# Map Unit Description (MN)

St. Louis County, Minnesota, Virginia Part

[Data apply to the entire extent of the map unit within the survey area. Map unit and soil properties for a specific parcel of land may vary somewhat and should be determined by onsite investigation]

## 1--1-Lc07-05-20, 0 to 2 percent slopes

### 7-1

*Extent:* 65 to 85 percent of the unit

*Landform(s):* depressions on moraines, drainageways on moraines

*Slope gradient:* 0 to 2 percent

*Parent material:* glaciofluvial sediments

*Restrictive feature(s):* greater than 60 inches

*Flooding:* none

*Ponding:* frequent

*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5

*Wind erodibility group (WEG):* 8

*Wind erodibility index (WEI):* 0

*Kw factor (surface layer)* .02

*Land capability, nonirrigated* 8s

*Hydric soil:* yes

*Hydrologic group:* D

*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | extremely stony sandy loam | moderate | 0.08 to 0.16 in | 4.5 to 6.0 |
| Bg -- | 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- | 40 to 80 in | cobbly sandy loam | moderately rapid | 2.78 to 6.36 in | 5.1 to 6.5 |

## 4--4-Lc07-05-06, 0 to 1 percent slopes

### 7-4

*Extent:* 70 to 90 percent of the unit
*Landform(s):* bogs on end moraines, bogs on outwash plains, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oi -- | 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- | 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- | 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## 5-7--7-Lc05, 0 to 4 percent slopes

### 5-7-2

*Extent:* 0 to 70 percent of the unit
*Landform(s):* rises on moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | loam | moderate | 0.39 to 0.43 in | 5.1 to 6.5 |
| Eg -- | 4 to 9 in | fine sandy loam | moderate | 0.77 to 0.97 in | 5.1 to 6.5 |
| E/B -- | 9 to 22 in | very fine sandy loam | moderate | 1.95 to 2.47 in | 5.1 to 6.5 |
| Btg -- | 22 to 31 in | loam | moderate | 1.27 to 1.99 in | 5.1 to 6.5 |
| Cg -- | 31 to 80 in | stratified loamy fine sand to fine sandy loam to very fine sandy loam to loam to silt loam | moderate | 6.35 to 9.28 in | 6.6 to 7.8 |

## 5-7--7-Lc05, 0 to 4 percent slopes

### 5-7-1

*Extent:* 0 to 70 percent of the unit
*Landform(s):* rises on moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 5-8--8-Lc05, 0 to 3 percent slopes

### 5-8-1

*Extent:* 30 to 50 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | silty clay loam | moderately slow | 0.66 to 0.72 in | 5.1 to 6.5 |
| Eg -- 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 5-8--8-Lc05, 0 to 3 percent slopes

### 5-8-2

*Extent:* 20 to 40 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| Eg -- 3 to 10 in | silty clay loam | moderately slow | 0.92 to 1.42 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

## 5-10A--10A-Lc05, 0 to 6 percent slopes

### 5-10A

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.31 to 0.45 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- | 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- | 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- | 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- | 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 5-10A--10A-Lc05, 0 to 6 percent slopes

### 5-67-1

*Extent:* 15 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-10B--10B-Lc05, 6 to 18 percent slopes

### 5-10B

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 5-10B--10B-Lc05, 6 to 18 percent slopes

### 5-67-1

*Extent:* 25 to 45 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-10C--10C-Lc05, 18 to 35 percent slopes

### 5-10B

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 5-10C--10C-Lc05, 18 to 35 percent slopes

### 5-67-1

*Extent:* 25 to 45 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-10D--10D-Lc05, 35 to 60 percent slopes

### 5-10B

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 60 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 5-10D--10D-Lc05, 35 to 60 percent slopes

### 5-67-1

*Extent:* 25 to 45 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 60 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-17C--17C-Lc05, 18 to 35 percent slopes

### 5-17

*Extent:* 65 to 85 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 4 in | fine sandy loam | moderately rapid | 0.44 to 0.50 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- | 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- | 32 to 54 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.75 to 4.85 in | 5.1 to 6.5 |
| 2C -- | 54 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 4.42 to 5.72 in | 5.6 to 7.8 |

## 5-17C--17C-Lc05, 18 to 35 percent slopes

### 5-28-1

*Extent:* 15 to 30 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 5-28D--28D-Lc05, 35 to 50 percent slopes

### 5-28-1

*Extent:* 40 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 5-28D--28D-Lc05, 35 to 50 percent slopes

### 5-28-2

*Extent:* 30 to 45 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- | 4 to 9 in | gravelly sandy loam | moderately rapid | 0.50 to 0.72 in | 4.5 to 6.0 |
| E -- | 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- | 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- | 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## 5-47--47-Lc05-20-Ma19, 0 to 2 percent slopes

### 5-47

*Extent:* 45 to 70 percent of the unit
*Landform(s):* flats, -- error in exists on --
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 5-47--47-Lc05-20-Ma19, 0 to 2 percent slopes

### 5-7

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines, rises
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 5-56C--56C-Lc05, 18 to 35 percent slopes

### 5-56B

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- | 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- | 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- | 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 5-57A--57A-Lc05, 0 to 6 percent slopes

### 5-57

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### 5-67-1

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-57A--57A-Lc05, 0 to 6 percent slopes

## 5-57B--57B-Lc05, 6 to 18 percent slopes

### 5-57

*Extent:* 35 to 55 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### 5-67-1

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-57B--57B-Lc05, 6 to 18 percent slopes

## 5-57C--57C-Lc05, 18 to 35 percent slopes

### 5-57

*Extent:* 35 to 55 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### 5-67-1

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-57C--57C-Lc05, 18 to 35 percent slopes

## 5-57D--57D-Lc05, 35 to 50 percent slopes

### 5-57

*Extent:* 35 to 55 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### 5-67-1

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5-57D--57D-Lc05, 35 to 50 percent slopes

## 5-67D--67D-Lc05, 35 to 50 percent slopes

### 5-67-1

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 5A--5A-Lc07-05-20, 0 to 6 percent slopes

### 7-5

*Extent:* 45 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- | 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

### 7-21

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- | 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- | 17 to 80 in | bedrock | impermeable | | |

## 5B--5B-Lc07-05-20-Ma19, 6 to 18 percent slopes

### 7-5

*Extent:* 45 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- | 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

### 7-21

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- | 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- | 17 to 80 in | bedrock | impermeable | | |

## 5B--5B-Lc07-05-20-Ma19, 6 to 18 percent slopes

### Rock outcrop

*Extent:* 5 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## 5C--5C-Lc07-05-20-Ma19, 18 to 35 percent slopes

### 7-5

*Extent:* 45 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- | 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

### Rock outcrop

*Extent:* 15 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## 5D--5D-Lc07-10, 35 to 50 percent slopes

### 7-5

*Extent:* 45 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- | 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

### Rock outcrop

*Extent:* 15 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## 7--7-Lc07-06-10-Ma19, 0 to 4 percent slopes

### 7-7

*Extent:* 50 to 70 percent of the unit
*Landform(s):* rises on moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 7--7-Lc07-06-10-Ma19, 0 to 4 percent slopes

### 7-47

*Extent:* 15 to 35 percent of the unit
*Landform(s):* flats on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 7-8--8-Lc07, 0 to 3 percent slopes

### 7-8-2

*Extent:* 35 to 55 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 3 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| Eg -- 3 to 10 in | silty clay loam | moderately slow | 0.92 to 1.42 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

## 7-8--8-Lc07, 0 to 3 percent slopes

### 7-8-1

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 4 in | silty clay loam | moderately slow | 0.66 to 0.72 in | 5.1 to 6.5 |
| Eg -- | 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- | 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- | 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- | 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 7-21D--21D-Lc07, 35 to 50 percent slopes

### 7-21

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- | 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- | 17 to 80 in | bedrock | impermeable | | |

### 7-5

*Extent:* 14 to 25 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- | 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

## 7-21D--21D-Lc07, 35 to 50 percent slopes

### Rock outcrop

*Extent:* 5 to 20 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| Texture | Permeability | Available water capacity | pH |
|---|---|---|---|

## 7-52--52-Lc07, 0 to 2 percent slopes

### 7-52

*Extent:* 60 to 80 percent of the unit
*Landform(s):* depressions on moraines, drainageways on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 12 in | muck | moderately rapid | 4.13 to 5.31 in | |
| A -- | 12 to 17 in | mucky silty clay loam | moderately slow | 0.92 to 1.23 in | 6.1 to 7.3 |
| Bg -- | 17 to 24 in | clay | very slow | 0.99 to 1.20 in | 6.6 to 7.8 |
| Cg -- | 24 to 80 in | clay | very slow | 7.83 to 9.50 in | 7.4 to 8.4 |

## 7-53A--53A-Lc07, 0 to 6 percent slopes

### 7-53

*Extent:* 70 to 80 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| E -- | 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- | 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- | 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- | 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- | 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## 7-53B--53B-Lco7, 6 to 18 percent slopes

### 7-53

*Extent:* 70 to 90 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 6 to 18 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## 7-57A--57A-Lc07, 0 to 6 percent slopes

### 7-57

*Extent:* 55 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## 7-57B--57B-Lc07, 6 to 18 percent slopes

### 7-57

*Extent:* 55 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- | 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## 7-57C--57C-Lco7, 18 to 35 percent slopes

### 7-57

*Extent:* 55 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 4 to 22 in | loam | moderate | 2.78 to 4.07 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## 7-59B--59B-Lc07, 6 to 18 percent slopes

### 7-59B

*Extent:* 65 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | fine sandy loam | moderately rapid | 0.38 to 0.43 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- | 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- | 32 to 54 in | silt loam | moderate | 3.75 to 4.85 in | 5.6 to 6.5 |
| 2C -- | 54 to 80 in | silt loam | moderate | 4.42 to 5.72 in | 5.6 to 7.8 |

## 7-64A--64A-Lc07, 0 to 6 percent slopes

### 7-64A

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy outwash and/or eloian material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 3 in | fine sandy loam | moderately rapid | 0.22 to 0.28 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 17 in | sandy loam | moderately rapid | 1.38 to 2.34 in | 4.5 to 6.0 |
| Bw2 -- | 17 to 36 in | loamy sand | rapid | 0.94 to 1.89 in | 4.5 to 6.0 |
| 2BC -- | 36 to 57 in | very cobbly sandy loam | moderately slow | 0.85 to 1.91 in | 5.1 to 6.5 |
| 2Cd -- | 57 to 80 in | very cobbly sandy loam | slow | 0.46 to 1.14 in | 5.1 to 6.5 |

## 7-64B--64B-Lc07, 6 to 18 percent slopes

### 7-64B

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash and/or eloian material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 3 in | fine sandy loam | moderately rapid | 0.22 to 0.28 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 17 in | sandy loam | moderately rapid | 1.38 to 2.34 in | 4.5 to 6.0 |
| Bw2 -- | 17 to 36 in | loamy sand | rapid | 0.94 to 1.89 in | 4.5 to 6.0 |
| 2BC -- | 36 to 57 in | very cobbly sandy loam | moderately slow | 0.85 to 1.91 in | 5.1 to 6.5 |
| 2Cd -- | 57 to 80 in | very cobbly sandy loam | slow | 0.46 to 1.14 in | 5.1 to 6.5 |

## 10A--10A-Lc07-06-10, 0 to 6 percent slopes

### 7-10A

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.31 to 0.45 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 10A--10A-Lc07-06-10, 0 to 6 percent slopes

### 7-18A

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* lithic bedrock at 20 to 40 inches
dense material at 15 to 35 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 10B--10B-Lc07-06-10, 6 to 18 percent slopes

### 7-10B

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 10B--10B-Lc07-06-10, 6 to 18 percent slopes

### 7-18B

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 10C--10C-Lc07-10, 18 to 35 percent slopes

### 7-10B

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 10C--10C-Lc07-10, 18 to 35 percent slopes

### 7-18B

*Extent:* 25 to 45 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 13C--13C-Lc20-05-07, 18 to 35 percent slopes

### 20-14

*Extent:* 60 to 80 percent of the unit
*Landform(s):* eskers, kames
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 13C--13C-Lc20-05-07, 18 to 35 percent slopes

### 20-67-2

*Extent:* 10 to 30 percent of the unit
*Landform(s):* eskers, kames
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 2 in | very stony loam | moderate | 0.13 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## 14A--14A-Lc05-07-20, 0 to 6 percent slopes

### 5-14

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 14B--14B-Lc05-07-20, 6 to 18 percent slopes

### 5-14

*Extent:* 30 to 55 percent of the unit
*Landform(s):* kames, moraines, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 14B--14B-Lc05-07-20, 6 to 18 percent slopes

### 5-67-2

*Extent:* 25 to 50 percent of the unit
*Landform(s):* kames, moraines, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 2 in | very stony loam | moderate | 0.13 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## 14C--14C-Lc05-07-20, 18 to 35 percent slopes

### 5-14

*Extent:* 30 to 55 percent of the unit
*Landform(s):* kames, moraines, outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 14C--14C-Lc05-07-20, 18 to 35 percent slopes

### 5-67-2

*Extent:* 25 to 50 percent of the unit
*Landform(s):* kames, moraines, outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 2 in | very stony loam | moderate | 0.13 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## 14D--14D-Lc05-07-20, 35 to 50 percent slopes

### 5-14

*Extent:* 30 to 55 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 14D--14D-Lc05-07-20, 35 to 50 percent slopes

### 5-67-2

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 2 in | very stony loam | moderate | 0.13 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- | 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- | 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- | 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- | 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## 16A--16A-Lc05-20, 0 to 6 percent slopes

### 5-16

*Extent:* 55 to 75 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

### 5-28-1

*Extent:* 15 to 30 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 16A--16A-Lc05-20, 0 to 6 percent slopes

## 17A--17A-Lc05-07-20. 0 to 6 percent slopes

### 5-17

*Extent:* 60 to 80 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy eolian, glaciolfluvial or outwash material and underlying loamy glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 4 in | fine sandy loam | moderately rapid | 0.44 to 0.50 in | 4.5 to 6.0 |
| Bw1 -- 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- 32 to 54 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.75 to 4.85 in | 5.1 to 6.5 |
| 2C -- 54 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 4.42 to 5.72 in | 5.6 to 7.8 |

## 17A--17A-Lc05-07-20. 0 to 6 percent slopes

### 5-28-1

*Extent:* 10 to 30 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 17B--17B-Lc05-07-20, 6 to 18 percent slopes

### 5-17B

*Extent:* 60 to 80 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy eolian, glaciolfluvial or outwash material and underlying loamy glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 4 in | fine sandy loam | moderately rapid | 0.44 to 0.50 in | 4.5 to 6.0 |
| Bw1 -- 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- 32 to 54 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.75 to 4.85 in | 5.1 to 6.5 |
| 2C -- 54 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 4.42 to 5.72 in | 5.6 to 7.8 |

## 17B--17B-Lc05-07-20, 6 to 18 percent slopes

### 5-28-1

*Extent:* 10 to 30 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- | 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 18A--18A-Lc07-05-Ma19, 0 to 6 percent slopes

### 7-18A

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 15 to 35 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 18A--18A-Lc07-05-Ma19, 0 to 6 percent slopes

### 7-10A

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 3 in | stony loam | moderate | 0.20 to 0.30 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 18B--18B-Lc07-05-06-10-Ma19, 6 to 18 percent slopes

### 7-18B

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 18B--18B-Lc07-05-06-10-Ma19, 6 to 18 percent slopes

### 7-10B

*Extent:* 20 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 18C--18C-Lc07-05-10-Ma19, 18 to 35 percent slopes

### 7-18B

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* lithic bedrock at 20 to 40 inches
dense material at 12 to 30 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 18C--18C-Lc07-05-10-Ma19, 18 to 35 percent slopes

### 7-10B

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 19-8--8-Ma19, 0 to 3 percent slopes

### 19-8-2

*Extent:* 40 to 60 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 2 in | silty clay loam | moderately slow | 0.25 to 0.27 in | 5.1 to 6.5 |
| Eg -- 2 to 10 in | silty clay loam | moderately slow | 1.02 to 1.57 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

## 19-8--8-Ma19, 0 to 3 percent slopes

### 19-8-1

*Extent:* 15 to 40 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | silty clay loam | moderately slow | 0.66 to 0.72 in | 5.1 to 6.5 |
| Eg -- 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 19-10A--10A-Ma19, 0 to 6 percent slopes

### 19-10A

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.31 to 0.45 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 19-10A--10A-Ma19, 0 to 6 percent slopes

### 19-18A

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 15 to 35 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 19-10B--10B-Ma19, 6 to 18 percent slopes

### 19-10B

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 4 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 19-10B--10B-Ma19, 6 to 18 percent slopes

### 19-18B

*Extent:* 10 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 19-14B--14B-Ma19, 6 to 18 percent slopes

### 19-14

*Extent:* 55 to 75 percent of the unit
*Landform(s):* kames
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 19-14C--14C-Ma19, 18 to 35 percent slopes

### 5-14

*Extent:* 50 to 70 percent of the unit
*Landform(s):* kames
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 19-16A--16A-Ma19, 0 to 6 percent slopes

### 19-16

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy outwash and/or beach deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- | 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- | 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

## 19-16A--16A-Ma19, 0 to 6 percent slopes

### 19-29

*Extent:* 20 to 40 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | loamy sand | rapid | 0.24 to 0.28 in | 5.1 to 6.5 |
| Bw -- | 3 to 29 in | loamy sand | rapid | 1.56 to 2.86 in | 5.1 to 6.5 |
| 2Bt1 -- | 29 to 43 in | sandy clay loam | moderate | 1.93 to 2.62 in | 5.6 to 7.3 |
| 3Bt2 -- | 43 to 50 in | clay | very slow | 0.57 to 0.85 in | 5.6 to 7.3 |
| 3C -- | 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 19-24--24-Ma19, 0 to 1 percent slopes

### 19-24

*Extent:* 70 to 90 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oi -- | 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- | 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- | 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## 19-28A--28A-Ma19, 0 to 6 percent slopes

### 19-28-1

*Extent:* 55 to 75 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- | 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 19-28B--28B-Ma19, 6 to 18 percent slopes

### 19-28-1

*Extent:* 55 to 75 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 19-32--32-Ma19, 0 to 1 percent slopes

### 19-32

*Extent:* 65 to 85 percent of the unit
*Landform(s):* bogs on lake plains, swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* occasional
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 6 in | mucky peat | rapid | 2.66 to 3.25 in | |
| Oa -- | 6 to 22 in | muck | moderately rapid | 5.65 to 7.26 in | |
| A -- | 22 to 26 in | mucky silty clay loam | moderately slow | 0.71 to 0.94 in | 6.1 to 7.3 |
| Cg1 -- | 26 to 36 in | clay | very slow | 1.38 to 1.67 in | 6.6 to 7.8 |
| Cg2 -- | 36 to 80 in | clay | very slow | 6.17 to 7.50 in | 7.4 to 8.4 |

## 19-34--34-Ma19, 0 to 3 percent slopes

### 19-34

*Extent:* 65 to 85 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash and/or beach deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 3 in | loamy sand | rapid | 0.16 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

## 19-52--52-Ma19, 0 to 2 percent slopes

### 19-52

*Extent:* 65 to 85 percent of the unit
*Landform(s):* depressions on lake plains, drainageways on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 12 in | muck | moderately rapid | 4.13 to 5.31 in | |
| A -- | 12 to 17 in | mucky silty clay loam | moderately slow | 0.92 to 1.23 in | 6.1 to 7.3 |
| Bg -- | 17 to 24 in | clay | very slow | 0.99 to 1.20 in | 6.6 to 7.8 |
| Cg -- | 24 to 80 in | clay | very slow | 7.83 to 9.50 in | 7.4 to 8.4 |

## 19-67B--67B-Ma19, 6 to 18 percent slopes

### 19-67-1

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 19-73--73-Ma19, 0 to 2 percent slopes

### 19-73

*Extent:* 45 to 65 percent of the unit
*Landform(s):* flats on beaches, flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash and/or beach deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | loamy sand | rapid | 0.12 to 0.22 in | 4.5 to 6.0 |
| Bg -- | 4 to 24 in | loamy sand | rapid | 1.00 to 1.61 in | 4.5 to 6.0 |
| Cg1 -- | 24 to 48 in | sand | rapid | 0.48 to 2.16 in | 4.5 to 6.0 |
| Cg2 -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 19-73--73-Ma19, 0 to 2 percent slopes

### 19-8-S

*Extent:* 15 to 30 percent of the unit
*Landform(s):* swales on beaches, swales on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* abrupt textural change at 10 to 20 i
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 2 in | loamy sand | rapid | 0.12 to 0.14 in | 5.1 to 6.5 |
| Eg -- | 2 to 16 in | loamy sand | rapid | 1.13 to 1.56 in | 5.1 to 6.5 |
| Bg -- | 16 to 28 in | loamy sand | rapid | 0.57 to 0.91 in | 4.5 to 6.0 |
| 2Btg1 -- | 28 to 33 in | sandy clay loam | moderate | 0.72 to 0.97 in | 5.6 to 7.3 |
| 3Btg2 -- | 33 to 37 in | clay | very slow | 0.38 to 0.57 in | 5.6 to 7.3 |
| 3BCg -- | 37 to 80 in | clay | very slow | 3.40 to 5.10 in | 7.4 to 8.4 |

## 20-4--4-Lc20, 0 to 1 percent slopes

### 20-4

*Extent:* 70 to 90 percent of the unit
*Landform(s):* bogs on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oi -- | 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- | 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- | 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## 20-10A--10A-Lc20, 0 to 6 percent slopes

### 20-10A

*Extent:* 35 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 20-10A--10A-Lc20, 0 to 6 percent slopes

### 20-56A

*Extent:* 5 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-10B--10B-Lc20, 6 to 18 percent slopes

### 20-10B

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 20-10B--10B-Lc20, 6 to 18 percent slopes

### 20-56B

*Extent:* 10 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-13D--13D-Lc20, 35 to 50 percent slopes

### 20-14

*Extent:* 60 to 80 percent of the unit
*Landform(s):* eskers, kames
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 5 in | sandy loam | moderately rapid | 0.31 to 0.44 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## 20-13D--13D-Lc20, 35 to 50 percent slopes

### 20-67-2

*Extent:* 10 to 30 percent of the unit
*Landform(s):* eskers, kames
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy material over outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 2 in | very stony loam | moderate | 0.13 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## 20-18A--18A-Lc20, 0 to 6 percent slopes

### 20-18A

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 15 to 35 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 20-18B--18B-Lc20, 6 to 18 percent slopes

### 20-18B

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 20-24--24-Lc20, 0 to 1 percent slopes

### 20-24

*Extent:* 70 to 90 percent of the unit
*Landform(s):* bogs on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* occasional
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- | 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- | 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- | 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## 20-32--32-Lc20. 0 to 1 percent slopes

### 20-32

*Extent:* 55 to 85 percent of the unit
*Landform(s):* bogs on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* occasional
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 7 in | mucky peat | rapid | 3.19 to 3.90 in | |
| Oe2 -- | 7 to 30 in | mucky peat | rapid | 10.28 to 12.56 in | |
| Oa -- | 30 to 34 in | muck | moderately rapid | 1.38 to 1.77 in | |
| BCg -- | 34 to 68 in | loam | moderate | 4.80 to 6.51 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## 20-56A--56A-Lc20, 0 to 6 percent slopes

### 20-56A

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 6 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-56A--56A-Lc20, 0 to 6 percent slopes

### 20-58

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

## 20-56B--56B-Lc20, 6 to 18 percent slopes

### 20-56A

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 15 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-56B--56B-Lc20, 6 to 18 percent slopes

### 20-56B

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 12 to 18 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-56C--56C-Lc20, 18 to 35 percent slopes

### 20-56B

*Extent:* 65 to 85 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-56D--56D-Lc20, 35 to 50 percent slopes

### 20-56B

*Extent:* 65 to 85 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 50 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- | 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- | 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- | 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 20-58--58-Lc20, 0 to 3 percent slopes

### 20-58

*Extent:* 55 to 75 percent of the unit
*Landform(s):* flats on moraines, rises on moraines
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

## 20-58--58-Lc20, 0 to 3 percent slopes

### 20-72

*Extent:* 10 to 35 percent of the unit
*Landform(s):* swales on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 6 in | loam | moderate | 0.87 to 0.95 in | 4.5 to 6.0 |
| Eg -- 6 to 14 in | fine sandy loam | moderate | 0.99 to 1.57 in | 4.5 to 6.0 |
| B/E -- 14 to 31 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Btg -- 31 to 68 in | clay loam | moderately slow | 5.18 to 7.03 in | 5.1 to 6.5 |
| BCd -- 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## 20-64C--64C-Lc20, 18 to 35 percent slopes

### 20-64B

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* outwash over loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | sandy loam | moderately rapid | 0.31 to 0.35 in | 4.5 to 6.0 |
| Bw -- | 3 to 32 in | loamy coarse sand | rapid | 1.44 to 3.16 in | 4.5 to 6.0 |
| 2E/B -- | 32 to 38 in | loam | moderate | 1.01 to 1.32 in | 5.1 to 6.5 |
| 2Bt -- | 38 to 46 in | clay loam | moderately slow | 1.10 to 1.50 in | 5.1 to 6.5 |
| 2BCd -- | 46 to 80 in | loam | very slow | 2.03 to 3.39 in | 6.1 to 8.4 |

## 20-67B--67B-Lc20, 6 to 18 percent slopes

### 20-67-1

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 21A--21A-Lc07-20-Ma19, 0 to 6 percent slopes

### 7-21

*Extent:* 40 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- 17 to 80 in | bedrock | impermeable | | |

## 21A--21A-Lc07-20-Ma19, 0 to 6 percent slopes

### 7-18A

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 15 to 35 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 21B--21B-Lc07-10-20-Ma19, 6 to 18 percent slopes

### 7-21

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- 17 to 80 in | bedrock | impermeable | | |

## 21B--21B-Lc07-10-20-Ma19, 6 to 18 percent slopes

### 7-18B

*Extent:* 10 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* lithic bedrock at 20 to 40 inches
dense material at 12 to 30 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 9 in | stony loam | moderate | 0.51 to 0.92 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

## 21C--21C-Lc07-10, 18 to 35 percent slopes

### 7-21

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | gravelly sandy loam | moderate | 0.21 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- 3 to 11 in | gravelly sandy loam | moderate | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- 11 to 17 in | gravelly fine sandy loam | moderate | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- 17 to 80 in | bedrock | impermeable | | |

### 7-5

*Extent:* 15 to 25 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | fine sandy loam | moderately rapid | 0.18 to 0.28 in | 4.5 to 6.0 |
| Bw -- 3 to 7 in | gravelly fine sandy loam | moderately rapid | 0.35 to 0.56 in | 4.5 to 6.0 |
| R -- 7 to 80 in | bedrock | impermeable | | |

## 22--22-Ma19-05-07-20, 0 to 3 percent slopes

### 19-22

*Extent:* 25 to 85 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 3 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 6 in | mucky silt loam | moderate | 1.18 to 1.42 in | 5.6 to 7.3 |
| Cg -- | 6 to 80 in | stratified silt loam to loamy coarse sand | moderately rapid | 4.44 to 16.28 in | 5.6 to 7.3 |

### 19-24

*Extent:* 25 to 85 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic materials mixed with alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oa -- | 0 to 38 in | muck | moderately rapid | 13.37 to 17.19 in | |
| Cg -- | 38 to 47 in | stratified fine sand to loamy fine sand | rapid | 0.43 to 0.87 in | 5.6 to 7.3 |
| O'a -- | 47 to 80 in | muck | moderately rapid | 11.57 to 14.88 in | |

## 23A--23A-Lc05-07-20, 0 to 6 percent slopes

### 5-23B

*Extent:* 70 to 85 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* eolian and/or glaciofluvial sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 5 in | loamy fine sand | rapid | 0.39 to 0.51 in | 4.5 to 6.0 |
| Bw -- 5 to 21 in | loamy fine sand | rapid | 1.10 to 1.73 in | 5.1 to 6.5 |
| C -- 21 to 80 in | fine sand | rapid | 3.54 to 5.91 in | 5.1 to 6.5 |

## 23B--23B-Lco5-07-20, 6 to 18 percent slopes

### 5-23B

*Extent:* 80 to 90 percent of the unit
*Landform(s):* moraines, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* eolian and/or glaciofluvial sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 5 in | loamy fine sand | rapid | 0.39 to 0.51 in | 4.5 to 6.0 |
| Bw -- 5 to 21 in | loamy fine sand | rapid | 1.10 to 1.73 in | 5.1 to 6.5 |
| C -- 21 to 80 in | fine sand | rapid | 3.54 to 5.91 in | 5.1 to 6.5 |

## 24--24-Lc07-05-06, 0 to 1 percent slopes

### 7-24

*Extent:* 70 to 90 percent of the unit
*Landform(s):* bogs on moraines, bogs on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- | 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- | 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- | 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## 26A--26A-Lc07-10-20, 0 to 6 percent slopes

### Rubble land

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:* 0 to 6 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| Texture | Permeability | Available water capacity | pH |
|---|---|---|---|

## 28A--28A-Lc05-07-20, 0 to 6 percent slopes

### 5-28-1

*Extent:* 50 to 70 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 28A--28A-Lc05-07-20, 0 to 6 percent slopes

### 5-28-2

*Extent:* 25 to 40 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 0 to 6 percent
*Parent material:* outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 4 to 9 in | gravelly sandy loam | moderately rapid | 0.50 to 0.72 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## 28B--28B-Lc05-07-20, 6 to 18 percent slopes

### 5-28-1

*Extent:* 40 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- | 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 28B--28B-Lc05-07-20, 6 to 18 percent slopes

### 5-28-2

*Extent:* 30 to 45 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 4 to 9 in | gravelly sandy loam | moderately rapid | 0.50 to 0.72 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## 28C--28C-Lc05-07-20, 18 to 35 percent slopes

### 5-28-1

*Extent:* 40 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 28C--28C-Lc05-07-20, 18 to 35 percent slopes

### 5-28-2

*Extent:* 30 to 45 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 18 to 35 percent
*Parent material:* outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 4 to 9 in | gravelly sandy loam | moderately rapid | 0.50 to 0.72 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## 29A--29A-Ma19-05-07-20, 0 to 6 percent slopes

### 19-29

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | loamy sand | rapid | 0.24 to 0.28 in | 5.1 to 6.5 |
| Bw -- | 3 to 29 in | loamy sand | rapid | 1.56 to 2.86 in | 5.1 to 6.5 |
| 2Bt1 -- | 29 to 43 in | sandy clay loam | moderate | 1.93 to 2.62 in | 5.6 to 7.3 |
| 3Bt2 -- | 43 to 50 in | clay | very slow | 0.57 to 0.85 in | 5.6 to 7.3 |
| 3C -- | 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 29A--29A-Ma19-05-07-20, 0 to 6 percent slopes

### 19-29-SP

*Extent:* 15 to 30 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 0 to 4 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | fine sandy loam | moderately rapid | 0.38 to 0.43 in | 5.1 to 6.5 |
| E -- 3 to 8 in | sandy loam | moderately rapid | 0.47 to 0.76 in | 5.1 to 6.5 |
| Bw -- 8 to 19 in | loamy sand | rapid | 0.88 to 1.21 in | 5.1 to 6.5 |
| 2B/E -- 19 to 24 in | sandy clay loam | moderate | 0.72 to 0.97 in | 5.6 to 7.3 |
| 3Bt -- 24 to 28 in | clay | very slow | 0.31 to 0.47 in | 5.6 to 7.3 |
| 3Bk -- 28 to 44 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| 3C -- 44 to 80 in | clay | very slow | 2.87 to 4.30 in | 7.4 to 8.4 |

## 29A--29A-Ma19-05-07-20, 0 to 6 percent slopes

### 19-16

*Extent:* 15 to 30 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 2 to 6 percent
*Parent material:* sandy outwash and/or beach deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

## 29B--29B-Ma19-05-07-20, 6 to 18 percent slopes

### 19-29

*Extent:* 50 to 70 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- | 1 to 3 in | loamy sand | rapid | 0.24 to 0.28 in | 5.1 to 6.5 |
| Bw -- | 3 to 29 in | loamy sand | rapid | 1.56 to 2.86 in | 5.1 to 6.5 |
| 2Bt1 -- | 29 to 43 in | sandy clay loam | moderate | 1.93 to 2.62 in | 5.6 to 7.3 |
| 3Bt2 -- | 43 to 50 in | clay | very slow | 0.57 to 0.85 in | 5.6 to 7.3 |
| 3C -- | 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## 29B--29B-Ma19-05-07-20, 6 to 18 percent slopes

### 19-28-1

*Extent:* 15 to 30 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 6 to 18 percent
*Parent material:* sandy outwash and/or beach deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- | 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 30A--30A-Lc05-06-07-20, 0 to 6 percent slopes

### 5-30A

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- 1 to 3 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## 30B--30B-Lc05-06-07-20. 6 to 18 percent slopes

### 5-30B

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 30C--30C-Lc05-07-20, 18 to 35 percent slopes

### 5-30B

*Extent:* 75 to 85 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | stony loam | moderate | 0.26 to 0.37 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## 32--32-Lc07-05-06, 0 to 1 percent slopes

### 7-32

*Extent:* 65 to 85 percent of the unit
*Landform(s):* bogs on moraines, bogs on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- | 12 to 32 in | mucky peat | rapid | 9.04 to 11.04 in | |
| Oa -- | 32 to 36 in | muck | moderately rapid | 1.38 to 1.77 in | |
| 2Cg -- | 36 to 80 in | stratified loamy fine sand to loam | moderate | 5.73 to 8.38 in | 5.1 to 7.3 |

## 34--34-Lc05-07-20, 0 to 3 percent slopes

### 5-34

*Extent:* 50 to 70 percent of the unit
*Landform(s):* flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 3 in | loamy sand | rapid | 0.16 to 0.19 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

### 5-73

*Extent:* 10 to 30 percent of the unit
*Landform(s):* swales on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.12 to 0.22 in | 4.5 to 6.0 |
| Bg -- 4 to 24 in | loamy sand | rapid | 1.00 to 1.61 in | 4.5 to 6.0 |
| Cg1 -- 24 to 48 in | sand | rapid | 0.48 to 2.16 in | 4.5 to 6.0 |
| Cg2 -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 34--34-Lc05-07-20, 0 to 3 percent slopes

## 35A--35A-Lc20-10, 0 to 6 percent slopes

### 20-35

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 6 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 5.5 |
| Bw -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- | 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- | 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- | 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- | 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- | 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## 35A--35A-Lc20-10, 0 to 6 percent slopes

### 20-42

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 3 in | loam | moderate | 0.31 to 0.35 in | 4.5 to 5.5 |
| E -- | 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- | 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- | 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- | 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- | 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## 35B--35B-Lc20-10, 6 to 18 percent slopes

### 20-35

*Extent:* 70 to 90 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 5.5 |
| Bw -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- | 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- | 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- | 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- | 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- | 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## 43--43-Lc20-10, 0 to 2 percent slopes

### 20-43

*Extent:* 50 to 70 percent of the unit
*Landform(s):* flats on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 5.5 |
| Eg -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2B/E -- | 8 to 17 in | clay loam | slow | 0.72 to 1.36 in | 5.1 to 6.0 |
| 2Bt -- | 17 to 36 in | clay | slow | 1.51 to 2.83 in | 5.1 to 6.5 |
| 2BCt -- | 36 to 52 in | clay | slow | 1.29 to 2.42 in | 5.6 to 7.3 |
| 2BCd -- | 52 to 80 in | clay | slow | 1.12 to 2.24 in | 6.1 to 8.4 |

## 43--43-Lc20-10, 0 to 2 percent slopes

### 20-42

*Extent:* 20 to 40 percent of the unit
*Landform(s):* rises on moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 3 in | loam | moderate | 0.31 to 0.35 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## 47--47-Lc07-06-10, 0 to 2 percent slopes

### 7-47

*Extent:* 50 to 70 percent of the unit
*Landform(s):* flats on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 5 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## 52--52-Ma19-Lc05, 0 to 2 percent slopes

### 19-52

*Extent:* 55 to 75 percent of the unit
*Landform(s):* depressions on lake plains, drainageways on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 12 in | muck | moderately rapid | 4.13 to 5.31 in | |
| A -- | 12 to 17 in | mucky silty clay loam | moderately slow | 0.92 to 1.23 in | 6.1 to 7.3 |
| Bg -- | 17 to 24 in | clay | very slow | 0.99 to 1.20 in | 6.6 to 7.8 |
| Cg -- | 24 to 80 in | clay | very slow | 7.83 to 9.50 in | 7.4 to 8.4 |

## 53A--53A-Ma19-Lc05, 0 to 6 percent slopes

### 19-53

*Extent:* 50 to 70 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- | 2 to 4 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| E -- | 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- | 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- | 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- | 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- | 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## 53A--53A-Ma19-Lc05, 0 to 6 percent slopes

### 19-8-2

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 3 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| Eg -- 3 to 10 in | silty clay loam | moderately slow | 0.92 to 1.42 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

## 53B--53B-Ma19-Lc05, 6 to 18 percent slopes

### 19-53

*Extent:* 70 to 80 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 6 to 18 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## 56A--56A-Lc05-Ma19, 0 to 6 percent slopes

### 5-56A

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 56A--56A-Lc05-Ma19, 0 to 6 percent slopes

### 5-58

*Extent:* 20 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| E -- | 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- | 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- | 17 to 34 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- | 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- | 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

## 56B--56B-Lc05-Ma19, 6 to 18 percent slopes

### 20-56B

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 3 to 8 in | loam | moderate | 0.61 to 0.97 in | 4.5 to 6.0 |
| Ex -- 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 58--58-Lc05-Ma19, 0 to 3 percent slopes

### 20-58

*Extent:* 50 to 70 percent of the unit
*Landform(s):* flats on moraines, rises on moraines
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

## 58--58-Lc05-Ma19, 0 to 3 percent slopes

### 20-72

*Extent:* 10 to 35 percent of the unit
*Landform(s):* swales on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- | 2 to 6 in | loam | moderate | 0.87 to 0.95 in | 4.5 to 6.0 |
| Eg -- | 6 to 14 in | fine sandy loam | moderate | 0.99 to 1.57 in | 4.5 to 6.0 |
| B/E -- | 14 to 31 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Btg -- | 31 to 68 in | clay loam | moderately slow | 5.18 to 7.03 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## 59A--59A-Lc07-05, 0 to 6 percent slopes

### 7-59A

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | fine sandy loam | moderately rapid | 0.38 to 0.43 in | 4.5 to 6.0 |
| Bw1 -- 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- 32 to 54 in | silt loam | moderate | 3.75 to 4.85 in | 5.6 to 6.5 |
| 2C -- 54 to 80 in | silt loam | moderate | 4.42 to 5.72 in | 5.6 to 7.8 |

## 64A--64A-Lc20-05, 0 to 6 percent slopes

### 20-64A

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* outwash over loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | sandy loam | moderately rapid | 0.31 to 0.35 in | 4.5 to 6.0 |
| Bw -- 3 to 32 in | loamy coarse sand | rapid | 1.44 to 3.16 in | 4.5 to 6.0 |
| 2E/B -- 32 to 38 in | loam | moderate | 1.01 to 1.32 in | 5.1 to 6.5 |
| 2Bt -- 38 to 46 in | clay loam | moderately slow | 1.10 to 1.50 in | 5.1 to 6.5 |
| 2BCd -- 46 to 80 in | loam | very slow | 2.03 to 3.39 in | 6.1 to 8.4 |

## 64A--64A-Lc20-05, 0 to 6 percent slopes

### 20-28-1

*Extent:* 10 to 25 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 4 to 37 in | loamy sand | rapid | 2.01 to 3.68 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 64A--64A-Lc20-05, 0 to 6 percent slopes

### 20-56A

*Extent:* 15 to 25 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | loam | moderate | 0.47 to 0.52 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## 64B--64B-Lc20-05, 6 to 18 percent slopes

### 20-64B

*Extent:* 55 to 75 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* outwash over loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 1 in | moderately decomposed plant material | rapid | 0.35 to 0.43 in | |
| A -- 1 to 3 in | sandy loam | moderately rapid | 0.31 to 0.35 in | 4.5 to 6.0 |
| Bw -- 3 to 32 in | loamy coarse sand | rapid | 1.44 to 3.16 in | 4.5 to 6.0 |
| 2E/B -- 32 to 38 in | loam | moderate | 1.01 to 1.32 in | 5.1 to 6.5 |
| 2Bt -- 38 to 46 in | clay loam | moderately slow | 1.10 to 1.50 in | 5.1 to 6.5 |
| 2BCd -- 46 to 80 in | loam | very slow | 2.03 to 3.39 in | 6.1 to 8.4 |

## 67A--67A-Lc05-07-20, 0 to 6 percent slopes

### 5-67-1

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 6 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 67B--67B-Lc05-07-10, 6 to 18 percent slopes

### 5-67-1

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 18 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 67C--67C-Lc05-07-10, 18 to 35 percent slopes

### 5-67-1

*Extent:* 60 to 80 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 1 in | moderately decomposed plant material | rapid | 0.53 to 0.65 in | |
| A -- | 1 to 3 in | stony loam | moderate | 0.28 to 0.35 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

## 72--72-Lc20-05-Ma19, 0 to 2 percent slopes

### 20-72

*Extent:* 65 to 85 percent of the unit
*Landform(s):* flats on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.71 to 0.87 in | |
| A -- 2 to 6 in | loam | moderate | 0.87 to 0.95 in | 4.5 to 6.0 |
| Eg -- 6 to 14 in | fine sandy loam | moderate | 0.99 to 1.57 in | 4.5 to 6.0 |
| B/E -- 14 to 31 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Btg -- 31 to 68 in | clay loam | moderately slow | 5.18 to 7.03 in | 5.1 to 6.5 |
| BCd -- 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## 73--73-Lc05-20, 0 to 2 percent slopes

### 5-73

*Extent:* 70 to 90 percent of the unit
*Landform(s):* swales on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 2 in | moderately decomposed plant material | rapid | 0.89 to 1.08 in | |
| A -- 2 to 4 in | loamy sand | rapid | 0.12 to 0.22 in | 4.5 to 6.0 |
| Bg -- 4 to 24 in | loamy sand | rapid | 1.00 to 1.61 in | 4.5 to 6.0 |
| Cg1 -- 24 to 48 in | sand | rapid | 0.48 to 2.16 in | 4.5 to 6.0 |
| Cg2 -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## 1003B--Udorthents, loamy (cut and fill land)

### Udorthents, loamy, (cut and fill land)

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:* 0 to 6 percent
*Parent material:* variable soil material
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:* unranked
*Hydrologic group:* B
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## 1007--Udorthents, shallow (sanitary landfill)

### Udorthents, shallow, (sanitary landfill)

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:*
*Parent material:* variable soil material
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:* B
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## 1012A--Lobo-Waskish complex, 0 to 2 percent slopes

### Lobo

*Extent:* 50 to 80 percent of the unit
*Landform(s):* raised bogs on end moraines, raised bogs on outwash plains, raised bogs on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 38 in | peat | very rapid | 21.00 to 24.82 in | |
| Oe -- 38 to 80 in | mucky peat | rapid | 18.78 to 22.95 in | |

### Waskish

*Extent:* 20 to 50 percent of the unit
*Landform(s):* raised bogs on end moraines, raised bogs on outwash plains, raised bogs on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 14 in | peat | very rapid | 7.80 to 9.21 in | |
| Oa -- 14 to 16 in | muck | moderately rapid | 0.69 to 0.89 in | |
| Oi -- 16 to 80 in | mucky peat | very rapid | 35.08 to 41.46 in | |

## 1014A--Uskabwanka peat, 0 to 1 percent slopes

### Rifle, depressional

*Extent:* 25 to 75 percent of the unit
*Landform(s):* closed depressions on lake plains
*Slope gradient:* 0 to 0 percent
*Parent material:* herbaceous organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 8w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 12 in | peat | very rapid | 6.50 to 7.68 in | |
| Oe -- 12 to 43 in | mucky peat | rapid | 14.17 to 17.32 in | |
| Oa1 -- 43 to 59 in | muck | moderately rapid | 5.51 to 7.09 in | |
| Oa2 -- 59 to 80 in | muck | moderately rapid | 7.30 to 9.39 in | |

### Uskabwanka, depressional

*Extent:* 20 to 50 percent of the unit
*Landform(s):* closed depressions on lake plains
*Slope gradient:* 0 to 0 percent
*Parent material:* herbaceous organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 8w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 40 in | mucky peat | rapid | 13.64 to 16.67 in | |
| 2Oe2 -- 40 to 70 in | water | impermeable | | |
| Oe3 -- 70 to 80 in | mucky peat | rapid | 4.43 to 5.41 in | |

## 1020A--Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded

### Bowstring, frequently flooded

*Extent:* 0 to 90 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic materials mixed with alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 38 in | muck | moderately rapid | 13.37 to 17.19 in | |
| Cg -- 38 to 47 in | stratified fine sand to loamy fine sand | rapid | 0.43 to 0.87 in | 5.6 to 7.3 |
| O'a -- 47 to 80 in | muck | moderately rapid | 11.57 to 14.88 in | |

### Fluvaquents, frequently flooded, very poorly drained

*Extent:* 0 to 90 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 6 in | mucky silt loam | moderate | 1.18 to 1.42 in | 5.6 to 7.3 |
| Cg -- 6 to 80 in | stratified silt loam to loamy coarse sand | moderately rapid | 4.44 to 16.28 in | 5.6 to 7.3 |

## 1021A--Rifle soils, 0 to 1 percent slopes

### Rifle

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on end moraines, swamps on outwash plains, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Rifle, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on end moraines, swamps on outwash plains, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## 1022A--Greenwood soils, 0 to 1 percent slopes

### Greenwood

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on end moraines, bogs on outwash plains, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Greenwood, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on end moraines, bogs on outwash plains, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## 1048--Dumps, iron mine

### Dumps, iron mine

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:*
*Parent material:* variable soil material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:*

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## 1049--Pits, iron mine

### Pits, iron mine

*Extent:* 100 percent of the unit
*Landform(s):* moraines
*Slope gradient:*
*Parent material:* variable soil material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:*

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## 1050--Tailings basin

### Tailings basin

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:*
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:*

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:* unranked
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## A1B--Graycalm-Grayling complex, 1 to 8 percent slopes

### Graycalm

*Extent:* 30 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 8 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

### Grayling

*Extent:* 30 to 50 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 8 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.25 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 22 in | coarse sand | very rapid | 0.57 to 1.70 in | 4.5 to 6.0 |
| C -- 22 to 80 in | coarse sand | very rapid | 1.16 to 4.05 in | 5.1 to 6.5 |

## A2D--Graycalm-Grayling-Leander complex, pitted, 0 to 18 percent slopes

### Graycalm

*Extent:* 25 to 45 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

### Grayling

*Extent:* 25 to 45 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.25 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 22 in | coarse sand | very rapid | 0.57 to 1.70 in | 4.5 to 6.0 |
| C -- 22 to 80 in | coarse sand | very rapid | 1.16 to 4.05 in | 5.1 to 6.5 |

## A2D--Graycalm-Grayling-Leander complex, pitted, 0 to 18 percent slopes

### Leander, depressional

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on pitted outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* colluvium and underlying sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.26 to 0.30 in | 4.5 to 6.5 |
| BA -- 2 to 8 in | sandy loam | moderately rapid | 0.65 to 0.83 in | 4.5 to 6.5 |
| Bt -- 8 to 44 in | coarse sandy loam | moderately rapid | 3.98 to 5.80 in | 5.1 to 6.5 |
| C -- 44 to 80 in | sand | rapid | 1.07 to 3.22 in | 5.6 to 7.3 |

## A2E--Graycalm-Grayling-Leander complex, pitted, 0 to 45 percent slopes

### Graycalm

*Extent:* 25 to 45 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 18 to 45 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

### Grayling

*Extent:* 25 to 45 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 18 to 45 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.25 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 22 in | coarse sand | very rapid | 0.57 to 1.70 in | 4.5 to 6.0 |
| C -- 22 to 80 in | coarse sand | very rapid | 1.16 to 4.05 in | 5.1 to 6.5 |

## A2E--Graycalm-Grayling-Leander complex, pitted, 0 to 45 percent slopes

### Leander, depressional

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on pitted outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* colluvium and underlying sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.26 to 0.30 in | 4.5 to 6.5 |
| BA -- 2 to 8 in | sandy loam | moderately rapid | 0.65 to 0.83 in | 4.5 to 6.5 |
| Bt -- 8 to 44 in | coarse sandy loam | moderately rapid | 3.98 to 5.80 in | 5.1 to 6.5 |
| C -- 44 to 80 in | sand | rapid | 1.07 to 3.22 in | 5.6 to 7.3 |

## A3B--Wurtsmith-Friendship complex, 1 to 4 percent slopes

### Wurtsmith

*Extent:* 30 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

### Friendship

*Extent:* 30 to 55 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 24 in | sand | rapid | 0.63 to 2.30 in | 4.5 to 6.0 |
| Bw2 -- 24 to 40 in | sand | rapid | 0.32 to 1.13 in | 4.5 to 6.0 |
| C -- 40 to 80 in | sand | rapid | 0.80 to 2.78 in | 5.1 to 6.5 |

## A4A--Meehan loamy sand, 0 to 2 percent slopes

### Meehan

*Extent:* 70 to 90 percent of the unit
*Landform(s):* rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

## A5A--Roscommon muck, depressional, 0 to 1 percent slopes

### Roscommon, depressional

*Extent:* 70 to 85 percent of the unit
*Landform(s):* depressions on outwash plains, drainageways on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oa -- | 0 to 3 in | muck | moderately rapid | 1.10 to 1.42 in | 4.5 to 6.0 |
| Eg -- | 3 to 8 in | sand | rapid | 0.14 to 0.52 in | 4.5 to 6.0 |
| Bg -- | 8 to 33 in | sand | rapid | 0.50 to 2.52 in | 4.5 to 6.0 |
| Cg -- | 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

## A6A--Keewatin loam, 0 to 3 percent slopes, stony

### Keewatin, stony

*Extent:* 75 to 90 percent of the unit
*Landform(s):* flats on drumlins, rises on till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam, sandy loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

## A7B--Keewatin-Nashwauk complex, 0 to 8 percent slopes, stony

### Keewatin, stony

*Extent:* 35 to 55 percent of the unit
*Landform(s):* drumlins, end moraines, till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

### Nashwauk, stony

*Extent:* 25 to 45 percent of the unit
*Landform(s):* drumlins, end moraines, till plains
*Slope gradient:* 3 to 8 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 6.0 |
| Bw -- 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A7B--Keewatin-Nashwauk complex, 0 to 8 percent slopes, stony

## A8D--Greatscott-Nashwauk-Balkan, depressional, complex, 0 to 18 percent slopes, stony

### Greatscott, stony

*Extent:* 50 to 65 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 2 to 8 in | loam | moderate | 0.71 to 1.12 in | 4.5 to 6.0 |
| Ex -- | 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- | 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- | 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A8D--Greatscott-Nashwauk-Balkan, depressional, complex, 0 to 18 percent slopes, stony

### Nashwauk, stony

*Extent:* 15 to 25 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 3 to 8 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 6.0 |
| Bw -- | 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- | 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- | 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- | 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A8D--Greatscott-Nashwauk-Balkan, depressional, complex, 0 to 18 percent slopes, stony

### Balkan, depressional, stony

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on end moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 6 in | loam | moderate | 1.18 to 1.30 in | 4.5 to 6.0 |
| Eg -- | 6 to 22 in | loam | moderate | 2.42 to 3.07 in | 4.5 to 6.0 |
| E/B -- | 22 to 34 in | clay loam | moderately slow | 1.65 to 2.24 in | 5.1 to 6.5 |
| Btg -- | 34 to 50 in | silty clay loam | moderately slow | 2.26 to 3.07 in | 5.1 to 6.5 |
| BC -- | 50 to 68 in | loam | moderate | 2.54 to 3.44 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A9D--Greatscott loam, 8 to 18 percent slopes, stony

### Greatscott, stony

*Extent:* 75 to 90 percent of the unit
*Landform(s):* drumlins, end moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 2 to 8 in | loam | moderate | 0.71 to 1.12 in | 4.5 to 6.0 |
| Ex -- 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A10E--Greatscott-Greatscott, sandy substratum complex, 18 to 45 percent slopes, stony

### Greatscott, stony

*Extent:* 45 to 65 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 18 to 45 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 2 to 8 in | loam | moderate | 0.71 to 1.12 in | 4.5 to 6.0 |
| Ex -- | 8 to 12 in | loam | slow | 0.47 to 0.75 in | 4.5 to 6.5 |
| B/E -- | 12 to 17 in | clay loam | moderately slow | 0.72 to 0.97 in | 5.1 to 6.5 |
| Bt -- | 17 to 57 in | clay loam | moderately slow | 5.62 to 7.63 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A10E--Greatscott-Greatscott, sandy substratum complex, 18 to 45 percent slopes, stony

### Greatscott, sandy substratum, stony

*Extent:* 20 to 35 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 18 to 45 percent
*Parent material:* loamy dense till over outwash
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 2 to 11 in | loam | moderate | 1.09 to 1.72 in | 4.5 to 6.0 |
| Ex -- | 11 to 16 in | loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- | 16 to 25 in | clay loam | moderately slow | 1.27 to 1.72 in | 5.1 to 6.5 |
| Bt -- | 25 to 50 in | clay loam | moderately slow | 3.47 to 4.71 in | 5.1 to 6.5 |
| BCd -- | 50 to 62 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |
| 2C -- | 62 to 80 in | gravelly coarse sand | very rapid | 0.36 to 1.09 in | 5.6 to 7.8 |

## A11A--Keewatin-Balkan complex, 0 to 3 percent slopes, stony

### Keewatin, stony

*Extent:* 35 to 50 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 1 to 3 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam, sandy loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

### Balkan, stony

*Extent:* 35 to 50 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 6 in | loam | moderate | 1.18 to 1.30 in | 4.5 to 6.0 |
| Eg -- 6 to 14 in | fine sandy loam | moderate | 0.99 to 1.57 in | 4.5 to 6.0 |
| B/E -- 14 to 31 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Btg -- 31 to 68 in | clay loam | moderately slow | 5.18 to 7.03 in | 5.1 to 6.5 |
| BCd -- 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A11A--Keewatin-Balkan complex, 0 to 3 percent slopes, stony

## A12B--Daybrook sandy loam, 1 to 8 percent slopes

### Daybrook

*Extent:* 80 to 95 percent of the unit
*Landform(s):* end moraines, till plains
*Slope gradient:* 1 to 8 percent
*Parent material:* outwash over loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | sandy loam | moderately rapid | 0.41 to 0.47 in | 4.5 to 6.0 |
| Bw -- 3 to 32 in | loamy coarse sand | rapid | 1.44 to 3.16 in | 4.5 to 6.0 |
| 2E/B -- 32 to 38 in | loam | moderate | 1.01 to 1.32 in | 5.1 to 6.5 |
| 2Bt -- 38 to 46 in | clay loam | moderately slow | 1.10 to 1.50 in | 5.1 to 6.5 |
| 2BCd -- 46 to 80 in | loam | very slow | 2.03 to 3.39 in | 6.1 to 8.4 |

## A13A--Shenango sandy loam, 0 to 2 percent slopes

### Shenango

*Extent:* 75 to 90 percent of the unit
*Landform(s):* flats on end moraines, rises on till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* outwash over loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.26 to 0.30 in | 4.5 to 6.0 |
| E -- 2 to 8 in | loamy sand | rapid | 0.53 to 0.94 in | 4.5 to 6.0 |
| Bw -- 8 to 22 in | loamy coarse sand | rapid | 0.57 to 1.56 in | 5.1 to 6.5 |
| 2E -- 22 to 28 in | loam | moderate | 0.71 to 1.06 in | 5.1 to 6.5 |
| 2E/B -- 28 to 34 in | loam | moderate | 0.83 to 1.12 in | 5.1 to 6.5 |
| 2Bt -- 34 to 48 in | clay loam | moderately slow | 1.98 to 2.69 in | 5.1 to 6.5 |
| 2BCd -- 48 to 80 in | loam | very slow | 1.91 to 3.19 in | 6.1 to 8.4 |

## A14A--Balkan, depressional-Balkan complex, 0 to 2 percent slopes, stony

### Balkan, depressional, stony

*Extent:* 50 to 70 percent of the unit
*Landform(s):* drainageways on till plains, depressions on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 6 in | loam | moderate | 1.18 to 1.30 in | 4.5 to 6.0 |
| Eg -- 6 to 22 in | loam | moderate | 2.42 to 3.07 in | 4.5 to 6.0 |
| E/B -- 22 to 34 in | clay loam | moderately slow | 1.65 to 2.24 in | 5.1 to 6.5 |
| Btg -- 34 to 50 in | silty clay loam | moderately slow | 2.26 to 3.07 in | 5.1 to 6.5 |
| BC -- 50 to 68 in | loam | moderate | 2.54 to 3.44 in | 5.1 to 6.5 |
| BCd -- 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

### Balkan, stony

*Extent:* 20 to 40 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 6 in | loam | moderate | 1.18 to 1.30 in | 4.5 to 6.0 |
| Eg -- 6 to 14 in | fine sandy loam | moderate | 0.99 to 1.57 in | 4.5 to 6.0 |
| B/E -- 14 to 31 in | clay loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Btg -- 31 to 68 in | clay loam | moderately slow | 5.18 to 7.03 in | 5.1 to 6.5 |
| BCd -- 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A14A--Balkan, depressional-Balkan complex, 0 to 2 percent slopes, stony

## A21B--Graycalm-Keenan complex, 1 to 8 percent slopes

### Graycalm

*Extent:* 30 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 8 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## A21B--Graycalm-Keenan complex, 1 to 8 percent slopes

### Keenan

*Extent:* 15 to 40 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | fine sandy loam | moderately rapid | 0.63 to 0.71 in | 4.5 to 6.0 |
| Bw1 -- 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- 32 to 54 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.75 to 4.85 in | 5.1 to 6.5 |
| 2C -- 54 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 4.42 to 5.72 in | 5.6 to 7.8 |

## A23D--Nashwauk, stony-Keewatin, stony-Rock outcrop complex, 2 to 25 percent slopes

### Nashwauk, stony

*Extent:* 30 to 50 percent of the unit
*Landform(s):* drumlins
*Slope gradient:* 4 to 10 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 6.0 |
| Bw -- | 3 to 10 in | fine sandy loam | moderate | 0.80 to 1.27 in | 4.5 to 6.0 |
| Ex -- | 10 to 13 in | fine sandy loam | slow | 0.38 to 0.60 in | 4.5 to 6.5 |
| B/E -- | 13 to 26 in | clay loam | moderately slow | 1.82 to 2.47 in | 5.1 to 6.5 |
| Bt -- | 26 to 57 in | clay loam | moderately slow | 4.35 to 5.91 in | 5.1 to 6.5 |
| BCd -- | 57 to 80 in | loam | very slow | 1.37 to 2.28 in | 6.1 to 8.4 |

## A23D--Nashwauk, stony-Keewatin, stony-Rock outcrop complex, 2 to 25 percent slopes

### Keewatin, stony

*Extent:* 10 to 30 percent of the unit
*Landform(s):* drumlins
*Slope gradient:* 2 to 5 percent
*Parent material:* loamy dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 6.0 |
| E -- 4 to 12 in | loam | moderate | 0.94 to 1.50 in | 4.5 to 6.0 |
| Ex -- 12 to 17 in | sandy loam | slow | 0.61 to 0.97 in | 4.5 to 6.5 |
| B/E -- 17 to 34 in | clay loam, sandy loam | moderately slow | 2.37 to 3.22 in | 5.1 to 6.5 |
| Bt -- 34 to 58 in | clay loam | moderately slow | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- 58 to 80 in | loam | very slow | 1.32 to 2.20 in | 6.1 to 8.4 |

### Rock outcrop

*Extent:* 5 to 20 percent of the unit
*Landform(s):* drumlins
*Slope gradient:* 5 to 25 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## A24A--Merwin peat, Greatscott catena, 0 to 1 percent slopes

### Merwin

*Extent:* 60 to 90 percent of the unit
*Landform(s):* bogs on end moraines, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oi -- | 0 to 6 in | peat | very rapid | 3.25 to 3.84 in | |
| Oe -- | 6 to 46 in | mucky peat | rapid | 18.07 to 22.09 in | |
| BCg -- | 46 to 70 in | loam | moderate | 3.36 to 4.56 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A26A--Tacoosh mucky peat, Greatscott catena, 0 to 1 percent slopes

### Tacoosh

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on end moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 7 in | mucky peat | rapid | 3.19 to 3.90 in | |
| Oe2 -- | 7 to 30 in | mucky peat | rapid | 10.28 to 12.56 in | |
| Oa -- | 30 to 34 in | muck | moderately rapid | 1.38 to 1.77 in | |
| BCg -- | 34 to 68 in | loam | moderate | 4.80 to 6.51 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A27A--Cathro muck, depressional, Greatscott catena, 0 to 1 percent slopes

### Cathro, depressional

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on end moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over colluvium and loamy dense till
*Restrictive feature(s):* dense material at 60 to 80 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 30 in | muck | moderately rapid | 10.47 to 13.46 in | |
| A -- | 30 to 34 in | mucky silt loam | moderate | 0.87 to 1.02 in | 5.1 to 6.5 |
| BCg -- | 34 to 68 in | loam | moderate | 4.80 to 6.51 in | 5.1 to 6.5 |
| BCd -- | 68 to 80 in | loam | very slow | 0.71 to 1.18 in | 6.1 to 8.4 |

## A28A--Rifle soils, Greatscott catena, 0 to 1 percent slopes

### Rifle

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on end moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Rifle, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on end moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## A29A--Greenwood soils, Greatscott catena, 0 to 1 percent slopes

### Greenwood

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on end moraines, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Greenwood, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on end moraines, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## B1C--Taylor silty clay loam, 4 to 12 percent slopes

### Taylor

*Extent:* 75 to 90 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 4 to 12 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- | 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- | 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- | 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- | 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- | 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## B1D--Taylor silty clay loam, 12 to 25 percent slopes

### Taylor

*Extent:* 75 to 90 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 12 to 25 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- | 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- | 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- | 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- | 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- | 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## B2A--Indus-Woodslake, depressional, complex, 0 to 1 percent slopes

### Indus

*Extent:* 55 to 75 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Eg -- 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

### Woodslake, depressional

*Extent:* 20 to 40 percent of the unit
*Landform(s):* depressions on lake plains, swales on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 7 in | silty clay loam | moderately slow | 1.49 to 1.63 in | 5.6 to 6.5 |
| Bg -- 7 to 18 in | clay | very slow | 0.88 to 1.21 in | 5.6 to 7.3 |
| Cg1 -- 18 to 36 in | clay | very slow | 1.42 to 1.77 in | 6.6 to 7.8 |
| Cg2 -- 36 to 80 in | clay | very slow | 3.53 to 5.29 in | 7.4 to 8.4 |

## B3B--Alango-Indus complex, 1 to 4 percent slopes

### Alango

*Extent:* 50 to 75 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 4 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| Eg -- 2 to 10 in | silty clay loam | moderately slow | 1.02 to 1.57 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

### Indus

*Extent:* 15 to 35 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 1 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Eg -- 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## B4A--Indus-Dora, depressional, complex, 0 to 2 percent slopes

### Indus

*Extent:* 55 to 80 percent of the unit
*Landform(s):* rises on lake plains, flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Eg -- 4 to 7 in | clay | slow | 0.31 to 0.60 in | 5.1 to 7.3 |
| Btg -- 7 to 34 in | clay | very slow | 2.14 to 2.68 in | 5.6 to 7.3 |
| Bkg -- 34 to 50 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| Cg -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

### Dora, depressional

*Extent:* 20 to 40 percent of the unit
*Landform(s):* drainageways on lake plains, depressions on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 6 in | mucky peat | rapid | 2.66 to 3.25 in | |
| Oa -- 6 to 22 in | muck | moderately rapid | 6.46 to 7.26 in | |
| A -- 22 to 26 in | mucky silty clay loam | slow | 0.59 to 1.18 in | 6.1 to 7.3 |
| Cg1 -- 26 to 36 in | clay | very slow | 0.79 to 0.98 in | 6.6 to 7.8 |
| Cg2 -- 36 to 80 in | clay | very slow | 3.53 to 5.29 in | 7.4 to 8.4 |

## B4A--Indus-Dora, depressional, complex, 0 to 2 percent slopes

## B5B--Alango-Taylor-Woodslake, depressional, complex, 0 to 6 percent slopes

### Alango

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 4 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | silty clay loam | moderately slow | 0.41 to 0.45 in | 5.1 to 6.5 |
| Eg -- 2 to 10 in | silty clay loam | moderately slow | 1.02 to 1.57 in | 5.1 to 7.3 |
| Btg -- 10 to 28 in | clay | very slow | 1.45 to 1.81 in | 5.6 to 7.3 |
| Bkg -- 28 to 60 in | clay | very slow | 2.55 to 3.83 in | 7.4 to 8.4 |
| Cg -- 60 to 80 in | clay | very slow | 1.61 to 2.41 in | 7.4 to 8.4 |

### Woodslake, depressional

*Extent:* 10 to 25 percent of the unit
*Landform(s):* drainageways on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 7 in | silty clay loam | moderately slow | 1.49 to 1.63 in | 5.6 to 6.5 |
| Bg -- 7 to 18 in | clay | very slow | 0.88 to 1.21 in | 5.6 to 7.3 |
| Cg1 -- 18 to 36 in | clay | very slow | 1.42 to 1.77 in | 6.6 to 7.8 |
| Cg2 -- 36 to 80 in | clay | very slow | 3.53 to 5.29 in | 7.4 to 8.4 |

## B5B--Alango-Taylor-Woodslake, depressional, complex, 0 to 6 percent slopes

### Taylor

*Extent:* 15 to 25 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 2 to 6 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- | 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- | 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- | 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- | 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- | 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## B6B--Morcom-Thistledew complex, 0 to 6 percent slopes

### Morcom

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 0 to 4 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | fine sandy loam | moderately rapid | 0.50 to 0.57 in | 5.1 to 6.5 |
| E -- 3 to 8 in | sandy loam | moderately rapid | 0.47 to 0.76 in | 5.1 to 6.5 |
| Bw -- 8 to 19 in | loamy sand | rapid | 0.88 to 1.21 in | 5.1 to 6.5 |
| 2B/E -- 19 to 24 in | sandy clay loam | moderate | 0.72 to 0.97 in | 5.6 to 7.3 |
| 3Bt -- 24 to 28 in | clay | very slow | 0.31 to 0.47 in | 5.6 to 7.3 |
| 3Bk -- 28 to 44 in | clay | very slow | 1.29 to 1.94 in | 7.4 to 8.4 |
| 3C -- 44 to 80 in | clay | very slow | 2.87 to 4.30 in | 7.4 to 8.4 |

## B6B--Morcom-Thistledew complex, 0 to 6 percent slopes

### Thistledew

*Extent:* 20 to 40 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 5.1 to 6.5 |
| Bw -- | 3 to 29 in | loamy sand | rapid | 1.56 to 2.86 in | 5.1 to 6.5 |
| 2Bt1 -- | 29 to 43 in | sandy clay loam | moderate | 1.93 to 2.62 in | 5.6 to 7.3 |
| 3Bt2 -- | 43 to 50 in | clay | very slow | 0.57 to 0.85 in | 5.6 to 7.3 |
| 3C -- | 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## B7D--Udorthents, slumped-Thistledew-Taylor complex, 10 to 25 percent slopes

### Udorthents, slumped

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 10 to 25 percent
*Parent material:* glaciolacustrine sediments and outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loam | moderate | 1.02 to 1.13 in | 5.1 to 6.5 |
| C1 -- 5 to 18 in | fine sandy loam | moderate | 1.95 to 2.47 in | 5.1 to 7.3 |
| C2 -- 18 to 28 in | loamy fine sand | rapid | 0.49 to 0.98 in | 5.6 to 7.3 |
| 2C3 -- 28 to 50 in | stratified fine sandy loam to clay loam | moderately slow | 3.09 to 4.19 in | 5.6 to 7.8 |
| 3C4 -- 50 to 80 in | silty clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

### Thistledew

*Extent:* 20 to 40 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 10 to 25 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 5.1 to 6.5 |
| Bw -- 3 to 29 in | loamy sand | rapid | 1.56 to 2.86 in | 5.1 to 6.5 |
| 2Bt1 -- 29 to 43 in | sandy clay loam | moderate | 1.93 to 2.62 in | 5.6 to 7.3 |
| 3Bt2 -- 43 to 50 in | clay | very slow | 0.57 to 0.85 in | 5.6 to 7.3 |
| 3C -- 50 to 80 in | clay | very slow | 2.39 to 3.59 in | 7.4 to 8.4 |

## B7D--Udorthents, slumped-Thistledew-Taylor complex, 10 to 25 percent slopes

### Taylor

*Extent:* 10 to 20 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 10 to 25 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## B8A--Bearville loamy sand, 0 to 2 percent slopes

### Bearville

*Extent:* 65 to 85 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash and/or beach deposits over glaciolacustrine sediments
*Restrictive feature(s):* abrupt textural change at 10 to 20 i
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 5.1 to 6.5 |
| Eg -- | 2 to 16 in | loamy sand | rapid | 1.13 to 1.56 in | 5.1 to 6.5 |
| 2Btg1 -- | 16 to 25 in | sandy clay loam | moderate | 1.27 to 1.72 in | 5.6 to 7.3 |
| 3Btg2 -- | 25 to 35 in | clay | very slow | 0.79 to 1.18 in | 5.6 to 7.3 |
| 3BCg -- | 35 to 80 in | clay | very slow | 3.59 to 5.39 in | 7.4 to 8.4 |

## B9A--Greaney and Dora soils, 0 to 1 percent slopes, frequently flooded

### Dora, frequently flooded

*Extent:* 0 to 95 percent of the unit
*Landform(s):* oxbows on flood plains, flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 6 in | mucky peat | rapid | 2.66 to 3.25 in | |
| Oa -- 6 to 24 in | muck | moderately rapid | 7.24 to 8.15 in | |
| A -- 24 to 36 in | mucky silty clay loam | slow | 1.77 to 3.54 in | 6.1 to 7.3 |
| Cg -- 36 to 80 in | stratified clay loam to silty clay loam to silty clay to clay | slow | 4.41 to 5.73 in | 6.6 to 8.4 |

### Greaney, frequently flooded

*Extent:* 0 to 95 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Bg -- 4 to 30 in | silty clay | slow | 2.86 to 5.20 in | 5.6 to 7.3 |
| Cg -- 30 to 80 in | stratified clay loam to silty clay loam to silty clay to clay | slow | 5.00 to 6.50 in | 6.6 to 8.4 |

## B10B--Rollins sandy loam, 2 to 8 percent slopes

### Rollins

*Extent:* 75 to 90 percent of the unit
*Landform(s):* kames
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## B10D--Rollins sandy loam, 8 to 18 percent slopes

### Rollins

*Extent:* 80 to 90 percent of the unit
*Landform(s):* kames
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## B11B--Taylor-Taylor, sandy substratum complex, 2 to 6 percent slopes

### Taylor

*Extent:* 40 to 60 percent of the unit
*Landform(s):* kames
*Slope gradient:* 2 to 6 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

## B11B--Taylor-Taylor, sandy substratum complex, 2 to 6 percent slopes

### Taylor, sandy substratum

*Extent:* 30 to 50 percent of the unit
*Landform(s):* kames
*Slope gradient:* 2 to 6 percent
*Parent material:* clayey glaciolacustrine sediments over sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 63 in | clay | very slow | 2.65 to 3.97 in | 7.4 to 8.4 |
| 2C -- 63 to 80 in | gravelly coarse sand | very rapid | 0.34 to 1.02 in | 6.6 to 7.8 |

## B11C--Taylor-Taylor, sandy substratum complex, 6 to 12 percent slopes

### Taylor

*Extent:* 40 to 60 percent of the unit
*Landform(s):* kames
*Slope gradient:* 6 to 12 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 6.6 to 7.8 |

## B11C--Taylor-Taylor, sandy substratum complex, 6 to 12 percent slopes

### Taylor, sandy substratum

*Extent:* 30 to 50 percent of the unit
*Landform(s):* kames
*Slope gradient:* 6 to 12 percent
*Parent material:* clayey glaciolacustrine sediments over sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 63 in | clay | very slow | 2.65 to 3.97 in | 7.4 to 8.4 |
| 2C -- 63 to 80 in | gravelly coarse sand | very rapid | 0.34 to 1.02 in | 7.4 to 8.4 |

## B12D--Taylor-Greaney, frequently flooded complex, 0 to 25 percent slopes

### Taylor

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 8 to 25 percent
*Parent material:* clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| E -- 4 to 10 in | silty clay loam | moderately slow | 0.77 to 1.18 in | 5.1 to 7.3 |
| B/E -- 10 to 14 in | silty clay | slow | 0.56 to 0.87 in | 5.6 to 7.3 |
| Bt -- 14 to 30 in | clay | very slow | 1.26 to 1.57 in | 5.6 to 7.3 |
| BC -- 30 to 38 in | clay | very slow | 0.66 to 0.99 in | 7.4 to 8.4 |
| C -- 38 to 80 in | clay | very slow | 3.34 to 5.01 in | 7.4 to 8.4 |

### Greaney, frequently flooded

*Extent:* 30 to 50 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 1 percent
*Parent material:* clayey alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Bg -- 4 to 30 in | silty clay | slow | 2.86 to 5.20 in | 5.6 to 7.3 |
| Cg -- 30 to 80 in | stratified clay loam to silty clay loam to silty clay to clay | slow | 5.00 to 6.50 in | 6.6 to 8.4 |

## B14A--Greenwood soils, Upham basin, 0 to 1 percent slopes

### Greenwood

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Greenwood, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## B15A--Morph fine sandy loam, 0 to 2 percent slopes

### Morph

*Extent:* 75 to 90 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 5.1 to 6.5 |
| Eg -- | 4 to 9 in | fine sandy loam | moderate | 0.77 to 0.97 in | 5.1 to 6.5 |
| E/B -- | 9 to 22 in | very fine sandy loam | moderate | 1.95 to 2.47 in | 5.1 to 6.5 |
| Btg -- | 22 to 31 in | loam | moderate | 1.27 to 1.99 in | 5.1 to 6.5 |
| Cg -- | 31 to 80 in | stratified loamy fine sand to fine sandy loam to very fine sandy loam to loam to silt loam | moderate | 6.35 to 9.76 in | 6.6 to 7.8 |

## B16B--Westoo-Barber-Vasso complex, 0 to 6 percent slopes

### Westoo

*Extent:* 20 to 40 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* eolian deposits and/or glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw1 -- 5 to 17 in | loamy fine sand | rapid | 1.06 to 1.89 in | 4.5 to 6.5 |
| Bw2 -- 17 to 44 in | loamy fine sand | rapid | 1.63 to 2.72 in | 5.1 to 6.5 |
| C -- 44 to 74 in | fine sand | rapid | 1.80 to 2.99 in | 5.1 to 6.5 |
| Cg -- 74 to 80 in | fine sand | rapid | 0.35 to 0.59 in | 5.1 to 6.5 |

## B16B--Westoo-Barber-Vasso complex, 0 to 6 percent slopes

### Barber

*Extent:* 20 to 40 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* eolian deposits and/or glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | fine sandy loam | moderately rapid | 0.82 to 0.92 in | 4.5 to 6.0 |
| E -- 5 to 8 in | fine sandy loam | moderately rapid | 0.28 to 0.47 in | 4.5 to 6.0 |
| Bw1 -- 8 to 19 in | loamy fine sand | rapid | 1.10 to 1.76 in | 4.5 to 6.5 |
| Bw2 -- 19 to 27 in | loamy fine sand | rapid | 0.50 to 0.83 in | 5.1 to 6.5 |
| Bg -- 27 to 53 in | fine sand | rapid | 1.56 to 2.60 in | 5.1 to 6.5 |
| C -- 53 to 80 in | fine sand | rapid | 1.61 to 2.68 in | 5.1 to 6.5 |

## B16B--Westoo-Barber-Vasso complex, 0 to 6 percent slopes

### Vasso

*Extent:* 15 to 25 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | fine sandy loam | moderately rapid | 0.63 to 0.75 in | 4.5 to 6.0 |
| E -- | 4 to 6 in | fine sandy loam | moderately rapid | 0.18 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 6 to 18 in | loamy fine sand | rapid | 0.37 to 1.22 in | 4.5 to 6.5 |
| Bw2 -- | 18 to 38 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bg -- | 38 to 50 in | silt loam | moderate | 2.01 to 2.60 in | 5.6 to 6.5 |
| 2Cg -- | 50 to 80 in | silt loam | moderate | 5.09 to 6.58 in | 5.6 to 7.8 |

## B17B--Graycalm-Biwabik complex, 1 to 6 percent slopes

### Graycalm

*Extent:* 45 to 65 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- | 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- | 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- | 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

### Biwabik

*Extent:* 30 to 50 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- | 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- | 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- | 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- | 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## B17D--Graycalm-Biwabik complex, pitted, 6 to 25 percent slopes

### Graycalm

*Extent:* 40 to 65 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 6 to 25 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

### Biwabik

*Extent:* 20 to 50 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 6 to 25 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## B18A--Foglake-Hassman, depressional complex, 0 to 2 percent slopes

### Foglake

*Extent:* 40 to 60 percent of the unit
*Landform(s):* rises on lake plains, flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 8 in | silt loam | moderate | 1.73 to 1.89 in | 5.1 to 6.5 |
| Eg -- 8 to 16 in | silt loam | moderate | 1.41 to 1.82 in | 5.1 to 7.3 |
| Btg, BCg -- 16 to 47 in | silty clay loam | slow | 2.76 to 5.83 in | 5.1 to 7.3 |
| Cg -- 47 to 80 in | silty clay loam | moderately slow | 5.95 to 7.28 in | 7.4 to 8.4 |

### Hassman, depressional

*Extent:* 20 to 40 percent of the unit
*Landform(s):* swales on lake plains, depressions on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 10 in | silty clay loam | moderately slow | 2.07 to 2.26 in | 5.1 to 6.5 |
| Bg -- 10 to 32 in | silty clay | slow | 1.98 to 4.19 in | 5.1 to 7.3 |
| BCg -- 32 to 45 in | silty clay | slow | 1.17 to 2.47 in | 5.6 to 7.8 |
| Cg -- 45 to 80 in | silty clay | slow | 3.15 to 6.66 in | 7.4 to 8.4 |

## B19B--Longsiding-Foglake-Grasston complex, 0 to 6 percent slopes

### Longsiding

*Extent:* 35 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 4 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 9 in | silt loam | moderate | 1.99 to 2.17 in | 5.1 to 6.5 |
| B/E -- 9 to 12 in | silty clay loam | moderately slow | 0.30 to 0.55 in | 5.1 to 7.3 |
| Bt1, Bt3 -- 12 to 35 in | silty clay | slow | 2.09 to 4.41 in | 5.1 to 7.3 |
| Bk, C -- 35 to 80 in | silty clay loam | moderately slow | 8.08 to 9.87 in | 7.4 to 8.4 |

### Foglake

*Extent:* 15 to 35 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 8 in | silt loam | moderate | 1.73 to 1.89 in | 5.1 to 6.5 |
| Eg -- 8 to 16 in | silt loam | moderate | 1.41 to 1.82 in | 5.1 to 7.3 |
| Btg, BCg -- 16 to 47 in | silty clay loam | slow | 2.76 to 5.83 in | 5.1 to 7.3 |
| Cg -- 47 to 80 in | silty clay loam | moderately slow | 5.95 to 7.28 in | 7.4 to 8.4 |

## B19B--Longsiding-Foglake-Grasston complex, 0 to 6 percent slopes

### Grasston

*Extent:* 10 to 20 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 3 to 6 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 9 in | silt loam | moderate | 1.99 to 2.17 in | 5.1 to 6.5 |
| B/E -- 9 to 14 in | silty clay loam | moderately slow | 0.56 to 1.02 in | 5.1 to 7.3 |
| Bt1, Bt2 -- 14 to 42 in | silty clay | slow | 2.52 to 5.31 in | 5.1 to 7.3 |
| Bk, C -- 42 to 80 in | silty clay loam | moderately slow | 6.80 to 8.31 in | 7.4 to 8.4 |

## B23A--Effie-Ashlake complex, MLRA 88, 0 to 2 percent slopes

### Effie

*Extent:* 50 to 65 percent of the unit
*Landform(s):* flats on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* C
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 5.1 to 7.3 |
| Eg -- 2 to 5 in | loam | moderate | 0.47 to 0.69 in | 5.1 to 7.3 |
| BE -- 5 to 8 in | silty clay loam | slow | 0.39 to 0.52 in | 5.1 to 7.3 |
| Btg -- 8 to 20 in | silty clay | slow | 1.22 to 2.20 in | 5.1 to 7.8 |
| BCg -- 20 to 64 in | silty clay loam | moderately slow | 6.17 to 7.94 in | 7.4 to 8.4 |
| Cg -- 64 to 80 in | clay loam | moderately slow | 2.20 to 2.83 in | 7.4 to 8.4 |

### Ashlake

*Extent:* 30 to 45 percent of the unit
*Landform(s):* rises on moraines
*Slope gradient:* 1 to 2 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 1 in | loam | moderate | 0.24 to 0.26 in | 5.1 to 7.3 |
| E -- 1 to 4 in | loam | moderate | 0.36 to 0.52 in | 5.1 to 7.3 |
| E/B -- 4 to 9 in | loam | moderate | 0.72 to 0.97 in | 5.1 to 7.3 |
| Bt -- 9 to 26 in | silty clay | slow | 1.69 to 3.05 in | 5.1 to 7.3 |
| Bk -- 26 to 80 in | clay loam | moderately slow | 7.55 to 9.71 in | 7.4 to 8.4 |

## B23A--Effie-Ashlake complex, MLRA 88, 0 to 2 percent slopes

## B24B--Ashlake-Suomi-Effie complex, MLRA 88, 1 to 4 percent slopes

### Ashlake

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 3 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 1 in | loam | moderate | 0.24 to 0.26 in | 5.1 to 7.3 |
| E -- 1 to 4 in | loam | moderate | 0.36 to 0.52 in | 5.1 to 7.3 |
| E/B -- 4 to 9 in | loam | moderate | 0.72 to 0.97 in | 5.1 to 7.3 |
| Bt -- 9 to 26 in | silty clay | slow | 1.69 to 3.05 in | 5.1 to 7.3 |
| Bk -- 26 to 80 in | clay loam | moderately slow | 7.55 to 9.71 in | 7.4 to 8.4 |

### Suomi

*Extent:* 30 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 4 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 5.1 to 7.3 |
| E -- 4 to 7 in | silt loam | moderate | 0.47 to 0.69 in | 5.1 to 7.3 |
| B/E -- 7 to 11 in | silty clay loam | slow | 0.55 to 0.75 in | 5.1 to 7.3 |
| Bt -- 11 to 39 in | silty clay | slow | 2.80 to 5.03 in | 5.1 to 7.3 |
| BC -- 39 to 80 in | clay loam | moderately slow | 5.73 to 7.37 in | 7.4 to 8.4 |

## B24B--Ashlake-Suomi-Effie complex, MLRA 88, 1 to 4 percent slopes

### Effie

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* C
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loam | moderate | 0.39 to 0.43 in | 5.1 to 7.3 |
| Eg -- | 2 to 5 in | loam | moderate | 0.47 to 0.69 in | 5.1 to 7.3 |
| BE -- | 5 to 8 in | silty clay loam | slow | 0.39 to 0.52 in | 5.1 to 7.3 |
| Btg -- | 8 to 20 in | silty clay | slow | 1.22 to 2.20 in | 5.1 to 7.8 |
| BCg -- | 20 to 64 in | silty clay loam | moderately slow | 6.17 to 7.94 in | 7.4 to 8.4 |
| Cg -- | 64 to 80 in | clay loam | moderately slow | 2.20 to 2.83 in | 7.4 to 8.4 |

## B25C--Suomi-Ashlake complex, MLRA 88, 6 to 15 percent slopes

### Suomi

*Extent:* 80 to 90 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 15 percent
*Parent material:* fine-loamy till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 5.1 to 7.3 |
| E -- | 4 to 7 in | silt loam | moderate | 0.47 to 0.69 in | 5.1 to 7.3 |
| B/E -- | 7 to 11 in | silty clay loam | slow | 0.55 to 0.75 in | 5.1 to 7.3 |
| Bt -- | 11 to 39 in | silty clay | slow | 2.80 to 5.03 in | 5.1 to 7.3 |
| BC -- | 39 to 80 in | clay loam | moderately slow | 5.73 to 7.37 in | 7.4 to 8.4 |

## B26A--Daisybay-Greenwood complex, 0 to 1 percent slopes

### Daisybay

*Extent:* 45 to 80 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 7 in | peat | very rapid | 3.90 to 4.61 in | |
| Oe -- 7 to 30 in | mucky peat | rapid | 10.28 to 12.56 in | |
| Oa -- 30 to 35 in | muck | moderately rapid | 1.79 to 2.30 in | |
| Cg1 -- 35 to 42 in | clay | very slow | 0.57 to 0.71 in | 6.6 to 7.8 |
| Cg2 -- 42 to 80 in | clay | very slow | 3.02 to 4.54 in | 7.4 to 8.4 |

### Greenwood

*Extent:* 20 to 55 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## B27A--McQuade-Buhl complex, 0 to 3 percent slopes

### Mcquade

*Extent:* 40 to 60 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Eg -- 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2B/E -- 8 to 17 in | clay loam | slow | 0.72 to 1.36 in | 5.1 to 6.0 |
| 2Bt -- 17 to 36 in | clay | slow | 1.51 to 2.83 in | 5.1 to 6.5 |
| 2BCt -- 36 to 52 in | clay | slow | 1.29 to 2.42 in | 5.6 to 7.3 |
| 2BCd -- 52 to 80 in | clay | slow | 1.12 to 2.24 in | 6.1 to 8.4 |

### Buhl

*Extent:* 25 to 45 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 1 to 3 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B27A--McQuade-Buhl complex, 0 to 3 percent slopes

## B28B--Buhl loam, 1 to 5 percent slopes

### Buhl

*Extent:* 70 to 88 percent of the unit
*Landform(s):* drumlins, till plains
*Slope gradient:* 1 to 5 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B29B--Hibbing-Buhl complex, 1 to 8 percent slopes

### Hibbing

*Extent:* 35 to 60 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 3 to 8 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw -- 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## B29B--Hibbing-Buhl complex, 1 to 8 percent slopes

### Buhl

*Extent:* 25 to 45 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 1 to 4 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B29D--Hibbing-Buhl complex, 1 to 18 percent slopes

### Hibbing

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 5 to 18 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B | 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 | 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 | 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 | 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd | 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## B29D--Hibbing-Buhl complex, 1 to 18 percent slopes

### Buhl

*Extent:* 20 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 5 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B30A--Sago mucky peat, depressional, 0 to 1 percent slopes

### Sago, depressional

*Extent:* 65 to 90 percent of the unit
*Landform(s):* -- error in exists on --
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine or glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 5 in | mucky peat | rapid | 2.30 to 2.81 in | |
| Oa -- | 5 to 13 in | muck | moderately rapid | 2.76 to 3.54 in | |
| A -- | 13 to 15 in | fine sandy loam | moderately rapid | 0.22 to 0.41 in | 4.5 to 6.0 |
| Bg -- | 15 to 41 in | stratified loamy fine sand to silt loam | moderately rapid | 3.38 to 4.94 in | 5.1 to 6.5 |
| Cg -- | 41 to 80 in | stratified loamy fine sand to silt loam | moderately rapid | 5.07 to 7.41 in | 5.6 to 7.8 |

## B31D--Hibbing loam, 8 to 18 percent slopes

### Hibbing

*Extent:* 75 to 95 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- | 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- | 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- | 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- | 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- | 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## B31E--Hibbing loam, 18 to 30 percent slopes

### Hibbing

*Extent:* 85 to 95 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 30 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw -- 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## B32A--McQuade-Dora, depressional-Fayal, depressional complex, 0 to 2 percent slopes

### Mcquade

*Extent:* 35 to 50 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Eg -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2B/E -- | 8 to 17 in | clay loam | slow | 0.72 to 1.36 in | 5.1 to 6.0 |
| 2Bt -- | 17 to 36 in | clay | slow | 1.51 to 2.83 in | 5.1 to 6.5 |
| 2BCt -- | 36 to 52 in | clay | slow | 1.29 to 2.42 in | 5.6 to 7.3 |
| 2BCd -- | 52 to 80 in | clay | slow | 1.12 to 2.24 in | 6.1 to 8.4 |

### Dora, depressional

*Extent:* 20 to 40 percent of the unit
*Landform(s):* depressions on till plains, swales on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic deposits over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oe -- | 0 to 8 in | mucky peat | rapid | 3.54 to 4.33 in | |
| Oa -- | 8 to 33 in | muck | moderately rapid | 8.82 to 11.34 in | |
| 2Cg -- | 33 to 65 in | clay | slow | 2.55 to 4.78 in | 5.1 to 6.5 |
| 2Cd -- | 65 to 80 in | clay | slow | 0.60 to 1.20 in | 6.1 to 7.8 |

## B32A--McQuade-Dora, depressional-Fayal, depressional complex, 0 to 2 percent slopes

### Fayal, depressional

*Extent:* 15 to 35 percent of the unit
*Landform(s):* swales on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 5 in | mucky peat | rapid | 2.30 to 2.81 in | |
| A -- | 5 to 9 in | mucky silt loam | moderate | 0.79 to 1.02 in | 4.5 to 5.5 |
| Eg -- | 9 to 17 in | clay loam | moderately slow | 0.63 to 1.18 in | 4.5 to 5.5 |
| 2Btg -- | 17 to 29 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BC -- | 29 to 46 in | clay | slow | 1.35 to 2.54 in | 5.6 to 7.3 |
| 2BCd -- | 46 to 80 in | clay | slow | 1.35 to 2.71 in | 6.1 to 8.4 |

## B33A--McQuade-Fayal, depressional complex, 0 to 2 percent slopes

### Mcquade

*Extent:* 40 to 60 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Eg -- 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2B/E -- 8 to 17 in | clay loam | slow | 0.72 to 1.36 in | 5.1 to 6.0 |
| 2Bt -- 17 to 36 in | clay | slow | 1.51 to 2.83 in | 5.1 to 6.5 |
| 2BCt -- 36 to 52 in | clay | slow | 1.29 to 2.42 in | 5.6 to 7.3 |
| 2BCd -- 52 to 80 in | clay | slow | 1.12 to 2.24 in | 6.1 to 7.8 |

### Fayal, depressional

*Extent:* 35 to 55 percent of the unit
*Landform(s):* swales on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 5 in | mucky peat | rapid | 2.30 to 2.81 in | |
| A -- 5 to 9 in | mucky silt loam | moderate | 0.79 to 1.02 in | 4.5 to 5.5 |
| Eg -- 9 to 17 in | clay loam | moderately slow | 0.63 to 1.18 in | 4.5 to 5.5 |
| 2Btg -- 17 to 29 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BC -- 29 to 46 in | clay | slow | 1.35 to 2.54 in | 5.6 to 7.3 |
| 2BCd -- 46 to 80 in | clay | slow | 1.35 to 2.71 in | 6.1 to 8.4 |

## B33A--McQuade-Fayal, depressional complex, 0 to 2 percent slopes

## B34B--Majestic-Hibbing complex, 2 to 8 percent slopes

### Majestic

*Extent:* 45 to 65 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 2 to 8 percent
*Parent material:* sandy sediments over dense fine till
*Restrictive feature(s):* dense material at 45 to 70 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 2e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | sandy loam | moderately rapid | 0.51 to 0.59 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | sandy loam | moderately rapid | 1.09 to 1.54 in | 4.5 to 6.0 |
| Bw2 -- 13 to 34 in | loamy sand | rapid | 1.04 to 2.30 in | 4.5 to 6.0 |
| 2B/E -- 34 to 38 in | clay loam | slow | 0.35 to 0.65 in | 5.1 to 6.5 |
| 2Bt -- 38 to 59 in | clay | slow | 1.67 to 3.13 in | 5.1 to 6.5 |
| 2BCd -- 59 to 80 in | clay | slow | 0.83 to 1.67 in | 6.1 to 8.4 |

## B34B--Majestic-Hibbing complex, 2 to 8 percent slopes

### Hibbing

*Extent:* 15 to 30 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw -- 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

## B35E--Hibbing-Udorthents complex, 18 to 45 percent slopes

### Hibbing

*Extent:* 40 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 45 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Bw -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2E/B -- | 8 to 12 in | loam | moderate | 0.55 to 0.75 in | 5.1 to 6.0 |
| 2Bt1 -- | 12 to 27 in | clay | slow | 1.23 to 2.30 in | 5.1 to 6.0 |
| 2Bt2 -- | 27 to 36 in | clay | slow | 0.69 to 1.30 in | 5.1 to 6.5 |
| 2Bt3 -- | 36 to 48 in | clay | slow | 0.98 to 1.83 in | 5.1 to 6.5 |
| 2BCd -- | 48 to 80 in | clay | slow | 1.28 to 2.55 in | 6.1 to 8.4 |

### Udorthents

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 45 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 5 in | sandy loam | moderately rapid | 0.56 to 0.72 in | 4.5 to 6.0 |
| Bw -- | 5 to 9 in | gravelly sandy loam | moderately rapid | 0.28 to 0.71 in | 4.5 to 6.5 |
| 2C -- | 9 to 80 in | gravelly coarse sand | very rapid | 0.71 to 4.25 in | 5.1 to 6.5 |

## B36B--Lavell-Shawano complex, 1 to 6 percent slopes

### Shawano

*Extent:* 25 to 55 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* eolian and/or glaciolacustrine sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw -- 5 to 21 in | loamy fine sand | rapid | 1.10 to 1.73 in | 5.1 to 6.5 |
| C -- 21 to 80 in | fine sand | rapid | 3.54 to 5.91 in | 5.1 to 6.5 |

### Lavell

*Extent:* 30 to 55 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* eolian and/or glaciolacustrine sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw1 -- 5 to 18 in | loamy fine sand | rapid | 0.78 to 1.30 in | 4.5 to 6.5 |
| Bw2 -- 18 to 42 in | fine sand | rapid | 1.44 to 2.40 in | 5.1 to 6.5 |
| C -- 42 to 80 in | fine sand | rapid | 2.27 to 3.78 in | 5.1 to 6.5 |

## B37B--Westoo-Lavell complex, 0 to 6 percent slopes

### Westoo

*Extent:* 30 to 50 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* eolian deposits and/or glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw1 -- 5 to 17 in | loamy fine sand | rapid | 1.06 to 1.89 in | 4.5 to 6.5 |
| Bw2 -- 17 to 44 in | loamy fine sand | rapid | 1.63 to 2.72 in | 5.1 to 6.5 |
| C -- 44 to 74 in | fine sand | rapid | 1.80 to 2.99 in | 5.1 to 6.5 |
| Cg -- 74 to 80 in | fine sand | rapid | 0.35 to 0.59 in | 5.1 to 6.5 |

### Lavell

*Extent:* 25 to 40 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 1 to 6 percent
*Parent material:* eolian and/or glaciolacustrine sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw1 -- 5 to 18 in | loamy fine sand | rapid | 0.78 to 1.30 in | 4.5 to 6.5 |
| Bw2 -- 18 to 42 in | fine sand | rapid | 1.44 to 2.40 in | 5.1 to 6.5 |
| C -- 42 to 80 in | fine sand | rapid | 2.27 to 3.78 in | 5.1 to 6.5 |

## B39A--Meehan loamy sand, 0 to 3 percent slopes

### Meehan

*Extent:* 75 to 90 percent of the unit
*Landform(s):* flats on lake plains, rises on lake plains, rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

## B40D--Shawano loamy fine sand, 6 to 18 percent slopes

### Shawano

*Extent:* 75 to 90 percent of the unit
*Landform(s):* lake plains, outwash plains
*Slope gradient:* 6 to 18 percent
*Parent material:* eolian and/or glaciolacustrine sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw -- 5 to 21 in | loamy fine sand | rapid | 1.10 to 1.73 in | 5.1 to 6.5 |
| C -- 21 to 80 in | fine sand | rapid | 3.54 to 5.91 in | 5.1 to 6.5 |

## B41B--Friendship loamy sand, 0 to 4 percent slopes

### Friendship

*Extent:* 65 to 85 percent of the unit
*Landform(s):* rises on lake plains, rises on outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 24 in | sand | rapid | 0.63 to 2.30 in | 4.5 to 6.0 |
| Bw2 -- 24 to 40 in | sand | rapid | 0.32 to 1.13 in | 4.5 to 6.0 |
| C -- 40 to 80 in | sand | rapid | 0.80 to 2.78 in | 5.1 to 6.5 |

## B45A--Dora muck, depressional, Taylor catena, 0 to 1 percent slopes

### Dora, depressional

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 28 in | muck | moderately rapid | 9.78 to 12.58 in | |
| Cg1 -- | 28 to 34 in | clay | very slow | 0.47 to 0.59 in | 6.6 to 7.8 |
| Cg2 -- | 34 to 80 in | clay | very slow | 3.69 to 5.53 in | 7.4 to 8.4 |

## B46A--Dora mucky peat, Taylor catena, 0 to 1 percent slopes

### Dora

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over clayey glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 6 in | mucky peat | rapid | 2.66 to 3.25 in | |
| Oa -- | 6 to 22 in | muck | moderately rapid | 5.65 to 7.26 in | |
| A -- | 22 to 26 in | mucky silty clay loam | slow | 0.59 to 1.18 in | 6.1 to 7.3 |
| Cg1 -- | 26 to 36 in | clay | very slow | 0.79 to 0.98 in | 6.6 to 7.8 |
| Cg2 -- | 36 to 80 in | clay | very slow | 3.53 to 5.29 in | 7.4 to 8.4 |

## B47A--Daisybay peat, 0 to 1 percent slopes

### Daisybay

*Extent:* 60 to 90 percent of the unit
*Landform(s):* bogs on moraines, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over dense fine till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oi -- | 0 to 7 in | peat | very rapid | 3.90 to 4.61 in | |
| Oe -- | 7 to 30 in | mucky peat | rapid | 10.28 to 12.56 in | |
| Oa -- | 30 to 35 in | muck | moderately rapid | 1.79 to 2.30 in | |
| 2Cg -- | 35 to 80 in | clay | slow | 3.59 to 6.73 in | 5.6 to 7.3 |

## B48A--Mooseline-Turpela complex, 0 to 3 percent slopes

### Mooseline

*Extent:* 35 to 55 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* sandy sediments over dense fine till
*Restrictive feature(s):* dense material at 45 to 70 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | sandy loam | moderately rapid | 0.41 to 0.47 in | 4.5 to 6.0 |
| E -- 3 to 8 in | sandy loam | moderately rapid | 0.47 to 0.80 in | 4.5 to 6.0 |
| Bw1 -- 8 to 23 in | loamy sand | rapid | 1.05 to 2.24 in | 5.1 to 6.5 |
| Bw2 -- 23 to 34 in | sand | rapid | 0.55 to 1.10 in | 5.1 to 6.5 |
| 2B/E -- 34 to 39 in | clay loam | moderately slow | 0.51 to 0.87 in | 5.1 to 6.5 |
| 2Bt -- 39 to 56 in | clay | slow | 1.35 to 2.54 in | 5.1 to 6.5 |
| 2BCd -- 56 to 80 in | clay | slow | 0.96 to 1.92 in | 6.1 to 8.4 |

## B48A--Mooseline-Turpela complex, 0 to 3 percent slopes

### Turpela

*Extent:* 25 to 45 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy sediments over dense fine till
*Restrictive feature(s):* dense material at 45 to 70 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | fine sandy loam | moderately rapid | 0.82 to 0.92 in | 4.5 to 6.0 |
| Bg1 -- 5 to 21 in | loamy fine sand | rapid | 1.57 to 2.68 in | 4.5 to 6.0 |
| Bg2 -- 21 to 28 in | loamy fine sand | rapid | 0.35 to 0.78 in | 5.1 to 6.5 |
| 2Bt1 -- 28 to 34 in | clay | slow | 0.47 to 0.89 in | 5.1 to 6.0 |
| 2Bt2 -- 34 to 55 in | clay | slow | 1.70 to 3.19 in | 5.1 to 6.5 |
| 2BCd -- 55 to 80 in | clay | slow | 0.99 to 1.98 in | 6.1 to 8.4 |

## B52A--Dora muck, depressional, Hibbing catena, 0 to 1 percent slopes

### Dora, depressional

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 22 in | muck | moderately rapid | 7.72 to 9.92 in | |
| 2Cg -- 22 to 65 in | clay | slow | 3.43 to 6.44 in | 5.1 to 6.5 |
| 2Cd -- 65 to 80 in | clay | slow | 0.60 to 1.20 in | 6.1 to 7.8 |

## B53A--Dora mucky peat, Hibbing catena, 0 to 1 percent slopes

### Dora

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 8 in | mucky peat | rapid | 3.54 to 4.33 in | |
| Oa -- 8 to 33 in | muck | moderately rapid | 8.82 to 11.34 in | |
| 2Cg -- 33 to 65 in | clay | slow | 2.55 to 4.78 in | 5.1 to 6.5 |
| 2Cd -- 65 to 80 in | clay | slow | 0.60 to 1.20 in | 6.1 to 7.8 |

## B54A--Spooner-Littleswan complex, 0 to 3 percent slopes

### Spooner

*Extent:* 55 to 75 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 5 in | silt loam | moderate | 1.13 to 1.23 in | 5.6 to 7.3 |
| Eg -- 5 to 9 in | very fine sandy loam | moderate | 0.67 to 0.87 in | 5.6 to 7.3 |
| Btg -- 9 to 30 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Bkg -- 30 to 57 in | silt loam | moderate | 4.62 to 5.98 in | 7.4 to 8.4 |
| Cg -- 57 to 80 in | silt loam | moderate | 3.88 to 5.02 in | 7.4 to 8.4 |

### Littleswan

*Extent:* 15 to 35 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silt loam | moderate | 0.87 to 0.94 in | 5.6 to 7.3 |
| E -- 4 to 11 in | silt loam | moderate | 1.20 to 1.56 in | 5.6 to 7.3 |
| Bt -- 11 to 32 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Cg1 -- 32 to 41 in | silt loam | moderate | 1.54 to 1.99 in | 7.4 to 8.4 |
| Cg2 -- 41 to 80 in | silt loam | moderate | 6.63 to 8.57 in | 7.4 to 8.4 |

## B56A--Spooner-Sax, depressional complex, 0 to 2 percent slopes

### Spooner

*Extent:* 40 to 65 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 5 in | silt loam | moderate | 1.13 to 1.23 in | 5.6 to 7.3 |
| Eg -- 5 to 9 in | very fine sandy loam | moderate | 0.67 to 0.87 in | 5.6 to 7.3 |
| Btg -- 9 to 30 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Bkg -- 30 to 57 in | silt loam | moderate | 4.62 to 5.98 in | 7.4 to 8.4 |
| Cg -- 57 to 80 in | silt loam | moderate | 3.88 to 5.02 in | 7.4 to 8.4 |

### Sax, depressional

*Extent:* 30 to 55 percent of the unit
*Landform(s):* depressions on lake plains, swales on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .43
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 13 in | muck | moderately rapid | 4.55 to 6.24 in | |
| A -- 13 to 15 in | silt loam | moderate | 0.43 to 0.51 in | 5.6 to 7.3 |
| Bg -- 15 to 36 in | silt loam | moderate | 3.76 to 4.59 in | 5.6 to 7.3 |
| Cg -- 36 to 80 in | silt loam | moderate | 7.50 to 9.70 in | 7.4 to 8.4 |

## B57B--Littleswan-Baudette complex, 1 to 6 percent slopes

### Littleswan

*Extent:* 55 to 80 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silt loam | moderate | 0.87 to 0.94 in | 5.6 to 7.3 |
| E -- 4 to 11 in | silt loam | moderate | 1.20 to 1.56 in | 5.6 to 7.3 |
| Bt -- 11 to 32 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Cg1 -- 32 to 41 in | silt loam | moderate | 1.54 to 1.99 in | 7.4 to 8.4 |
| Cg2 -- 41 to 80 in | silt loam | moderate | 6.63 to 8.57 in | 7.4 to 8.4 |

### Baudette

*Extent:* 15 to 40 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 2 to 6 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 2e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silt loam | moderate | 0.87 to 0.94 in | 5.6 to 7.3 |
| E -- 4 to 8 in | silt loam | moderate | 0.74 to 0.95 in | 5.6 to 7.3 |
| B/E -- 8 to 13 in | silty clay loam | moderately slow | 0.80 to 1.04 in | 6.1 to 7.3 |
| Bt -- 13 to 39 in | silty clay loam | moderately slow | 4.35 to 5.63 in | 6.1 to 7.8 |
| C -- 39 to 80 in | silt loam | moderate | 7.03 to 9.09 in | 7.4 to 8.4 |

## B58B--Wurtsmith-Meehan complex, 0 to 4 percent slopes

### Wurtsmith

*Extent:* 35 to 55 percent of the unit
*Landform(s):* rises on outwash plains
*Slope gradient:* 1 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

### Meehan

*Extent:* 30 to 50 percent of the unit
*Landform(s):* rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

## B61A--Cathro, depressional-Barber complex, 0 to 3 percent slopes

### Cathro, depressional

*Extent:* 50 to 80 percent of the unit
*Landform(s):* depressions on lake plains, flats on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 36 in | muck | moderately rapid | 12.54 to 16.12 in | |
| A -- 36 to 40 in | mucky silt loam | moderate | 0.95 to 1.13 in | 5.1 to 6.5 |
| Cg -- 40 to 80 in | stratified loamy fine sand to silt loam | moderately rapid | 5.17 to 7.56 in | 5.6 to 7.8 |

### Barber

*Extent:* 15 to 35 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* eolian deposits and/or glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | fine sandy loam | moderately rapid | 0.82 to 0.92 in | 4.5 to 6.0 |
| E -- 5 to 8 in | fine sandy loam | moderately rapid | 0.28 to 0.47 in | 4.5 to 6.0 |
| Bw1 -- 8 to 19 in | loamy fine sand | rapid | 1.10 to 1.76 in | 4.5 to 6.5 |
| Bw2 -- 19 to 27 in | loamy fine sand | rapid | 0.50 to 0.83 in | 5.1 to 6.5 |
| Bg -- 27 to 53 in | fine sand | rapid | 1.56 to 2.60 in | 5.1 to 6.5 |
| C -- 53 to 80 in | fine sand | rapid | 1.61 to 2.68 in | 5.1 to 6.5 |

## B61A--Cathro, depressional-Barber complex, 0 to 3 percent slopes

## B62A--Wabuse-Vasso complex, 0 to 3 percent slopes

### Wabuse

*Extent:* 30 to 50 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Ap -- | 0 to 9 in | sandy loam | moderately rapid | 1.18 to 1.36 in | 4.5 to 6.0 |
| Bg1 -- | 9 to 16 in | loamy fine sand | rapid | 0.28 to 0.78 in | 4.5 to 6.0 |
| Bg2 -- | 16 to 27 in | loamy sand | rapid | 0.44 to 1.21 in | 5.1 to 6.5 |
| Bg3 -- | 27 to 32 in | loamy coarse sand | rapid | 0.19 to 0.52 in | 5.1 to 6.5 |
| 2Bg4 -- | 32 to 54 in | silt loam | moderate | 3.75 to 4.85 in | 5.6 to 6.5 |
| 2Cg -- | 54 to 80 in | silt loam | moderate | 4.42 to 5.72 in | 5.6 to 7.8 |

## B62A--Wabuse-Vasso complex, 0 to 3 percent slopes

### Vasso

*Extent:* 15 to 35 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | fine sandy loam | moderately rapid | 0.63 to 0.75 in | 4.5 to 6.0 |
| E -- | 4 to 6 in | fine sandy loam | moderately rapid | 0.18 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 6 to 18 in | loamy fine sand | rapid | 0.37 to 1.22 in | 4.5 to 6.5 |
| Bw2 -- | 18 to 38 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bg -- | 38 to 50 in | silt loam | moderate | 2.01 to 2.60 in | 5.6 to 6.5 |
| 2Cg -- | 50 to 80 in | silt loam | moderate | 5.09 to 6.58 in | 5.6 to 7.8 |

## B63B--Urbanland-McQuade-Buhl complex, 0 to 12 percent slopes

### Urban land

*Extent:* 40 to 65 percent of the unit
*Landform(s):* knolls on till plains, flats on till plains
*Slope gradient:* 0 to 12 percent
*Parent material:* human transported material
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:* unranked
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

### Mcquade

*Extent:* 15 to 25 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | loam | moderate | 0.79 to 0.87 in | 4.5 to 5.5 |
| Eg -- | 4 to 8 in | loam | moderate | 0.59 to 0.83 in | 4.5 to 5.5 |
| 2B/E -- | 8 to 17 in | clay loam | slow | 0.72 to 1.36 in | 5.1 to 6.0 |
| 2Bt -- | 17 to 36 in | clay | slow | 1.51 to 2.83 in | 5.1 to 6.5 |
| 2BCt -- | 36 to 52 in | clay | slow | 1.29 to 2.42 in | 5.6 to 7.3 |
| 2BCd -- | 52 to 80 in | clay | slow | 1.12 to 2.24 in | 6.1 to 8.4 |

## B63B--Urbanland-McQuade-Buhl complex, 0 to 12 percent slopes

### Buhl

*Extent:* 15 to 25 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 1 to 5 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B64B--Vasso-Keenan complex, 1 to 6 percent slopes

### Vasso

*Extent:* 30 to 50 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | fine sandy loam | moderately rapid | 0.63 to 0.75 in | 4.5 to 6.0 |
| E -- | 4 to 6 in | fine sandy loam | moderately rapid | 0.18 to 0.33 in | 4.5 to 6.0 |
| Bw1 -- | 6 to 18 in | loamy fine sand | rapid | 0.37 to 1.22 in | 4.5 to 6.5 |
| Bw2 -- | 18 to 38 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bg -- | 38 to 50 in | silt loam | moderate | 2.01 to 2.60 in | 5.6 to 6.5 |
| 2Cg -- | 50 to 80 in | silt loam | moderate | 5.09 to 6.58 in | 5.6 to 7.8 |

## B64B--Vasso-Keenan complex, 1 to 6 percent slopes

### Keenan

*Extent:* 25 to 45 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 6 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 2s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | fine sandy loam | moderately rapid | 0.63 to 0.71 in | 4.5 to 6.0 |
| Bw1 -- 4 to 12 in | loamy fine sand | rapid | 0.31 to 0.87 in | 4.5 to 6.5 |
| Bw2 -- 12 to 32 in | fine sand | rapid | 0.60 to 2.01 in | 5.1 to 6.5 |
| 2Bw3 -- 32 to 54 in | silt loam | moderate | 3.75 to 4.85 in | 5.6 to 6.5 |
| 2C -- 54 to 80 in | silt loam | moderate | 4.42 to 5.72 in | 5.6 to 7.8 |

## B65A--Merwin peat, Upham basin, 0 to 1 percent slopes

### Merwin

*Extent:* 60 to 90 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine or glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| Oi -- | 0 to 6 in | peat | very rapid | 3.25 to 3.84 in | |
| Oe -- | 6 to 46 in | mucky peat | rapid | 18.07 to 22.09 in | |
| Cg -- | 46 to 80 in | stratified loamy fine sand to silty clay | moderate | 3.39 to 6.09 in | 5.6 to 7.8 |

## B66C--Entisols, channeled, 0 to 20 percent slopes, rarely to frequently flooded

### Udifluvents, occasionally flooded

*Extent:* 15 to 50 percent of the unit
*Landform(s):* levees on flood plains
*Slope gradient:* 2 to 10 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* occasional
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 6 in | silt loam | moderate | 1.18 to 1.42 in | 5.6 to 7.3 |
| Cg -- | 6 to 80 in | stratified silt loam to loamy coarse sand | rapid | 4.44 to 16.28 in | 5.6 to 7.3 |

### Udipsamments, rarely flooded

*Extent:* 10 to 35 percent of the unit
*Landform(s):* valley sides on flood plains
*Slope gradient:* 4 to 20 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* rare
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | loamy sand | rapid | 0.25 to 0.38 in | 4.5 to 6.5 |
| Bw -- | 3 to 22 in | coarse sand | very rapid | 0.76 to 1.32 in | 4.5 to 6.5 |
| C -- | 22 to 80 in | coarse sand | very rapid | 2.31 to 3.47 in | 5.6 to 7.3 |

## B66C--Entisols, channeled, 0 to 20 percent slopes, rarely to frequently flooded

### Udifluvents, frequently flooded

*Extent:* 10 to 30 percent of the unit
*Landform(s):* rises on flood plains, flats on flood plains
*Slope gradient:* 0 to 6 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 5w
*Hydric soil:* yes
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 6 in | silt loam | moderate | 1.18 to 1.42 in | 5.6 to 7.3 |
| Cg -- | 6 to 80 in | stratified silt loam to loamy coarse sand | rapid | 4.44 to 16.28 in | 5.6 to 7.3 |

### Fluvaquents, frequently flooded

*Extent:* 10 to 25 percent of the unit
*Landform(s):* flats on flood plains
*Slope gradient:* 0 to 3 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 5w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 6 in | mucky silt loam | moderate | 1.30 to 1.54 in | 5.6 to 7.3 |
| Cg -- | 6 to 80 in | stratified silt loam to loamy coarse sand | rapid | 4.44 to 16.28 in | 5.6 to 7.3 |

## B67A--Rifle soils, Hibbing catena, 0 to 1 percent slopes

### Rifle

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Rifle, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on moraines, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## B68A--Roscommon, depressional-Roscommon complex, 0 to 1 percent slopes

### Roscommon, depressional

*Extent:* 40 to 60 percent of the unit
*Landform(s):* depressions on outwash plains, drainageways on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 3 in | muck | moderately rapid | 1.10 to 1.42 in | 4.5 to 6.0 |
| Eg -- 3 to 8 in | sand | rapid | 0.14 to 0.52 in | 4.5 to 6.0 |
| Bg -- 8 to 33 in | sand | rapid | 0.50 to 2.52 in | 4.5 to 6.0 |
| Cg -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

### Roscommon, depressional, silty substratum

*Extent:* 20 to 40 percent of the unit
*Landform(s):* depressions on outwash plains, drainageways on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash over loamy glaciofluvial or glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 3 in | muck | moderately rapid | 1.10 to 1.42 in | 4.5 to 6.0 |
| Eg -- 3 to 8 in | sand | rapid | 0.14 to 0.52 in | 4.5 to 6.0 |
| Bg -- 8 to 33 in | sand | rapid | 0.50 to 2.52 in | 4.5 to 6.0 |
| Cg1 -- 33 to 63 in | sand | rapid | 0.60 to 2.69 in | 5.1 to 6.5 |
| 2Cg2 -- 63 to 80 in | silt loam | moderate | 2.88 to 3.72 in | 5.6 to 7.8 |

## B68A--Roscommon, depressional-Roscommon complex, 0 to 1 percent slopes

## B72A--Barber-Wabuse complex, 0 to 3 percent slopes

### Barber

*Extent:* 45 to 65 percent of the unit
*Landform(s):* rises on lake plains, rises on outwash plains
*Slope gradient:* 1 to 3 percent
*Parent material:* eolian deposits and/or glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | fine sandy loam | moderately rapid | 0.82 to 0.92 in | 4.5 to 6.0 |
| E -- 5 to 8 in | fine sandy loam | moderately rapid | 0.28 to 0.47 in | 4.5 to 6.0 |
| Bw1 -- 8 to 19 in | loamy fine sand | rapid | 1.10 to 1.76 in | 4.5 to 6.5 |
| Bw2 -- 19 to 27 in | loamy fine sand | rapid | 0.50 to 0.83 in | 5.1 to 6.5 |
| Bg -- 27 to 53 in | fine sand | rapid | 1.56 to 2.60 in | 5.1 to 6.5 |
| C -- 53 to 80 in | fine sand | rapid | 1.61 to 2.68 in | 5.1 to 6.5 |

## B72A--Barber-Wabuse complex, 0 to 3 percent slopes

### Wabuse

*Extent:* 25 to 45 percent of the unit
*Landform(s):* flats on lake plains, flats on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | fine sandy loam | moderately rapid | 0.50 to 0.57 in | 4.5 to 6.0 |
| E -- | 3 to 6 in | fine sandy loam | moderately rapid | 0.30 to 0.50 in | 4.5 to 6.0 |
| Bg1 -- | 6 to 28 in | loamy fine sand | rapid | 1.98 to 3.31 in | 5.1 to 6.5 |
| 2Bg2 -- | 28 to 60 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.51 to 5.10 in | 5.1 to 6.5 |
| 2Cg -- | 60 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 2.21 to 3.21 in | 5.6 to 7.8 |

## B73A--Spooner-Buhl-Littleswan complex, 0 to 3 percent slopes

### Spooner

*Extent:* 20 to 50 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 5 in | silt loam | moderate | 1.13 to 1.23 in | 5.6 to 7.3 |
| Eg -- 5 to 9 in | very fine sandy loam | moderate | 0.67 to 0.87 in | 5.6 to 7.3 |
| Btg -- 9 to 30 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Bkg -- 30 to 57 in | silt loam | moderate | 4.62 to 5.98 in | 7.4 to 8.4 |
| Cg -- 57 to 80 in | silt loam | moderate | 3.88 to 5.02 in | 7.4 to 8.4 |

### Littleswan

*Extent:* 15 to 35 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* silty glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silt loam | moderate | 0.87 to 0.94 in | 5.6 to 7.3 |
| E -- 4 to 11 in | silt loam | moderate | 1.20 to 1.56 in | 5.6 to 7.3 |
| Bt -- 11 to 32 in | silty clay loam | moderately slow | 3.76 to 4.59 in | 6.1 to 7.3 |
| Cg1 -- 32 to 41 in | silt loam | moderate | 1.54 to 1.99 in | 7.4 to 8.4 |
| Cg2 -- 41 to 80 in | silt loam | moderate | 6.63 to 8.57 in | 7.4 to 8.4 |

## B73A--Spooner-Buhl-Littleswan complex, 0 to 3 percent slopes

### Buhl

*Extent:* 15 to 40 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 3 percent
*Parent material:* loamy material over dense fine till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loam | moderate | 0.63 to 0.69 in | 4.5 to 5.5 |
| E -- 3 to 13 in | loam | moderate | 1.48 to 2.07 in | 4.5 to 5.5 |
| 2B/E -- 13 to 18 in | clay loam | slow | 0.41 to 0.77 in | 5.1 to 6.0 |
| 2Bt1 -- 18 to 32 in | clay | slow | 1.10 to 2.07 in | 5.1 to 6.0 |
| 2Bt2 -- 32 to 58 in | clay | slow | 2.08 to 3.90 in | 5.1 to 6.5 |
| 2BCd -- 58 to 80 in | clay | slow | 0.88 to 1.76 in | 6.1 to 8.4 |

## B74A--Kapla, depressional-Wabuse complex, 0 to 2 percent slopes

### Kapla, depressional

*Extent:* 35 to 60 percent of the unit
*Landform(s):* depressions on lake plains, swales on lake plains, swales on outwash plains, depressions on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* eolian and/or glaciolacustrine materials
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe -- | 0 to 5 in | mucky peat | rapid | 2.30 to 2.81 in | |
| A -- | 5 to 12 in | fine sandy loam | moderately rapid | 0.80 to 1.41 in | 4.5 to 6.0 |
| Bg1 -- | 12 to 24 in | fine sandy loam | moderately rapid | 1.46 to 2.44 in | 4.5 to 6.5 |
| Bg2 -- | 24 to 37 in | loamy very fine sand | moderately rapid | 1.56 to 2.60 in | 5.1 to 6.5 |
| Cg -- | 37 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 5.58 to 7.30 in | 5.6 to 7.8 |

## B74A--Kapla, depressional-Wabuse complex, 0 to 2 percent slopes

### Wabuse

*Extent:* 20 to 50 percent of the unit
*Landform(s):* flats on lake plains, flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy eolian, glaciolacustrine or outwash material and underlying loamy glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | fine sandy loam | moderately rapid | 0.50 to 0.57 in | 4.5 to 6.0 |
| E -- | 3 to 6 in | fine sandy loam | moderately rapid | 0.30 to 0.50 in | 4.5 to 6.0 |
| Bg1 -- | 6 to 28 in | loamy fine sand | rapid | 1.98 to 3.31 in | 5.1 to 6.5 |
| 2Bg2 -- | 28 to 60 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.51 to 5.10 in | 5.1 to 6.5 |
| 2Cg -- | 60 to 80 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 2.21 to 3.21 in | 5.6 to 7.8 |

## B80A--Rifle soils, Taylor catena, 0 to 1 percent slopes

### Rifle

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Rifle, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## B82A--Greenwood soils, Taylor catena, 0 to 1 percent slopes

### Greenwood

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Greenwood, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## B83A--Rifle-Tacoosh complex, depressional, 0 to 1 percent slopes

### Rifle, depressional

*Extent:* 35 to 60 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Tacoosh, depressional

*Extent:* 25 to 60 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 7 in | mucky peat | rapid | 3.19 to 3.90 in | |
| Oe2 -- 7 to 30 in | mucky peat | rapid | 10.28 to 12.56 in | |
| Oa -- 30 to 40 in | muck | moderately rapid | 3.58 to 4.61 in | |
| Cg -- 40 to 80 in | stratified loamy fine sand to silty clay | moderate | 3.98 to 7.16 in | 6.1 to 7.8 |

## B84B--Eutrudepts, occasionally flooded-Greaney, frequently flooded, complex, 0 to 4 percent slopes

### Eutrudepts, occasionally flooded

*Extent:* 35 to 60 percent of the unit
*Landform(s):* flood-plain steps on flood plains, bars on flood plains
*Slope gradient:* 1 to 4 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* occasional
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 3w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 8 in | silt loam | moderate | 1.73 to 1.89 in | 5.1 to 6.5 |
| Bg -- 8 to 52 in | stratified fine sandy loam to silt loam to silty clay loam to silty clay | moderately slow | 4.85 to 8.82 in | 5.6 to 7.3 |
| Cg -- 52 to 80 in | stratified silt loam to silty clay loam to silty clay to clay | slow | 2.80 to 3.63 in | 6.6 to 8.4 |

### Greaney, frequently flooded

*Extent:* 25 to 50 percent of the unit
*Landform(s):* flood-plain steps on flood plains
*Slope gradient:* 0 to 2 percent
*Parent material:* alluvium
*Restrictive feature(s):* greater than 60 inches
*Flooding:* frequent
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 4
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .32
*Land capability, nonirrigated* 8w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | silty clay loam | moderately slow | 0.83 to 0.91 in | 5.1 to 6.5 |
| Bg -- 4 to 30 in | silty clay | slow | 2.86 to 5.20 in | 5.6 to 7.3 |
| Cg -- 30 to 80 in | stratified silty clay loam to silty clay to clay loam to clay | slow | 5.00 to 6.50 in | 6.6 to 8.4 |

## B99A--Cathro-Sago complex, depressional, 0 to 1 percent slopes

### Cathro, depressional

*Extent:* 30 to 65 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 36 in | muck | moderately rapid | 12.54 to 16.12 in | |
| A -- 36 to 40 in | mucky silt loam | moderate | 0.95 to 1.13 in | 5.1 to 6.5 |
| Cg -- 40 to 80 in | stratified loamy fine sand to silt loam | moderately rapid | 5.17 to 7.56 in | 5.6 to 7.8 |

### Sago, depressional

*Extent:* 30 to 60 percent of the unit
*Landform(s):* swamps on lake plains, -- error in exists on --
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe -- 0 to 5 in | mucky peat | rapid | 2.30 to 2.81 in | |
| Oa -- 5 to 13 in | muck | moderately rapid | 2.76 to 3.54 in | |
| A -- 13 to 15 in | fine sandy loam | moderately rapid | 0.22 to 0.41 in | 4.5 to 6.0 |
| Bg -- 15 to 41 in | stratified loamy fine sand to silt loam | moderately rapid | 3.38 to 4.94 in | 5.1 to 6.5 |
| Cg -- 41 to 80 in | stratified loamy fine sand to silt loam | moderately rapid | 5.07 to 7.41 in | 5.6 to 7.8 |

## B99A--Cathro-Sago complex, depressional, 0 to 1 percent slopes

## B100A--Greenwood-Merwin complex, depressional, 0 to 1 percent slopes

### Greenwood, depressional

*Extent:* 35 to 60 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Merwin, depressional

*Extent:* 25 to 60 percent of the unit
*Landform(s):* bogs on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 6 in | peat | very rapid | 3.25 to 3.84 in | |
| Oe -- 6 to 46 in | mucky peat | rapid | 18.07 to 22.09 in | |
| Cg -- 46 to 80 in | stratified loamy fine sand to silty clay | moderate | 3.39 to 6.09 in | 6.1 to 7.8 |

## B108A--Cathro muck, depressional, Upham basin, 0 to 1 percent sloes

### Cathro, depressional

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine or glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 36 in | muck | moderately rapid | 12.54 to 16.12 in | |
| A -- | 36 to 40 in | mucky silt loam | moderate | 0.95 to 1.13 in | 5.1 to 6.5 |
| Cg -- | 40 to 80 in | stratified loamy fine sand to silty clay | moderate | 3.98 to 7.16 in | 5.6 to 7.8 |

## B119A--Tacoosh mucky peat, Upham basin, 0 to 1 percent slopes

### Tacoosh

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciolacustrine or glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- | 12 to 32 in | mucky peat | rapid | 9.04 to 11.04 in | |
| Oa -- | 32 to 36 in | muck | moderately rapid | 1.38 to 1.77 in | |
| Cg -- | 36 to 80 in | stratified loamy fine sand to silty clay | moderate | 4.41 to 7.94 in | 6.1 to 7.8 |

## B147A--Rifle soils, upham basin, 0 to 1 percent slopes

### Rifle

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

### Rifle, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* swamps on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oe1 -- 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- 12 to 42 in | mucky peat | rapid | 13.64 to 16.67 in | |
| Oa -- 42 to 52 in | muck | moderately rapid | 3.44 to 4.43 in | |
| Oe3 -- 52 to 80 in | mucky peat | rapid | 12.58 to 15.37 in | |

## B152A--Greenwood soils (Hibbing catena), 0 to 1 percent slopes

### Greenwood

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on moraines, bogs on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

### Greenwood, depressional

*Extent:* 0 to 95 percent of the unit
*Landform(s):* bogs on moraines, bogs on till plains
*Slope gradient:* 0 to 0 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oi -- 0 to 10 in | peat | very rapid | 5.41 to 6.40 in | |
| Oe1 -- 10 to 24 in | mucky peat | rapid | 6.38 to 7.80 in | |
| Oe2 -- 24 to 80 in | mucky peat | rapid | 25.16 to 30.75 in | |

## F1C--Eaglesnest stony loam, 4 to 12 percent slopes, very bouldery

### Eaglesnest, very bouldery

*Extent:* 75 to 90 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 4 to 12 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## F2B--Eaglesnest-Wahlsten complex, 2 to 8 percent slopes, bouldery

### Eaglesnest, bouldery

*Extent:* 30 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

### Wahlsten, bouldery

*Extent:* 20 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* lithic bedrock at 20 to 40 inches
dense material at 15 to 35 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 9 in | stony loam | moderate | 0.59 to 1.06 in | 4.5 to 6.0 |
| Bw2 -- 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- 37 to 80 in | bedrock | impermeable | | |

## F2B--Eaglesnest-Wahlsten complex, 2 to 8 percent slopes, bouldery

## F3D--Eveleth-Eaglesnest-Conic complex, 6 to 18 percent slopes, bouldery

### Eveleth, bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.51 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

### Eaglesnest, bouldery

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 6 to 10 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## F3D--Eveleth-Eaglesnest-Conic complex, 6 to 18 percent slopes, bouldery

### Conic, bouldery

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- | 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- | 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- | 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- | 29 to 80 in | bedrock | impermeable | | |

## F4E--Eveleth-Conic, bouldery-Rock outcrop complex, 18 to 30 percent slopes

### Eveleth, bouldery

*Extent:* 45 to 65 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 30 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.51 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

### Conic, bouldery

*Extent:* 20 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 30 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- 29 to 80 in | bedrock | impermeable | | |

## F4E--Eveleth-Conic, bouldery-Rock outcrop complex, 18 to 30 percent slopes

### Rock outcrop

*Extent:* 10 to 20 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 18 to 30 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## F5B--Babbitt, bouldery-Wahlsten, bouldery-Aquepts, rubbly, complex, 0 to 8 percent slopes

### Babbitt, bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- | 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- | 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- | 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## F5B--Babbitt, bouldery-Wahlsten, bouldery-Aquepts, rubbly, complex, 0 to 8 percent slopes

### Wahlsten, bouldery

*Extent:* 20 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 3 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 15 to 35 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 9 in | stony loam | moderate | 0.59 to 1.06 in | 4.5 to 6.0 |
| Bw2 -- | 9 to 17 in | gravelly loam | moderate | 0.63 to 1.26 in | 5.1 to 6.5 |
| 2Cd -- | 17 to 37 in | very gravelly sandy loam | slow | 0.60 to 1.41 in | 5.1 to 6.5 |
| R -- | 37 to 80 in | bedrock | impermeable | | |

### Aquepts, rubbly

*Extent:* 10 to 20 percent of the unit
*Landform(s):* drainageways on moraines
*Slope gradient:* 0 to 1 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .05
*Land capability, nonirrigated* 8s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | extremely stony sandy loam | moderate | 0.16 to 0.31 in | 4.5 to 6.0 |
| Bg -- | 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- | 40 to 80 in | cobbly sandy loam | moderately slow | 2.78 to 6.36 in | 5.1 to 6.5 |

## F6B--Soudan-Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery

### Soudan, bouldery

*Extent:* 35 to 55 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* sandy outwash and/or eloian material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | fine sandy loam | moderately rapid | 0.44 to 0.57 in | 4.5 to 6.0 |
| Bw1 -- 3 to 17 in | sandy loam | moderately rapid | 1.38 to 2.34 in | 4.5 to 6.0 |
| Bw2 -- 17 to 36 in | loamy sand | rapid | 0.94 to 1.89 in | 4.5 to 6.0 |
| 2BC -- 36 to 57 in | very cobbly sandy loam | moderately slow | 0.85 to 1.91 in | 5.1 to 6.5 |
| 2Cd -- 57 to 80 in | very cobbly sandy loam | slow | 0.46 to 1.14 in | 5.1 to 6.5 |

### Eaglesnest, bouldery

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## F6B--Soudan-Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery

### Babbitt, bouldery

*Extent:* 15 to 35 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## F7B--Biwabik-Graycalm complex, 1 to 8 percent slopes

### Biwabik

*Extent:* 40 to 70 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 8 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

### Graycalm

*Extent:* 25 to 55 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 8 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## F8D--Biwabik-Graycalm-Friendship complex, pitted, 0 to 18 percent slopes

### Biwabik

*Extent:* 30 to 60 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

### Graycalm

*Extent:* 30 to 60 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loamy sand | rapid | 0.20 to 0.24 in | 4.5 to 6.0 |
| Bw -- 2 to 37 in | loamy sand | rapid | 2.10 to 3.85 in | 4.5 to 6.0 |
| E and Bt -- 37 to 48 in | sand | rapid | 0.55 to 0.99 in | 5.1 to 6.0 |
| C -- 48 to 80 in | coarse sand | very rapid | 0.64 to 2.23 in | 5.1 to 6.5 |

## F8D--Biwabik-Graycalm-Friendship complex, pitted, 0 to 18 percent slopes

### Friendship, depressional

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on pitted outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 24 in | sand | rapid | 0.63 to 2.30 in | 4.5 to 6.0 |
| Bw2 -- 24 to 40 in | sand | rapid | 0.32 to 1.13 in | 4.5 to 6.0 |
| C -- 40 to 80 in | sand | rapid | 0.80 to 2.78 in | 5.1 to 6.5 |

## F9A--Cloquet loam, 0 to 2 percent slopes

### Cloquet

*Extent:* 70 to 90 percent of the unit
*Landform(s):* flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 2 to 22 in | loam | moderate | 3.01 to 4.42 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## F9B--Cloquet loam, 2 to 8 percent slopes

### Cloquet

*Extent:* 75 to 90 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- | 2 to 22 in | loam | moderate | 3.01 to 4.42 in | 4.5 to 6.0 |
| 2C -- | 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## F10D--Cloquet-Pequaywan complex, pitted, 0 to 18 percent slopes

### Cloquet

*Extent:* 65 to 80 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 2 to 22 in | loam | moderate | 3.01 to 4.42 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### Pequaywan

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on pitted outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw1, Bw2 -- 2 to 20 in | loam | moderate | 2.72 to 3.98 in | 4.5 to 6.0 |
| Bw3 -- 20 to 30 in | sandy loam | moderately rapid | 0.79 to 1.77 in | 4.5 to 6.0 |
| 2C -- 30 to 80 in | very gravelly sand | rapid | 0.50 to 2.00 in | 5.1 to 6.5 |

## F10E--Cloquet-Pequaywan complex, pitted, 0 to 45 percent slopes

### Cloquet

*Extent:* 60 to 80 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 18 to 45 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 2 to 22 in | loam | moderate | 3.01 to 4.42 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

### Pequaywan

*Extent:* 10 to 20 percent of the unit
*Landform(s):* depressions on pitted outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw1, Bw2 -- 2 to 20 in | loam | moderate | 2.72 to 3.98 in | 4.5 to 6.0 |
| Bw3 -- 20 to 30 in | sandy loam | moderately rapid | 0.79 to 1.77 in | 4.5 to 6.0 |
| 2C -- 30 to 80 in | very gravelly sand | rapid | 0.50 to 2.00 in | 5.1 to 6.5 |

## F11B--Eaglesnest stony loam, 2 to 8 percent slopes, bouldery

### Eaglesnest, bouldery

*Extent:* 70 to 90 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## F12B--Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery

### Eaglesnest, bouldery

*Extent:* 35 to 55 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

### Babbitt, bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* flats on till plains
*Slope gradient:* 1 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## F12B--Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery

## F13A--Babbitt, bouldery-Aquepts, rubbly, complex, 0 to 3 percent slopes

### Babbitt, bouldery

*Extent:* 35 to 55 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

### Aquepts, rubbly

*Extent:* 30 to 50 percent of the unit
*Landform(s):* depressions on till plains, drainageways on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .05
*Land capability, nonirrigated* 8s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | extremely stony sandy loam | moderate | 0.16 to 0.31 in | 4.5 to 6.0 |
| Bg -- 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- 40 to 80 in | cobbly sandy loam | moderately slow | 2.78 to 6.36 in | 5.1 to 6.5 |

## F14D--Eveleth stony loam, 8 to 18 percent slopes, bouldery

### Eveleth, bouldery

*Extent:* 80 to 95 percent of the unit
*Landform(s):* till plains
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.51 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## F15E--Rollins cobbly sandy loam, 18 to 35 percent slopes, stony

### Rollins, stony

*Extent:* 85 to 95 percent of the unit
*Landform(s):* eskers
*Slope gradient:* 18 to 35 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | cobbly sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## F16B--Shawano loamy fine sand, 1 to 8 percent slopes

### Shawano

*Extent:* 75 to 95 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 1 to 8 percent
*Parent material:* eolian sand
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | loamy fine sand | rapid | 0.51 to 0.67 in | 4.5 to 6.0 |
| Bw -- 5 to 21 in | loamy fine sand | rapid | 1.10 to 1.73 in | 5.1 to 6.5 |
| C -- 21 to 80 in | fine sand | rapid | 3.54 to 5.91 in | 5.1 to 6.5 |

## F17A--Aquepts, 0 to 2 percent slopes, rubbly

### Aquepts, rubbly

*Extent:* 65 to 90 percent of the unit
*Landform(s):* depressions on till plains, drainageways on till plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .05
*Land capability, nonirrigated* 8s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | extremely stony sandy loam | moderate | 0.16 to 0.31 in | 4.5 to 6.0 |
| Bg -- | 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- | 40 to 80 in | cobbly sandy loam | moderately slow | 2.78 to 6.36 in | 5.1 to 6.5 |

## F18A--Babbitt stony loam, 0 to 3 percent slopes, bouldery

### Babbitt, bouldery

*Extent:* 70 to 90 percent of the unit
*Landform(s):* rises on till plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## F19A--Pequaywan loam, 0 to 3 percent slopes

### Pequaywan

*Extent:* 75 to 95 percent of the unit
*Landform(s):* rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw1, Bw2 -- 2 to 20 in | loam | moderate | 2.72 to 3.98 in | 4.5 to 6.0 |
| Bw3 -- 20 to 30 in | sandy loam | moderately rapid | 0.79 to 1.77 in | 4.5 to 6.0 |
| 2C -- 30 to 80 in | very gravelly sand | rapid | 0.50 to 2.00 in | 5.1 to 6.5 |

## F21D--Quetico, stony-Rock outcrop complex, 15 to 35 percent slopes

### Quetico, stony

*Extent:* 30 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 15 to 35 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 1 in | fine sandy loam | moderately rapid | 0.11 to 0.17 in | 4.5 to 6.0 |
| Bw -- | 1 to 7 in | gravelly fine sandy loam | moderately rapid | 0.47 to 0.77 in | 4.5 to 6.0 |
| R -- | 7 to 80 in | bedrock | impermeable | | |

### Rock outcrop

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 15 to 35 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## F21F--Quetico, stony-Rock outcrop complex, 35 to 60 percent slopes

### Quetico, stony

*Extent:* 30 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 60 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 4 to 10 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 1 in | fine sandy loam | moderately rapid | 0.11 to 0.17 in | 4.5 to 6.0 |
| Bw -- 1 to 7 in | gravelly fine sandy loam | moderately rapid | 0.47 to 0.77 in | 4.5 to 6.0 |
| R -- 7 to 80 in | bedrock | impermeable | | |

### Rock outcrop

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 35 to 60 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|

## F22F--Eveleth-Conic complex, 20 to 50 percent slopes, very bouldery

### Eveleth, very bouldery

*Extent:* 50 to 70 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 20 to 50 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.51 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

### Conic, very bouldery

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 20 to 50 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- 29 to 80 in | bedrock | impermeable | | |

## F22F--Eveleth-Conic complex, 20 to 50 percent slopes, very bouldery

## F23B--Rollins-Biwabik complex, 1 to 8 percent slopes

### Rollins

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 8 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

### Biwabik

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 1 to 8 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## F23D--Rollins-Biwabik complex, 8 to 18 percent slopes

### Rollins

*Extent:* 30 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

### Biwabik

*Extent:* 20 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## F24A--Gnesen loam, 0 to 3 percent slopes

### Gnesen

*Extent:* 75 to 90 percent of the unit
*Landform(s):* rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 3 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 3s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | loam | moderately rapid | 0.63 to 0.69 in | 4.5 to 6.0 |
| Bw -- | 3 to 30 in | sandy loam | moderately rapid | 2.94 to 5.09 in | 4.5 to 6.0 |
| 2C -- | 30 to 80 in | gravelly sand | rapid | 0.50 to 3.50 in | 5.1 to 6.5 |

## F25D--Rollins-Cloquet complex, 8 to 18 percent slopes

### Rollins

*Extent:* 45 to 65 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

### Cloquet

*Extent:* 25 to 35 percent of the unit
*Landform(s):* pitted outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | loam | moderately rapid | 0.39 to 0.43 in | 4.5 to 6.0 |
| Bw -- 2 to 22 in | loam | moderate | 3.01 to 4.42 in | 4.5 to 6.0 |
| 2C -- 22 to 80 in | very gravelly loamy coarse sand | rapid | 0.58 to 2.31 in | 5.1 to 6.5 |

## F26C--Shagawa-Beargrease complex, 2 to 15 percent slopes, extremely bouldery

### Shagawa, extremely bouldery

*Extent:* 30 to 60 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 2 to 15 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.44 to 0.57 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

### Beargrease, extremely bouldery

*Extent:* 25 to 50 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 2 to 15 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## F26E--Shagawa-Beargrease complex, 8 to 30 percent slopes, extremely bouldery

### Shagawa, extremely bouldery

*Extent:* 30 to 60 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 30 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.44 to 0.57 in | 4.5 to 6.0 |
| Bw1 -- 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

### Beargrease, extremely bouldery

*Extent:* 25 to 45 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 30 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## F28B--Oysterlake complex, 0 to 4 percent slopes, extremely stony

### Oysterlake, extremely stony

*Extent:* 40 to 65 percent of the unit
*Landform(s):* rises on outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.55 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 16 in | stony loam | moderate | 0.85 to 1.83 in | 4.5 to 6.0 |
| Bw2 -- 16 to 26 in | gravelly loam | moderate | 0.59 to 1.38 in | 4.5 to 6.5 |
| 2BC -- 26 to 42 in | extremely gravelly coarse sand | very rapid | 0.16 to 0.65 in | 5.1 to 6.5 |
| 2C -- 42 to 80 in | extremely cobbly coarse sand | very rapid | 0.38 to 1.51 in | 5.1 to 6.5 |

### Oysterlake, wet, extremely stony

*Extent:* 20 to 45 percent of the unit
*Landform(s):* flats on outwash plains, swales on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | stony loam | moderate | 0.55 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- 4 to 16 in | stony loam | moderate | 0.85 to 1.83 in | 4.5 to 6.0 |
| Bw2 -- 16 to 26 in | gravelly loam | moderate | 0.59 to 1.38 in | 4.5 to 6.5 |
| 2BC -- 26 to 42 in | extremely gravelly coarse sand | very rapid | 0.16 to 0.65 in | 5.1 to 6.5 |
| 2C -- 42 to 80 in | extremely cobbly coarse sand | very rapid | 0.38 to 1.51 in | 5.1 to 6.5 |

## F29E--Shagawa, extremely stony-Beargrease, extremely stony-Tacoosh complex, 0 to 35 percent slopes

### Shagawa, extremely bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 10 to 35 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | stony loam | moderate | 0.44 to 0.57 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

### Beargrease, extremely bouldery

*Extent:* 20 to 30 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 10 to 35 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- | 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- | 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- | 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- | 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## F29E--Shagawa, extremely stony-Beargrease, extremely stony-Tacoosh complex, 0 to 35 percent slopes

## F29G--Shagawa, extremely stony-Beargrease, extremely stony-Tacoosh complex, 0 to 60 percent slopes

### Shagawa, extremely bouldery

*Extent:* 30 to 60 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 25 to 60 percent
*Parent material:* loamy material over glacial till
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 3 in | stony loam | moderate | 0.44 to 0.57 in | 4.5 to 6.0 |
| Bw1 -- | 3 to 13 in | stony loam | moderate | 0.79 to 1.48 in | 4.5 to 6.0 |
| 2Bw2 -- | 13 to 32 in | very gravelly coarse sandy loam | moderately rapid | 1.13 to 1.70 in | 5.1 to 6.5 |
| 2C -- | 32 to 80 in | extremely gravelly loamy coarse sand | rapid | 1.44 to 3.84 in | 5.1 to 6.5 |

### Beargrease, extremely bouldery

*Extent:* 20 to 40 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 25 to 60 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- | 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- | 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- | 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- | 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

## F29G--Shagawa, extremely stony-Beargrease, extremely stony-Tacoosh complex, 0 to 60 percent slopes

## F30G--Conic, very bouldery-Insula, very bouldery-Rock outcrop complex, 20 to 70 percent slopes

### Conic, very bouldery

*Extent:* 30 to 60 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 20 to 50 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* lithic bedrock at 20 to 40 inches
dense material at 12 to 30 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- 29 to 80 in | bedrock | impermeable | | |

### Insula, very bouldery

*Extent:* 15 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 20 to 50 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 7e
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | gravelly sandy loam | moderately rapid | 0.28 to 0.44 in | 4.5 to 6.0 |
| Bw1 -- 3 to 11 in | gravelly sandy loam | moderately rapid | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- 11 to 17 in | gravelly fine sandy loam | moderately rapid | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- 17 to 80 in | bedrock | impermeable | | |

## F30G--Conic, very bouldery-Insula, very bouldery-Rock outcrop complex, 20 to 70 percent slopes

### Rock outcrop

*Extent:* 10 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 20 to 70 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated* 8
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| Texture | Permeability | Available water capacity | pH |
|---|---|---|---|

## F31B--Oysterlake, extremely stony-Tacoosh complex, 0 to 4 percent slopes

### Oysterlake, extremely stony

*Extent:* 45 to 70 percent of the unit
*Landform(s):* rises on outwash plains
*Slope gradient:* 0 to 4 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 7s
*Hydric soil:* no
*Hydrologic group:* B
*Potential for frost action:* moderate

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | stony loam | moderate | 0.55 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 16 in | stony loam | moderate | 0.85 to 1.83 in | 4.5 to 6.0 |
| Bw2 -- | 16 to 26 in | gravelly loam | moderate | 0.59 to 1.38 in | 4.5 to 6.5 |
| 2BC -- | 26 to 42 in | extremely gravelly coarse sand | very rapid | 0.16 to 0.65 in | 5.1 to 6.5 |
| 2C -- | 42 to 80 in | extremely cobbly coarse sand | very rapid | 0.38 to 1.51 in | 5.1 to 6.5 |

## F34A--Cathro muck, depressional, 0 to 1 percent slopes

### Cathro, depressional

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on end moraines, swamps on outwash plains, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oa -- | 0 to 36 in | muck | moderately rapid | 12.54 to 16.12 in | |
| A -- | 36 to 40 in | mucky silt loam | moderate | 0.95 to 1.13 in | 5.1 to 6.5 |
| 2Cg -- | 40 to 80 in | stratified loamy fine sand to loam | moderate | 5.17 to 7.56 in | 5.1 to 7.3 |

## F35D--Eveleth, bouldery-Conic, bouldery-Aquepts, rubbly, complex, 0 to 18 percent slopes

### Eveleth, bouldery

*Extent:* 25 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 35 to 55 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

*Representative soil profile:*

| | | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|---|
| A -- | 0 to 4 in | stony loam | moderate | 0.51 to 0.75 in | 4.5 to 6.0 |
| Bw1 -- | 4 to 13 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- | 13 to 23 in | cobbly loam | moderate | 0.69 to 1.57 in | 5.1 to 6.5 |
| 2BC -- | 23 to 43 in | very gravelly sandy loam | moderately slow | 0.80 to 1.81 in | 5.1 to 6.5 |
| 2Cd -- | 43 to 80 in | very gravelly sandy loam | slow | 0.74 to 1.85 in | 5.1 to 6.5 |

## F35D--Eveleth, bouldery-Conic, bouldery-Aquepts, rubbly, complex, 0 to 18 percent slopes

### Conic, bouldery

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- 29 to 80 in | bedrock | impermeable | | |

### Aquepts, rubbly

*Extent:* 15 to 30 percent of the unit
*Landform(s):* drainageways on moraines
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .05
*Land capability, nonirrigated* 8s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | extremely stony sandy loam | moderate | 0.16 to 0.31 in | 4.5 to 6.0 |
| Bg -- 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- 40 to 80 in | cobbly sandy loam | moderately slow | 2.78 to 6.36 in | 5.1 to 6.5 |

## F36D--Conic, bouldery-Insula, bouldery-Rock outcrop complex, 8 to 25 percent slopes

### Conic, bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 25 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 12 to 30 inches
lithic bedrock at 20 to 40 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.31 to 0.50 in | 4.5 to 6.0 |
| Bw -- 3 to 9 in | stony loam | moderate | 0.53 to 0.89 in | 4.5 to 6.0 |
| BC -- 9 to 18 in | cobbly sandy loam | moderate | 0.63 to 1.27 in | 5.1 to 6.5 |
| C -- 18 to 29 in | very gravelly coarse sandy loam | slow | 0.22 to 0.77 in | 5.1 to 6.5 |
| R -- 29 to 80 in | bedrock | impermeable | | |

### Insula, bouldery

*Extent:* 20 to 40 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 25 percent
*Parent material:* loamy glacial drift
*Restrictive feature(s):* lithic bedrock at 10 to 20 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 1
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | gravelly sandy loam | moderately rapid | 0.28 to 0.44 in | 4.5 to 6.0 |
| Bw1 -- 3 to 11 in | gravelly sandy loam | moderately rapid | 0.63 to 1.26 in | 4.5 to 6.0 |
| Bw2 -- 11 to 17 in | gravelly fine sandy loam | moderately rapid | 0.41 to 0.89 in | 5.1 to 6.5 |
| R -- 17 to 80 in | bedrock | impermeable | | |

## F36D--Conic, bouldery-Insula, bouldery-Rock outcrop complex, 8 to 25 percent slopes

### Rock outcrop

*Extent:* 15 to 30 percent of the unit
*Landform(s):* moraines
*Slope gradient:* 8 to 25 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## F37B--Foglake-Babbitt, bouldery, complex, 0 to 4 percent slopes

### Foglake

*Extent:* 40 to 60 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 3w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 8 in | silt loam | moderate | 1.73 to 1.89 in | 5.1 to 6.5 |
| Eg -- 8 to 16 in | silt loam | moderate | 1.41 to 1.82 in | 5.1 to 7.3 |
| Btg, BCg -- 16 to 47 in | silty clay loam | slow | 2.76 to 5.83 in | 5.1 to 7.3 |
| Cg -- 47 to 80 in | silty clay loam | moderately slow | 5.95 to 7.28 in | 7.4 to 8.4 |

### Babbitt, bouldery

*Extent:* 20 to 45 percent of the unit
*Landform(s):* rises on lake plains
*Slope gradient:* 1 to 4 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | stony loam | moderate | 0.67 to 0.97 in | 4.5 to 6.0 |
| Bw1 -- 5 to 14 in | stony loam | moderate | 0.72 to 1.45 in | 4.5 to 6.0 |
| Bw2 -- 14 to 30 in | gravelly sandy loam | moderate | 1.10 to 2.36 in | 5.1 to 6.5 |
| 2BC -- 30 to 50 in | very gravelly sandy loam | moderately slow | 1.20 to 2.81 in | 5.1 to 6.5 |
| 2Cd -- 50 to 80 in | very gravelly sandy loam | slow | 0.60 to 1.50 in | 5.1 to 6.5 |

## F38B--Longsiding-Eaglesnest, bouldery, complex, 0 to 8 percent slopes

### Longsiding

*Extent:* 40 to 60 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 1 to 8 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 2w
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 9 in | silt loam | moderate | 1.99 to 2.17 in | 5.1 to 6.5 |
| B/E -- 9 to 12 in | silty clay loam | moderately slow | 0.30 to 0.55 in | 5.1 to 7.3 |
| Bt1, Bt3 -- 12 to 35 in | silty clay | slow | 2.09 to 4.41 in | 5.1 to 7.3 |
| Bk, C -- 35 to 80 in | silty clay loam | moderately slow | 8.08 to 9.87 in | 7.4 to 8.4 |

### Eaglesnest, bouldery

*Extent:* 25 to 45 percent of the unit
*Landform(s):* lake plains
*Slope gradient:* 3 to 8 percent
*Parent material:* loamy material over dense till
*Restrictive feature(s):* dense material at 40 to 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 4
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* C
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | stony loam | moderate | 0.41 to 0.60 in | 4.5 to 6.0 |
| Bw1 -- 3 to 6 in | stony loam | moderate | 0.22 to 0.44 in | 4.5 to 6.0 |
| Bw2 -- 6 to 20 in | stony sandy loam | moderate | 0.99 to 2.13 in | 5.1 to 6.5 |
| Bw3 -- 20 to 28 in | very stony sandy loam | moderate | 0.47 to 1.02 in | 5.1 to 6.5 |
| 2BC -- 28 to 41 in | very cobbly sandy loam | moderately slow | 0.52 to 1.17 in | 5.1 to 6.5 |
| 2Cd -- 41 to 80 in | very cobbly sandy loam | slow | 0.78 to 1.95 in | 5.1 to 6.5 |

## F39A--Foglake-Aquepts, rubbly-Hassman, depressional, complex, 0 to 2 percent slopes

### Foglake, bouldery

*Extent:* 30 to 50 percent of the unit
*Landform(s):* flats on lake plains
*Slope gradient:* 0 to 2 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 6
*Wind erodibility index (WEI):* 48
*Kw factor (surface layer)* .24
*Land capability, nonirrigated* 4w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Ap -- 0 to 8 in | silt loam | moderate | 1.73 to 1.89 in | 5.1 to 6.5 |
| Eg -- 8 to 16 in | silt loam | moderate | 1.41 to 1.82 in | 5.1 to 7.3 |
| Btg, BCg -- 16 to 47 in | silty clay loam | slow | 2.76 to 5.83 in | 5.1 to 7.3 |
| Cg -- 47 to 80 in | silty clay loam | moderately slow | 5.95 to 7.28 in | 7.4 to 8.4 |

### Aquepts, rubbly

*Extent:* 20 to 40 percent of the unit
*Landform(s):* drainageways on lake plains, swales on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .05
*Land capability, nonirrigated* 8s
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 4 in | extremely stony sandy loam | moderate | 0.16 to 0.31 in | 4.5 to 6.0 |
| Bg -- 4 to 40 in | very stony loam | moderate | 1.45 to 4.71 in | 4.5 to 6.0 |
| Cg -- 40 to 80 in | cobbly sandy loam | moderately slow | 2.78 to 6.36 in | 5.1 to 6.5 |

## F39A--Foglake-Aquepts, rubbly-Hassman, depressional, complex, 0 to 2 percent slopes

### Hassman, depressional

*Extent:* 15 to 30 percent of the unit
*Landform(s):* swales on lake plains, drainageways on lake plains
*Slope gradient:* 0 to 1 percent
*Parent material:* glaciolacustrine deposits
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .28
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| A -- | 0 to 10 in | silty clay loam | moderately slow | 2.07 to 2.26 in | 5.1 to 6.5 |
| Bg -- | 10 to 32 in | silty clay | slow | 1.98 to 4.19 in | 5.1 to 7.3 |
| BCg -- | 32 to 45 in | silty clay | slow | 1.17 to 2.47 in | 5.6 to 7.8 |
| Cg -- | 45 to 80 in | silty clay | slow | 3.15 to 6.66 in | 7.4 to 8.4 |

## F40B--Rollins cobbly sandy loam, 2 to 8 percent slopes

### Rollins

*Extent:* 70 to 90 percent of the unit
*Landform(s):* kames, outwash plains
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | cobbly sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## F40D--Rollins cobbly sandy loam, 8 to 18 percent slopes

### Rollins

*Extent:* 70 to 90 percent of the unit
*Landform(s):* kames, outwash plains
*Slope gradient:* 8 to 18 percent
*Parent material:* loamy material over gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | cobbly sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## F41B--Wurtsmith-Friendship complex, MLRA 93, 1 to 4 percent slopes

### Wurtsmith

*Extent:* 30 to 60 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw -- 3 to 18 in | sand | rapid | 0.45 to 1.65 in | 4.5 to 6.0 |
| BC -- 18 to 33 in | sand | rapid | 0.30 to 1.05 in | 4.5 to 6.0 |
| C -- 33 to 80 in | sand | rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

### Friendship

*Extent:* 30 to 55 percent of the unit
*Landform(s):* outwash plains
*Slope gradient:* 1 to 4 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* moderately well drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | loamy sand | rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 24 in | sand | rapid | 0.63 to 2.30 in | 4.5 to 6.0 |
| Bw2 -- 24 to 40 in | sand | rapid | 0.32 to 1.13 in | 4.5 to 6.0 |
| C -- 40 to 80 in | sand | rapid | 0.80 to 2.78 in | 5.1 to 6.5 |

## F42A--Meehan sandy loam, 0 to 2 percent slopes

### Meehan

*Extent:* 70 to 85 percent of the unit
*Landform(s):* rises on outwash plains, flats on outwash plains
*Slope gradient:* 0 to 2 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 3
*Wind erodibility index (WEI):* 86
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 4s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 3 in | sandy loam | moderately rapid | 0.31 to 0.38 in | 4.5 to 6.0 |
| Bw1 -- 3 to 12 in | loamy sand | rapid | 0.52 to 0.95 in | 4.5 to 6.0 |
| Bw2 -- 12 to 47 in | sand | rapid | 0.70 to 3.15 in | 4.5 to 6.0 |
| C -- 47 to 80 in | coarse sand | very rapid | 0.66 to 2.31 in | 5.1 to 6.5 |

## F43A--Roscommon muck, depressional, MLRA 93, 0 to 1 percent slopes

### Roscommon, depressional

*Extent:* 70 to 85 percent of the unit
*Landform(s):* depressions on outwash plains, drainageways on outwash plains
*Slope gradient:* 0 to 1 percent
*Parent material:* sandy outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 2
*Wind erodibility index (WEI):* 134
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* moderate

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 3 in | muck | moderately rapid | 1.10 to 1.42 in | 4.5 to 6.0 |
| Eg -- 3 to 8 in | sand | rapid | 0.14 to 0.52 in | 4.5 to 6.0 |
| Bg -- 8 to 33 in | sand | rapid | 0.50 to 2.52 in | 4.5 to 6.0 |
| Cg -- 33 to 80 in | sand | very rapid | 0.94 to 3.28 in | 5.1 to 6.5 |

## F116A--Mooselake muck, 0 to 1 percent slopes

### Mooselake

*Extent:* 60 to 85 percent of the unit
*Landform(s):* swamps on end moraines, swamps on outwash plains, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 7
*Wind erodibility index (WEI):* 38
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 36 in | muck | moderately rapid | 12.54 to 16.12 in | |
| Oe -- 36 to 80 in | mucky peat | rapid | 19.84 to 24.25 in | |

## F129A--Tacoosh mucky peat, 0 to 1 percent slopes

### Tacoosh

*Extent:* 60 to 90 percent of the unit
*Landform(s):* swamps on end moraines, swamps on outwash plains, swamps on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 2
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 7w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

*Representative soil profile:*

| | | Texture | Permeability | Available water capacity | pH |
|---|---|---|---|---|---|
| Oe1 -- | 0 to 12 in | mucky peat | rapid | 5.31 to 6.50 in | |
| Oe2 -- | 12 to 32 in | mucky peat | rapid | 9.04 to 11.04 in | |
| Oa -- | 32 to 36 in | muck | moderately rapid | 1.38 to 1.77 in | |
| 2Cg -- | 36 to 80 in | stratified loamy fine sand to loam | moderate | 5.73 to 8.38 in | 5.1 to 6.5 |

## F164B--Beargrease-Biwabik-Rollins complex, 2 to 8 percent slopes, very stony

### Beargrease, very stony

*Extent:* 35 to 60 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

### Rollins, very stony

*Extent:* 15 to 35 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | cobbly sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## F164B--Beargrease-Biwabik-Rollins complex, 2 to 8 percent slopes, very stony

### Biwabik, very stony

*Extent:* 15 to 35 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 2 to 8 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6s
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## F164E--Beargrease-Biwabik-Rollins complex, 8 to 35 percent slopes, very stony

### Beargrease, very stony

*Extent:* 35 to 60 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 35 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* well drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .15
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | very stony loam | moderate | 0.22 to 0.31 in | 4.5 to 6.0 |
| Bw1 -- 2 to 14 in | very stony sandy loam | moderately rapid | 0.73 to 1.59 in | 4.5 to 6.0 |
| 2Bw2 -- 14 to 22 in | extremely stony loamy coarse sand | rapid | 0.08 to 0.39 in | 4.5 to 6.0 |
| 2BC -- 22 to 46 in | extremely gravelly coarse sand | very rapid | 0.24 to 0.96 in | 4.5 to 6.5 |
| 2C -- 46 to 80 in | extremely cobbly coarse sand | very rapid | 0.34 to 1.35 in | 5.1 to 6.5 |

### Rollins, very stony

*Extent:* 15 to 35 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 35 percent
*Parent material:* loamy material over sandy-skeletal outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* somewhat excessively drained

*Soil loss tolerance (T factor):* 3
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .20
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 5 in | cobbly sandy loam | moderately rapid | 0.51 to 0.72 in | 4.5 to 6.0 |
| Bw -- 5 to 14 in | gravelly sandy loam | moderately rapid | 0.81 to 1.45 in | 4.5 to 6.0 |
| 2BC -- 14 to 25 in | very gravelly sand | rapid | 0.22 to 0.55 in | 4.5 to 6.0 |
| 2C -- 25 to 80 in | very gravelly coarse sand | very rapid | 0.55 to 2.74 in | 5.1 to 6.5 |

## F164E--Beargrease-Biwabik-Rollins complex, 8 to 35 percent slopes, very stony

### Biwabik, very stony

*Extent:* 15 to 35 percent of the unit
*Landform(s):* end moraines
*Slope gradient:* 8 to 35 percent
*Parent material:* gravelly outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* none
*Drainage class:* excessively drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 8
*Wind erodibility index (WEI):* 0
*Kw factor (surface layer)* .17
*Land capability, nonirrigated* 6e
*Hydric soil:* no
*Hydrologic group:* A
*Potential for frost action:* low

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| A -- 0 to 2 in | sandy loam | moderately rapid | 0.24 to 0.30 in | 4.5 to 6.0 |
| Bw -- 2 to 9 in | gravelly sandy loam | moderately rapid | 0.64 to 0.92 in | 4.5 to 6.0 |
| E -- 9 to 32 in | gravelly loamy sand | rapid | 0.69 to 1.60 in | 4.5 to 6.0 |
| E and B -- 32 to 64 in | gravelly loamy sand | rapid | 0.97 to 1.94 in | 5.1 to 6.0 |
| C -- 64 to 80 in | gravelly coarse sand | very rapid | 0.31 to 0.94 in | 5.1 to 6.5 |

## F176A--Sago muck, depressional, 0 to 1 percent slopes

### Sago, depressional

*Extent:* 70 to 90 percent of the unit
*Landform(s):* depressions on outwash plains, flats on outwash plains, drainageways on outwash plains, flats on till plains, drainageways on till plains, depressions on till plains
*Slope gradient:* 0 to 1 percent
*Parent material:* organic material over glaciofluvial sediments
*Restrictive feature(s):* greater than 60 inches
*Flooding:* none
*Ponding:* frequent
*Drainage class:* very poorly drained

*Soil loss tolerance (T factor):* 5
*Wind erodibility group (WEG):* 5
*Wind erodibility index (WEI):* 56
*Kw factor (surface layer)* .02
*Land capability, nonirrigated* 6w
*Hydric soil:* yes
*Hydrologic group:* D
*Potential for frost action:* high

| *Representative soil profile:* | *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|---|
| Oa -- 0 to 13 in | muck | moderately rapid | 4.55 to 5.85 in | |
| A -- 13 to 15 in | fine sandy loam | moderately rapid | 0.22 to 0.41 in | 4.5 to 6.0 |
| Bg -- 15 to 41 in | stratified loamy fine sand to loamy very fine sand to fine sandy loam to very fine sandy loam to silt loam | moderately rapid | 3.38 to 4.94 in | 5.1 to 6.5 |
| Cg -- 41 to 80 in | stratified loamy fine sand to silt loam | moderately rapid | 5.07 to 7.41 in | 5.6 to 7.3 |

## GP--Pits, gravel-Udipsamments complex

### Pits, sand and gravel

*Extent:* 100 percent of the unit
*Landform(s):* moraines, outwash plains, terraces
*Slope gradient:*
*Parent material:* outwash
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## I-W--Water, intermittent

### Water, intermittent

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:* 0 to 0 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:*
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## M-W--Water, miscellaneous

### Water, miscellaneous

*Extent:* 100 percent of the unit
*Landform(s):*
*Slope gradient:*
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:* unranked
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

## W--Water

### Water

*Extent:* 100 percent of the unit
*Landform(s):* lakes
*Slope gradient:* 0 to 0 percent
*Parent material:*
*Restrictive feature(s):* greater than 60 inches
*Flooding:*
*Ponding:*
*Drainage class:*

*Soil loss tolerance (T factor):*
*Wind erodibility group (WEG):*
*Wind erodibility index (WEI):*
*Kw factor (surface layer)*
*Land capability, nonirrigated*
*Hydric soil:* unranked
*Hydrologic group:*
*Potential for frost action:*

*Representative soil profile:*

| *Texture* | *Permeability* | *Available water capacity* | *pH* |
|---|---|---|---|

This report provides a semitabular listing of some soil and site properties and interpretations that are valuable in communicating the concept of a map unit. The report also provides easy access to the commonly used conservation planning information in one place. The major soil components in each map unit are displayed. Minor components may be displayed if they are included in the database and are selected at the time the report is generated.