



## Legend

- Proposed Working Pad Surface
- Proposed Pad Disturbance Area
- Proposed Pipeline
- Proposed Access Road
- One Mile Buffer

## Soil Types

- |  |  |
|--|--|
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> BaA | <span style="display: inline-block; width: 20px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> MnB |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> CD  | <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFFFE0; border: 1px solid black; margin-right: 5px;"></span> Rc  |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #7FFFD4; border: 1px solid black; margin-right: 5px;"></span> CpB | <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFDAB9; border: 1px solid black; margin-right: 5px;"></span> WC  |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #B0C4DE; border: 1px solid black; margin-right: 5px;"></span> DaE | <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> WeB |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #DDA0DD; border: 1px solid black; margin-right: 5px;"></span> Dv  |  |

SOURCE: NRCS July 2020

Date: 3/15/2022

## Project Location



**BNL (ENTERPRISE) INC.**  
**STATE 16 SWSE 3054**  
**SEC 16 T30S R54W (SW/4 SE/4)**  
**LAS ANIMAS COUNTY, CO**

## SOIL TYPES



0 0.25 0.5 1 Miles

Prepared By: Pioneer Environmental Consultants, LLC

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

### BaA—Baca silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2rh1c

*Elevation:* 3,610 to 6,230 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

*Baca and similar soils:* 90 percent

*Minor components:* 10 percent

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

#### Description of Baca

##### Setting

*Landform:* Interfluves

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Loess

##### Typical profile

*A - 0 to 3 inches:* silt loam

*AB - 3 to 6 inches:* silty clay loam

*Bt1 - 6 to 13 inches:* silty clay

*Bt2 - 13 to 21 inches:* silty clay

*Btk - 21 to 27 inches:* silty clay loam

*Bk1 - 27 to 47 inches:* silty clay loam

*Bk2 - 47 to 79 inches:* silt loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 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:* 15 percent

*Gypsum, maximum content:* 5 percent

*Maximum salinity:* Nonsaline to slightly saline (0.5 to 4.0 mmhos/cm)



*Sodium adsorption ratio, maximum:* 5.0  
*Available water capacity:* High (about 11.7 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 4c  
*Hydrologic Soil Group:* C  
*Ecological site:* R067BY002CO - Loamy Plains  
*Forage suitability group:* Clayey (G067BW001CO)  
*Other vegetative classification:* Clayey (G067BW001CO), Loamy  
Plains #2 (067XY002CO\_2)  
*Hydric soil rating:* No

#### **Minor Components**

##### **Manzanst**

*Percent of map unit:* 5 percent  
*Landform:* Interfluves, fan remnants  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY042CO - Clayey Plains  
*Other vegetative classification:* Clayey (G067BW001CO), Clayey  
Plains #42 (067XY042CO\_2)  
*Hydric soil rating:* No

##### **Wiley**

*Percent of map unit:* 5 percent  
*Landform:* Interfluves  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy (G067BW017CO), Loamy  
Plains #2 (067XY002CO\_2)  
*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 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>
BaA—Baca silt loam, 0 to 3 percent slopes						
Baca	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	30
					Western wheatgrass	25
					Green needlegrass	10
					Buffalograss	5
					Winterfat	5
					American vetch	3
					Scarlet globemallow	2
					Purple prairieclover	2
					Sand dropseed	2
					Sun sedge	2

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

### CD—Chacuaco-Dalerose complex, 2 to 7 percent slopes

#### Map Unit Setting

*National map unit symbol:* vvjn

*Elevation:* 5,000 to 6,000 feet

*Mean annual precipitation:* 14 to 17 inches

*Mean annual air temperature:* 50 to 54 degrees F

*Frost-free period:* 125 to 150 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Chacuaco and similar soils:* 60 percent

*Dalerose and similar soils:* 30 percent

*Minor components:* 10 percent

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

#### Description of Chacuaco

##### Setting

*Landform:* Plains, interfluves, ridges

*Landform position (two-dimensional):* Summit, footslope

*Landform position (three-dimensional):* Side slope, rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Eolian deposits over residuum weathered from sandstone

##### Typical profile

*A - 0 to 5 inches:* loam

*AB - 5 to 10 inches:* loam

*Bt - 10 to 20 inches:* clay loam

*Bk - 20 to 30 inches:* very gravelly loam

*R - 30 to 60 inches:* bedrock

##### Properties and qualities

*Slope:* 2 to 5 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.01 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 (0.0 to 2.0  
mmhos/cm)

*Sodium adsorption ratio, maximum:* 2.0

*Available water capacity:* Low (about 4.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* R067BY002CO - Loamy Plains

*Forage suitability group:* Loamy, Dry (G070XW019CO)

*Other vegetative classification:* Loamy, Dry (G070XW019CO),  
Loamy Plains #2 (067XY002CO\_2)

*Hydric soil rating:* No

#### **Description of Dalerose**

##### **Setting**

*Landform:* Scarps

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

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Slope alluvium and residuum weathered from  
sandstone

##### **Typical profile**

*A - 0 to 5 inches:* gravelly fine sandy loam

*Bk - 5 to 10 inches:* gravelly loam

*R - 10 to 60 inches:* bedrock

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

*Slope:* 3 to 7 percent

*Depth to restrictive feature:* 6 to 20 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.01 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:* 15 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0  
mmhos/cm)

*Available water capacity:* Very low (about 1.0 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* R067BY056CO - Sandstone Breaks

*Forage suitability group:* Needs Field Review (G070XW050CO)

*Other vegetative classification:* Needs Field Review  
(G070XW050CO), Sandstone Breaks #56 (067XY056CO\_2)

*Hydric soil rating:* No

**Minor Components**

**Rock outcrop**

*Percent of map unit:* 10 percent

*Landform:* Scarps

*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 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>
CD—Chacuaco-Dalerose complex, 2 to 7 percent slopes						
Chacuaco	R067BY002CO: Loamy Plains	1,700	1,150	500	Blue grama	30
					Western wheatgrass	20
					Green needlegrass	7
					Fourwing saltbush	5
					Winterfat	5
					Bottlebrush squirreltail	3
					Sand dropseed	3
					Little bluestem	3
					Sideoats grama	2
					Purple prairieclover	2
					Scarlet globemallow	2
					American vetch	2
Dalerose	R067BY056CO: Sandstone Breaks	1,550	1,050	650	Little bluestem	15
					Prairie sandreed	15
					Sideoats grama	12
					Sand bluestem	10
					Blue grama	10
					Needleandthread	5
					Big bluestem	3
					Chokecherry	3
					Prairie junegrass	2
					Purple prairieclover	2
					Western wheatgrass	2
					Golden currant	2
					Spreading buckwheat	1



## 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

### DaE—Dalerose-Rock outcrop complex, 3 to 25 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3jly  
*Elevation:* 5,000 to 6,000 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 50 to 53 degrees F  
*Frost-free period:* 125 to 155 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Dalerose and similar soils:* 75 percent  
*Rock outcrop:* 15 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Dalerose

##### Setting

*Landform:* Scarps  
*Landform position (two-dimensional):* Backslope, summit  
*Landform position (three-dimensional):* Head slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Slope alluvium and residuum weathered from sandstone

##### Typical profile

*A - 0 to 5 inches:* gravelly fine sandy loam  
*Bk - 5 to 10 inches:* gravelly loam  
*R - 10 to 60 inches:* bedrock

##### Properties and qualities

*Slope:* 3 to 25 percent  
*Depth to restrictive feature:* 6 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 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:* 15 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water capacity:* Very low (about 1.0 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* R067BY056CO - Sandstone Breaks  
*Forage suitability group:* Needs Field Review (G070XW050CO)  
*Other vegetative classification:* Needs Field Review  
(G070XW050CO), Sandstone Breaks #56 (067XY056CO\_2)  
*Hydric soil rating:* No

### **Description of Rock Outcrop**

#### **Setting**

*Landform:* Scarps  
*Parent material:* Sandstone

#### **Typical profile**

*R - 0 to 60 inches:* bedrock

#### **Properties and qualities**

*Slope:* 3 to 25 percent  
*Depth to restrictive feature:* 0 inches to lithic bedrock  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low  
to moderately high (0.00 to 0.20 in/hr)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* No

### **Minor Components**

#### **Chacuaco**

*Percent of map unit:* 10 percent  
*Landform:* Interfluves, ridges  
*Landform position (two-dimensional):* Shoulder, summit  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy, Dry (G070XW019CO),  
Loamy Plains #2 (067XY002CO\_2)  
*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 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>
DaE—Dalerose-Rock outcrop complex, 3 to 25 percent slopes						
Dalerose	R067BY056CO: Sandstone Breaks	1,550	1,050	650	Prairie sandreed	15
					Little bluestem	15
					Sideoats grama	12
					Blue grama	10
					Sand bluestem	10
					Needleandthread	5
					Big bluestem	3
					Chokecherry	3
					Prairie junegrass	2
					Purple prairieclover	2
					Golden currant	2
					Western wheatgrass	2
					Spreading buckwheat	1
Rock outcrop	—	—	—	—	—	—

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

### Dv—Feterita silt loam, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3jks

*Elevation:* 4,800 to 6,100 feet

*Mean annual precipitation:* 14 to 16 inches

*Mean annual air temperature:* 50 to 53 degrees F

*Frost-free period:* 135 to 155 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Feterita and similar soils:* 95 percent

*Minor components:* 5 percent

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

#### Description of Feterita

##### Setting

*Landform:* Playas

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Clayey alluvium

##### Typical profile

*A - 0 to 3 inches:* silt loam

*Bt - 3 to 8 inches:* silty clay loam

*Btss - 8 to 21 inches:* silty clay

*Btkss - 21 to 35 inches:* silty clay

*Bkss - 35 to 72 inches:* silty clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.01 to 0.20 in/hr)

*Depth to water table:* About 0 to 10 inches

*Frequency of flooding:* None

*Frequency of ponding:* Occasional

*Calcium carbonate, maximum content:* 15 percent

*Gypsum, maximum content:* 2 percent

*Maximum salinity:* Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 4.0

*Available water supply, 0 to 60 inches:* High (about 10.7 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 3c

*Land capability classification (nonirrigated):* 4c

*Hydrologic Soil Group:* C/D

*Ecological site:* R067BY010CO - Closed Upland Depression

*Forage suitability group:* Clayey (G067BW001CO)

*Other vegetative classification:* Clayey (G067BW001CO), Clayey  
Plains #42 (067XY042CO\_2)

*Hydric soil rating:* No

### **Minor Components**

#### **Manzanst**

*Percent of map unit:* 5 percent

*Landform:* Fans, plains

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R067BY042CO - Clayey Plains

*Other vegetative classification:* Clayey Plains #42  
(067XY042CO\_2), Clayey (G067BW001CO)

*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>
Dv—Feterita silt loam, 0 to 2 percent slopes						
Feterita	R067BY010CO: Closed Upland Depression	1,900	1,300	800	Western wheatgrass	65
					Blue grama	10
					Green needlegrass	7
					Sun sedge	5
					Buffalograss	3
					American vetch	3
					Winterfat	2

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

### MnB—Manzanst silty clay loam, 1 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2w4nw

*Elevation:* 3,870 to 6,660 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

*Manzanst and similar soils:* 85 percent

*Minor components:* 15 percent

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

#### Description of Manzanst

##### Setting

*Landform:* Drainageways, terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Concave, linear

*Parent material:* Clayey alluvium derived from shale

##### Typical profile

*A - 0 to 3 inches:* silty clay loam

*Bt1 - 3 to 6 inches:* silty clay loam

*Bt2 - 6 to 20 inches:* silty clay

*Btk - 20 to 28 inches:* silty clay

*Bk1 - 28 to 40 inches:* silty clay loam

*Bk2 - 40 to 79 inches:* silty clay loam

##### Properties and qualities

*Slope:* 1 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 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:* 15 percent

*Gypsum, maximum content:* 3 percent

*Maximum salinity:* Nonsaline to slightly saline (0.5 to 4.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 10.0

*Available water supply, 0 to 60 inches:* High (about 10.6 inches)



### **Interpretive groups**

*Land capability classification (irrigated): 3e*

*Land capability classification (nonirrigated): 4c*

*Hydrologic Soil Group: C*

*Ecological site: R067BY042CO - Clayey Plains*

*Hydric soil rating: No*

### **Minor Components**

#### **Wiley**

*Percent of map unit: 5 percent*

*Landform: Interfluves*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Ecological site: R067BY002CO - Loamy Plains*

*Hydric soil rating: No*

#### **Ritoazul**

*Percent of map unit: 5 percent*

*Landform: Drainageways, interfluves*

*Landform position (three-dimensional): Rise*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Ecological site: R067BY042CO - Clayey Plains*

*Hydric soil rating: No*

#### **Baca**

*Percent of map unit: 5 percent*

*Landform: Interfluves*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Interfluve*

*Down-slope shape: Convex*

*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 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>
MnB—Manzanst silty clay loam, 1 to 3 percent slopes						
Manzanst	R067BY042CO: Clayey Plains	1,600	1,000	500	Western wheatgrass	40
					Blue grama	25
					Green needlegrass	15
					Fourwing saltbush	5
					Winterfat	4
					American deervetch	3
					Dotted blazing star	2
					Violet prairieclover	2
					Buffalograss	2
					Scarlet globemallow	2

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

### Rc—Raku silt loam, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3jpk  
*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

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

#### Description of Raku

##### Setting

*Landform:* Plains, drainageways, depressions  
*Landform position (three-dimensional):* Talf, dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium and loess

##### Typical profile

*A - 0 to 8 inches:* silt loam  
*Bt1 - 8 to 11 inches:* silty clay loam  
*Bt2 - 11 to 22 inches:* silty clay  
*Bt3 - 22 to 28 inches:* silty clay  
*Btk - 28 to 45 inches:* silty clay loam  
*Bk - 45 to 68 inches:* clay loam

##### Properties and qualities

*Slope:* 0 to 2 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 low to moderately high (0.06 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  
*Available water supply, 0 to 60 inches:* High (about 11.0 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 (G067BW017CO), Loamy  
Plains #2 (067XY002CO\_2)  
*Hydric soil rating:* No

### **Minor Components**

#### **Calemore**

*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

#### **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 (G067BW017CO), Loamy  
Plains #2 (067XY002CO\_2)  
*Hydric soil rating:* No

#### **Trementina, warm**

*Percent of map unit:* 5 percent  
*Landform:* Terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy (G067BW017CO), Loamy  
Plains #2 (067XY002CO\_2)  
*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>
Rc—Raku silt loam, 0 to 2 percent slopes						
Raku	R067BY002CO: Loamy Plains	1,900	1,350	600	Blue grama	30
					Western wheatgrass	25
					Green needlegrass	10
					Winterfat	5
					Buffalograss	5
					American vetch	3
					Scarlet globemallow	2
					Sun sedge	2
					Purple prairieclover	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

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

### WeB—Wiley silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 3jqx  
*Elevation:* 5,000 to 6,000 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

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

#### Description of Wiley

##### Setting

*Landform:* Plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loess

##### Typical profile

*A - 0 to 4 inches:* silt loam  
*Bt1 - 4 to 9 inches:* silty clay loam  
*Bt2 - 9 to 15 inches:* silty clay loam  
*Btk - 15 to 26 inches:* silty clay loam  
*Bk1 - 26 to 35 inches:* silt loam  
*Bk2 - 35 to 44 inches:* silt loam  
*Bk3 - 44 to 72 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:* 30 percent  
*Gypsum, maximum content:* 3 percent  
*Maximum salinity:* Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)



*Sodium adsorption ratio, maximum:* 7.0  
*Available water capacity:* High (about 11.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 4c  
*Hydrologic Soil Group:* C  
*Ecological site:* R067BY002CO - Loamy Plains  
*Forage suitability group:* Loamy (G067BW017CO)  
*Other vegetative classification:* Loamy (G067BW017CO), Loamy  
Plains #2 (067XY002CO\_2)  
*Hydric soil rating:* No

**Minor Components**

**Plughat**

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

**Baca**

*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:* Clayey (G067BW001CO), Loamy  
Plains #2 (067XY002CO\_2)  
*Hydric soil rating:* No

**Villegreen**

*Percent of map unit:* 5 percent  
*Landform:* Plains  
*Landform position (two-dimensional):* Backslope, shoulder  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R067BY002CO - Loamy Plains  
*Other vegetative classification:* Loamy, Dry (G067BW019CO),  
Loamy Plains #2 (067XY002CO\_2)

*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 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>
WeB—Wiley silt loam, 0 to 3 percent slopes						
Wiley	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	30
					Western wheatgrass	25
					Green needlegrass	10
					Buffalograss	5
					Winterfat	5
					American vetch	3
					Sun sedge	2
					Sand dropseed	2
					Purple prairieclover	2
					Scarlet globemallow	2