55 E, 4th Ave.
Denver, CO 80203
www.quandaryconsultants.com

July 31, 2020

Jennifer Lind
Vice President, Regulatory & Environmental
Nickel Road Operating LLC
1600 Stout St #1850
Denver, CO 80202

Wetland Location Review: Blehm Pad Oil and Gas Location

LOCATION:

Name: Blehm Pad Oil and Gas Location
Legal Description: Section 9, Township 7N, Range 67W, 6th PM
County, State: Weld County, Colorado

INTRODUCTION AND BACKGROUND:

Quandary Consultants, LLC (Quandary) completed a wetland location review for the proposed Blehm Pad (Location) and lease road. The legal description for the Location is; Section 9, Township 7 North, Range 67 West, Weld County, Colorado. The wetland location review was conducted on July 21, 2020. Quandary also conduct a depth to groundwater review on July 21, 2020 utilizing a hand-auger. Hand auger sample points are identified as (SB01, and SB02) on Blehm Pad Water Resources Findings Map (Figure 1). Photographs of the Location are provided in the attachments.

According to the National Wetland Inventory (NWI), National Hydrography Dataset (NHD) mapped data, and Aerial images from Google Earth (2020), the Location is approximately 440 feet north of an NWI mapped wetland and the proposed lease road is 385 feet north from NWI mapped wetland. The wetland is classified as a Freshwater Emergent wetland, at 1.83 acres. It is fed by two merging seasonal riverines.

The Location or proposed lease road do not intersect or impact the NWI mapped wetland or associated floodplains. The identified wetlands and surface waters are presented on Figure 1. Based on the onsite survey, sampling points, and onsite wetland determination there is no

potential wetland disturbance. Quandary assumes the Location's proposed lease road will be no wider than 30-feet.

Onsite wetland determination and associated delineations occurred July 21, 2020. Two sample points (SB01, SB02) were tested according to the 1987 Army Corps Wetland Delineation Manual and Great Plains Supplement to determine if there were characteristics for wetland hydrology, hydrophytic vegetation, and hydric soils.

The presence of hydrophytic vegetation was determined using indicators stated in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The primary indicator of hydrophytic vegetation is areas having more than 50 percent of the dominant species being obligate wetland plants (OBL), facultative wetland plants (FACW), or facultative plants (FAC).

Wetland hydrology is determined to be present if water tends to collect or flow, either permanently or periodically, from a direct water source, or if the soils and local conditions were such that groundwater remains close to the soil surface during the hydrophytic vegetation growing season. Soil pits were dug using procedures outlined in the 1987 Corps of Engineers Manual. Pits were dug to a depth of approximately 16 inches if possible.

Soil samples were examined in the field by hand texturing, using a Munsell Soil Color Chart and Pocket Guide to Hydric Soil Field Indicators, and assessing soil features such as mottling. The Locations' proposed lease road interaction of First Creek was determined to be wetland. Wetland Determination Data Forms completed on are provided as an attachment to this report. There is no expected wetland disturbance, based on proposed Location and lease road.

This report addresses information specific to the presence/absence of potential wetlands that may be affected by the activities associated with the development of the Location. Additionally, this letter documents compliance with the U.S. Clean Water Act Sections 401 and 404, if jurisdictional wetlands are identified within the disturbance area for the Location.

Quandary utilized public data including; NWI, United States Army Corps of Engineers (USACE), NHD, Colorado Division of Water Resources (CDWR), Federal Emergency Management Agency (FEMA), data and Google Earth NAIP 2020 imagery to perform review for the Location.

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RESULTS:

The Location is currently dry pasture with native grasses. The proposed lease road enters the Location from County Road 19, and goes northwest into the Location. The Location or proposed pad location do not intersect any NWI, NHD or FEMA mapped areas. No wetland disturbance is expected.

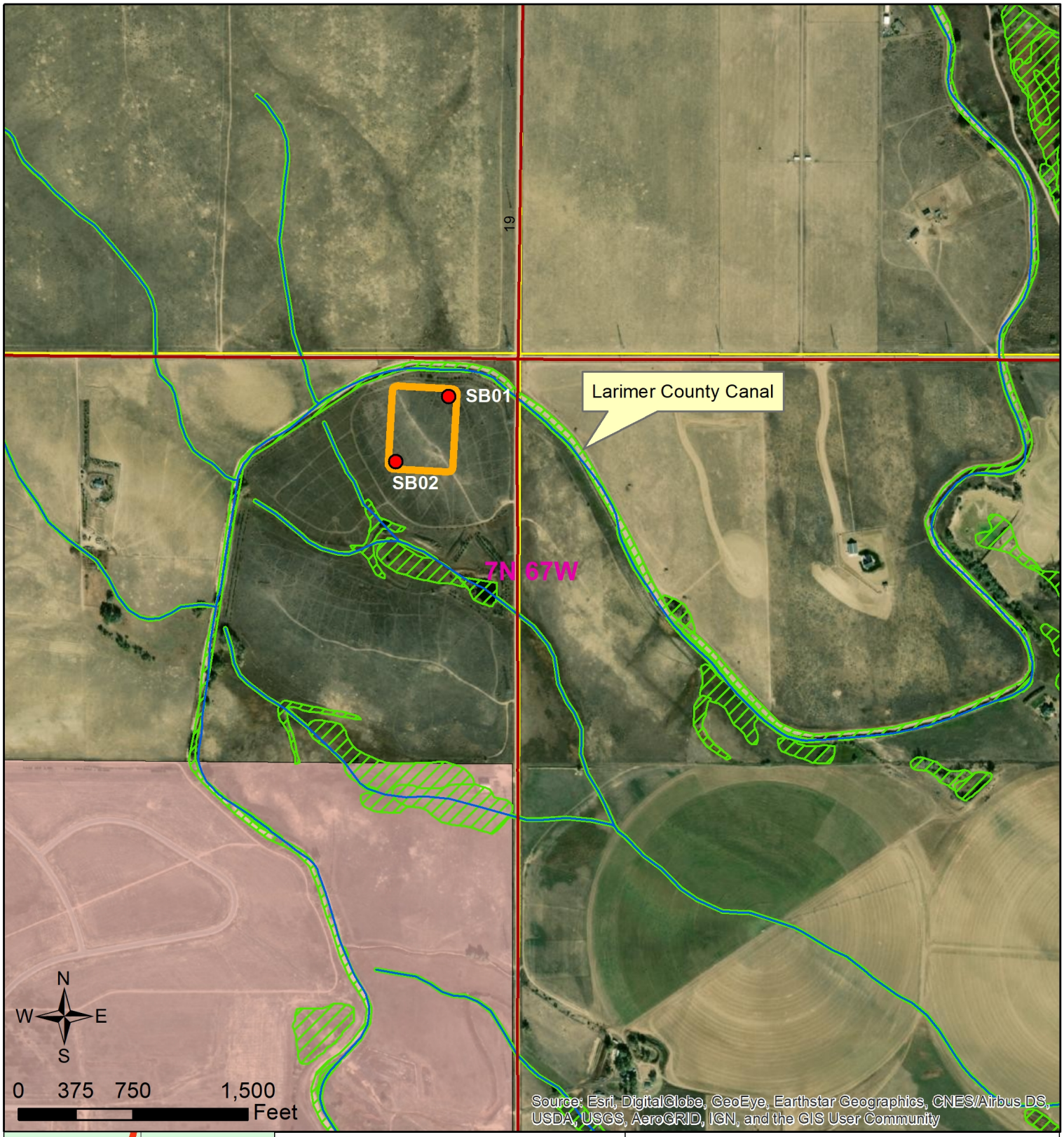
Two soil borings (SB01 and SB02) were advanced using a hand auger to determine depth to groundwater. Groundwater at SB01 was encountered at 7 feet below ground surface (bgs). SB01 is presented on Figure 1, and was advanced in the northeast corner of the Location. SB02 encountered soil refusal at 9 feet bgs, with no groundwater encountered.

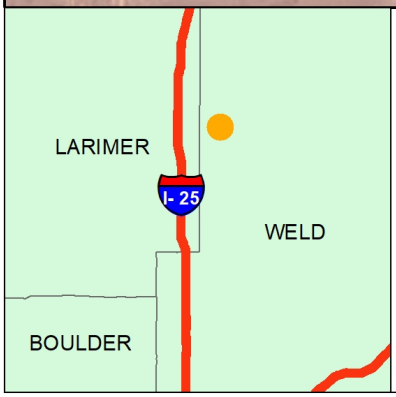
Thanks,

Matt Harrison
Co-Founder
Quandary Consultants, LLC.

ATTACHMENTS:

Figure 1. Blehm Pad Water Resources Map
Figure 2. Blehm Pad Topography Map
Wetland Determination Data Forms (SB01-SB02)
Blehm ISA Field Survey Form
Location Photographs





Legend

- Blehm Pad
- Soil Boring Points
- Lakes - CDOT
- Roads
- Wetlands - NWI
- 100 yr Floodplain
- Municipalities
- PLSS Sections
- PLSS Township/Range
- Streams/Canals - NHD

Figure 1. Blehm Pad Water Resources Map

Client: Nickel Rd Operating LLC

Author: Erin Bailey Date 7/22/2020

NAD 1983 UTM Zone 13N

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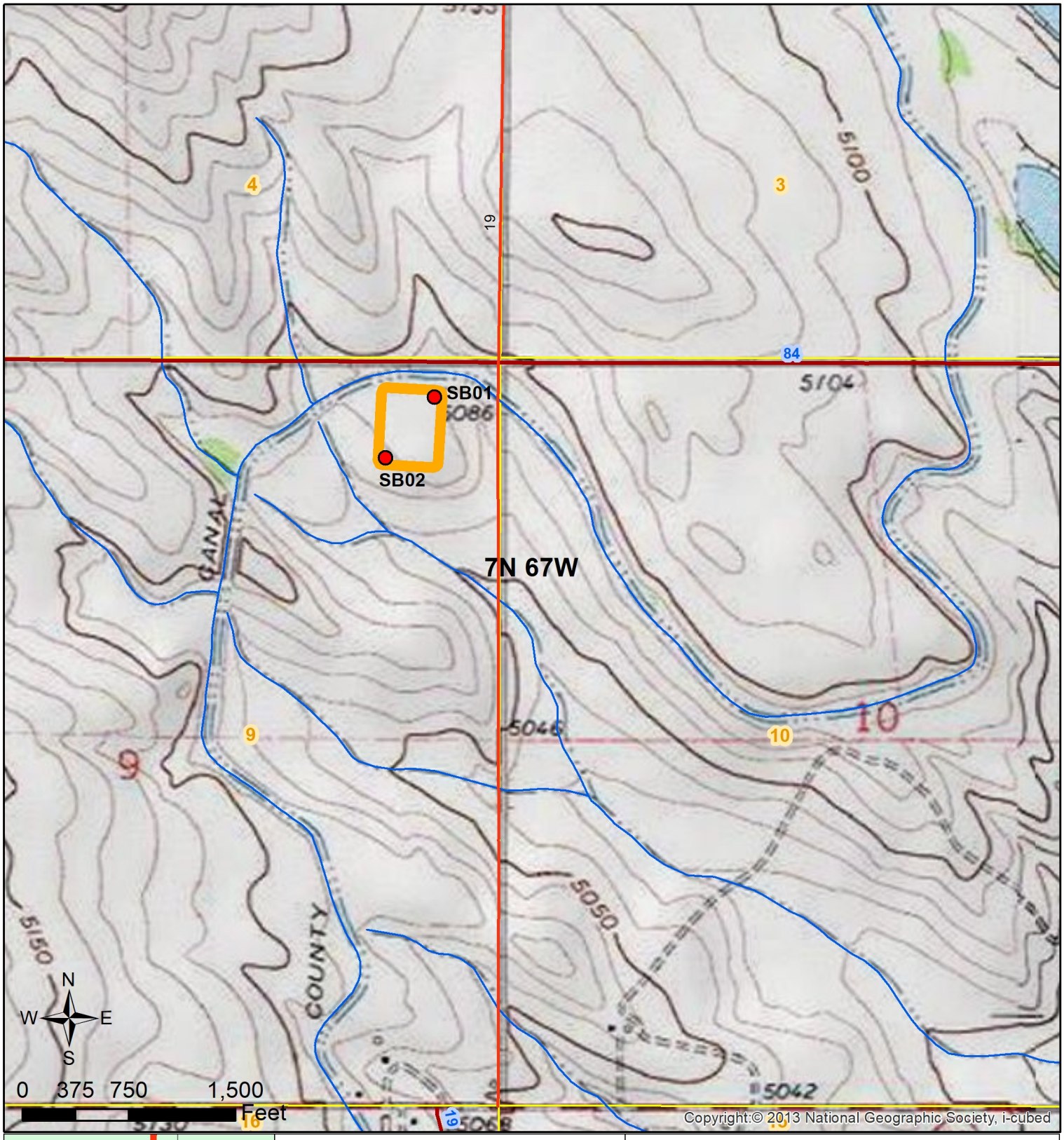

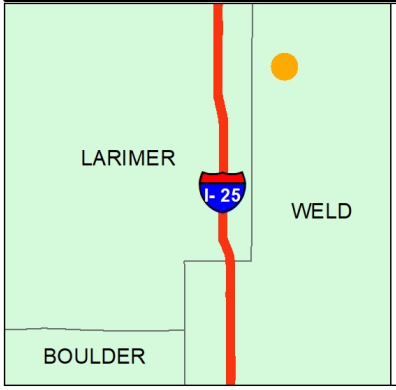

Legend

- Blehm Pad
- Roads
- Streams/Canals - NHD
- PLSS Section
- PLSS Township/Range
- Soil Boring Points

Figure 2. Blehm Pad Topography Map

Client: Nickel Rd Operating LLC

Author: Erin Bailey Date 7/22/2020

NAD 1983 UTM Zone 13N

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WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Blehm Pad City/County: Weld County Sampling Date: 7/21/20

Applicant/Owner: Nickel Road Operating State: CO Sampling Point: SB01

Investigator(s): M. Harrison Section, Township, Range: 9, 7N, 67W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): W. Great Plains Lat: 40.595371 Long: -104.890134 Datum: NAD83

Soil Map Unit Name: Renohill clay loam NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 6'x6')	Absolute % Cover	Dominant Species?	Indicator Status
1. No trees	0	NA	NA
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 6'x6')			
1. Rabbitt brush	5	No	UPL
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 6'x6')			
1. Field bindweed	5	No	UPL
2. Native Grasses	70	Yes	UPL
3. Garlic Mustard	10	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. NA	0	NA	NA
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	90	x 5 =	450
Column Totals:	90 (A)		450 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	6/5YR		NA				Sandy	Depth to groundwater 7' below surface

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks: No water present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland characteristics observed

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Blehm Pad City/County: Weld County Sampling Date: 7/21/20

Applicant/Owner: Nickel Road Operating State: CO Sampling Point: SB02

Investigator(s): M. Harrison Section, Township, Range: 9, 7N, 67W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): W. Great Plains Lat: 40.594052 Long: -104.891559 Datum: NAD83

Soil Map Unit Name: Renohill clay loam NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 6'x6')	Absolute % Cover	Dominant Species?	Indicator Status
1. No trees	0	NA	NA
2.			
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4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 6'x6')			
1. Rabbitt brush	5	No	UPL
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1. Field bindweed	5	No	UPL
2. Native Grasses	70	Yes	UPL
3. Garlic Mustard	10	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. NA	0	NA	NA
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	6/7.5YR		NA					Refusal at 12' below ground surface

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
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- ___ Depleted Dark Surface (F7)
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- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

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- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
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- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland characteristics observed

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Initial Site Assessment (ISA) Field Inspection Form

Location Name: Bleham Pad	**Surveyor Name: M. Harrison**
Survey Date: 7/21/2020	**Survey Time: 930**
Operator: Nickel Road Operating	**Weather Conditions: Sunny, 80's**
Water Resources:	
Is the Location or Lease Road within 500-feet of a **DOWN GRADIENT** surface water (stream, lake, canal or wetland)? (Y/N)	Yes, Pad slopes towards south/southeast
Potential Wetlands within 500-feet of Location or Lease Road?	Yes, wetland is located 440' south of Pad and 385' south of lease road.
Potential WOTUS or WOTUS receptors within 500-feet of Location or Lease Road?	Yes, 440' south of Pad.
Wildlife:	
Any Raptor/Eagle nest within 0.50-half mile of Location?	No
Any sensitive habitats identified on or adjacent to the Location (dens, burrows)?	No burrows observed within Pad.
BTPD burrows present/Burrowing Owl habitat?	No
Swift Fox burrows present?	No
Potential PMJM habitat present?	No
Vegetation and Soil:	
Current land use/vegetation on Location?	Native grass dry pasture, rabbit shrub, mustard weed, field bindweed.
Waste:	
Any unmarked drums or containers stored on location?	No
Any waste not properly contained on location?	No
Are there are any pits currently being used or signs of previously used pits on location?	No

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Notes/Observations:

No wetlands within the Pad or lease road. Pad location is dry pasture with slopes south and southeast.

SW Pad Corner: Vegetation; native grasses, field bindweed, rabbit bush, mustard weed. Sloped to the southwest, no surface water or signs of wetlands. Refusal at 12' below ground surface, no water encountered.

SE Pad Corner: Vegetation; native grasses, field bindweed, rabbit bush. Sloped to the east/southeast, no surface water or signs of wetlands.

NE Pad Corner: Vegetation; native grasses, field bindweed, rabbit bush. Sloped to the east/southeast, no surface water or signs of wetlands. Depth to groundwater is 7' below ground surface.

NW Pad Corner: Vegetation; native grasses, field bindweed, rabbit bush. Sloped to the east/southeast, no surface water or signs of wetlands.

Lease Road: Vegetation; native grasses, field bindweed, rabbit bush. No wetlands.

Site Sketch:

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Photo 1. Location vegetation, native grasses.

Photo 2. Location vegetation, rabbit bush.

Photo 3. Location, facing north.

Photo 4. Location lease road stake, native grasses.

Photo 5: Example of vegetation on location.

Photo 6: Larimer County Canal, north of location.