

**033CP—Clairemont loam,  
channeled****Map Unit Composition**

Clairemont: 100 percent

**Component Descriptions****Clairemont**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 11.2 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Loamy Lowland (pe20-25)

*Land capability (nonirrigated):* 6w

*Typical Profile:*

H1—0 to 15 inches; loam

H2—15 to 60 inches; silt loam

**Minor Components****Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

**033OA—Obaro silty clay loam, 5 to  
12 percent slopes****Map Unit Composition**

Obaro: 100 percent

**Component Descriptions****Obaro**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 5 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

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

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* High

*Ecological site:* Loamy Upland (pe20-25)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 35 inches; silty clay loam

Cr—35 to 35 inches; weathered bedrock

**033OB—Obaro-Rock outcrop  
complex, 10 to 30 percent slopes****Map Unit Composition**

Obaro: 75 percent

Rock outcrop: 25 percent

**Component Descriptions****Obaro**

*MLRA:* 78 - Central Rolling Red Plains, 80A - Central Rolling Red Prairies

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 12 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

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

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* High

*Ecological site:* Loamy Upland (pe20-25)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 35 inches; silty clay loam

Cr—35 to 35 inches; weathered bedrock

**Rock outcrop**

*MLRA:* 78 - Central Rolling Red Plains, 80A - Central Rolling Red Prairies

*Slope:* 10 to 30 percent  
*Drainage class:* Excessively drained  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Land capability (nonirrigated):* 8

### **033QR—Quinlan-Woodward loams, 6 to 15 percent slopes**

#### **Map Unit Composition**

Quinlan: 55 percent  
 Woodward: 45 percent

#### **Component Descriptions**

##### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 6 to 15 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 6e

##### *Typical Profile:*

H1—0 to 14 inches; loam  
 Cr—14 to 14 inches; weathered bedrock

##### **Woodward**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 6 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 5.1 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 6e

##### *Typical Profile:*

H1—0 to 30 inches; loam  
 Cr—30 to 30 inches; weathered bedrock

### **033QT—Quinlan-Woodward loams, 15 to 30 percent slopes**

#### **Map Unit Composition**

Quinlan: 55 percent  
 Woodward: 45 percent

#### **Component Descriptions**

##### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 7e

##### *Typical Profile:*

H1—0 to 14 inches; loam  
 Cr—14 to 14 inches; weathered bedrock

##### **Woodward**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 15 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 5.1 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 30 inches; loam  
 Cr—30 to 30 inches; weathered bedrock

### **033YE—Yahola fine sandy loam, occasionally flooded**

#### **Map Unit Composition**

Yahola: 100 percent

#### **Component Descriptions**

##### **Yahola**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Flood plain  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Moderate (About 8.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Negligible  
*Ecological site:* Sandy Lowland (pe20-25)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam  
 H2—12 to 40 inches; fine sandy loam  
 H3—40 to 60 inches; stratified loam to loamy fine sand

##### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

### **077BP—Woodward-Port complex, 0 to 20 percent slopes**

#### **Map Unit Composition**

Woodward: 65 percent  
 Port: 35 percent

#### **Component Descriptions**

##### **Woodward**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 4.1 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 24 inches; silt loam  
 Cr—24 to 24 inches; weathered bedrock

##### **Port**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Terrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 11.8 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe24-32)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 27 inches; silt loam  
H2—27 to 60 inches; silty clay loam

**Minor Components****Unnamed Wet Soils**

*Phase:* Sandy, Depression

**Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

**077FU—Farnum loam, 3 to 6 percent slopes****Map Unit Composition**

Farnum: 100 percent

**Component Descriptions****Farnum**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.1 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 11 inches; loam  
H2—11 to 41 inches; clay loam  
H3—41 to 60 inches; clay loam

**077GE—Gerlane fine sandy loam, occasionally flooded****Map Unit Composition**

Gerlane: 100 percent

**Component Descriptions****Gerlane**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Terrace  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Moderate (About 8.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 24 to 72 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe24-32)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 17 inches; fine sandy loam  
H2—17 to 40 inches; fine sandy loam  
H3—40 to 48 inches; loamy sand  
H4—48 to 60 inches; clay loam

**Minor Components****Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

**077MC—Minco silt loam, 0 to 1 percent slopes****Map Unit Composition**

Minco: 100 percent

**Component Descriptions****Minco**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Eolian deposits  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 11.1 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Loamy Upland (pe24-32)

*Land capability (nonirrigated):* 1

*Typical Profile:*

H1—0 to 42 inches; silt loam

H2—42 to 60 inches; silt loam

## **077MN—Minco silt loam, 1 to 3 percent slopes**

### **Map Unit Composition**

Minco: 100 percent

### **Component Descriptions**

#### **Minco**

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Hillslope on upland

*Parent material:* Eolian deposits

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 11.1 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Loamy Upland (pe24-32)

*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 42 inches; silt loam

H2—42 to 60 inches; silt loam

## **077MO—Minco silt loam, 3 to 6 percent slopes**

### **Map Unit Composition**

Minco: 100 percent

### **Component Descriptions**

#### **Minco**

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Hillslope on upland

*Parent material:* Eolian deposits

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 11.1 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe24-32)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 42 inches; silt loam

H2—42 to 60 inches; silt loam

## **077QU—Quinlan loam, 3 to 6 percent slopes**

### **Map Unit Composition**

Quinlan: 100 percent

### **Component Descriptions**

#### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 3 to 6 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Very low (About 1.7 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Shallow Prairie (pe24-32)

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 9 inches; loam  
Cr—9 to 9 inches; weathered bedrock

## **077SE—Shellabarger fine sandy loam, 1 to 3 percent slopes**

### **Map Unit Composition**

Shellabarger: 100 percent

### **Component Descriptions**

#### **Shellabarger**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 8.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (nonirrigated):* 2e

#### *Typical Profile:*

H1—0 to 13 inches; fine sandy loam  
H2—13 to 38 inches; fine sandy loam  
H3—38 to 60 inches; coarse sandy loam

## **077WE—Woodward-Quinlan loams, 1 to 3 percent slopes**

### **Map Unit Composition**

Woodward: 50 percent  
Quinlan: 50 percent

### **Component Descriptions**

#### **Woodward**

*MLRA:* 78 - Central Rolling Red Plains,80A -  
Central Rolling Red Prairies  
*Landform:* Hillslope on upland

*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 4.1 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2e

#### *Typical Profile:*

H1—0 to 24 inches; loam  
Cr—24 to 24 inches; weathered bedrock

#### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains,80A -  
Central Rolling Red Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 1.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Shallow Prairie (pe24-32)  
*Land capability (nonirrigated):* 3e

#### *Typical Profile:*

H1—0 to 9 inches; loam  
Cr—9 to 9 inches; weathered bedrock

#### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

## **095AC—Albion sandy loam, 3 to 6 percent slopes**

### **Map Unit Composition**

Albion: 100 percent

### Component Descriptions

#### Albion

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Low (About 5.8 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 8 inches; sandy loam

H2—8 to 16 inches; sandy loam

H3—16 to 26 inches; loamy sand

H4—26 to 60 inches; sand

### 095DA—Dillwyn-Plevna complex, occasionally flooded

### Map Unit Composition

Dillwyn: 60 percent

Plevna: 40 percent

### Component Descriptions

#### Dillwyn

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley, interdune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Low (About 4.9 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 12 to 36 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe24-32)

*Land capability (nonirrigated):* 4w

#### Typical Profile:

H1—0 to 8 inches; loamy fine sand

H2—8 to 60 inches; loamy fine sand

#### Plevna

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Moderate (About 6.5 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 24 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe24-32)

*Land capability (nonirrigated):* 5w

#### Typical Profile:

H1—0 to 11 inches; fine sandy loam

H2—11 to 36 inches; fine sandy loam

H3—36 to 60 inches; sand

### Minor Components

#### Unnamed Wet Soils

*Phase:* Sandy, Depression

### 095FA—Farnum sandy loam, 0 to 2 percent slopes

### Map Unit Composition

Farnum: 100 percent

### Component Descriptions

#### Farnum

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 9.7 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (irrigated):* 2e  
*Land capability (nonirrigated):* 3e

*Typical Profile:*  
 H1—0 to 16 inches; sandy loam  
 H2—16 to 50 inches; clay loam  
 H3—50 to 60 inches; clay loam

**Minor Components**  
**Carwile**

**Unnamed Wet Soils**  
*Phase:* Loamy, Depression

**Unnamed Wet Soils**  
*Phase:* Loamy, Drainageway

**095PB—Pratt loamy fine sand, 1 to 5 percent slopes**

**Map Unit Composition**

Pratt: 100 percent

**Component Descriptions**

**Pratt**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 3 to 8 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sands (pe24-32)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 4e

*Typical Profile:*  
 H1—0 to 12 inches; loamy fine sand  
 H2—12 to 36 inches; loamy fine sand  
 H3—36 to 60 inches; loamy fine sand

**Minor Components**  
**Carwile**

**Unnamed Wet Soils**  
*Phase:* Sandy, Depression

**095SB—Shellabarger sandy loam, 1 to 3 percent slopes**

**Map Unit Composition**

Shellabarger: 100 percent

**Component Descriptions**

**Shellabarger**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*  
 H1—0 to 10 inches; sandy loam  
 H2—10 to 45 inches; sandy clay loam  
 H3—45 to 60 inches; coarse sandy loam

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Depression

**095WA—Waldeck fine sandy loam, occasionally flooded**

**Map Unit Composition**

Waldeck: 100 percent



## Component Descriptions

### Waldeck

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Moderate (About 6.9 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 24 to 48 inches

*Runoff class:* Negligible

*Ecological site:* Subirrigated (pe24-32)

*Land capability (nonirrigated):* 3w

#### Typical Profile:

H1—0 to 12 inches; fine sandy loam

H2—12 to 36 inches; sandy loam

H3—36 to 60 inches; sand

### Minor Components

#### Plevna

### Unnamed Wet Soils

*Phase:* Sandy, Depression

### Unnamed Wet Soils

*Phase:* Sandy, Drainageway

## 097LN—Lincoln sandy loam, occasionally flooded

### Map Unit Composition

Lincoln: 100 percent

## Component Descriptions

### Lincoln

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Low (About 3.6 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 60 to 72 inches

*Runoff class:* Negligible

*Ecological site:* Sandy Lowland (pe20-25)

*Land capability (nonirrigated):* 6w

#### Typical Profile:

H1—0 to 8 inches; sandy loam

H2—8 to 60 inches; stratified fine sand to loamy fine sand

### Minor Components

#### Plevna

### Unnamed Wet Soils

*Phase:* Sandy, Drainageway

## 097QW—Quinlan-Woodward loams, 6 to 25 percent slopes

### Map Unit Composition

Quinlan: 55 percent

Woodward: 45 percent

## Component Descriptions

### Quinlan

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Upland

*Parent material:* Loamy residuum weathered from calcareous sandstone

*Slope:* 6 to 25 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Very low (About 2.8 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Shallow Prairie (pe20-25)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

H1—0 to 15 inches; loam

Cr—15 to 15 inches; weathered bedrock

### Woodward

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Upland

*Parent material:* Coarse-silty residuum  
weathered from calcareous sandstone

*Slope:* 6 to 20 percent

*Depth to restrictive feature:* 20 to 40 inches to  
bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60  
in/hr)

*Available water capacity:* Low (About 4.6 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6  
feet

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe20-25)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 27 inches; loam

Cr—27 to 27 inches; weathered bedrock

## **097WA—Waldeck loam, occasionally flooded**

### **Map Unit Composition**

Waldeck: 100 percent

### **Component Descriptions**

#### **Waldeck**

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Flood plain, river valley

*Parent material:* Coarse-loamy alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Moderately rapid (About  
2.00 in/hr)

*Available water capacity:* Moderate (About 7.8  
inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 24 to  
48 inches

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe20-25)

*Land capability (nonirrigated):* 3w

*Typical Profile:*

H1—0 to 14 inches; loam

H2—14 to 41 inches; fine sandy loam

H3—41 to 60 inches; fine sand

#### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

## **151AB—Albion sandy loam, 1 to 4 percent slopes**

### **Map Unit Composition**

Albion: 100 percent

### **Component Descriptions**

#### **Albion**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About  
2.00 in/hr)

*Available water capacity:* Moderate (About 6.0  
inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6  
feet

*Runoff class:* Very low

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 8 inches; sandy loam

H2—8 to 18 inches; sandy loam

H3—18 to 29 inches; coarse sandy loam

H4—29 to 60 inches; gravelly sand

#### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

## **151AO—Albion sandy loam, 3 to 7 percent slopes, eroded**

### **Map Unit Composition**

Albion: 100 percent

### Component Descriptions

#### Albion

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 3 to 7 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Moderate (About 6.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

- H1—0 to 8 inches; sandy loam
- H2—8 to 18 inches; sandy loam
- H3—18 to 29 inches; coarse sandy loam
- H4—29 to 60 inches; gravelly sand

### 151AS—Albion and Shellabarger Soils, 7 to 15 percent slopes

#### Map Unit Composition

Albion: 50 percent

Shellabarger: 50 percent

### Component Descriptions

#### Albion

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 7 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Moderate (About 6.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

- H1—0 to 8 inches; sandy loam
- H2—8 to 18 inches; sandy loam
- H3—18 to 29 inches; coarse sandy loam
- H4—29 to 60 inches; gravelly sand

#### Shellabarger

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 7 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Moderate (About 8.5 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

- H1—0 to 11 inches; fine sandy loam
- H2—11 to 34 inches; sandy clay loam
- H3—34 to 60 inches; coarse sandy loam

### 151BC—Blanket silty clay loam, 1 to 4 percent slopes, eroded

#### Map Unit Composition

Blanket: 100 percent

### Component Descriptions

#### Blanket

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Clayey alluvium

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 9.2 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe21-28)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 13 inches; silty clay loam  
 H2—13 to 46 inches; silty clay  
 H3—46 to 60 inches; silty clay loam

## 151CA—Carwile fine sandy loam, 0 to 1 percent slopes

### Map Unit Composition

Carwile: 100 percent

### Component Descriptions

#### Carwile

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Depression  
*Parent material:* Loamy alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Medium  
*Ecological site:* Sandy (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam  
 H2—12 to 20 inches; sandy clay loam  
 H3—20 to 33 inches; clay  
 H4—33 to 60 inches; sandy clay loam

## 151CK—Case-Clark complex, 7 to 15 percent slopes

### Map Unit Composition

Case: 60 percent  
 Clark: 40 percent

### Component Descriptions

#### Case

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 7 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.2 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Limy Upland (pe24-32)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 6 inches; clay loam  
 H2—6 to 60 inches; clay loam

#### Clark

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 7 to 12 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.3 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Limy Upland (pe24-32)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 8 inches; clay loam  
 H2—8 to 60 inches; clay loam

## 151CM—Clark clay loam, 1 to 4 percent slopes

### Map Unit Composition

Clark: 100 percent

### Component Descriptions

#### Clark

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 10.3 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Limy Upland (pe21-28)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 8 inches; clay loam

H2—8 to 60 inches; clay loam

#### Minor Components

##### Unnamed Wet Soils

*Phase:* Loamy, Depression

##### Unnamed Wet Soils

*Phase:* Loamy, Drainageway

### 151CN—Clark fine sandy loam, 1 to 3 percent slopes

### Map Unit Composition

Clark: 100 percent

### Component Descriptions

#### Clark

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 10.0 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Limy Upland (pe24-32)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 8 inches; fine sandy loam

H2—8 to 60 inches; clay loam

### 151CO—Clark-Ost clay loams, 0 to 1 percent slopes

### Map Unit Composition

Clark: 70 percent

Ost: 30 percent

### Component Descriptions

#### Clark

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 10.3 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Limy Upland (pe24-32)

*Land capability (nonirrigated):* 2c

#### Typical Profile:

H1—0 to 8 inches; clay loam

H2—8 to 60 inches; clay loam

#### Ost

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 10.3 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2c

*Typical Profile:*

H1—0 to 9 inches; clay loam  
 H2—9 to 14 inches; clay loam  
 H3—14 to 23 inches; clay loam  
 H4—23 to 60 inches; clay loam

## **151FA—Farnum clay loam, 3 to 6 percent slopes, eroded**

### **Map Unit Composition**

Farnum: 100 percent

### **Component Descriptions**

#### **Farnum**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe21-28)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 7 inches; clay loam  
 H2—7 to 37 inches; clay loam  
 H3—37 to 60 inches; fine sandy loam

## **151KP—Kanza-Plevna complex, frequently flooded**

### **Map Unit Composition**

Kanza: 50 percent  
 Plevna: 50 percent

### **Component Descriptions**

#### **Kanza**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 3.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 36 inches  
*Runoff class:* Negligible  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 11 inches; loamy fine sand  
 H2—11 to 40 inches; fine sand

#### **Plevna**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Moderate (About 6.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 24 inches  
*Runoff class:* Negligible  
*Ecological site:* Subirrigated (pe21-28)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 10 inches; fine sandy loam  
 H2—10 to 40 inches; fine sandy loam  
 H3—40 to 60 inches; fine sand

**151OS—Ost clay loam, 1 to 4 percent slopes****Map Unit Composition**

Ost: 100 percent

**Component Descriptions****Ost**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 1 to 4 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 10.3 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe21-28)

*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 9 inches; clay loam

H2—9 to 14 inches; clay loam

H3—14 to 23 inches; clay loam

H4—23 to 60 inches; clay loam

**Minor Components****Unnamed Wet Soils**

*Phase:* Loamy, Depression

**Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

**151PM—Pratt loamy fine sand, 3 to 8 percent slopes****Map Unit Composition**

Pratt: 100 percent

**Component Descriptions****Pratt**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 3 to 8 percent

*Drainage class:* Well drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Moderate (About 6.4 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Sands (pe21-28)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 10 inches; loamy fine sand

H2—10 to 40 inches; loamy fine sand

H3—40 to 60 inches; loamy fine sand

**Minor Components****Carwile****Unnamed Wet Soils**

*Phase:* Sandy, Depression

**151PN—Pratt loamy fine sand, 8 to 12 percent slopes****Map Unit Composition**

Pratt: 100 percent

**Component Descriptions****Pratt**

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 8 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Moderate (About 6.4 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sands (pe21-28)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 10 inches; loamy fine sand  
 H2—10 to 40 inches; loamy fine sand  
 H3—40 to 60 inches; loamy fine sand

## 151PO—Pratt-Carwile complex, 0 to 5 percent slopes

### Map Unit Composition

Pratt: 60 percent  
 Carwile: 40 percent

### Component Descriptions

#### Pratt

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 3 to 8 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sands (pe21-28)  
*Land capability (irrigated):* 3e  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 10 inches; loamy fine sand  
 H2—10 to 40 inches; loamy fine sand  
 H3—40 to 60 inches; loamy fine sand

#### Carwile

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Depression on paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 0 to 0 inches  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe21-28)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam  
 H2—12 to 20 inches; sandy clay loam  
 H3—20 to 33 inches; clay  
 H4—33 to 60 inches; sandy clay loam

#### Minor Components

##### Unnamed Wet Soils

*Phase:* Sandy, Depression

## 151SA—Albion-Kaski complex, 0 to 15 percent slopes

### Map Unit Composition

Albion: 70 percent  
 Kaski: 30 percent

### Component Descriptions

#### Albion

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 7 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Moderate (About 6.0 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Sandy (pe21-28)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 8 inches; fine sandy loam  
 H2—8 to 18 inches; sandy loam  
 H3—18 to 29 inches; coarse sandy loam  
 H4—29 to 60 inches; gravelly sand

#### Kaski

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)



*Available water capacity:* High (About 10.5 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Lowland (pe21-28)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 26 inches; loam  
 H2—26 to 40 inches; loam  
 H3—40 to 60 inches; sandy loam

### **151SE—Shellabarger fine sandy loam, 1 to 4 percent slopes**

#### **Map Unit Composition**

Shellabarger: 100 percent

#### **Component Descriptions**

##### **Shellabarger**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 4 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 8.5 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe21-28)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 11 inches; fine sandy loam  
 H2—11 to 34 inches; sandy clay loam  
 H3—34 to 60 inches; coarse sandy loam

##### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

### **1439—Crisfield sandy loam, rarely flooded**

#### **Map Unit Composition**

Crisfield: 100 percent

#### **Component Descriptions**

##### **Crisfield**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Terrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* About 40 to 73 inches  
*Runoff class:* Negligible  
*Ecological site:* Sandy Terrace (pe24-32)  
*Land capability (nonirrigated):* 3s

*Typical Profile:*

H1—0 to 12 inches; sandy loam  
 H2—12 to 24 inches; sandy loam  
 H3—24 to 80 inches; coarse sand

##### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Loamy, Depression

### **Ad—Albion-Shellabarger sandy loams, 2 to 4 percent slopes**

#### **Map Unit Composition**

Albion: 60 percent  
 Shellabarger: 40 percent

#### **Component Descriptions**

##### **Albion**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 2 to 4 percent  
*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Low (About 5.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe20-25)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 8 inches; sandy loam  
 H2—8 to 16 inches; sandy loam  
 H3—16 to 27 inches; loamy sand  
 H4—27 to 60 inches; sand

**Shellabarger**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 2 to 4 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 14 inches; sandy loam  
 H2—14 to 48 inches; sandy clay loam  
 H3—48 to 60 inches; coarse sandy loam

**Ae—Albion and Shellabarger Soils, 4 to 15 percent slopes**

**Map Unit Composition**

Albion: 55 percent  
 Shellabarger: 45 percent

**Component Descriptions**

**Albion**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium

*Slope:* 4 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Low (About 5.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sandy (pe20-25)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 8 inches; sandy loam  
 H2—8 to 16 inches; sandy loam  
 H3—16 to 27 inches; loamy sand  
 H4—27 to 60 inches; sand

**Shellabarger**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 4 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sandy (pe20-25)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 14 inches; sandy loam  
 H2—14 to 48 inches; sandy clay loam  
 H3—48 to 60 inches; coarse sandy loam

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

**AED—Arents, Earthen Dam**

**AN—Albion-Shellabarger sandy loams, 4 to 15 percent slopes**

**Map Unit Composition**

Albion: 65 percent

Shellabarger: 35 percent

### Component Descriptions

#### Albion

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 4 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Low (About 5.9 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe20-25)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

- H1—0 to 8 inches; sandy loam
- H2—8 to 16 inches; sandy loam
- H3—16 to 28 inches; loamy sand
- H4—28 to 60 inches; sand

#### Shellabarger

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 4 to 15 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Moderate (About 8.8 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe20-25)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

- H1—0 to 11 inches; sandy loam
- H2—11 to 38 inches; sandy clay loam
- H3—38 to 60 inches; coarse sandy loam

### As—Clairemont Soils, Saline, channeled

### Map Unit Composition

Clairemont: 100 percent

### Component Descriptions

#### Clairemont

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Moderate (About 7.7 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Saline Lowland (pe20-25)

*Land capability (nonirrigated):* 6s

#### Typical Profile:

- H1—0 to 8 inches; silt loam
- H2—8 to 60 inches; loam

### Minor Components

#### Unnamed Wet Soils

*Phase:* Sandy, Depression

#### Unnamed Wet Soils

*Phase:* Sandy, Drainageway

### At—Attica loamy fine sand, 1 to 5 percent slopes

### Map Unit Composition

Attica: 100 percent

### Component Descriptions

#### Attica

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Eolian deposits

*Slope:* 1 to 5 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* Moderate (About 7.6 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 12 inches; loamy fine sand  
 H2—12 to 30 inches; fine sandy loam  
 H3—30 to 60 inches; loamy fine sand

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Sandy, Depression

**Ba—Blanket silt loam, 0 to 1 percent slopes**

**Map Unit Composition**

Blanket: 100 percent

**Component Descriptions**

**Blanket**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Paleoterrace on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 2c

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 30 inches; silty clay  
 H3—30 to 60 inches; silty clay loam

**Bb—Blanket silt loam, 1 to 3 percent slopes**

**Map Unit Composition**

Blanket: 100 percent

**Component Descriptions**

**Blanket**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Paleoterrace on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 30 inches; silty clay  
 H3—30 to 60 inches; silty clay loam

**Bc—Blanket silty clay loam, 1 to 3 percent slopes, eroded**

**Map Unit Composition**

Blanket: 100 percent

**Component Descriptions**

**Blanket**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Paleoterrace on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 9 inches; silty clay loam  
 H2—9 to 30 inches; silty clay  
 H3—30 to 60 inches; silty clay loam

## **Bf—Quinlan-Clairemont complex, 0 to 50 percent slopes**

### **Map Unit Composition**

Quinlan: 60 percent  
 Clairemont: 40 percent

### **Component Descriptions**

#### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 3 to 50 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Excessively drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 14 inches; loam  
 Cr—14 to 14 inches;

#### **Clairemont**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Flood plain

*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 11.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Lowland (pe20-25)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 14 inches; silt loam  
 H2—14 to 60 inches; silt loam

#### **Minor Components Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

## **Ca—Canadian fine sandy loam, rarely flooded**

### **Map Unit Composition**

Canadian: 100 percent

### **Component Descriptions**

#### **Canadian**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* River valley, flood plain  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately rapid (About 1.98 in/hr)  
*Available water capacity:* Moderate (About 8.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Negligible  
*Ecological site:* Sandy Terrace (pe24-32)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 18 inches; fine sandy loam  
 H2—18 to 48 inches; fine sandy loam  
 H3—48 to 60 inches; fine sandy loam

**Cc—Case-Clark clay loams, 2 to 6 percent slopes****Map Unit Composition**

Case: 50 percent

Clark: 50 percent

**Component Descriptions****Case***MLRA:* 80A - Central Rolling Red Prairies*Landform:* Paleoterrace on river valley*Parent material:* Alluvium*Slope:* 2 to 6 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 10.2 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Limy Upland (pe24-32)*Land capability (nonirrigated):* 4e*Typical Profile:*

H1—0 to 6 inches; clay loam

H2—6 to 60 inches; clay loam

**Clark***MLRA:* 80A - Central Rolling Red Prairies*Landform:* Paleoterrace on river valley*Parent material:* Loamy alluvium*Slope:* 2 to 6 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 10.3 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Limy Upland (pe24-32)*Land capability (nonirrigated):* 4e*Typical Profile:*

H1—0 to 10 inches; clay loam

H2—10 to 60 inches; clay loam

**Cd—Clairemont silt loam, occasionally flooded****Map Unit Composition**

Clairemont: 100 percent

**Component Descriptions****Clairemont***MLRA:* 78 - Central Rolling Red Plains*Landform:* Flood plain*Parent material:* Alluvium*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.2 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Loamy Lowland (pe20-25)*Land capability (irrigated):* 2w*Land capability (nonirrigated):* 2w*Typical Profile:*

H1—0 to 14 inches; silt loam

H2—14 to 60 inches; silt loam

**Minor Components****Unnamed Wet Soils***Phase:* Loamy, Drainageway**Cf—Clairemont soils, channeled****Map Unit Composition**

Clairemont: 100 percent

**Component Descriptions****Clairemont***MLRA:* 78 - Central Rolling Red Plains*Landform:* Flood plain*Parent material:* Alluvium*Slope:* 0 to 2 percent*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 11.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Lowland (pe20-25)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*  
 H1—0 to 14 inches; silt loam  
 H2—14 to 60 inches; silt loam

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Drainageway

## **Ck—Clark clay loam, 0 to 2 percent slopes**

### **Map Unit Composition**

Clark: 100 percent

### **Component Descriptions**

**Clark**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.3 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Limy Upland (pe24-32)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*  
 H1—0 to 10 inches; clay loam  
 H2—10 to 60 inches; clay loam

## **Fa—Farnum fine sandy loam, 0 to 1 percent slopes**

### **Map Unit Composition**

Farnum: 100 percent

### **Component Descriptions**

**Farnum**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (irrigated):* 1  
*Land capability (nonirrigated):* 2e

*Typical Profile:*  
 H1—0 to 9 inches; fine sandy loam  
 H2—9 to 60 inches; clay loam

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Depression

## **Fm—Farnum loam, 0 to 1 percent slopes**

### **Map Unit Composition**

Farnum: 100 percent

### **Component Descriptions**

**Farnum**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.4 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (irrigated):* 1  
*Land capability (nonirrigated):* 2c

*Typical Profile:*  
 H1—0 to 9 inches; loam  
 H2—9 to 60 inches; clay loam

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Depression

## **Fr—Farnum loam, 1 to 3 percent slopes**

### **Map Unit Composition**

Farnum: 100 percent

### **Component Descriptions**

**Farnum**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.4 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (irrigated):* 2e  
*Land capability (nonirrigated):* 2e

*Typical Profile:*  
 H1—0 to 9 inches; loam

H2—9 to 60 inches; clay loam

## **Fu—Farnum clay loam, 1 to 3 percent slopes, eroded**

### **Map Unit Composition**

Farnum: 100 percent

### **Component Descriptions**

**Farnum**  
*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.4 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*  
 H1—0 to 9 inches; clay loam  
 H2—9 to 60 inches; clay loam

## **Ga—Grant silt loam, 0 to 1 percent slopes**

### **Map Unit Composition**

Grant: 100 percent

### **Component Descriptions**

**Grant**  
*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Terrace on upland  
*Parent material:* Residuum  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained



*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 1

*Typical Profile:*

H1—0 to 13 inches; silt loam  
 H2—13 to 50 inches; silt loam  
 H3—50 to 60 inches; silt loam

## **Gb—Grant silt loam, 1 to 3 percent slopes**

### **Map Unit Composition**

Grant: 100 percent

### **Component Descriptions**

**Grant**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Terrace on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 13 inches; silt loam  
 H2—13 to 50 inches; silt loam  
 H3—50 to 60 inches; silt loam

## **Gc—Grant silt loam, 3 to 6 percent slopes**

### **Map Unit Composition**

Grant: 100 percent

### **Component Descriptions**

**Grant**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Terrace on upland  
*Parent material:* Residuum  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 13 inches; silt loam  
 H2—13 to 50 inches; silt loam  
 H3—50 to 60 inches; silt loam

## **GRP—Gravel Pits**

## **INT—Aquolls**

## **Ka—Kanza Soils, frequently flooded**

### **Map Unit Composition**

Kanza: 100 percent

### **Component Descriptions**

**Kanza**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 4.5 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* About 0 to 36 inches  
*Runoff class:* Negligible  
*Ecological site:* Subirrigated (pe24-32)  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

H1—0 to 7 inches; loamy fine sand  
 H2—7 to 48 inches; loamy fine sand

## **Kf—Kingfisher silt loam, 1 to 3 percent slopes**

### **Map Unit Composition**

Kingfisher: 100 percent

### **Component Descriptions**

#### **Kingfisher**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Low (About 5.5 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 17 inches; silty clay loam  
 H3—17 to 28 inches; silty clay loam  
 Cr—28 to 28 inches; weathered bedrock

## **Kv—Kingfisher-Vernon complex, 1 to 3 percent slopes**

### **Map Unit Composition**

Kingfisher: 70 percent  
 Vernon: 30 percent

### **Component Descriptions**

#### **Kingfisher**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Low (About 5.5 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 17 inches; silty clay loam  
 H3—17 to 28 inches; silty clay loam  
 Cr—28 to 28 inches; weathered bedrock

#### **Vernon**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 3.5 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Red Clay Prairie (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 5 inches; clay loam  
 H2—5 to 22 inches; silty clay  
 H3—22 to 60 inches; weathered bedrock

**Kz—Kingfisher-Vernon complex, 3 to 6 percent slopes****Map Unit Composition**

Kingfisher: 60 percent  
 Vernon: 40 percent

**Component Descriptions****Kingfisher**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Low (About 5.5 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 9 inches; silt loam  
 H2—9 to 17 inches; silty clay loam  
 H3—17 to 28 inches; silty clay loam  
 Cr—28 to 28 inches; weathered bedrock

**Vernon**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Low (About 3.5 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Red Clay Prairie (pe20-25)

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 5 inches; clay loam  
 H2—5 to 22 inches; silty clay  
 H3—22 to 60 inches; weathered bedrock

**Ln—Lincoln Soils, frequently flooded****Map Unit Composition**

Lincoln: 100 percent

**Component Descriptions****Lincoln**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Somewhat excessively drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 3.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Frequent  
*Depth to seasonal water saturation:* About 60 to 72 inches  
*Runoff class:* Negligible  
*Ecological site:* Sandy Lowland (pe20-25)  
*Land capability (nonirrigated):* 6w

*Typical Profile:*

H1—0 to 6 inches; fine sandy loam  
 H2—6 to 60 inches; stratified fine sand to clay loam

**Minor Components****Kanza****Unnamed Wet Soils**

*Phase:* Sandy, Depression

**Unnamed Wet Soils**

*Phase:* Sandy, Drainageway

## **LNN—Lincoln loamy sand, occasionally flooded**

### **Map Unit Composition**

Lincoln: 100 percent

### **Component Descriptions**

#### **Lincoln**

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Flood plain on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* Rapid (About 6.00 in/hr)

*Available water capacity:* Low (About 3.3 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 60 to 72 inches

*Runoff class:* Negligible

*Ecological site:* Sandy Lowland (pe20-25)

*Land capability (nonirrigated):* 6w

#### *Typical Profile:*

H1—0 to 10 inches; loamy sand

H2—10 to 60 inches; sand

#### **Minor Components**

##### **Kanza**

## **Ma—Mangum clay, occasionally flooded**

### **Map Unit Composition**

Mangum: 100 percent

### **Component Descriptions**

#### **Mangum**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Very slow (About 0.00 in/hr)

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

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Clay Lowland (pe20-25)

*Land capability (irrigated):* 3w

*Land capability (nonirrigated):* 3w

#### *Typical Profile:*

H1—0 to 10 inches; clay

H2—10 to 50 inches; clay

H3—50 to 60 inches; clay loam

#### **Minor Components**

##### **Unnamed Wet Soils**

*Phase:* Clayey, Depression

## **Mg—Mangum-Drummond complex, rarely flooded**

### **Map Unit Composition**

Mangum: 65 percent

Drummond: 35 percent

### **Component Descriptions**

#### **Mangum**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Very slow (About 0.00 in/hr)

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

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* Rare

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Clay Lowland (pe20-25)

*Land capability (irrigated):* 2s

*Land capability (nonirrigated):* 3s

#### *Typical Profile:*

H1—0 to 10 inches; clay

H2—10 to 50 inches; clay

H3—50 to 60 inches; clay loam

#### **Drummond**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Terrace on river valley  
*Parent material:* Clayey and/or loamy alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Low (About 4.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* About 24 to 72 inches  
*Runoff class:* Very low  
*Ecological site:* Saline Lowland (pe20-25)  
*Land capability (nonirrigated):* 5s

*Typical Profile:*

H1—0 to 8 inches; silty clay loam  
 H2—8 to 30 inches; clay loam  
 H3—30 to 60 inches; variable

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Clayey, Depression

**Mn—Minco silt loam, 0 to 2 percent slopes**

**Map Unit Composition**

Minco: 100 percent

**Component Descriptions**

**Minco**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Eolian deposits  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 10.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 27 inches; silt loam  
 H2—27 to 60 inches; silt loam

**Na—Naron fine sandy loam, 0 to 1 percent slopes**

**Map Unit Composition**

Naron: 100 percent

**Component Descriptions**

**Naron**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.0 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Negligible  
*Ecological site:* Sandy (pe24-32)  
*Land capability (irrigated):* 1  
*Land capability (nonirrigated):* 2e

*Typical Profile:*

H1—0 to 12 inches; fine sandy loam  
 H2—12 to 37 inches; fine sandy loam  
 H3—37 to 60 inches; fine sandy loam

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Loamy, Depression

**Nb—Naron fine sandy loam, 1 to 3 percent slopes**

**Map Unit Composition**

Naron: 100 percent

**Component Descriptions**

**Naron**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Loamy eolian deposits  
*Slope:* 1 to 3 percent

*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.0 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Sandy (pe24-32)  
*Land capability (irrigated):* 2e  
*Land capability (nonirrigated):* 3e

**Typical Profile:**

H1—0 to 12 inches; fine sandy loam  
 H2—12 to 37 inches; fine sandy loam  
 H3—37 to 60 inches; fine sandy loam

**Minor Components****Unnamed Wet Soils**

*Phase:* Loamy, Depression

**Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

**Os—Ost clay loam, 0 to 1 percent slopes****Map Unit Composition**

Ost: 100 percent

**Component Descriptions****Ost**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.3 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2c

**Typical Profile:**

H1—0 to 8 inches; clay loam  
 H2—8 to 22 inches; clay loam  
 H3—22 to 60 inches; clay loam

**Minor Components****Carwile****Ot—Ost clay loam, 1 to 3 percent slopes****Map Unit Composition**

Ost: 100 percent

**Component Descriptions****Ost**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 1 to 3 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* High (About 10.3 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe24-32)  
*Land capability (nonirrigated):* 2e

**Typical Profile:**

H1—0 to 8 inches; clay loam  
 H2—8 to 22 inches; clay loam  
 H3—22 to 60 inches; clay loam

**Pa—Pond Creek silt loam, 0 to 1 percent slopes****Map Unit Composition**

Pond Creek: 100 percent

### Component Descriptions

#### Pond Creek

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Terrace

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 11.1 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Loamy Upland (pe24-32)

*Land capability (nonirrigated):* 1

#### Typical Profile:

H1—0 to 11 inches; silt loam

H2—11 to 60 inches; silty clay loam

### Pd—Pond Creek silt loam, 1 to 3 percent slopes

#### Map Unit Composition

Pond Creek: 100 percent

### Component Descriptions

#### Pond Creek

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Terrace

*Parent material:* Alluvium

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 in/hr)

*Available water capacity:* High (About 11.1 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Loamy Upland (pe24-32)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

H1—0 to 11 inches; silt loam

H2—11 to 60 inches; silty clay loam

#### Minor Components

#### Unnamed Wet Soils

*Phase:* Loamy, Drainageway

### Ph—Dale silt loam, rarely flooded

#### Map Unit Composition

Dale: 100 percent

### Component Descriptions

#### Dale

*MLRA:* 80A - Central Rolling Red Prairies

*Landform:* Terrace on river valley

*Parent material:* Alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 11.8 inches)

*Shrink-swell potential:* Moderate (About 4.5 LEP)

*Flooding hazard:* Rare

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Loamy Terrace (pe24-32)

*Land capability (nonirrigated):* 1

#### Typical Profile:

H1—0 to 20 inches; silt loam

H2—20 to 60 inches; silt loam

#### Minor Components

#### Unnamed Wet Soils

*Phase:* Loamy, Depression

### Pk—Buttermilk silt loam, rarely flooded

#### Map Unit Composition

Buttermilk: 100 percent

### Component Descriptions

#### Buttermilk

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Flood plain, river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.1 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* About 54 to 72 inches  
*Runoff class:* Negligible  
*Ecological site:* Saline Lowland (pe24-32)  
*Land capability (nonirrigated):* 3s

#### Typical Profile:

H1—0 to 20 inches; silt loam  
 H2—20 to 32 inches; silt loam  
 H3—32 to 60 inches; silt loam

#### Minor Components

##### Unnamed Wet Soils

*Phase:* Loamy, Depression

##### Unnamed Wet Soils

*Phase:* Loamy, Drainageway

### Ps—Pratt loamy fine sand, 5 to 10 percent slopes

### Map Unit Composition

Pratt: 100 percent

### Component Descriptions

#### Pratt

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 5 to 10 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.3 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Sands (pe24-32)

*Land capability (irrigated):* 3e

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 7 inches; loamy fine sand  
 H2—7 to 30 inches; loamy fine sand  
 H3—30 to 60 inches; loamy fine sand

#### Minor Components

##### Carwile

##### Unnamed Wet Soils

*Phase:* Sandy, Depression

### Pt—Pratt-Tivoli loamy fine sands, 5 to 15 percent slopes

### Map Unit Composition

Pratt: 70 percent

Tivoli: 30 percent

### Component Descriptions

#### Pratt

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits  
*Slope:* 5 to 15 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 6.3 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sands (pe20-25)  
*Land capability (nonirrigated):* 6e

#### Typical Profile:

H1—0 to 7 inches; loamy fine sand  
 H2—7 to 30 inches; loamy fine sand  
 H3—30 to 60 inches; loamy fine sand

#### Tivoli

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Dune on paleoterrace on river valley  
*Parent material:* Sandy eolian deposits



*Slope:* 5 to 15 percent  
*Drainage class:* Excessively drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Low (About 3.2 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sands (pe20-25)  
*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 5 inches; loamy fine sand  
 H2—5 to 60 inches; fine sand

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Sandy, Depression

**Qn—Quinlan loam, 1 to 3 percent slopes**

**Map Unit Composition**

Quinlan: 100 percent

**Component Descriptions**

**Quinlan**  
*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 14 inches; loam  
 Cr—14 to 14 inches; weathered bedrock

**Minor Components**  
**Unnamed Wet Soils**  
*Phase:* Loamy, Drainageway

**Qw—Quinlan-Woodward complex, 5 to 15 percent slopes**

**Map Unit Composition**

Quinlan: 60 percent  
 Woodward: 40 percent

**Component Descriptions**

**Quinlan**  
*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 5 to 15 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 14 inches; loam  
 Cr—14 to 14 inches; weathered bedrock

**Woodward**  
*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 5 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 6.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

H1—0 to 40 inches; loam  
 Cr—40 to 40 inches; weathered bedrock

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

**Rb—Knoco-Shale Outcrop complex, 15 to 80 percent slopes**

**Map Unit Composition**

Knoco: 70 percent  
 Rock outcrop: 30 percent

**Component Descriptions**

**Knoco**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Slope:* 15 to 50 percent  
*Depth to restrictive feature:* 4 to 19 inches to bedrock (paralithic)  
*Drainage class:* Excessively drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Very low (About 1.5 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Red Shale (pe20-25)  
*Land capability (nonirrigated):* 7s

*Typical Profile:*

H1—0 to 9 inches; clay  
 H2—9 to 19 inches;  
 H3—19 to 60 inches;

**Rock outcrop**

*MLRA:* 78 - Central Rolling Red Plains  
*Slope:* 15 to 80 percent  
*Depth to restrictive feature:* 0 inches to bedrock (paralithic)  
*Drainage class:* Excessively drained

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very high

*Land capability (nonirrigated):* 8s

**Minor Components**

**Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

**Sb—Shellabarger sandy loam, 3 to 6 percent slopes**

**Map Unit Composition**

Shellabarger: 100 percent

**Component Descriptions**

**Shellabarger**

*MLRA:* 79 - Great Bend Sand Plains  
*Landform:* Paleoterrace on river valley  
*Parent material:* Loamy alluvium  
*Slope:* 3 to 6 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* High (About 9.4 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Sandy (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 14 inches; sandy loam  
 H2—14 to 48 inches; sandy clay loam  
 H3—48 to 60 inches; coarse sandy loam

**SBB—Shellabarger fine sandy loam, 0 to 1 percent slopes**

**Map Unit Composition**

Shellabarger: 100 percent

## Component Descriptions

### Shellabarger

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 0 to 1 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Moderate (About 8.5 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Negligible

*Ecological site:* Sandy (pe24-32)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

H1—0 to 11 inches; fine sandy loam

H2—11 to 34 inches; sandy clay loam

H3—34 to 60 inches; coarse sandy loam

## Sc—Shellabarger sandy loam, 3 to 6 percent slopes, eroded

### Map Unit Composition

Shellabarger: 100 percent

## Component Descriptions

### Shellabarger

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Paleoterrace on river valley

*Parent material:* Loamy alluvium

*Slope:* 3 to 6 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* High (About 9.4 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Sandy (pe20-25)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 14 inches; sandy loam

H2—14 to 48 inches; sandy clay loam

H3—48 to 60 inches; coarse sandy loam

### Minor Components

#### Unnamed Wet Soils

*Phase:* Loamy, Drainageway

## Tv—Tivoli fine sand, 5 to 20 percent slopes

### Map Unit Composition

Tivoli: 100 percent

## Component Descriptions

### Tivoli

*MLRA:* 79 - Great Bend Sand Plains

*Landform:* Dune on paleoterrace on river valley

*Parent material:* Sandy eolian deposits

*Slope:* 5 to 20 percent

*Drainage class:* Excessively drained

*Slowest permeability:* Rapid (About 5.95 in/hr)

*Available water capacity:* Very low (About 3.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Choppy Sands (pe20-25)

*Land capability (nonirrigated):* 7e

#### Typical Profile:

H1—0 to 5 inches; fine sand

H2—5 to 60 inches; fine sand

### Minor Components

#### Unnamed Wet Soils

*Phase:* Sandy, Depression

## Vn—Vernon clay loam, 3 to 5 percent slopes

### Map Unit Composition

Vernon: 100 percent

## Component Descriptions

### Vernon

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 3 to 5 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Low (About 3.5 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Red Clay Prairie (pe20-25)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 5 inches; clay loam

H2—5 to 22 inches; clay

H3—22 to 60 inches; weathered bedrock

## Vr—Vernon clay loam, 5 to 15 percent slopes

### Map Unit Composition

Vernon: 100 percent

## Component Descriptions

### Vernon

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 5 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Low (About 3.5 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* High

*Ecological site:* Red Clay Prairie (pe20-25)

*Land capability (nonirrigated):* 6e

#### Typical Profile:

H1—0 to 5 inches; clay loam

H2—5 to 22 inches; clay

H3—22 to 60 inches; weathered bedrock

### Minor Components

#### Unnamed Wet Soils

*Phase:* Clayey, Drainageway

## Vs—Vernon-Knoco complex, 1 to 5 percent slopes

### Map Unit Composition

Vernon: 50 percent

Knoco: 50 percent

## Component Descriptions

### Vernon

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 1 to 5 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* Low (About 3.5 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Low

*Ecological site:* Red Clay Prairie (pe20-25)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 5 inches; clay loam

H2—5 to 22 inches; silty clay

H3—22 to 60 inches; weathered bedrock

### Knoco

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Dense, noncemented residuum weathered from claystone

*Slope:* 1 to 5 percent

*Depth to restrictive feature:* 4 to 19 inches to bedrock (paralithic)

*Drainage class:* Excessively drained

*Slowest permeability:* Very slow (About 0.00 in/hr)

*Available water capacity:* Very low (About 1.5 inches)

*Shrink-swell potential:* High (About 7.5 LEP)

*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Ecological site:* Red Shale (pe20-25)  
*Land capability (nonirrigated):* 7s

*Typical Profile:*  
 H1—0 to 9 inches; clay  
 H2—9 to 19 inches; clay  
 H3—19 to 60 inches;

## **W—Water**

### **Wa—Waldeck sandy loam, occasionally flooded**

#### **Map Unit Composition**

Waldeck: 100 percent

#### **Component Descriptions**

##### **Waldeck**

*MLRA:* 80A - Central Rolling Red Prairies  
*Landform:* Flood plain on river valley  
*Parent material:* Alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Moderately rapid (About 2.00 in/hr)  
*Available water capacity:* Moderate (About 6.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 24 to 48 inches  
*Runoff class:* Very low  
*Ecological site:* Subirrigated (pe24-32)  
*Land capability (nonirrigated):* 3w

*Typical Profile:*  
 H1—0 to 12 inches; sandy loam  
 H2—12 to 36 inches; sandy loam  
 H3—36 to 60 inches; sand

#### **Minor Components**

##### **Kanza**

### **Wo—Woodward-Quinlan loams, 0 to 3 percent slopes**

#### **Map Unit Composition**

Woodward: 70 percent  
 Quinlan: 30 percent

#### **Component Descriptions**

##### **Woodward**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Moderate (About 6.8 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Shallow Prairie (pe20-25)  
*Land capability (nonirrigated):* 2e

*Typical Profile:*  
 H1—0 to 40 inches; loam  
 Cr—40 to 40 inches; weathered bedrock

##### **Quinlan**

*MLRA:* 78 - Central Rolling Red Plains  
*Landform:* Hillslope on upland  
*Parent material:* Residuum  
*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very low (About 2.7 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Low  
*Ecological site:* Loamy Upland (pe20-25)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 14 inches; loam  
Cr—14 to 14 inches; weathered bedrock

**Minor Components****Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

## **Ws—Woodward-Quinlan loams, 3 to 6 percent slopes**

### **Map Unit Composition**

Woodward: 65 percent

Quinlan: 35 percent

### **Component Descriptions**

**Woodward**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 3 to 6 percent

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Moderate (About 6.8 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Shallow Prairie (pe20-25)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 40 inches; loam  
Cr—40 to 40 inches; weathered bedrock

**Quinlan**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Hillslope on upland

*Parent material:* Residuum

*Slope:* 3 to 6 percent

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Drainage class:* Well drained

*Slowest permeability:* Moderate (About 0.60 in/hr)

*Available water capacity:* Very low (About 2.7 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Medium

*Ecological site:* Loamy Upland (pe20-25)

*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 14 inches; loam  
Cr—14 to 14 inches; weathered bedrock

**Minor Components****Unnamed Wet Soils**

*Phase:* Loamy, Drainageway

## **Ya—Yahola sandy loam, occasionally flooded**

### **Map Unit Composition**

Yahola: 100 percent

### **Component Descriptions**

**Yahola**

*MLRA:* 78 - Central Rolling Red Plains

*Landform:* Flood plain

*Parent material:* Alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately rapid (About 2.00 in/hr)

*Available water capacity:* High (About 9.0 inches)

*Shrink-swell potential:* Low (About 1.5 LEP)

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* More than 6 feet

*Runoff class:* Very low

*Ecological site:* Subirrigated (pe20-25)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 14 inches; sandy loam  
H2—14 to 60 inches; fine sandy loam  
H3—60 to 66 inches; stratified loam to loamy fine sand

**Minor Components****Unnamed Wet Soils***Phase:* Loamy, Drainageway**Unnamed Wet Soils***Phase:* Loamy, Depression**Ze—Zenda clay loam, occasionally flooded****Map Unit Composition**

Zenda: 100 percent

**Component Descriptions****Zenda***MLRA:* 78 - Central Rolling Red Plains*Landform:* Dune on paleoterrace on river valley*Parent material:* Sandy eolian deposits*Slope:* 0 to 1 percent*Drainage class:* Somewhat poorly drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 10.6 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* Occasional*Depth to seasonal water saturation:* About 24 to 48 inches*Runoff class:* Negligible*Ecological site:* Subirrigated (pe20-25)*Land capability (nonirrigated):* 2w*Typical Profile:*

H1—0 to 20 inches; clay loam

H2—20 to 60 inches; clay loam

**Minor Components****Unnamed Wet Soils***Phase:* Loamy, Drainageway