



### Legend

- Proposed Access Road
- Proposed Oil and Gas Location
- Proposed Working Pad Surface
- One Mile Buffer

### Soil Types

- CpB, Caletmore silt loam, 0 to 3 percent slopes
- OeC, Otero sandy loam, 3 to 6 percent slopes
- WC, Plughat-Villegreen complex, 1 to 4 percent slopes

Source: NRCS July 2020

Date Saved: 1/11/2023 7:02 PM

0 0.25 0.5 Miles

**PROJECT LOCATION**  
Las Animas County, Colorado

**COLORADO**  
**NEW MEXICO**

**BNL (Enterprise) Inc.**  
Jackson 02 L4 3154  
Sec. 2 T31S R54W Lot 4 (NW/4 NW/4)  
Las Animas County, Colorado  
Surface: Fee  
**SOILS**

Coordinate System: NAD 83 StatePlane  
Colorado South FIPS 0503 Feet

Prepared By: REDHAWK GIS

## Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties

### CpB—Calemore silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3jlv  
*Elevation:* 5,000 to 6,500 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 50 to 53 degrees F  
*Frost-free period:* 130 to 155 days  
*Farmland classification:* Prime farmland if irrigated

#### Map Unit Composition

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

#### Description of Calemore

##### Setting

*Landform:* Plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loess and/or silty alluvium

##### Typical profile

*A - 0 to 7 inches:* silt loam  
*Bt1 - 7 to 11 inches:* silty clay loam  
*Bt2 - 11 to 20 inches:* silty clay loam  
*Btk1 - 20 to 36 inches:* clay loam  
*Btk2 - 36 to 42 inches:* silty clay loam  
*Bk - 42 to 65 inches:* silt loam

##### Properties and qualities

*Slope:* 0 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 (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 35 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0  
mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.9 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 2e  
*Land capability classification (nonirrigated):* 4c  
*Hydrologic Soil Group:* C  
*Ecological site:* R067BY002CO - Loamy Plains  
*Forage suitability group:* Loamy (G067BW017CO)  
*Other vegetative classification:* Loamy Plains #2  
(067XY002CO\_2), Loamy (G067BW017CO)  
*Hydric soil rating:* No

### **Minor Components**

#### **Baca**

*Percent of map unit:* 5 percent  
*Landform:* Plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy Plains #2 (067XY002CO\_2),  
Clayey (G067BW001CO)  
*Hydric soil rating:* No

#### **Raku**

*Percent of map unit:* 5 percent  
*Landform:* Depressions, drainageways, plains  
*Landform position (three-dimensional):* Dip, talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy Plains #2 (067XY002CO\_2),  
Loamy (G067BW017CO)  
*Hydric soil rating:* No

#### **Wiley**

*Percent of map unit:* 5 percent  
*Landform:* Plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy Plains #2 (067XY002CO\_2),  
Loamy (G067BW017CO)  
*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Las Animas County Area, Colorado, Parts of Huerfano and  
Las Animas Counties

Survey Area Data: Version 24, Aug 31, 2021



Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties



Map unit symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		<i>Lb/ac</i>	<i>Lb/ac</i>	<i>Lb/ac</i>		<i>Pct</i>
CpB—Calemore silt loam, 0 to 3 percent slopes						
Calemore	R067BY002CO: Loamy Plains	1,900	1,350	600	Blue grama	30
					Western wheatgrass	25
					Green needlegrass	10
					Winterfat	5
					Buffalograss	3
					American vetch	3
					Purple prairieclover	2
					Scarlet globemallow	2
					Sedge	2

## Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties

### OeC—Otero sandy loam, 3 to 6 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2w4pk  
*Elevation:* 3,410 to 6,420 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 50 to 54 degrees F  
*Frost-free period:* 130 to 170 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Otero

##### Setting

*Landform:* Interfluves, hillslopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Old alluvium and/or eolian deposits

##### Typical profile

*A - 0 to 6 inches:* sandy loam  
*Bw - 6 to 14 inches:* sandy loam  
*Bk - 14 to 79 inches:* sandy loam

##### Properties and qualities

*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Runoff class:* Low  
*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:* 8 percent  
*Maximum salinity:* Very slightly saline (2.0 to 3.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 6.6  
inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 4c

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

### **Minor Components**

#### **Vona**

*Percent of map unit:* 10 percent  
*Landform:* Interfluves, hillslopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY024CO - Sandy Plains  
*Hydric soil rating:* No

#### **Ascalon**

*Percent of map unit:* 3 percent  
*Landform:* Interfluves, hillslopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY024CO - Sandy Plains  
*Hydric soil rating:* No

#### **Kandrix**

*Percent of map unit:* 2 percent  
*Landform:* Interfluves, hillslopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Las Animas County Area, Colorado, Parts of Huerfano and  
Las Animas Counties

Survey Area Data: Version 25, Sep 7, 2022

Report — Rangeland Productivity and Plant Composition



Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties



Map unit symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		<i>Lb/ac</i>	<i>Lb/ac</i>	<i>Lb/ac</i>		<i>Pct</i>
OeC—Otero sandy loam, 3 to 6 percent slopes						
Otero	Sandy Plains (R067BY024CO)	2,200	1,650	800	blue grama	25
					prairie sandreed	20
					needleandthread	10
					sand bluestem	10
					switchgrass	8
					western wheatgrass	7
					little bluestem	5
					sand dropseed	3
					sideoats grama	3
					western sandcherry	3
					spreading buckwheat	2

## Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties

### WC—Plughat-Villegreen complex, 1 to 4 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2tqxn  
*Elevation:* 4,900 to 5,800 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 50 to 54 degrees F  
*Frost-free period:* 130 to 170 days  
*Farmland classification:* Prime farmland if irrigated

#### Map Unit Composition

*Plughat and similar soils:* 43 percent  
*Villegreen and similar soils:* 41 percent  
*Minor components:* 16 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Plughat

##### Setting

*Landform:* Interfluves  
*Landform position (two-dimensional):* Shoulder, summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loess over residuum weathered from sandstone

##### Typical profile

*A - 0 to 3 inches:* silt loam  
*Bt1 - 3 to 6 inches:* silty clay loam  
*Bt2 - 6 to 13 inches:* silty clay loam  
*Btk - 13 to 27 inches:* silty clay loam  
*Bk1 - 27 to 34 inches:* silt loam  
*2Bk2 - 34 to 48 inches:* loam  
*2R - 48 to 79 inches:* bedrock

##### Properties and qualities

*Slope:* 1 to 4 percent  
*Depth to restrictive feature:* 43 to 51 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Gypsum, maximum content:* 2 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.5 to 3.0 mmhos/cm)

*Available water capacity:* High (about 9.6 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 4e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* R067BY002CO - Loamy Plains

*Hydric soil rating:* No

#### **Description of Villegreen**

##### **Setting**

*Landform:* Interfluves

*Landform position (two-dimensional):* Shoulder, summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Loess over residuum weathered from sandstone

##### **Typical profile**

*A - 0 to 6 inches:* loam

*BA - 6 to 9 inches:* silty clay loam

*Bt - 9 to 15 inches:* silty clay loam

*Btk - 15 to 24 inches:* silty clay loam

*2Bk - 24 to 32 inches:* channery loam

*2R - 32 to 79 inches:* bedrock

##### **Properties and qualities**

*Slope:* 1 to 4 percent

*Depth to restrictive feature:* 30 to 33 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 30 percent

*Gypsum, maximum content:* 2 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.5 to 3.0 mmhos/cm)

*Available water capacity:* Low (about 6.0 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 4c

*Hydrologic Soil Group:* C

*Ecological site:* R067BY002CO - Loamy Plains

*Hydric soil rating:* No

## Minor Components

### Baca

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Summit  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Hydric soil rating:* No

### Wiley

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Summit  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Hydric soil rating:* No

### Boxcanyon

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Toeslope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Hydric soil rating:* No

### Rock outcrop

*Percent of map unit:* 1 percent  
*Landform:* Scarps  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear

## Data Source Information

Soil Survey Area: Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties

Survey Area Data: Version 23, Jun 5, 2020



Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties



Map unit symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		<i>Lb/ac</i>	<i>Lb/ac</i>	<i>Lb/ac</i>		<i>Pct</i>
WC—Plughat-Villegreen complex, 1 to 4 percent slopes						
Plughat	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	35
					Western wheatgrass	25
					Green needlegrass	7
					Winterfat	5
					Buffalograss	3
					Sand dropseed	3
					Sun sedge	2
					American vetch	2
					Scarlet globemallow	2
					Purple prairieclover	2
Villegreen	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	40
					Western wheatgrass	20
					Green needlegrass	5
					Winterfat	5
					Sand dropseed	3
					Rubber rabbitbrush	2
					Bottlebrush squirreltail	2
					Broom snakeweed	1
					Red threeawn	1