

## 013PD—Padonia-Martin silty clay loams, 5 to 9 percent slopes

### Map Unit Composition

Padonia: 50 percent  
 Martin: 40 percent  
 Minor components: 10 percent

### Component Descriptions

#### Padonia

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Residuum weathered from shale, calcareous

*Slope:* 5 to 9 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:* Moderate (About 6.5 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:* Clay Upland (pe30-37)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

A—0 to 11 inches; silty clay loam  
 Bt—11 to 22 inches; silty clay  
 Btk—22 to 32 inches; silty clay  
 BCK—32 to 37 inches; silty clay loam  
 Cr—37 to 40 inches; weathered bedrock

#### Martin

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Footslope, backslope

*Parent material:* Silty and clayey colluvium derived from limestone-shale over silty and clayey

residuum weathered from limestone-shale

*Slope:* 4 to 12 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 9.5 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 22 to 26 inches

*Runoff class:* Very high

*Ecological site:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

Ap—0 to 6 inches; silty clay loam  
 BA—6 to 12 inches; silty clay loam  
 Bt—12 to 53 inches; silty clay  
 C—53 to 80 inches; silty clay

### Minor Components

#### Kipson

*Composition:* About 10 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 5 to 30 percent

*Depth to restrictive feature:* 7 to 20 inches to bedrock (paralithic)

*Drainage class:* Somewhat excessively drained

*Ecological site:* Limy Upland (pe30-37)

## 013SG—Shelby clay loam, 6 to 12 percent slopes

### Map Unit Composition

Shelby: 88 percent  
 Minor components: 12 percent

### Component Descriptions

#### Shelby

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope, upland

*Hillslope position:* Shoulder, backslope

*Parent material:* Till, unspecified

*Slope:* 6 to 12 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 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:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

A—0 to 13 inches; clay loam

Bt—13 to 36 inches; clay loam  
 BC—36 to 48 inches; clay loam  
 C—48 to 80 inches; clay loam

### Minor Components

#### Pawnee

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

#### Kennebec

*Composition:* About 4 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

#### Olmitz

*Composition:* About 3 percent  
*Geomorphic Position:* fan terrace on upland  
*Slope:* 2 to 5 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

## 013SM—Shelby clay loam, 12 to 18 percent slopes, moderately eroded

### Map Unit Composition

Shelby: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Shelby

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Shoulder, backslope

*Parent material:* Till, unspecified

*Slope:* 12 to 18 percent

*Drainage class:* Well drained

*Slowest permeability:* Moderately slow (About 0.20 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:* High

*Ecological site:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

Ap—0 to 8 inches; clay loam

Bt—8 to 45 inches; clay loam  
 C—45 to 80 inches; clay loam

### Minor Components

#### Pawnee

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

#### Padonia

*Composition:* About 4 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 9 to 25 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Clay Upland (pe30-37)

#### Kennebec

*Composition:* About 3 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

#### Olmitz

*Composition:* About 3 percent  
*Geomorphic Position:* fan terrace on upland  
*Slope:* 2 to 5 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

## 085WB—Wymore silty clay loam, 1 to 3 percent slopes

### Map Unit Composition

Wymore: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Wymore

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey loess

*Slope:* 1 to 3 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 10.2 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe30-37)  
*Land capability (irrigated):* 2e  
*Land capability (nonirrigated):* 2e

**Typical Profile:**

H1—0 to 10 inches; silty clay loam  
 H2—10 to 32 inches; silty clay  
 H3—32 to 60 inches; silty clay loam

**Minor Components**

**Shelby**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Pawnee**

*Composition:* About 5 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Martin**

*Composition:* About 5 percent  
*Slope:* 3 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Typical Profile:**

H1—0 to 10 inches; silty clay loam  
 H2—10 to 32 inches; silty clay  
 H3—32 to 60 inches; silty clay loam

**Minor Components**

**Shelby**

*Phase:* Eroded  
*Composition:* About 4 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Pawnee**

*Phase:* Eroded  
*Composition:* About 4 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Martin**

*Phase:* Eroded  
*Composition:* About 4 percent  
*Slope:* 3 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**085WC—Wymore silty clay loam, 2 to 5 percent slopes, eroded**

**Map Unit Composition**

Wymore: 88 percent  
 Minor components: 12 percent

**Component Descriptions**

**Wymore**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey loess  
*Slope:* 2 to 5 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.2 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (irrigated):* 4e  
*Land capability (nonirrigated):* 4e

**087MO—Martin-Oska silty clay loams, 3 to 6 percent slopes**

**Map Unit Composition**

Martin: 40 percent  
 Oska: 30 percent  
 Minor components: 30 percent

**Component Descriptions**

**Martin**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale  
*Slope:* 3 to 6 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.7 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None

*Depth to seasonal water saturation:* About 22 to 26 inches  
*Runoff class:* High  
*Ecological site:* Loamy Upland (pe35-42)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

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

**Oska**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey residuum weathered from limestone and shale

*Slope:* 3 to 6 percent

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

*Drainage class:* Well drained

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

*Available water capacity:* Moderate (About 6.3 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:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 5 inches; silty clay loam  
 H2—5 to 38 inches; silty clay  
 R—38 to 42 inches; unweathered bedrock

**Minor Components**

**Unnamed Soils**

*Composition:* About 25 percent

*Slope:* 3 to 6 percent

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

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe35-42)

**Sogn**

*Composition:* About 3 percent

*Slope:* 5 to 20 percent

*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

*Drainage class:* Somewhat excessively drained

*Ecological site:* Shallow Limy (pe30-37)

**Vinland**

*Composition:* About 2 percent

*Slope:* 5 to 20 percent

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

*Drainage class:* Somewhat excessively drained

*Ecological site:* Loamy Upland (pe30-37)

**087SC—Shelby-Pawnee complex,  
3 to 8 percent slopes**

**Map Unit Composition**

Shelby: 55 percent

Pawnee: 30 percent

Minor components: 15 percent

**Component Descriptions**

**Shelby**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Fine-loamy till

*Slope:* 3 to 8 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 10.5 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:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 12 inches; loam  
 H2—12 to 48 inches; clay loam  
 H3—48 to 60 inches; clay loam

**Pawnee**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Clayey till

*Slope:* 3 to 8 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Moderate (About 7.0 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* Very high

*Ecological site:* Clay Upland (pe30-37)

*Land capability (nonirrigated): 3e*

*Typical Profile:*

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

**Minor Components**

**Grundy**

*Composition:* About 3 percent  
*Slope:* 2 to 5 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Upland (pe30-37)

**Morrill**

*Composition:* About 3 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Martin**

*Composition:* About 3 percent  
*Slope:* 3 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Oska**

*Composition:* About 2 percent  
*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Sogn**

*Composition:* About 2 percent  
*Slope:* 5 to 20 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Shallow Limy (pe30-37)

**Vinland**

*Composition:* About 2 percent  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Loamy Upland (pe30-37)

**601GC—Gosport complex, 10 to 30 percent slopes**

**Map Unit Composition**

Gosport: 50 percent  
Minor components: 50 percent

**Component Descriptions**

**Gosport**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Hillslope on upland

*Parent material:* Clayey residuum weathered from shale

*Slope:* 10 to 30 percent

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

*Drainage class:* Moderately well drained

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

*Available water capacity:* Low (About 4.7 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

*Land capability (nonirrigated): 7e*

*Typical Profile:*

H1—0 to 6 inches; silt loam  
H2—6 to 33 inches; silty clay  
Cr—33 to 33 inches; weathered bedrock

**Minor Components**

**Unnamed Soil**

*Composition:* About 30 percent  
*Slope:* 10 to 30 percent  
*Depth to restrictive feature:* 16 to 22 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained

**Martin**

*Composition:* About 10 percent  
*Slope:* 7 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Elmont**

*Composition:* About 10 percent  
*Slope:* 7 to 12 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

**601GT—Grundy silty clay loam, 1 to 3 percent slopes**

**Map Unit Composition**

Grundy: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Grundy

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey loess

*Slope:* 1 to 3 percent

*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* High (About 9.3 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 20 inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe30-37)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

H1—0 to 11 inches; silty clay loam

H2—11 to 15 inches; silty clay loam

H3—15 to 43 inches; silty clay

H4—43 to 65 inches; silty clay loam

#### Minor Components

##### Sharpsburg

*Composition:* About 10 percent

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe30-37)

### 601KH—Knox silt loam, 7 to 12 percent slopes

#### Map Unit Composition

Knox: 80 percent

Minor components: 20 percent

### Component Descriptions

#### Knox

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Hillslope on upland

*Parent material:* Fine-silty loess

*Slope:* 7 to 12 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 11.5 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Medium

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 6 inches; silt loam

H2—6 to 60 inches; silty clay loam

#### Minor Components

##### Armster

*Phase:* Eroded

*Composition:* About 5 percent

*Slope:* 8 to 12 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe30-37)

##### Ladoga

*Composition:* About 5 percent

*Slope:* 4 to 7 percent

*Drainage class:* Moderately well drained

##### Welda

*Composition:* About 5 percent

*Slope:* 9 to 15 percent

*Drainage class:* Well drained

*Ecological site:* Savannah (pe30-37)

##### Similar Soil

*Composition:* About 5 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 10 to 18 percent

*Drainage class:* Well drained

### 601LA—Ladoga silt loam, 4 to 7 percent slopes

#### Map Unit Composition

Ladoga: 80 percent

Minor components: 20 percent

### Component Descriptions

#### Ladoga

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey loess

*Slope:* 4 to 7 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 11.5 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 3e

*Typical Profile:*  
 H1—0 to 7 inches; silt loam  
 H2—7 to 49 inches; silty clay loam  
 H3—49 to 60 inches; silty clay loam

### Minor Components

#### Knox

*Composition:* About 10 percent  
*Slope:* 7 to 12 percent  
*Drainage class:* Well drained

#### Sharpsburg

*Composition:* About 10 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-37)

## 601SH—Shelby loam, 4 to 8 percent slopes

### Map Unit Composition

Shelby: 80 percent  
 Minor components: 20 percent

### Component Descriptions

#### Shelby

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Fine-loamy till  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately 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:* High  
*Ecological site:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 7 inches; loam  
 H2—7 to 40 inches; clay loam  
 H3—40 to 75 inches; clay loam

### Minor Components

#### Oska

*Composition:* About 5 percent  
*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

#### Sharpsburg

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-37)

#### Elmont

*Composition:* About 5 percent  
*Slope:* 7 to 12 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

#### Pawnee

*Phase:* Eroded  
*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

## 601SM—Shelby loam, 8 to 12 percent slopes

### Map Unit Composition

Shelby: 90 percent  
 Minor components: 10 percent

### Component Descriptions

#### Shelby

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Fine-loamy till  
*Slope:* 8 to 12 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderately slow (About 0.20 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:* Loamy Upland (pe30-37)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 5 inches; loam  
 H2—5 to 40 inches; clay loam  
 H3—40 to 75 inches; clay loam

**Minor Components**

**Pawnee**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Elmont**

*Composition:* About 5 percent  
*Slope:* 7 to 12 percent  
*Depth to restrictive feature:* More than 60 inches to bedrock  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Ab—Albaton silty clay, 0 to 2 percent slopes, occasionally flooded**

**Map Unit Composition**

Albaton: 86 percent  
 Minor components: 14 percent

**Component Descriptions**

**Albaton**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Alluvial flat on flood plain on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 7.1 inches)

*Shrink-swell potential:* Very high (About 17.0 LEP)

*Flooding hazard:* Occasional

*Ponding hazard:* Occasional

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

*Runoff class:* Negligible

*Ecological site:* Clayey Overflow - Veg. Zone 3

*Land capability (irrigated):* 3w

*Land capability (nonirrigated):* 3w

*Typical Profile:*

Ap—0 to 7 inches; silty clay  
 Cg1—7 to 60 inches; clay

**Minor Components**

**Onawa**

*Composition:* About 7 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clay Lowland (pe35-37)

**Waldron**

*Composition:* About 7 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Clayey Overflow - Veg. Zone 3

**Ae—Aksarben silty clay loam, 5 to 11 percent slopes**

**Map Unit Composition**

Aksarben: 85 percent  
 Minor components: 15 percent

**Component Descriptions**

**Aksarben**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Loess

*Slope:* 5 to 11 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 10.7 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:* Loamy Upland (pe30-37)

*Land capability (nonirrigated):* 3e

*Typical Profile:*

Ap—0 to 6 inches; silty clay loam  
 A—6 to 12 inches; silty clay loam  
 Bt1—12 to 18 inches; silty clay loam  
 Bt2—18 to 26 inches; silty clay loam  
 Bt3—26 to 34 inches; silty clay loam  
 Bt4—34 to 42 inches; silty clay loam  
 BC—42 to 60 inches; silty clay loam  
 C—60 to 80 inches; silt loam

**Minor Components**

**Judson**

*Composition:* About 3 percent

*Geomorphic Position:* fan remnant on upland

*Slope:* 2 to 6 percent

*Drainage class:* Well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Kennebec**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Morrill**

*Composition:* About 3 percent

*Slope:* 6 to 12 percent

*Drainage class:* Well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Wymore**

*Composition:* About 3 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 5 to 9 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Marshall**

*Composition:* About 3 percent

*Slope:* 5 to 11 percent

*Drainage class:* Well drained

*Ecological site:* Loamy Upland (pe30-37)

**AED—Arents, Earthen Dam**

**Aq—Fluvaquents, Ponged**

**Map Unit Composition**

Fluvaquents: 95 percent

Minor components: 5 percent

**Component Descriptions**

**Fluvaquents**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Depression on flood plain on river valley

*Parent material:* Silty and clayey alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ponding hazard:* Frequent

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

*Runoff class:* Negligible

*Land capability (nonirrigated):* 8w

*Typical Profile:*

A—0 to 80 inches; stratified variable

**Minor Components**

**Onawa**

*Phase:* Occasionally Flooded Overwash

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Lowland (pe35-37)

**Ar—Armster clay loam, 6 to 12 percent slopes**

**Map Unit Composition**

Armster: 85 percent

Minor components: 15 percent

**Component Descriptions**

**Armster**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Loess over till

*Slope:* 6 to 12 percent

*Drainage class:* Moderately well drained

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

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

*Shrink-swell potential:* High (About 8.0 LEP)

*Flooding hazard:* None

*Depth to seasonal water saturation:* About inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe30-37)

*Land capability (nonirrigated):* 4e

*Typical Profile:*

Ap—0 to 6 inches; loam  
 BE—6 to 10 inches; clay loam  
 2Bt1—10 to 16 inches; clay  
 2Bt2—16 to 28 inches; clay  
 2Bt3—28 to 36 inches; clay  
 2BC—36 to 52 inches; clay  
 2C—52 to 60 inches; clay loam

**Minor Components****Sharpsburg**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Martin**

*Composition:* About 5 percent  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Knox**

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 4 to 10 percent  
*Drainage class:* Well drained

**As—Armster clay loam, 12 to 20 percent slopes****Map Unit Composition**

Armster: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Armster**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Loess over till  
*Slope:* 12 to 20 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Moderately slow (About 0.20 in/hr)  
*Available water capacity:* Moderate (About 6.8 inches)  
*Shrink-swell potential:* High (About 8.0 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

Ap—0 to 6 inches; loam  
 BE—6 to 10 inches; clay loam  
 2Bt1—10 to 16 inches; clay  
 2Bt2—16 to 28 inches; clay  
 2Bt3—28 to 36 inches; clay  
 2BC—36 to 52 inches; clay  
 2C—52 to 60 inches; clay loam

**Minor Components****Gosport**

*Composition:* About 4 percent  
*Slope:* 25 to 45 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained

**Vinland**

*Composition:* About 4 percent  
*Slope:* 4 to 15 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Loamy Upland (pe30-37)

**Knox**

*Composition:* About 4 percent  
*Slope:* 10 to 30 percent  
*Drainage class:* Well drained

**Martin**

*Composition:* About 3 percent  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Ch—Chase silty clay loam, 0 to 2 percent slopes, occasionally flooded****Map Unit Composition**

Chase: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Chase**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Flood plain on river valley  
*Parent material:* Silty and clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)

*Available water capacity:* High (About 9.9 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* Rare  
*Depth to seasonal water saturation:* About 22 to 26 inches  
*Runoff class:* Medium  
*Ecological site:* Loamy Lowland (pe30-37)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 9 inches; silty clay loam  
 BA—9 to 19 inches; silty clay loam  
 Bt—19 to 41 inches; silty clay  
 BC—41 to 47 inches; silty clay loam  
 C—47 to 80 inches; silty clay loam

**Minor Components**

**Kennebec**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Muscotah**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Go—Gosport silty clay loam, 25 to 45 percent slopes**

**Map Unit Composition**

Gosport: 85 percent  
 Minor components: 15 percent

**Component Descriptions**

**Gosport**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Clayey residuum weathered from shale  
*Slope:* 25 to 45 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Low (About 4.7 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

*Land capability (nonirrigated):* 7e

*Typical Profile:*

H1—0 to 8 inches; silty clay loam  
 H2—8 to 35 inches; silty clay  
 Cr—35 to 39 inches; weathered bedrock

**Minor Components**

**Armster**

*Composition:* About 5 percent  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Knox**

*Composition:* About 5 percent  
*Slope:* 12 to 18 percent  
*Drainage class:* Well drained

**Martin**

*Composition:* About 5 percent  
*Slope:* 7 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Gr—Grundy silty clay loam, 0 to 2 percent slopes**

**Map Unit Composition**

Grundy: 90 percent  
 Minor components: 10 percent

**Component Descriptions**

**Grundy**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey loess  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.1 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 12 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 7 inches; silty clay loam  
 H2—7 to 14 inches; silty clay loam  
 H3—14 to 30 inches; silty clay  
 H4—30 to 60 inches; silty clay loam

**Minor Components****Sharpsburg**

*Composition:* About 10 percent  
*Slope:* 1 to 4 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Gu—Grundy silty clay loam, 2 to 6 percent slopes****Map Unit Composition**

Grundy: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Grundy**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey loess  
*Slope:* 2 to 6 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.1 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 12 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 7 inches; silty clay loam  
 H2—7 to 14 inches; silty clay loam  
 H3—14 to 30 inches; silty clay  
 H4—30 to 60 inches; silty clay loam

**Minor Components****Sharpsburg**

*Composition:* About 10 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Kennebec**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Gx—Grundy silty clay, 3 to 7 percent slopes, eroded**  
**Map Unit Composition**

Grundy: 90 percent  
 Minor components: 10 percent

**Component Descriptions****Grundy**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland  
*Parent material:* Silty and clayey loess  
*Slope:* 3 to 7 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 7.5 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 6 to 12 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

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

**Minor Components****Sharpsburg**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Kennebec**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Hn—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded**

*Mapunit Information:* test

**Map Unit Composition**

Haynie: 96 percent  
 Minor components: 4 percent

## Component Descriptions

### Haynie

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Alluvial flat on river valley

*Parent material:* Coarse-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

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

*Available water capacity:* Very high (About 12.4 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* None

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

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-37)

*Land capability (irrigated):* 2w

*Land capability (nonirrigated):* 2w

#### Typical Profile:

Ap—0 to 7 inches; silt loam

C1—7 to 60 inches; stratified silt loam

### Minor Components

#### Onawa

*Composition:* About 2 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Lowland (pe35-37)

#### Wathena

*Composition:* About 2 percent

*Slope:* 0 to 3 percent

*Drainage class:* Moderately well drained

*Ecological site:* Sandy Lowland (pe35-37)

## Ho—Haynie-Onawa complex, 0 to 2 percent slopes, occasionally flooded

## Map Unit Composition

Haynie: 60 percent

Onawa: 30 percent

Minor components: 10 percent

## Component Descriptions

### Haynie

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Alluvial flat on river valley

*Parent material:* Coarse-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

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

*Available water capacity:* Very high (About 12.4 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* None

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

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-37)

*Land capability (irrigated):* 2w

*Land capability (nonirrigated):* 2w

#### Typical Profile:

Ap—0 to 7 inches; silt loam

C1—7 to 60 inches; stratified silt loam

### Onawa

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Flood plain on river valley

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

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

*Available water capacity:* High (About 11.3 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* Occasional

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

*Runoff class:* Medium

*Ecological site:* Clay Lowland (pe35-37)

*Land capability (irrigated):* 2w

*Land capability (nonirrigated):* 2w

#### Typical Profile:

Ap—0 to 7 inches; silty clay loam

C1—7 to 22 inches; silty clay, silty clay

2C2—22 to 60 inches; silt loam

### Minor Components

#### Waldron

*Composition:* About 10 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clayey Overflow - Veg. Zone

## Ju—Judson silt loam, 2 to 6 percent slopes

### Map Unit Composition

Judson: 95 percent  
Minor components: 5 percent

### Component Descriptions

#### Judson

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Fan remnant on upland

*Hillslope position:* Footslope

*Parent material:* Loamy colluvium

*Slope:* 2 to 6 percent

*Drainage class:* Well drained

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

*Available water capacity:* Very high (About 13.0 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:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

Ap—0 to 7 inches; silt loam  
A—7 to 25 inches; silt loam  
AB—25 to 40 inches; silty clay loam  
Bw—40 to 50 inches; silty clay loam  
BC—50 to 80 inches; silty clay loam

### Minor Components

#### Kennebec

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

## Ke—Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded

### Map Unit Composition

Kennebec: 89 percent  
Minor components: 11 percent

### Component Descriptions

#### Kennebec

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on valley

*Parent material:* Silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Very high (About 13.2 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* None

*Depth to seasonal water saturation:* About 39 to 55 inches

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 2w

#### Typical Profile:

Ap—0 to 8 inches; silt loam  
A1—8 to 18 inches; silt loam  
A2—18 to 32 inches; silt loam  
A3—32 to 41 inches; silt loam  
AC—41 to 54 inches; silt loam  
C—54 to 60 inches; silt loam

### Minor Components

#### Muscotah

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Loamy Lowland (pe30-37)

#### Kenridge

*Composition:* About 4 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

#### Zook

*Composition:* About 2 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe30-37)

## Kf—Kennebec silt loam, channeled, frequently flooded

### Map Unit Composition

Kennebec: 85 percent  
Minor components: 15 percent

### Component Descriptions

**Kennebec**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on valley

*Parent material:* Silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Very high (About 13.2 inches)

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

*Flooding hazard:* Frequent

*Ponding hazard:* None

*Depth to seasonal water saturation:* About 39 to 55 inches

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 5w

*Typical Profile:*

Ap—0 to 8 inches; silt loam

A1—8 to 18 inches; silt loam

A2—18 to 32 inches; silt loam

A3—32 to 41 inches; silt loam

AC—41 to 54 inches; silt loam

C—54 to 60 inches; silt loam

**Minor Components****Nodaway**

*Composition:* About 8 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Kenridge**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Muscotah**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Loamy Lowland (pe30-37)

**Zook**

*Composition:* About 1 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe30-37)

**Kg—Kennebec-Colo silt loams, 0 to 2 percent slopes, occasionally flooded****Map Unit Composition**

Kennebec: 60 percent

Colo: 30 percent

Minor components: 10 percent

**Component Descriptions****Kennebec**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on river valley

*Parent material:* Fine-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Very high (About 13.3 inches)

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

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 36 to 60 inches

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

H1—0 to 47 inches; silt loam

H2—47 to 60 inches; silt loam

**Colo**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on valley

*Parent material:* Fine-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

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

*Available water capacity:* High (About 11.5 inches)

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

*Flooding hazard:* Occasional

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

*Runoff class:* Low

*Typical Profile:*

H1—0 to 8 inches; silt loam

H2—8 to 60 inches; silty clay loam  
H3—60 to 64 inches; silty clay loam

### Minor Components

#### Chase

*Composition:* About 10 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe30-37)

### Kn—Knox silt loam, 4 to 10 percent slopes

#### Map Unit Composition

Knox: 90 percent  
Minor components: 10 percent

#### Component Descriptions

##### Knox

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit, shoulder, backslope  
*Parent material:* Loess  
*Slope:* 4 to 10 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very high (About 12.4 inches)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Medium  
*Land capability (nonirrigated):* 3e

##### Typical Profile:

A—0 to 7 inches; silt loam  
E—7 to 12 inches; silty clay loam, silt loam  
Bt1—12 to 23 inches; silty clay loam, silty clay loam  
Bt2—23 to 35 inches; silty clay loam  
Bt3—35 to 61 inches; silty clay loam  
BC—61 to 70 inches; silt loam

### Minor Components

#### Palermo

*Composition:* About 5 percent  
*Slope:* 18 to 30 percent  
*Drainage class:* Well drained

#### Marshall

*Composition:* About 5 percent  
*Slope:* 4 to 9 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-37)

### Ky—Knox-Gosport complex, 10 to 30 percent slopes

#### Map Unit Composition

Knox: 60 percent  
Gosport: 30 percent  
Minor components: 10 percent

#### Component Descriptions

##### Knox

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Parent material:* Fine-silty loess  
*Slope:* 10 to 30 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:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 6e

*Typical Profile:*  
H1—0 to 8 inches; silt loam  
H2—8 to 45 inches; silty clay loam  
H3—45 to 60 inches; silt loam

##### Gosport

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Parent material:* Clayey residuum weathered from shale  
*Slope:* 10 to 30 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Low (About 4.1 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

*Typical Profile:*  
H1—0 to 8 inches; silty clay loam



H2—8 to 35 inches; silty clay  
Cr—35 to 39 inches; weathered bedrock

### Minor Components

#### Armster

*Composition:* About 4 percent  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

#### Judson

*Composition:* About 3 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-37)

#### Kennebec

*Composition:* About 3 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

## M-W—Miscellaneous Water

### Mc—Martin silty clay loam, 3 to 7 percent slopes

### Map Unit Composition

Martin: 85 percent  
Minor components: 15 percent

### Component Descriptions

#### Martin

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Silty and clayey colluvium derived from limestone and shale over silty and

clayey residuum weathered from limestone and shale

*Slope:* 3 to 7 percent

*Drainage class:* Moderately well drained

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

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

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 21 to 26 inches

*Runoff class:* High

*Ecological site:* Loamy Upland (pe35-42)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

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

### Minor Components

#### Sogn

*Composition:* About 3 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 7 to 15 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Shallow Limy (pe30-37)

#### Pawnee

*Composition:* About 3 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 1 to 3 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

#### Oska

*Composition:* About 3 percent  
*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

#### Gymer

*Composition:* About 3 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 8 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

#### Vinland

*Composition:* About 2 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Loamy Upland (pe35-42)

#### Sibleyville

*Phase:* Eroded  
*Composition:* About 1 percent  
*Slope:* 3 to 7 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Mw—Muscotah silt loam, 0 to 2 percent slopes, occasionally flooded, Overwash**

**Map Unit Composition**

Muscotah: 87 percent  
Minor components: 13 percent

**Component Descriptions**

**Muscotah**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on valley

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* Impermeable (About 0.00 in/hr)

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

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

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 21 to 26 inches

*Runoff class:* Medium

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 9 inches; silt loam

C—9 to 16 inches; stratified silt loam to silty clay loam

Ab—16 to 30 inches; silty clay loam

Bwb—30 to 39 inches; silty clay

Bgb1—39 to 61 inches; silty clay

Bgb2—61 to 70 inches; silty clay

Bgb3—70 to 80 inches; silty clay

**Minor Components**

**Zook**

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe30-37)

**Kennebec**

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

**Chase**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Loamy Lowland (pe30-37)

**No—Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded**

**Map Unit Composition**

Nodaway: 90 percent  
Minor components: 10 percent

**Component Descriptions**

**Nodaway**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Flood plain on valley

*Parent material:* Silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* Very high (About 13.0 inches)

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

*Flooding hazard:* Occasional

*Depth to seasonal water saturation:* About 33 to 38 inches

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 7 inches; silt loam

C1—7 to 14 inches; stratified silt loam to silty clay loam

C2—14 to 45 inches; stratified silt loam to silty clay loam

C3—45 to 60 inches; stratified silt loam to silty clay loam

**Minor Components**

**Chase**

*Composition:* About 4 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Loamy Lowland (pe30-37)

**Zook**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe30-37)

**Kennebec**

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

## **Od—Onawa loam, 0 to 2 percent slopes, occasionally flooded, Overwash**

### **Map Unit Composition**

Onawa: 95 percent  
Minor components: 5 percent

### **Component Descriptions**

#### **Onawa**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Flood plain on river valley  
*Parent material:* Clayey alluvium over loamy alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 10.3 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* Occasional  
*Ponding hazard:* Occasional  
*Depth to seasonal water saturation:* About 24 to 48 inches  
*Runoff class:* Medium  
*Ecological site:* Clay Lowland (pe35-37)  
*Land capability (irrigated):* 2w  
*Land capability (nonirrigated):* 2w

#### *Typical Profile:*

A—0 to 10 inches; loam  
AC—10 to 17 inches; silty clay loam  
Cg1—17 to 32 inches; silty clay  
2Cg2—32 to 70 inches; silt loam

#### **Minor Components**

##### **Haynie**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-37)

## **On—Onawa And Waldron silty clay loams, 0 to 2 percent slopes, occasionally flooded**

### **Map Unit Composition**

Onawa: 53 percent  
Waldron: 43 percent

Minor components: 4 percent

### **Component Descriptions**

#### **Onawa**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Flood plain on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 11.3 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* Occasional  
*Ponding hazard:* Occasional  
*Depth to seasonal water saturation:* About 12 to 36 inches  
*Runoff class:* Medium  
*Ecological site:* Clay Lowland (pe35-37)  
*Land capability (irrigated):* 2w  
*Land capability (nonirrigated):* 2w

#### *Typical Profile:*

Ap—0 to 7 inches; silty clay loam  
C1—7 to 22 inches; silty clay, silty clay  
2C2—22 to 60 inches; silt loam, silt loam

#### **Waldron**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Flood plain on river valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Slowest permeability:* Very slow (About 0.03 in/hr)  
*Available water capacity:* High (About 9.3 inches)  
*Shrink-swell potential:* Very high (About 9.0 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 3 to 9 inches  
*Runoff class:* Very low  
*Ecological site:* Clayey Overflow - Veg. Zone 3  
*Land capability (irrigated):* 2w  
*Land capability (nonirrigated):* 2w

#### *Typical Profile:*

Ap—0 to 7 inches; silty clay loam  
C1—7 to 13 inches; silty clay  
C2—13 to 17 inches; stratified silty clay loam  
C3—17 to 28 inches; silty clay loam  
C4—28 to 40 inches; silty clay  
C5—40 to 60 inches; silty clay

#### **Minor Components**

**Onawet**

*Composition:* About 2 percent  
*Slope:* 0 to 1 percent  
*Drainage class:* Very poorly drained

**Haynie**

*Phase:* Occasionally Flooded  
*Composition:* About 2 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe35-37)

**Ow—Onawet silty clay loam,  
 Depressional, 0 to 1 percent  
 slopes, frequently flooded**

**Map Unit Composition**

Onawet: 95 percent  
 Minor components: 5 percent

**Component Descriptions**

**Onawet**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Flood plain on river valley  
*Parent material:* Clayey alluvium over loamy alluvium  
*Slope:* 0 to 1 percent  
*Drainage class:* Very poorly drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* High (About 9.8 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* Frequent  
*Ponding hazard:* Frequent  
*Depth to seasonal water saturation:* About 24 to 36 inches  
*Runoff class:* Negligible  
*Land capability (nonirrigated):* 5w

*Typical Profile:*

A—0 to 7 inches; silty clay loam  
 Cg—7 to 24 inches; silty clay  
 2Cg—24 to 56 inches; silt loam  
 3Cg—56 to 80 inches; loamy fine sand

**Minor Components****Albaton**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Very poorly drained  
*Ecological site:* Clayey Overflow - Veg. Zone

3

**Pa—Palermo-Knox complex, 10 to  
 18 percent slopes**

**Map Unit Composition**

Knox: 50 percent  
 Palermo: 50 percent

**Component Descriptions**

**Knox**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Hillslope position:* Summit, shoulder, backslope  
*Parent material:* Loess  
*Slope:* 10 to 18 percent  
*Drainage class:* Well drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Very high (About 12.4 inches)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

A—0 to 7 inches; silt loam  
 E—7 to 12 inches; silty clay loam, silt loam  
 Bt—12 to 23 inches; silty clay loam, silty clay loam  
 Bt2—23 to 35 inches; silty clay loam  
 Bt3—35 to 61 inches; silty clay loam  
 BC—61 to 70 inches; silt loam

**Palermo**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Hillslope position:* Shoulder, summit, backslope  
*Parent material:* Loess  
*Slope:* 10 to 18 percent  
*Drainage class:* Well drained  
*Available water capacity:* High (About 11.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

Ap—0 to 5 inches; silty clay loam

Bt1—5 to 11 inches; silty clay loam  
 Bt2—11 to 23 inches; silty clay loam  
 Bt3—23 to 41 inches; silt loam  
 C—41 to 80 inches; silt loam

### **Pb—Palermo silty clay loam, 18 to 30 percent slopes**

#### **Map Unit Composition**

Palermo: 95 percent  
 Minor components: 5 percent

#### **Component Descriptions**

##### **Palermo**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope, shoulder, summit  
*Parent material:* Loess  
*Slope:* 18 to 30 percent  
*Drainage class:* Well drained  
*Available water capacity:* High (About 11.9 inches)  
*Shrink-swell potential:* Low (About 1.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* High  
*Land capability (nonirrigated):* 4e

##### *Typical Profile:*

Ap—0 to 5 inches; silty clay loam  
 Bt1—5 to 11 inches; silty clay loam  
 Bt2—11 to 23 inches; silty clay loam  
 Bt3—23 to 41 inches; silt loam  
 C—41 to 80 inches; silt loam

##### **Minor Components**

##### **Knox**

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 4 to 10 percent  
*Drainage class:* Well drained

### **Pc—Pawnee clay loam, 3 to 7 percent slopes**

#### **Map Unit Composition**

Pawnee: 85 percent

Minor components: 15 percent

#### **Component Descriptions**

##### **Pawnee**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Hillslope position:* Backslope  
*Parent material:* Clayey drift  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Slow (About 0.06 in/hr)  
*Available water capacity:* Moderate (About 8.3 inches)  
*Shrink-swell potential:* High (About 7.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* About 9 to 14 inches  
*Runoff class:* High  
*Ecological site:* Clay Upland (pe30-37)  
*Land capability (nonirrigated):* 3e

##### *Typical Profile:*

H1—0 to 14 inches; clay loam  
 H2—14 to 34 inches; clay  
 H3—34 to 72 inches; sandy clay loam

##### **Minor Components**

##### **Oska**

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

##### **Morrill**

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe30-37)

##### **Martin**

*Composition:* About 5 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

### **Pd—Pawnee clay, 3 to 7 percent slopes, eroded**

#### **Map Unit Composition**

Pawnee: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Pawnee

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Clayey drift

*Slope:* 3 to 7 percent

*Drainage class:* Moderately well drained

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

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

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* High

*Ecological site:* Clay Upland (pe30-37)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

H1—0 to 5 inches; clay

H2—5 to 38 inches; clay

H3—38 to 60 inches; clay loam

### Minor Components

#### Kennebec

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

*Ecological site:* Loamy Lowland (pe30-37)

#### Shelby

*Phase:* Eroded

*Composition:* About 5 percent

*Slope:* 7 to 15 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe30-37)

### Pt—Pits, Quarries

*General Considerations:* Pits are open excavations from which soil and commonly underlying material have been removed, exposing either rock or other material. Kinds include Pits, mine; Pits, gravel; and Pits, quarry. Commonly, pits are closely associated with Dumps.

### Re—Reading silt loam, 0 to 2 percent slopes, rarely flooded

### Map Unit Composition

Reading: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Reading

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Terrace on river valley

*Parent material:* Fine-silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

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

*Available water capacity:* High (About 11.5 inches)

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

*Flooding hazard:* Rare

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

*Runoff class:* Low

*Ecological site:* Loamy Lowland (pe35-42)

*Land capability (nonirrigated):* 1

#### Typical Profile:

H1—0 to 15 inches; silt loam

H2—15 to 41 inches; silty clay loam

H3—41 to 60 inches; silty clay

### Minor Components

#### Wabash

*Composition:* About 5 percent

*Slope:* 0 to 1 percent

*Drainage class:* Poorly drained

*Ecological site:* Clay Lowland (pe30-37)

#### Chase

*Composition:* About 5 percent

*Slope:* 0 to 2 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Loamy Lowland (pe35-42)

### Sb—Sharpsburg silty clay loam, 1 to 4 percent slopes

### Map Unit Composition

Sharpsburg: 85 percent

Minor components: 15 percent

## Component Descriptions

### Sharpsburg

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey loess

*Slope:* 1 to 4 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 11.6 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 (pe30-37)

*Land capability (nonirrigated):* 2e

#### Typical Profile:

H1—0 to 13 inches; silty clay loam

H2—13 to 54 inches; silty clay loam

H3—54 to 60 inches; silty clay loam

### Minor Components

#### Shelby

*Composition:* About 8 percent

*Slope:* 5 to 10 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe30-37)

#### Grundy

*Composition:* About 7 percent

*Slope:* 2 to 6 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Upland (pe30-37)

## Sc—Sharpsburg silty clay loam, 4 to 8 percent slopes

### Map Unit Composition

Sharpsburg: 85 percent

Minor components: 15 percent

## Component Descriptions

### Sharpsburg

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Silty and clayey loess

*Slope:* 4 to 8 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 11.6 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 (pe30-37)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

H1—0 to 13 inches; silty clay loam

H2—13 to 54 inches; silty clay loam

H3—54 to 60 inches; silty clay loam

### Minor Components

#### Armster

*Composition:* About 5 percent

*Slope:* 6 to 12 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe30-37)

#### Grundy

*Composition:* About 5 percent

*Slope:* 2 to 6 percent

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clay Upland (pe30-37)

#### Shelby

*Composition:* About 5 percent

*Slope:* 5 to 10 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Upland (pe30-37)

## Sh—Shelby clay loam, 5 to 10 percent slopes

### Map Unit Composition

Shelby: 85 percent

Minor components: 15 percent

## Component Descriptions

### Shelby

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Parent material:* Fine-loamy drift

*Slope:* 5 to 10 percent

*Drainage class:* Moderately well drained

*Slowest permeability:* Moderately slow (About 0.20 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:* High  
*Ecological site:* Loamy Upland (pe30-37)  
*Land capability (nonirrigated):* 3e

*Typical Profile:*

H1—0 to 12 inches; clay loam  
 H2—12 to 47 inches; clay loam  
 H3—47 to 60 inches; clay loam

**Minor Components**

**Sharpsburg**

*Composition:* About 5 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Kennebec**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Pawnee**

*Phase:* Eroded  
*Composition:* About 5 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Sm—Shelby clay loam, 7 to 15 percent slopes, eroded**

**Map Unit Composition**

Shelby: 88 percent  
 Minor components: 12 percent

**Component Descriptions**

**Shelby**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Fine-loamy drift  
*Slope:* 7 to 15 percent  
*Drainage class:* Moderately well drained

*Slowest permeability:* Moderately slow (About 0.20 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:* High  
*Ecological site:* Loamy Upland (pe30-37)  
*Land capability (nonirrigated):* 4e

*Typical Profile:*

H1—0 to 12 inches; clay loam  
 H2—12 to 47 inches; clay loam  
 H3—47 to 60 inches; clay loam

**Minor Components**

**Sharpsburg**

*Composition:* About 3 percent  
*Slope:* 4 to 8 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe30-37)

**Kennebec**

*Composition:* About 3 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Steinauer**

*Composition:* About 3 percent  
*Slope:* 12 to 25 percent  
*Drainage class:* Well drained  
*Ecological site:* Limy Upland (pe30-37)

**Martin**

*Composition:* About 3 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Ss—Shelby-Steinauer loams, 12 to 25 percent slopes**

**Map Unit Composition**

Shelby: 55 percent  
 Steinauer: 35 percent  
 Minor components: 10 percent

**Component Descriptions**

**Shelby**



**MLRA:** 106 - Nebraska and Kansas Loess-Drift Hills

**Landform:** Hillslope on upland

**Parent material:** Fine-loamy drift

**Slope:** 12 to 25 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:** High

**Ecological site:** Loamy Upland (pe30-37)

**Land capability (nonirrigated):** 6e

**Typical Profile:**

H1—0 to 6 inches; loam

H2—6 to 47 inches; clay loam

H3—47 to 60 inches; clay loam

**Steinauer**

**MLRA:** 106 - Nebraska and Kansas Loess-Drift Hills

**Landform:** Hillslope on upland

**Parent material:** Calcareous fine-loamy drift

**Slope:** 12 to 25 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:** High

**Ecological site:** Limy Upland (pe30-37)

**Typical Profile:**

H1—0 to 6 inches; loam

H2—6 to 60 inches; clay loam

**Minor Components**

**Kennebec**

**Composition:** About 5 percent

**Slope:** 0 to 2 percent

**Drainage class:** Well drained

**Ecological site:** Loamy Lowland (pe30-37)

**Vinland**

**Composition:** About 5 percent

**Slope:** 10 to 15 percent

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

**Drainage class:** Somewhat excessively drained

**Ecological site:** Loamy Upland (pe30-37)

**Vr—Vinland-Rock outcrop complex, 20 to 40 percent slopes**

**Map Unit Composition**

Rock outcrop: 60 percent

Vinland: 26 percent

Minor components: 14 percent

**Component Descriptions**

**Rock outcrop**

**MLRA:** 106 - Nebraska and Kansas Loess-Drift Hills

**Landform:** Hillslope on upland

**Slope:** 20 to 40 percent

**Depth to restrictive feature:** 0 inches to bedrock (lithic)

**Flooding hazard:** None

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

**Runoff class:** Very high

**Land capability (nonirrigated):** 8

**Vinland**

**MLRA:** 106 - Nebraska and Kansas Loess-Drift Hills

**Landform:** Hillslope on upland

**Parent material:** Sandy and silty residuum weathered from shale

**Slope:** 20 to 30 percent

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

**Drainage class:** Somewhat excessively drained

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

**Available water capacity:** Low (About 3.5 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:** Loamy Upland (pe35-42)

**Land capability (nonirrigated):** 6e

**Typical Profile:**

H1—0 to 7 inches; silty clay loam

H2—7 to 17 inches; silty clay loam

Cr—17 to 21 inches; weathered bedrock

**Minor Components****Sogn**

*Composition:* About 10 percent  
*Slope:* 15 to 20 percent  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Shallow Limy (pe30-37)

**Martin**

*Composition:* About 2 percent  
*Slope:* 7 to 11 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Oska**

*Composition:* About 2 percent  
*Slope:* 3 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)  
*Drainage class:* Well drained  
*Ecological site:* Loamy Upland (pe35-42)

*Typical Profile:*

A—0 to 8 inches; silty clay loam  
 Bw—8 to 12 inches; silty clay loam  
 C—12 to 19 inches; channery silty clay loam  
 Cr—19 to 23 inches; weathered bedrock

**Minor Components****Rock outcrop**

*Composition:* About 9 percent  
*Slope:* 15 to 40 percent  
*Depth to restrictive feature:* 0 inches to bedrock (lithic)

**Martin**

*Composition:* About 3 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Upland (pe35-42)

**Pawnee**

*Composition:* About 3 percent  
*Slope:* 3 to 7 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Vs—Vinland silty clay loam, 4 to 15 percent slopes****Map Unit Composition**

Vinland: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Vinland**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Hillslope on upland  
*Parent material:* Sandy and silty residuum weathered from shale  
*Slope:* 4 to 15 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 3.9 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 (pe30-37)  
*Land capability (nonirrigated):* 6e

**W—Water****Wa—Wabash silty clay loam, 0 to 2 percent slopes, occasionally flooded****Map Unit Composition**

Wabash: 85 percent  
 Minor components: 15 percent

**Component Descriptions****Wabash**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills  
*Landform:* Flood plain on valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent  
*Drainage class:* Poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)  
*Available water capacity:* Moderate (About 6.9 inches)  
*Shrink-swell potential:* Very high (About 17.0 LEP)  
*Flooding hazard:* Occasional  
*Depth to seasonal water saturation:* About 2 to 9 inches  
*Runoff class:* Very high

*Ecological site:* Clay Lowland (pe30-37)  
*Land capability (nonirrigated):* 3w

*Typical Profile:*

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

**Minor Components**

**Chase**

*Composition:* About 8 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Kennebec**

*Composition:* About 7 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Wb—Wabash silty clay, 0 to 2 percent slopes, occasionally flooded**

**Map Unit Composition**

Wabash: 90 percent  
 Minor components: 10 percent

**Component Descriptions**

**Wabash**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Flood plain on valley  
*Parent material:* Clayey alluvium  
*Slope:* 0 to 2 percent

*Drainage class:* Poorly drained  
*Slowest permeability:* Very slow (About 0.00 in/hr)

*Available water capacity:* Moderate (About 6.1 inches)

*Shrink-swell potential:* Very high (About 17.0 LEP)

*Flooding hazard:* Frequent

*Depth to seasonal water saturation:* About 0 to 12 inches

*Runoff class:* Very high

*Ecological site:* Clay Lowland (pe30-37)

*Land capability (nonirrigated):* 3w

*Typical Profile:*

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

**Minor Components**

**Kennebec**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Chase**

*Composition:* About 5 percent  
*Slope:* 0 to 2 percent  
*Drainage class:* Somewhat poorly drained  
*Ecological site:* Loamy Lowland (pe30-37)

**Wg—Wamego-Vinland silty clay loams, 3 to 15 percent slopes  
 Map Unit Composition**

Wamego: 50 percent  
 Vinland: 40 percent  
 Minor components: 10 percent

**Component Descriptions**

**Wamego**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Sandy and silty residuum weathered from shale, unspecified

*Slope:* 3 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 4.6 inches)

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

*Flooding hazard:* None

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

*Runoff class:* Very high

*Ecological site:* Clay Upland (pe30-37)

*Land capability (nonirrigated):* 6e

*Typical Profile:*

Ap—0 to 9 inches; silty clay loam  
 Bt—9 to 20 inches; silty clay loam  
 BC—20 to 25 inches; silty clay loam  
 Cr—25 to 36 inches; weathered bedrock

**Vinland**

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Sandy and silty residuum weathered from shale, unspecified  
*Slope:* 3 to 15 percent  
*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)  
*Drainage class:* Somewhat excessively drained  
*Slowest permeability:* Moderate (About 0.60 in/hr)  
*Available water capacity:* Low (About 3.9 inches)  
*Shrink-swell potential:* Moderate (About 4.5 LEP)  
*Flooding hazard:* None  
*Depth to seasonal water saturation:* More than 6 feet  
*Runoff class:* Very high  
*Ecological site:* Shallow Savannah (pe30-37)  
*Land capability (nonirrigated):* 6e

*Typical Profile:*

A—0 to 8 inches; silty clay loam  
 Bw—8 to 12 inches; silty clay loam  
 C—12 to 19 inches; channery silty clay loam  
 Cr—19 to 23 inches; weathered bedrock

**Minor Components**

**Pawnee**

*Composition:* About 10 percent  
*Geomorphic Position:* hillslope on upland  
*Slope:* 6 to 12 percent  
*Drainage class:* Moderately well drained  
*Ecological site:* Clay Upland (pe30-37)

**Wh—Wathena-Haynie complex, 0 to 2 percent slopes, occasionally flooded**

**Map Unit Composition**

Wathena: 55 percent  
 Haynie: 40 percent  
 Minor components: 5 percent

**Component Descriptions**

**Wathena**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills  
*Landform:* Natural levee on flood plain  
*Parent material:* Sandy alluvium  
*Slope:* 0 to 3 percent  
*Drainage class:* Moderately well drained  
*Slowest permeability:* Rapid (About 5.95 in/hr)  
*Available water capacity:* Moderate (About 7.1 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* Occasional

*Depth to seasonal water saturation:* About 25 to 40 inches

*Runoff class:* Negligible

*Ecological site:* Sandy Lowland (pe35-37)

*Land capability (nonirrigated):* 4w

*Typical Profile:*

A—0 to 9 inches; loamy fine sand  
 C1—9 to 37 inches; stratified loamy fine sand  
 2C2—37 to 52 inches; stratified silt loam  
 2C3—52 to 64 inches; stratified silt loam  
 3C4—64 to 80 inches; fine sand

**Haynie**

*MLRA:* 107 - Iowa and Missouri Deep Loess Hills

*Landform:* Alluvial flat on river valley

*Parent material:* Silty alluvium

*Slope:* 0 to 2 percent

*Drainage class:* Well drained

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

*Available water capacity:* Very high (About 12.4 inches)

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

*Flooding hazard:* Occasional

*Ponding hazard:* None

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

*Runoff class:* Negligible

*Ecological site:* Loamy Lowland (pe35-37)

*Land capability (irrigated):* 2w

*Land capability (nonirrigated):* 2w

*Typical Profile:*

Ap—0 to 7 inches; silt loam  
 C1—7 to 60 inches; stratified silt loam

**Minor Components**

**Sarpy**

*Composition:* About 5 percent

*Slope:* 0 to 3 percent

*Drainage class:* Excessively drained

*Ecological site:* Sandy Lowland (pe35-37)

## Wm—Wymore silty clay loam, 2 to 5 percent slopes

### Map Unit Composition

Wymore: 90 percent  
Minor components: 10 percent

### Component Descriptions

#### Wymore

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Interfluve on upland

*Hillslope position:* Shoulder

*Parent material:* Loess

*Slope:* 2 to 5 percent

*Drainage class:* Moderately well drained

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

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

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* High

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 3e

#### Typical Profile:

Ap—0 to 7 inches; silty clay loam  
BA—7 to 12 inches; silty clay  
Bt1—12 to 22 inches; silty clay  
Bt2—22 to 39 inches; silty clay  
BC—39 to 47 inches; silty clay loam  
C—47 to 80 inches; silty clay loam

#### Minor Components

##### Pawnee

*Composition:* About 10 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 2 to 6 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe30-37)

## Component Descriptions

#### Wymore

*MLRA:* 106 - Nebraska and Kansas Loess-Drift Hills

*Landform:* Hillslope on upland

*Hillslope position:* Backslope

*Parent material:* Loess

*Slope:* 5 to 9 percent

*Drainage class:* Moderately well drained

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

*Available water capacity:* High (About 10.2 inches)

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

*Flooding hazard:* None

*Depth to seasonal water saturation:* About 9 to 14 inches

*Runoff class:* Very high

*Ecological site:* Loamy Lowland (pe30-37)

*Land capability (nonirrigated):* 4e

#### Typical Profile:

Ap—0 to 10 inches; silty clay loam  
Bt1—10 to 18 inches; silty clay  
Bt2—18 to 32 inches; silty clay  
BC—32 to 43 inches; silty clay loam  
C—43 to 80 inches; silty clay loam

#### Minor Components

##### Pawnee

*Composition:* About 8 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 6 to 9 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe30-37)

##### Mayberry

*Composition:* About 7 percent

*Geomorphic Position:* hillslope on upland

*Slope:* 2 to 6 percent

*Drainage class:* Moderately well drained

*Ecological site:* Clay Upland (pe30-37)

##### Kennebec

*Composition:* About 3 percent

*Slope:* 0 to 2 percent

*Drainage class:* Moderately well drained

*Ecological site:* Loamy Lowland (pe30-37)

## Wn—Wymore silty clay loam, 5 to 9 percent slopes

### Map Unit Composition

Wymore: 82 percent  
Minor components: 18 percent