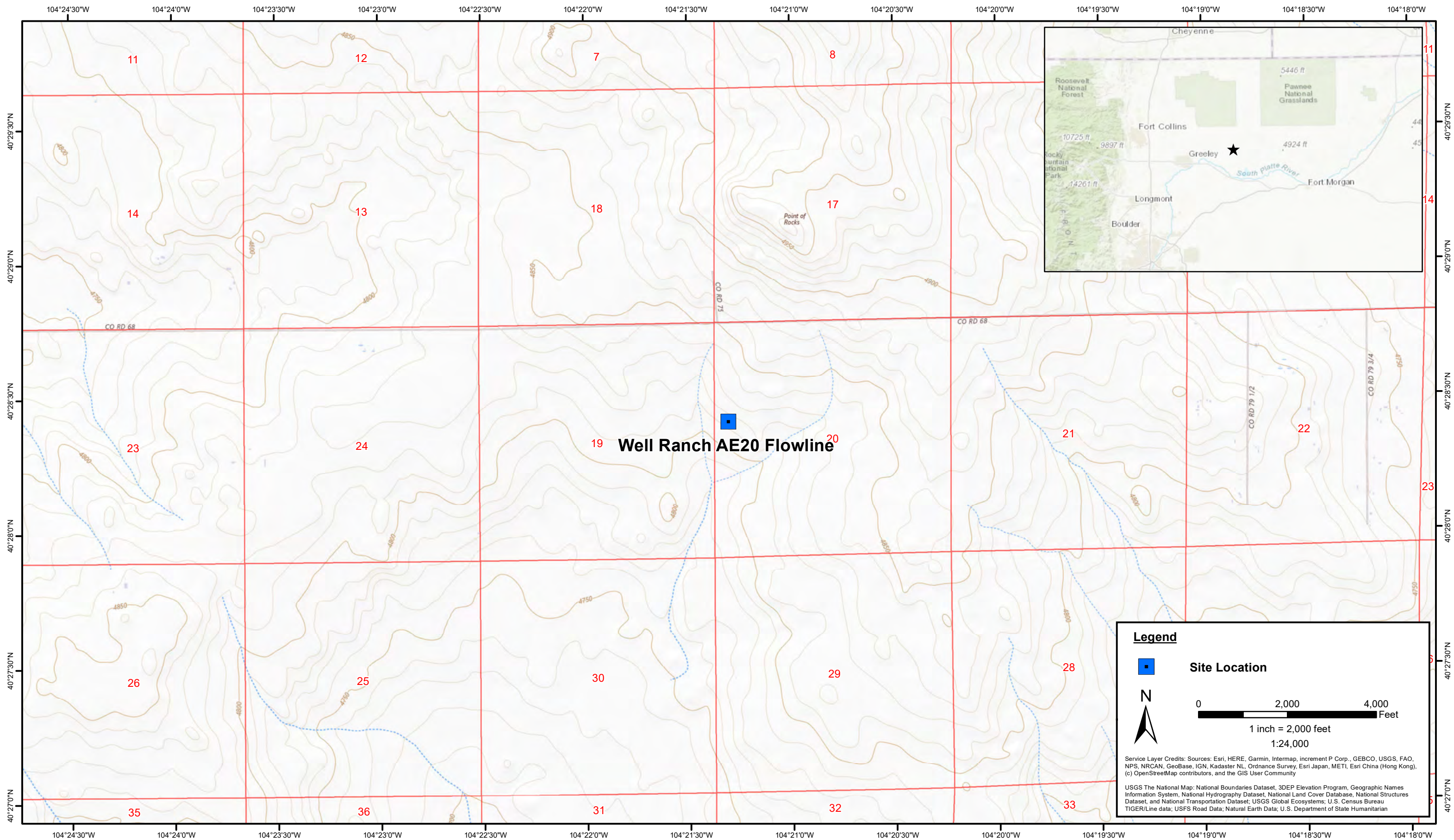
1. Summary of Soil Suitability for Reclamation (Fremont)
2. Summary of Metals in Soil Chemistry Data (Fremont)

Attachments:

- A. Vegetation Monitoring Report
- B. United States Department of Agriculture (USDA) Custom Soil Resource Report



FIGURE 1
Site Location Map



DATE:	October 2024
DESIGNED BY:	J. Whritenour
DRAWN BY:	J. Woffinden



Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

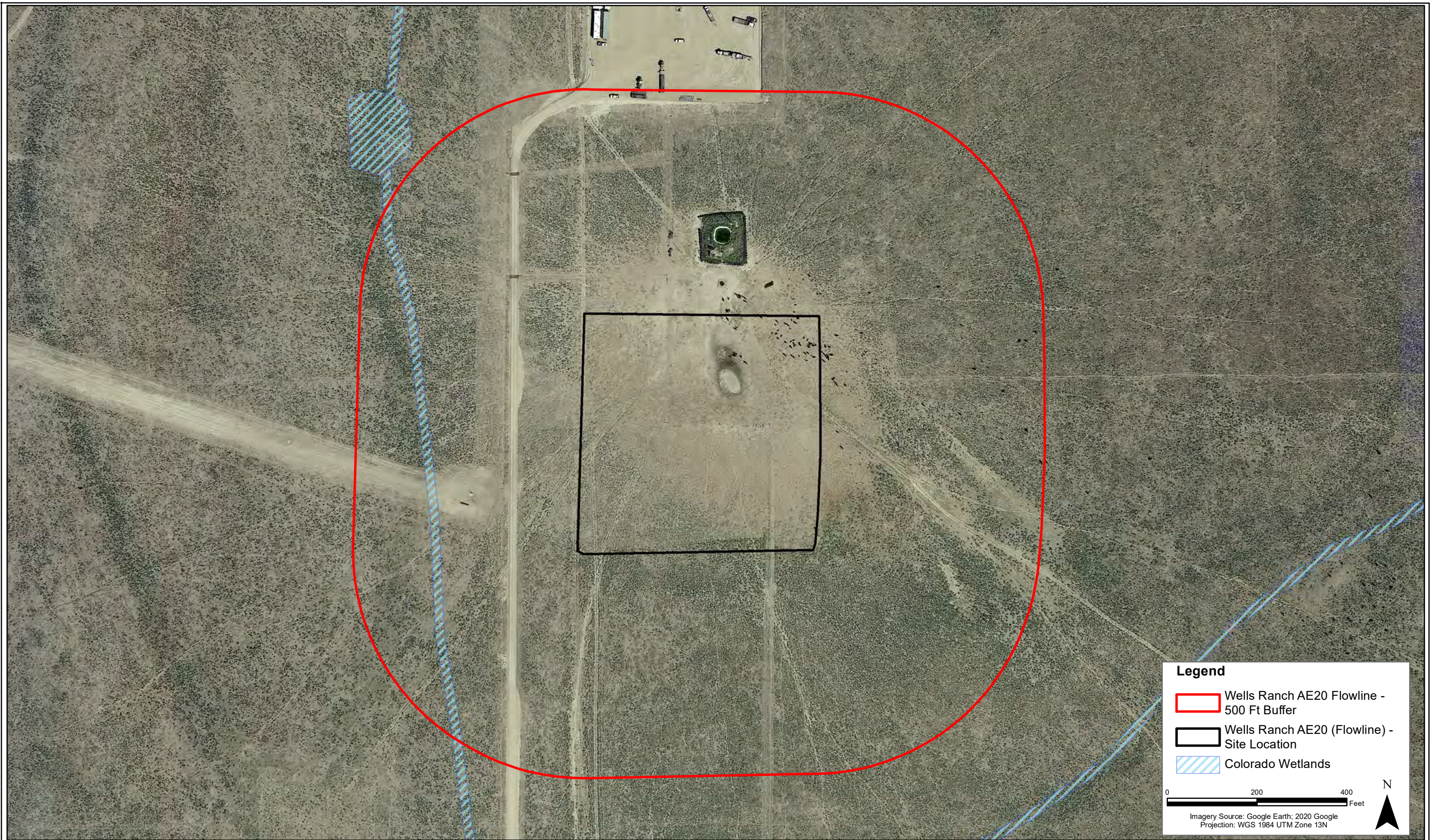
Noble Energy Inc. - 100322 - DJ Basin
Well Ranch AE20 Flowline
 SWNW, Section 20, Township 6 North, Range 62 West
 Weld County, Colorado

Site Location Map

Figure
1



FIGURE 2
Site Overview Map



Legend

- Wells Ranch AE20 Flowline - 500 Ft Buffer
- Wells Ranch AE20 (Flowline) - Site Location
- Colorado Wetlands

0 200 400 Feet

Imagery Source: Google Earth; 2020 Google
Projection: WGS 1984 UTM Zone 13N

DATE: October 2024

DESIGNED BY: A. Cook

DRAWN BY: J. Woffinden



Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Noble Energy, Inc. – 100322 – DJ Basin
Wells Ranch AE20 Flowline
 SWNW, Section 20, Township 6 North, Range 62 West
 Weld County, Colorado

Site Overview Map

Figure
2



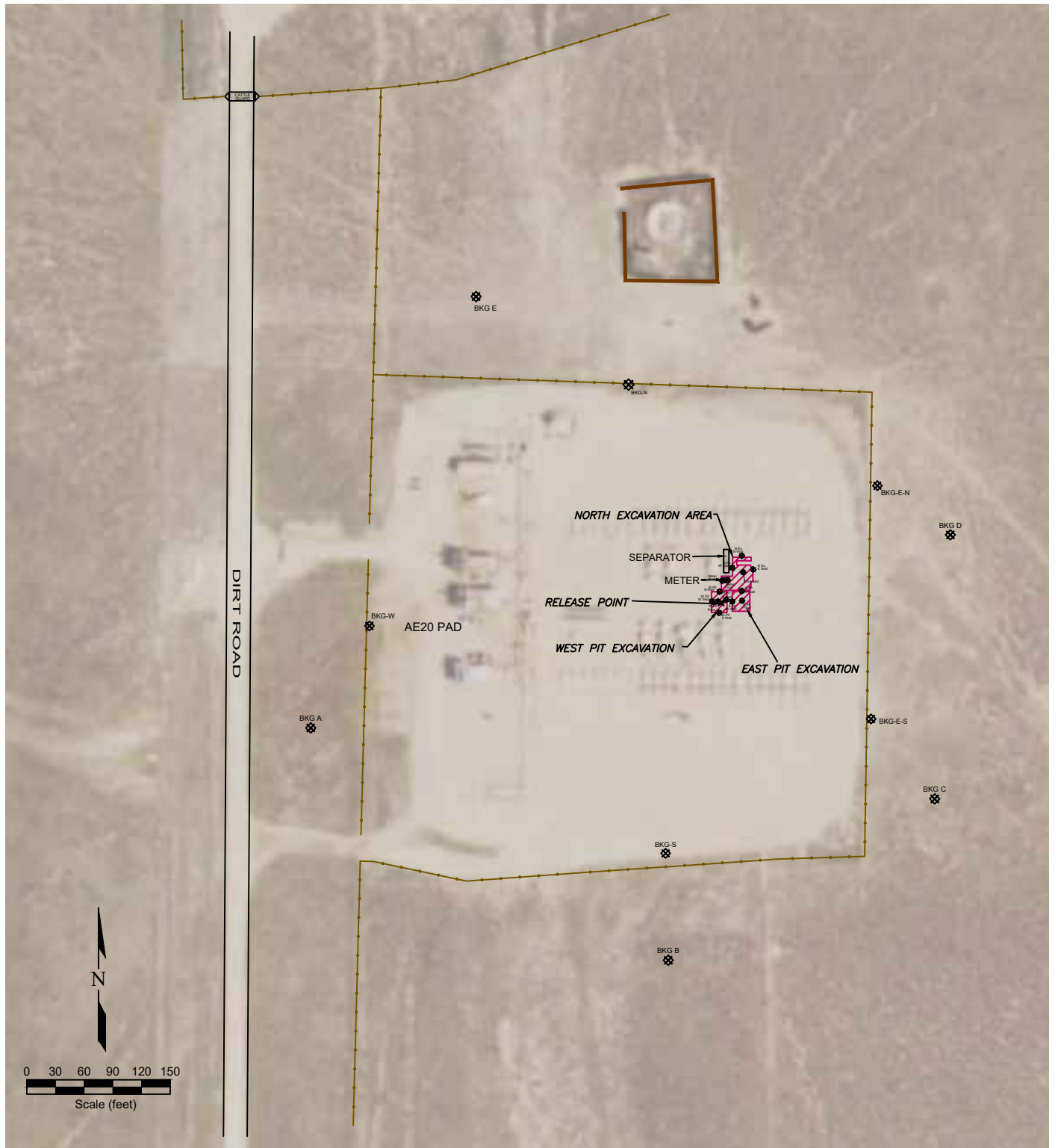
FIGURE 3 (Fremont)

Figure 3-A, Site Map

Figure 3-B, Inorganic Soil Chemistry Map

Figure 3-C, pH Soil Chemistry Map

Figure 4-D, Background Soil Chemistry Map



LEGEND

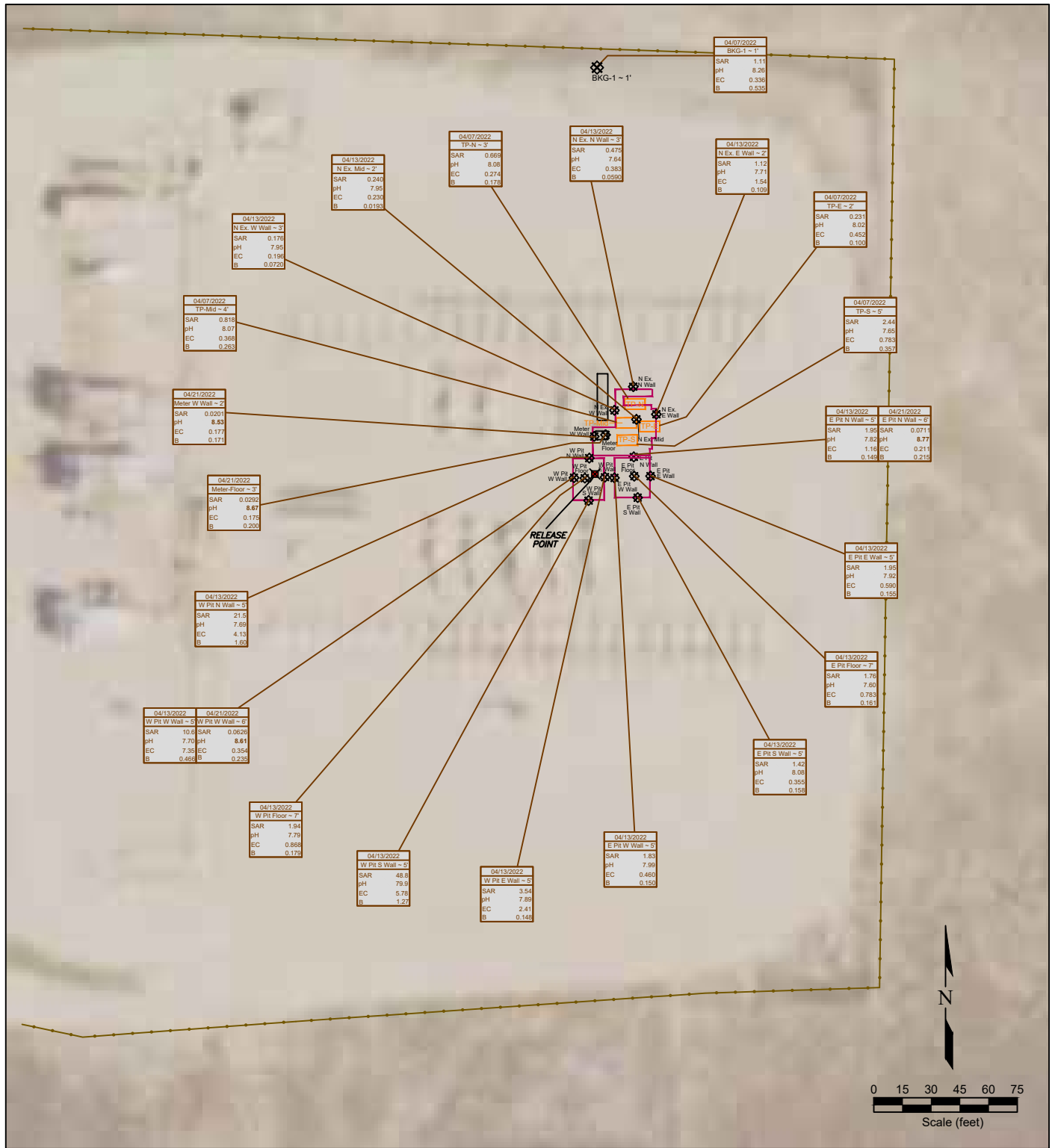
- RELEASE POINT
- SOIL SAMPLE LOCATION
- EXCAVATED AREAS
- EXTENT OF EXCAVATION
- CONTAINMENT WALL
- FENCE LINE

Figure 3-A.
SITE MAP

NOBLE ENERGY, INC.
WELLS RANCH AE20 FLOW LINE
 SWNW Sec. 20 T6N, R62W, 6th PM
 Weld County, Colorado
 40.473371°, -104.354575°

Project No. C022-037	Prepared by	Drawn by TA
Date 8/28/24	Reviewed by EB	Filename 22037Q1





LEGEND

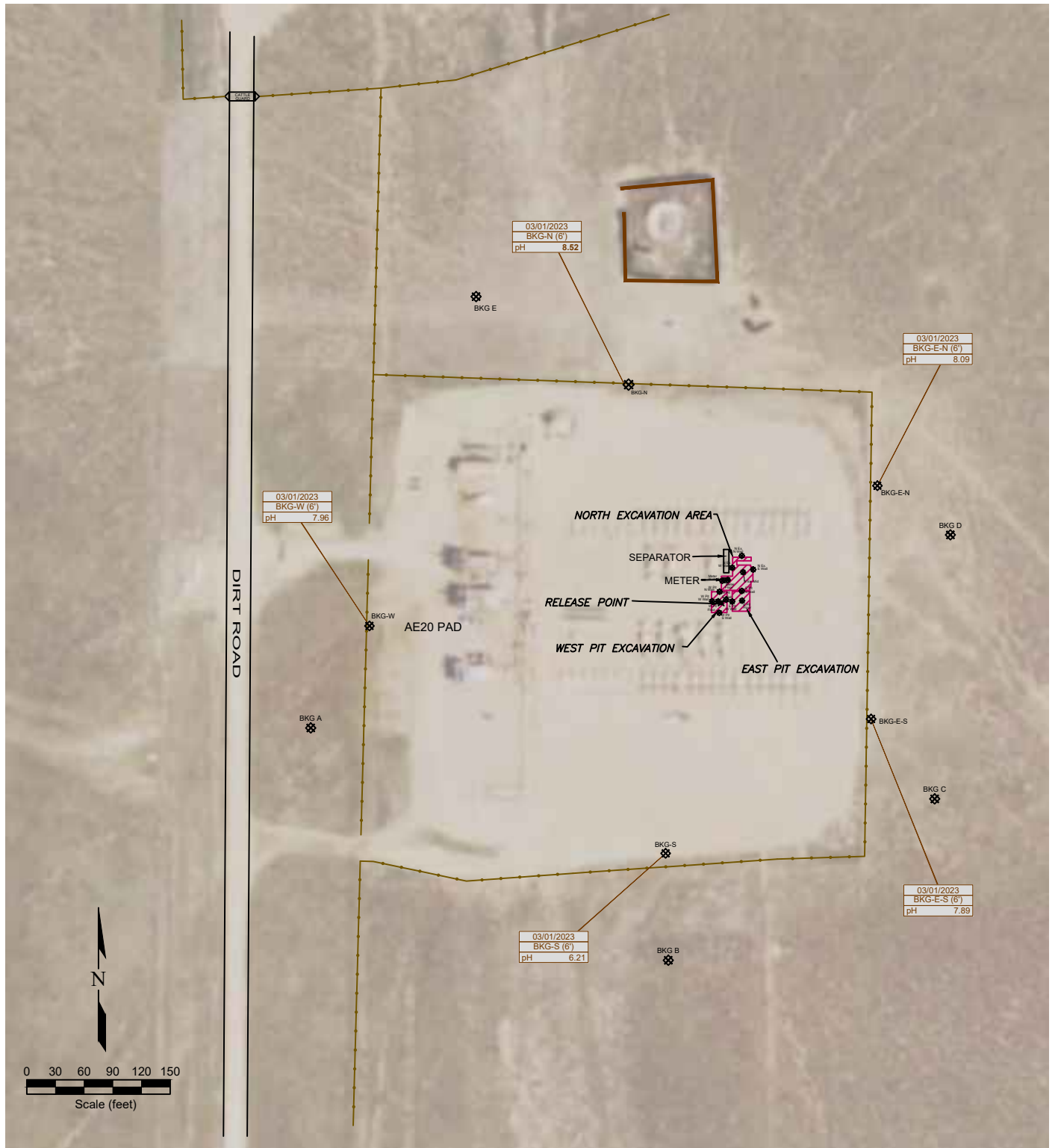
- ✖ RELEASE POINT
- ⊗ SOIL SAMPLE LOCATION
- ⊡ TEST PIT LOCATION
- ▭ EXCAVATED AREAS
- ▭ EXTENT OF EXCAVATION
- CONTAINMENT WALL
- FENCE LINE

04/07/2022	DATE SAMPLED
TP-N-3	SAMPLE ID & DEPTH (ft)
SAR 0.668	SAR (units)
pH 8.08	pH (pH units)
EC 0.274	EC (mmhos/cm)
B 0.178	BORON (mg/L)

Figure 3-B.
INORGANIC SOIL CHEMISTRY MAP
April 7, 2022; April 13, 2022; April 21, 2022
NOBLE ENERGY, INC.
WELLS RANCH AE20 FLOW LINE
SWNW Sec. 20 T6N, R62W, 6th PM
Weld County, Colorado
40.473371°, -104.354575°

Project No. C022-037	Prepared by	Drawn by TA
Date 8/28/24	Reviewed by EB	Filename 20037QQ





LEGEND

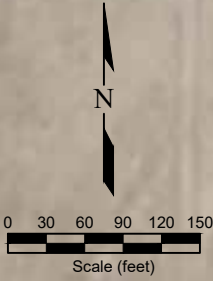
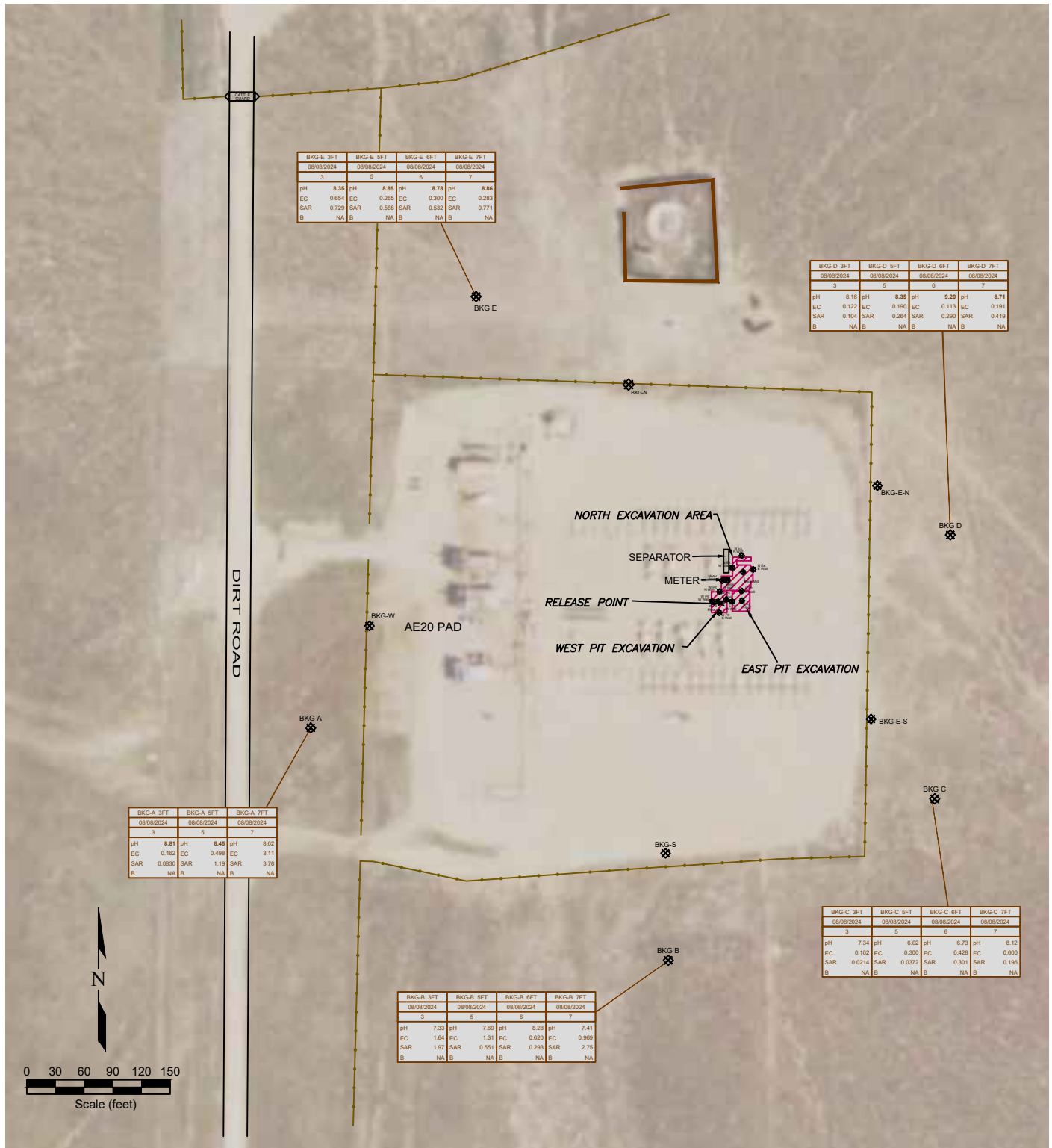
- RELEASE POINT
- SOIL SAMPLE LOCATION
- EXCAVATED AREAS
- EXTENT OF EXCAVATION
- CONTAINMENT WALL
- FENCE LINE

03/01/2023	DATE SAMPLED
BKG-N (6')	SAMPLE ID & DEPTH (ft)
pH 8.52	pH (pH units)

Figure 3-C.
pH SOIL CHEMISTRY MAP
 March 1, 2023
NOBLE ENERGY, INC.
WELLS RANCH AE20 FLOW LINE
 SWNW Sec. 20 T6N, R62W, 6th PM
 Weld County, Colorado
 40.473371°, -104.354575°

Project No. C022-037	Prepared by TA	Drawn by TA
Date 8/28/24	Reviewed by EB	Filename 22037Q1





LEGEND

- RELEASE POINT
- SOIL SAMPLE LOCATION
- EXCAVATED AREAS
- EXTENT OF EXCAVATION
- CONTAINMENT WALL
- FENCE LINE

BKGA-3FT	SAMPLE ID
08/08/2024	DATE SAMPLED
3	DEPTH (ft)
pH 8.81	pH (pH units)
EC 0.162	EC (microsiemens)
SAR 0.0630	SAR (units)
B NA	BORON (mg/L)

Figure 3-D.
BACKGROUND SAMPLE SOIL CHEMISTRY MAP
 August 8, 2024
NOBLE ENERGY, INC.
WELLS RANCH AE20 FLOW LINE
 SWNW Sec. 20 T6N, R62W, 6th PM
 Weld County, Colorado
 40.473371°, -104.354575°

Project No. C022-037	Prepared by	Drawn by TA
Date 8/28/24	Reviewed by EB	Filename 22037Q1





Table 1
Summary of Inorganic Soil Chemistry Data (Fremont)

TABLE 1
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.
WELLS RANCH AE20 (FLOW LINE), WELD COUNTY, COLORADO
FREMONT PROJECT NO. C022-037

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
TP-N 3 Ft	4/7/2022	3	8.08	0.274	0.669	0.178
TP-S 5 Ft	4/7/2022	5	7.65	0.783	2.44	0.357
TP-Mid 4 Ft	4/7/2022	4	8.07	0.368	0.818	0.236
TP-E 2 Ft	4/7/2022	2	8.02	0.452	0.231	0.1
BKG-1 1 Ft	4/7/2022	1	8.3	0.336	1.11	0.535
N. Ex. N Wall 3 Ft	4/13/2022	3	7.64	0.383	0.475	0.059
N. Ex. E Wall 2 Ft	4/13/2022	2	7.71	1.54	1.12	0.109
N. Ex. Mid 2 Ft	4/13/2022	2	7.95	0.23	0.24	0.0913
N. Ex. W Wall 3 Ft	4/13/2022	3	7.95	0.196	0.176	0.072
E Pit N Wall 5 Ft	4/13/2022	5	7.82	1.16	1.95	0.149
E Pit S Wall 5 Ft	4/13/2022	5	8.08	0.355	1.42	0.158
E Pit E Wall 5 Ft	4/13/2022	5	7.92	0.59	1.95	0.155
E Pit W Wall 5 Ft	4/13/2022	5	7.99	0.46	1.83	0.15
E Pit Floor 7 Ft	4/13/2022	7	7.6	0.783	1.76	0.161
W Pit N Wall 5 Ft	4/13/2022	5	7.69	4.13	21.5	1.6
W Pit S Wall 5 Ft	4/13/2022	5	7.79	5.78	48.8	1.27
W Pit E Wall 5 Ft	4/13/2022	5	7.89	2.41	3.54	0.148
W Pit W Wall 5 Ft	4/13/2022	5	7.7	7.35	10.6	0.466
W Pit Floor 7 Ft	4/13/2022	7	7.79	0.868	1.94	0.179
E PIT-N WALL 6FT	04/21/2022	6	8.77	0.211	0.0711	0.215
METER-FLOOR 3FT	04/21/2022	3	8.67	0.175	0.0292	0.2
METER-W WALL 2FT	04/21/2022	2	8.53	0.177	0.0201	0.171
W PIT-W WALL 6FT	04/21/2022	6	8.61	0.354	0.0626	0.235
BKG E-N 6FT	03/01/2023	6	8.09	NA	NA	NA
BKG E-S 6FT	03/01/2023	6	7.89	NA	NA	NA
BKG N 6FT	03/01/2023	6	8.52	NA	NA	NA

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
BKG S 6FT	03/01/2023	6	6.21	NA	NA	NA
BKG W 6FT	03/01/2023	6	7.96	NA	NA	NA
BKG-A 3FT	08/08/2024	3	8.81	0.162	0.083	NA
BKG-A 5FT	08/08/2024	5	8.45	0.498	1.19	NA
BKG-A 7FT	08/08/2024	7	8.02	3.11	3.76	NA
BKG-B 3FT	08/08/2024	3	7.33	1.64	1.97	NA
BKG-B 5FT	08/08/2024	5	7.69	1.31	0.551	NA
BKG-B 6FT	08/08/2024	6	8.28	0.62	0.293	NA
BKG-B 7FT	08/08/2024	7	7.41	0.969	2.75	NA
BKG-C 3FT	08/08/2024	3	7.34	0.102	0.0214	NA
BKG-C 5FT	08/08/2024	5	6.02	0.3	0.0372	NA
BKG-C 6FT	08/08/2024	6	6.73	0.428	0.301	NA
BKG-C 7FT	08/08/2024	7	8.12	0.6	0.196	NA
BKG-D 3FT	08/08/2024	3	8.16	0.122	0.104	NA
BKG-D 5FT	08/08/2024	5	8.35	0.19	0.264	NA
BKG-D 6FT	08/08/2024	6	9.2	0.113	0.29	NA
BKG-D 7FT	08/08/2024	7	8.71	0.191	0.419	NA
BKG-E 3FT	08/08/2024	3	8.35	0.654	0.729	NA
BKG-E 5FT	08/08/2024	5	8.85	0.265	0.568	NA
BKG-E 6FT	08/08/2024	6	8.78	0.3	0.532	NA
BKG-E 7FT	08/08/2024	7	8.86	0.283	0.771	NA

Bold faced values exceed the ECMC Table 915-1 concentrations

Yellow highlighted 915-1 Limits indicate the referenced soil screening level (SSL)



Table 2
Summary of Metals in Soil Chemistry Data

TABLE 2
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
WELLS RANCH AE20 (FLOW LINE), WELD COUNTY, COLORADO
FREMONT PROJECT NO. C022-037

Sample ID	Sample Date	Depth (ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
COGCC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
TP-N 3 Ft	4/7/2022	3	2.23	63.8	0.122	<0.25	5.43	6.11	6.42	0.2	0.0211	27.3
TP-S 5 Ft	4/7/2022	5	3.12	62.1	0.0992	<0.244	6.33	8.95	6.64	0.232	0.0255	31.1
TP-Mid 4 Ft	4/7/2022	4	2.09	53.9	0.108	<0.247	5.61	5.39	5.95	0.233	0.021	26.6
TP-E 2 Ft	4/7/2022	2	3.93	56.6	0.114	<0.245	5.59	6.58	7.78	0.275	0.0177	27.6
BKG-1 1 Ft	4/7/2022	1	2.15	87.4	0.079	<0.244	4.06	4.78	5.04	0.322	0.0136	20.3
N. EX. N WALL 2FT	4/13/2022	2	2.26	69.8	<0.205	<0.30	3.31	3.03	4.27	0.486	<0.0205	17
N. EX. E WALL 2FT	4/13/2022	2	4.61	87.8	<0.226	<0.30	8.5	8.18	9.62	0.788	0.0295	53.8
N. EX. MID 2FT	4/13/2022	2	3.57	95.7	<0.229	<0.30	5.85	6.87	7.94	0.647	<0.0229	34.5
N. EX. W WALL 3FT	4/13/2022	3	3.56	82.9	<0.227	<0.30	5.78	6.41	7.81	0.701	<0.0227	36.7
E PIT N WALL 5FT	4/13/2022	5	4.45	90.7	<0.241	<0.30	6.51	9.88	7.83	0.728	0.0308	38.8
E PIT SWALL 5FT	4/13/2022	5	5.85	109	<0.232	<0.30	6.77	7.68	7.15	0.773	0.0303	32.6
E PIT E WALL 5FT	4/13/2022	5	4.09	82.3	<0.242	<0.30	7.15	7.12	8.35	0.812	0.0276	38.4
E PIT W WALL 5FT	4/13/2022	5	4.13	173	<0.262	<0.30	5.53	7.03	8.34	0.761	0.0297	35.5
E PIT FLOOR 7FT	4/13/2022	7	13.7	93.7	<0.255	<0.30	19.3	23.6	9.94	0.885	0.08	11.7
WPIT N WALL 5FT	4/13/2022	5	6.43	109	<0.235	<0.30	7.35	9.55	12.2	0.963	0.0644	43.7
WPIT SWALL 5FT	4/13/2022	5	5.44	85.9	<0.246	<0.30	8.22	7.95	8.87	0.909	0.0371	44.1
WPIT E WALL 5FT	4/13/2022	5	7.88	77.3	<0.239	<0.30	8.37	9.1	7.55	0.799	0.0364	42
WPIT W WALL 5FT	4/13/2022	5	5.19	108	<0.231	<0.30	5.53	7.55	8.86	0.762	0.0293	35.4
WPIT FLOOR 7FT	4/13/2022	7	31	39	<0.252	<0.30	18.3	13	6.59	0.657	0.0809	27.7
E PIT-N WALL 6FT	04/21/2022	6	4.81	70.4	0.389	<0.30	9.73	9.14	11	1.09	0.0396	55.8
METER-FLOOR 3FT	04/21/2022	3	3.91	73.1	<0.229	<0.30	6.25	7	7.07	0.698	0.0307	36.5
METER-W WALL 2FT	04/21/2022	2	3.48	176	<0.229	<0.30	4.82	5.71	6.64	0.599	0.035	24.7
W PIT-W WALL 6FT	04/21/2022	6	5.01	101	<0.238	<0.30	7.12	7.75	9.46	0.735	0.0378	37.8
BKG E-N 6FT	03/01/2023	6	1.41	85.8	0.123	<0.30	3.23	3.64	2.43	<0.260	0.014	12.6
BKG E-S 6FT	03/01/2023	6	1.55	344	0.137	<0.30	4.21	3.38	2.94	<0.260	0.0177	14.4
BKG N 6FT	03/01/2023	6	2.87	61.8	0.129	<0.30	2.54	4.14	3.02	<0.260	0.0134	10.3
BKG S 6FT	03/01/2023	6	1.64	22.5	0.11	<0.30	3.93	5.51	2.28	<0.260	0.0214	15.5
BKG W 6FT	03/01/2023	6	1.45	78.4	0.129	<0.30	3.88	4.78	2.55	<0.260	0.0158	15.6

Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

NA - Not analyzed



ATTACHMENT A
Vegetation Monitoring Report



Project: Wells Ranch AE20 Flowline

Date & Time: 10/15/2024 09:39

Tasman Personnel: Alex Cook

Weather: Sunny, Windy (5-15 mph), 54F

Client: Noble Energy Inc.

Stormwater Issues: None Observed

Debris/Trash On-Site: None Observed

Equipment On-Site: Yes active facility pad.

Observations:

The Site has returned to active production. Clean fill soil and road base has been emplaced following the remediation excavation extent. Background reference vegetation collected in the northeastern corner of the pad. The species observed include buffalo grass, blue grama, green needle grass, *kochia*, and Russian thistle.

	<u>Site Status</u>	<u>Comments</u>
Vegetation Present?	<u>Yes</u>	<u>Mixed grasses and weeds.</u>
Noxious or invasive weeds present?	<u>Yes</u>	<u><i>Kochia</i></u>
Have weeds been managed according to the narrative?	<u>No</u>	<u>Initial site assessment.</u>

Photo Log (descriptions below)



P1 - Looking north from the center of the Site excavation. The facility has returned to production following the excavation.

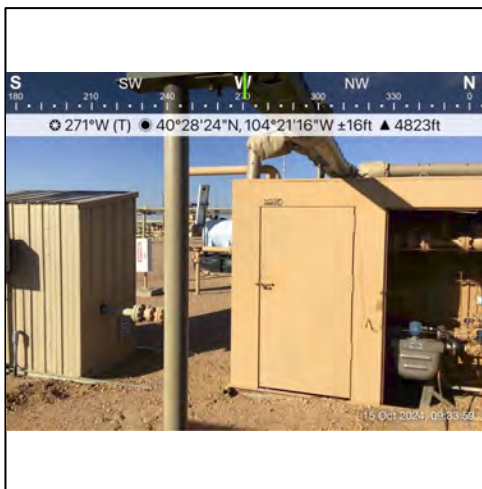


P2 - Looking east from the center of the Site excavation. The facility has returned to production following the excavation.



P3 - Looking south from the center of the Site excavation. The facility has returned to production following the excavation.

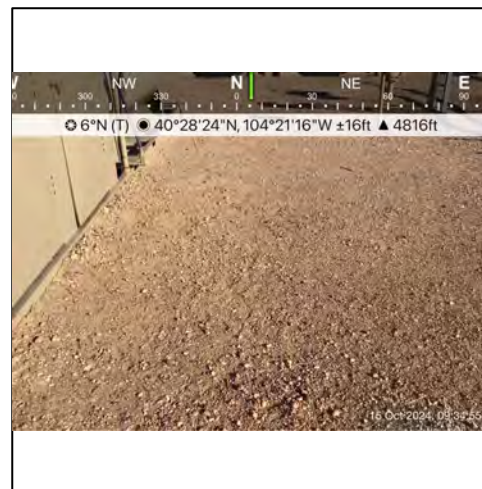
Photo Log Continued (descriptions below)



P4 - Looking west from the center of the Site excavation. The facility has returned to production following the excavation.



P5 - Excavation area up close, clean backfill and road base has been emplaced to match the existing Site contour.



P6 - Excavation area up close, clean backfill and road base has been emplaced to match the existing Site contour.



P7 - Excavation area up close, clean backfill and road base has been emplaced to match the existing Site contour.



P8 - Looking north at the on-Site vegetation located in the northeast corner of the facility pad. Mixed grass and weed growth present.



P9 - Looking east at the on-Site vegetation located in the northeast corner of the facility pad. Mixed grass and weed growth present.



P10 - Looking south at the on-Site vegetation located in the northeast corner of the facility pad. Mixed grass and weed growth present.



P11 - Looking west at the on-Site vegetation located in the northeast corner of the facility pad. Mixed grass and weed growth present.



P12 - Vegetation growth up close, buffalo grass, blue grama, green needlegrass, *kochia*, and Russian thistle.



Legend

--- Excavation Extent
(Collected via Trimble GPS)

⊕ Photo Location

Notes

1) All locations are approximate unless otherwise noted.
2) Buried infrastructure has been spatially projected

GPS – Global Positioning System

0 ft. 50 ft. 100 ft.

Image Source: Google Earth; Google 2021
Projection: WGS 1984, UTM Zone 13 North

DATE: October 24, 2024

DESIGNED BY: A. Cook

DRAWN BY: A. Cook



Tasman, Inc.
6855 W 119th Avenue
Broomfield, CO 80020

Noble Energy, Inc. – 100322 – DJ Basin
Wells Ranch AE20 Flowline
SWNW, Section 20, Township 6 North, Range 62 West
Weld County, Colorado

Reclamation Site Visit Map

FIGURE
1



ATTACHMENT B
UDSA Custom Soil Resources Map and Report

Custom Soil Resource Report for Weld County, Colorado, Southern Part

Wells Ranch AE20 Flowline



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

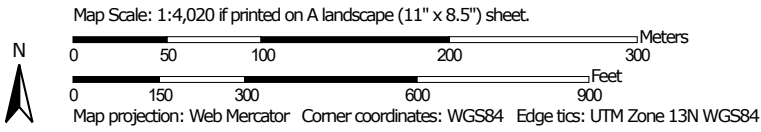
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map


The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map (Wells Ranch AE20 Flowline)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
 Survey Area Data: Version 23, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2021—Jun 12, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Wells Ranch AE20 Flowline)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
44	Olney loamy sand, 1 to 3 percent slopes	23.2	37.8%
72	Vona loamy sand, 0 to 3 percent slopes	7.7	12.5%
74	Vona loamy sand, 5 to 9 percent slopes	30.5	49.7%
Totals for Area of Interest		61.3	100.0%

Map Unit Descriptions (Wells Ranch AE20 Flowline)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Weld County, Colorado, Southern Part

44—Olney loamy sand, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 362r
Elevation: 4,600 to 5,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 125 to 175 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Olney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Olney

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed deposit outwash

Typical profile

H1 - 0 to 10 inches: loamy sand
H2 - 10 to 20 inches: sandy clay loam
H3 - 20 to 25 inches: sandy clay loam
H4 - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Vona

Percent of map unit: 8 percent

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Hydric soil rating: No

Zigweid

Percent of map unit: 7 percent

Hydric soil rating: No

72—Vona loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 363r

Elevation: 4,600 to 5,200 feet

Mean annual precipitation: 13 to 15 inches

Mean annual air temperature: 48 to 55 degrees F

Frost-free period: 130 to 160 days

Farmland classification: Farmland of local importance

Map Unit Composition

Vona and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vona

Setting

Landform: Plains, terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 6 inches: loamy sand

H2 - 6 to 28 inches: fine sandy loam

H3 - 28 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

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Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Remmit

Percent of map unit: 10 percent
Hydric soil rating: No

Valent

Percent of map unit: 5 percent
Hydric soil rating: No

74—Vona loamy sand, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j9
Elevation: 4,100 to 5,200 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 130 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Vona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vona

Setting

Landform: Hillslopes, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Eolian sands

Typical profile

A - 0 to 7 inches: loamy sand
Bt1 - 7 to 14 inches: sandy loam
Bt2 - 14 to 20 inches: sandy loam
Bk - 20 to 45 inches: sandy loam
C - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Ecological site: R067BY015CO - Deep Sand

Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 5 percent

Landform: Interfluves

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R067BY024CO - Sandy Plains

Hydric soil rating: No

Manter

Percent of map unit: 5 percent

Landform: Interfluves, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Ecological site: R067BY024CO - Sandy Plains

Hydric soil rating: No

Olnest

Percent of map unit: 3 percent

Landform: Hills, interfluves

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, interfluve

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Ecological site: R067BY024CO - Sandy Plains

Hydric soil rating: No

Valent

Percent of map unit: 2 percent

Landform: Dunes

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Ecological site: R067BY015CO - Deep Sand

Hydric soil rating: No

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