Map Unit Description (MN)

Nobles County, Minnesota

[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]

1003B--Udorthents (cut and fill land), 0 to 6 percent slopes

Udorthents, (cut and fill land)

Extent: 100 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 6 percent
Parent material: variable loamy material
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): 4L
Wind erodibility index (WEI): 86
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*

1007--Udorthents, shallow (sanitary landfill)

Udorthents, shallow, sanitary landfill

Extent: 100 percent of the unit
Landform(s): moraines
Slope gradient: 0 to 20 percent
Parent material: variable soil material
Restrictive feature(s): greater than 60 inches
Flooding:
Ponding:
Drainage class: well drained

Soil loss tolerance (T factor):
Wind erodibility group (WEG):
Wind erodibility index (WEI):
Kw factor (surface layer)
Land capability, nonirrigated
Hydric soil: no
Hydrologic group: B
Potential for frost action:

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

1015A--Havelock clay loam, 0 to 2 percent slopes, frequently flooded

Havelock, frequently flooded

Extent: 75 to 85 percent of the unit
Landform(s): flats 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 5w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1,A2 -- 0 to 32 in	clay loam	moderate	5.42 to 7.33 in	7.4 to 8.4
Cg -- 32 to 60 in	clay loam	moderate	4.75 to 5.59 in	7.4 to 8.4

1024A--Havelock clay loam, 0 to 2 percent slopes, occasionally flooded

Havelock, occasionally flooded

Extent: 75 to 85 percent of the unit
Landform(s): flats on flood plains
Slope gradient: 0 to 2 percent
Parent material: alluvium
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 32 in	clay loam	moderate	5.42 to 7.33 in	7.4 to 8.4
Cg -- 32 to 60 in	clay loam	moderate	4.75 to 5.59 in	7.4 to 8.4

GP--Pits, gravel-Udipsamments complex

Pits, gravel

Extent: 50 to 100 percent of the unit
Landform(s): moraines, outwash plains, stream terraces
Slope gradient: 0 to 45 percent
Parent material: sandy and gravelly 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*

Udipsamments

Extent: 15 to 30 percent of the unit
Landform(s): moraines, outwash plains, stream terraces
Slope gradient: 0 to 6 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding:
Ponding:
Drainage class: excessively drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 2
Wind erodibility index (WEI): 134
Kw factor (surface layer)
Land capability, nonirrigated
Hydric soil:
Hydrologic group: A
Potential for frost action:

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

L5A--Delft, overwash-Delft complex, 1 to 4 percent slopes

Delft, overwash

Extent: 40 to 60 percent of the unit
Landform(s): drainageways on moraines, swales on moraines
Slope gradient: 1 to 4 percent
Parent material: colluvium over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: no
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 12 in	loam	moderately slow	2.13 to 2.36 in	5.6 to 7.8
A -- 12 to 37 in	loam	moderately slow	4.54 to 5.04 in	5.6 to 7.8
Bg -- 37 to 47 in	clay loam	moderate	1.87 to 2.17 in	6.6 to 7.8
Cg -- 47 to 80 in	loam	moderate	4.96 to 6.28 in	7.4 to 8.4

Delft

Extent: 30 to 55 percent of the unit
Landform(s): drainageways on moraines, swales on moraines
Slope gradient: 1 to 3 percent
Parent material: colluvium over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 37 in	loam	moderately slow	6.66 to 7.40 in	5.6 to 7.8
Bg -- 37 to 50 in	clay loam	moderate	2.47 to 2.86 in	6.6 to 7.8
Cg -- 50 to 60 in	loam	moderate	1.48 to 1.87 in	7.4 to 8.4

L6A--Biscay loam, 0 to 2 percent slopes

Biscay

Extent: 80 to 100 percent of the unit
Landform(s): swales on outwash plains, swales on stream terraces
Slope gradient: 0 to 2 percent
Parent material: outwash
Restrictive feature(s): greater than 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 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 20 in	loam	moderate	4.02 to 4.42 in	6.1 to 7.8
Bg -- 20 to 28 in	loam	moderate	1.34 to 1.50 in	6.6 to 7.8
2BCg -- 28 to 36 in	gravelly loam	moderately rapid	0.87 to 1.34 in	6.6 to 7.8
2Cg -- 36 to 60 in	stratified very gravelly coarse sand to loamy sand	rapid	0.48 to 0.96 in	7.4 to 8.4

L78A--Canisteo clay loam, 0 to 2 percent slopes

Canisteo

Extent: 55 to 85 percent of the unit
Landform(s): rims on depressions on moraines, flats on moraines
Slope gradient: 0 to 2 percent
Parent material: 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 18 in	clay loam	moderate	3.26 to 3.98 in	7.4 to 8.4
Bkg -- 18 to 39 in	loam	moderate	3.13 to 3.96 in	7.4 to 8.4
Cg -- 39 to 80 in	loam	moderate	6.14 to 7.78 in	7.4 to 8.4

L79B--Clarion loam, 2 to 5 percent slopes

Clarion

Extent: 50 to 80 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 5 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw -- 14 to 33 in	loam	moderate	3.21 to 3.59 in	5.6 to 7.3
Bk -- 33 to 60 in	loam	moderate	4.02 to 5.09 in	7.4 to 8.4

L83A--Webster clay loam, 0 to 2 percent slopes

Webster

Extent: 50 to 85 percent of the unit
Landform(s): flats on moraines, swales on moraines
Slope gradient: 0 to 2 percent
Parent material: 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 19 in	clay loam	moderate	3.59 to 3.97 in	6.6 to 7.3
Bg -- 19 to 26 in	clay loam	moderate	1.13 to 1.28 in	6.6 to 7.8
BCg,Cg -- 26 to 60 in	loam	moderate	5.08 to 6.43 in	7.4 to 8.4

L85A--Nicollet clay loam, 1 to 3 percent slopes

Nicollet

Extent: 70 to 95 percent of the unit
Landform(s): flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 17 in	clay loam	moderate	2.88 to 3.72 in	5.6 to 7.3
Bw,Bg -- 17 to 33 in	clay loam	moderate	2.42 to 3.07 in	5.6 to 7.3
Bg -- 33 to 36 in	clay loam	moderate	0.41 to 0.52 in	7.4 to 8.4
Cg -- 36 to 60 in	loam	moderate	3.60 to 4.56 in	7.4 to 8.4

L88A--Lura silty clay, depressional, 0 to 1 percent slopes

Lura, depressional

Extent: 75 to 95 percent of the unit
Landform(s): depressions on lake plains
Slope gradient: 0 to 1 percent
Parent material: lacustrine 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 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay	slow	1.38 to 1.67 in	6.1 to 7.8
A -- 10 to 58 in	clay	slow	6.72 to 8.17 in	6.1 to 7.3
Bg -- 58 to 72 in	silty clay	moderately slow	1.56 to 2.69 in	6.6 to 7.8

L96B--Estherville-Hawick complex, 2 to 6 percent slopes

Estherville

Extent: 40 to 65 percent of the unit
Landform(s): outwash plains, hills on stream terraces
Slope gradient: 2 to 6 percent
Parent material: 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 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	sandy loam	moderately rapid	1.69 to 2.34 in	5.6 to 7.3
Bw1 -- 13 to 18 in	sandy loam	moderately rapid	0.61 to 0.85 in	5.6 to 7.3
2Bw2 -- 18 to 23 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C -- 23 to 60 in	gravelly coarse sand	rapid	0.74 to 1.48 in	6.6 to 8.4

Hawick

Extent: 25 to 40 percent of the unit
Landform(s): outwash plains, hills on stream terraces
Slope gradient: 2 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): 3
Wind erodibility group (WEG): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .10
Land capability, nonirrigated 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	sandy loam	rapid	0.21 to 0.92 in	6.1 to 7.8
Bw,C -- 7 to 80 in	gravelly coarse sand	very rapid	1.46 to 4.37 in	7.4 to 8.4

L97C--Hawick-Estherville complex, 6 to 12 percent slopes

Hawick

Extent: 45 to 70 percent of the unit
Landform(s): outwash plains, hills on stream terraces
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .10
Land capability, nonirrigated 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	gravelly sandy loam	rapid	0.21 to 0.92 in	6.1 to 7.8
Bw,C -- 7 to 80 in	gravelly coarse sand	very rapid	1.46 to 4.37 in	7.4 to 8.4

Estherville

Extent: 25 to 40 percent of the unit
Landform(s): hills on outwash plains, hills on stream terraces
Slope gradient: 6 to 12 percent
Parent material: 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 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	sandy loam	moderately rapid	1.69 to 2.34 in	5.6 to 7.3
Bw1 -- 13 to 18 in	sandy loam	moderately rapid	0.61 to 0.85 in	5.6 to 7.3
2Bw2 -- 18 to 23 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C -- 23 to 60 in	gravelly coarse sand	rapid	0.74 to 1.48 in	6.6 to 8.4

L98A--Crippin-Nicollet complex, 1 to 3 percent slopes

Crippin

Extent: 40 to 60 percent of the unit
Landform(s): flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 15 in	loam	moderate	2.99 to 3.29 in	6.6 to 8.4
Bw -- 15 to 27 in	loam	moderate	2.07 to 2.32 in	7.4 to 8.4
C -- 27 to 60 in	loam	moderate	4.90 to 6.21 in	7.4 to 8.4

Nicollet

Extent: 30 to 45 percent of the unit
Landform(s): moraines
Slope gradient: 1 to 3 percent
Parent material: 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 17 in	clay loam	moderate	2.88 to 3.72 in	5.6 to 7.3
Bw -- 17 to 21 in	clay loam	moderate	0.59 to 0.75 in	5.6 to 7.3
Bg -- 21 to 36 in	clay loam	moderate	2.24 to 2.84 in	7.4 to 8.4
Cg -- 36 to 60 in	loam	moderate	3.60 to 4.56 in	7.4 to 8.4

L102C2--Omsrud-Storden complex, 6 to 12 percent slopes, moderately eroded

Omsrud, moderately eroded

Extent: 40 to 70 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loam	moderate	1.81 to 1.99 in	5.6 to 7.3
Bw -- 9 to 19 in	clay loam	moderate	1.67 to 1.87 in	5.6 to 7.3
Bk -- 19 to 36 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4
C -- 36 to 80 in	loam	moderate	6.61 to 8.38 in	7.4 to 8.4

Storden, moderately eroded

Extent: 20 to 30 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 55 in	loam	moderate	7.20 to 9.13 in	7.4 to 8.4
C -- 55 to 80 in	loam	moderate	3.72 to 4.71 in	7.4 to 8.4

L102D2--Omsrud-Storden complex, 12 to 18 percent slopes, moderately eroded

Omsrud, moderately eroded

Extent: 40 to 75 percent of the unit
Landform(s): hills on moraines
Slope gradient: 12 to 18 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loam	moderate	1.81 to 1.99 in	5.6 to 7.3
Bw -- 9 to 19 in	clay loam	moderate	1.67 to 1.87 in	5.6 to 7.3
Bk -- 19 to 36 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4
C -- 36 to 80 in	loam	moderate	6.61 to 8.38 in	7.4 to 8.4

Storden, moderately eroded

Extent: 15 to 25 percent of the unit
Landform(s): hills on moraines
Slope gradient: 12 to 18 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 55 in	loam	moderate	7.20 to 9.13 in	7.4 to 8.4
C -- 55 to 80 in	loam	moderate	3.72 to 4.71 in	7.4 to 8.4

L107A--Canisteo-Glencoe, depressional, complex, 0 to 2 percent slopes

Canisteo

Extent: 30 to 70 percent of the unit
Landform(s): rims on depressions on moraines, flats on moraines
Slope gradient: 0 to 2 percent
Parent material: 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 18 in	clay loam	moderate	3.26 to 3.98 in	7.4 to 8.4
Bkg -- 18 to 39 in	loam	moderate	3.13 to 3.96 in	7.4 to 8.4
Cg -- 39 to 80 in	loam	moderate	6.14 to 7.78 in	7.4 to 8.4

Glencoe, depressional

Extent: 15 to 55 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	clay loam	moderate	1.77 to 2.17 in	6.1 to 7.8
A,ABg -- 10 to 35 in	clay loam	moderate	4.54 to 5.54 in	6.1 to 7.8
Bg -- 35 to 48 in	loam	moderate	1.95 to 2.47 in	6.6 to 7.8
Cg -- 48 to 60 in	loam	moderate	1.77 to 2.24 in	7.4 to 8.4

L111A--Nicollet silty clay loam, 1 to 3 percent slopes

Nicollet

Extent: 70 to 90 percent of the unit
Landform(s): flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: lacustrine sediments over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .24
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.67 to 2.17 in	5.6 to 7.3
Bw -- 10 to 31 in	clay loam	moderate	3.13 to 3.96 in	5.6 to 7.8
Bk -- 31 to 42 in	loam	moderate	1.65 to 2.09 in	7.4 to 8.4
C -- 42 to 80 in	loam	moderate	5.73 to 7.26 in	7.4 to 8.4

L112A--Webster silty clay loam, 0 to 2 percent slopes

Webster

Extent: 75 to 90 percent of the unit
Landform(s): flats on moraines, swales on moraines
Slope gradient: 0 to 2 percent
Parent material: lacustrine sediments over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 24 in	silty clay loam	moderate	4.56 to 5.04 in	6.6 to 7.3
Bg -- 24 to 45 in	clay loam	moderate	3.40 to 3.83 in	6.6 to 7.8
Cg -- 45 to 80 in	loam	moderate	5.20 to 6.58 in	7.4 to 8.4

L126A--Coland silty clay loam, 0 to 2 percent slopes, occasionally flooded

Coland, occasionally flooded

Extent: 65 to 90 percent of the unit
Landform(s): flats, flood plains
Slope gradient: 0 to 2 percent
Parent material: alluvium
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 5
Wind erodibility group (WEG): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 25 in	silty clay loam	moderate	5.04 to 5.54 in	6.1 to 7.3
AC,Cg1 -- 25 to 54 in	loam	moderate	5.75 to 6.32 in	6.1 to 7.3
Cg2 -- 54 to 60 in	sandy loam	moderately rapid	0.77 to 1.00 in	6.1 to 7.8

L127A--Coland silty clay loam, channeled, 0 to 2 percent slopes, frequently flooded

Coland, frequently flooded

Extent: 65 to 90 percent of the unit
Landform(s): flats 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 5w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1 -- 0 to 12 in	silty clay loam	moderate	2.36 to 2.60 in	6.1 to 7.3
A2 -- 12 to 30 in	loam	moderate	3.62 to 3.98 in	6.1 to 7.3
A3 -- 30 to 55 in	stratified fine sandy loam to loam	moderate	5.04 to 5.54 in	6.1 to 7.3
AB,Bg -- 55 to 80 in	fine sandy loam	moderately rapid	3.22 to 4.22 in	6.1 to 7.8

L129B--Terril loam, 2 to 6 percent slopes

Terril

Extent: 80 to 95 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 6 percent
Parent material: colluvium over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 27 in	loam	moderate	5.43 to 5.98 in	6.1 to 7.3
A2,BA -- 27 to 40 in	loam	moderate	2.21 to 2.47 in	6.1 to 7.3
Bw -- 40 to 63 in	loam	moderate	3.65 to 4.11 in	6.1 to 7.3
C -- 63 to 80 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4

L130A--Okoboji mucky silty clay loam, depressional, 0 to 1 percent slopes

Okoboji, mucky silty clay loam, depressional

Extent: 60 to 85 percent of the unit
Landform(s): depressions on lake plains, depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: lacustrine sediments over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	mucky silty clay loam	moderate	2.86 to 3.25 in	6.1 to 7.8
A -- 13 to 35 in	silty clay loam	moderately slow	3.97 to 4.41 in	6.6 to 7.8
Bg -- 35 to 60 in	silty clay loam	moderately slow	4.46 to 4.96 in	6.6 to 8.4

L133A--Waldorf silty clay loam, 0 to 2 percent slopes

Waldorf

Extent: 75 to 85 percent of the unit

Landform(s): flats on moraines, lake plains on moraines, swales on moraines

Slope gradient: 0 to 2 percent

Parent material: lacustrine 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) .28

Land capability, nonirrigated 2w

Hydric soil: yes

Hydrologic group: C/D

Potential for frost action: high

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap,A --	0 to 15 in	silty clay loam	moderately slow	2.69 to 3.74 in	6.1 to 7.3
AB --	15 to 20 in	silty clay loam	moderately slow	0.92 to 1.28 in	6.1 to 7.3
Bg --	20 to 53 in	silty clay	moderately slow	4.30 to 5.29 in	6.6 to 7.8
Cg --	53 to 80 in	silty clay loam	moderately slow	5.35 to 5.89 in	7.6 to 8.4

L134B--Clarion-Crooksford complex, 1 to 5 percent slopes

Clarion

Extent: 55 to 75 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 5 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw -- 14 to 33 in	loam	moderate	3.21 to 3.59 in	5.6 to 7.3
Bk -- 33 to 60 in	loam	moderate	4.02 to 5.09 in	7.4 to 8.4

Crooksford

Extent: 15 to 25 percent of the unit
Landform(s): hills on moraines
Slope gradient: 1 to 5 percent
Parent material: lacustrine/loess sediments over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.97 to 2.36 in	6.1 to 7.3
BA -- 10 to 20 in	silty clay loam	moderate	2.05 to 2.46 in	6.1 to 7.3
Bw -- 20 to 26 in	silt loam	moderate	1.06 to 1.42 in	6.6 to 7.8
2Bw -- 26 to 34 in	loam	moderate	1.34 to 1.50 in	5.6 to 7.3
2Bk -- 34 to 80 in	loam	moderate	7.83 to 11.06 in	7.4 to 8.4

L135A--Okabena silty clay loam, 1 to 3 percent slopes

Okabena

Extent: 70 to 90 percent of the unit
Landform(s): flats on lake plains, rises on lake plains, flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: lacustrine sediments over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 15 in	silty clay loam	moderate	2.69 to 3.59 in	5.6 to 7.3
Bw -- 15 to 22 in	silty clay loam	moderate	1.13 to 1.42 in	5.6 to 7.3
Bk -- 22 to 43 in	silt loam	moderate	3.34 to 4.59 in	7.4 to 8.4
Cg -- 43 to 48 in	silt loam	moderate	0.82 to 1.02 in	7.4 to 8.4
2Cg -- 48 to 80 in	clay loam	moderate	4.78 to 6.06 in	7.4 to 8.4

L136A--Crooksford silty clay loam, 1 to 3 percent slopes

Crooksford

Extent: 75 to 90 percent of the unit
Landform(s): flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: lacustrine/loess sediments over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.97 to 2.36 in	6.1 to 7.3
BA -- 10 to 20 in	silty clay loam	moderate	2.05 to 2.46 in	6.1 to 7.3
Bw -- 20 to 26 in	silt loam	moderate	1.06 to 1.42 in	6.6 to 7.8
2Bw -- 26 to 34 in	loam	moderate	1.34 to 1.50 in	5.6 to 7.3
2Bk -- 34 to 80 in	loam	moderate	7.83 to 11.06 in	7.4 to 8.4

L137A--Cylinder loam, 0 to 2 percent slopes

Cylinder

Extent: 80 to 95 percent of the unit
Landform(s): flats on outwash plains, swales on outwash plains, flats on stream terraces, swales on stream terraces
Slope gradient: 0 to 2 percent
Parent material: 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
A2 -- 14 to 18 in	loam	moderate	0.67 to 0.75 in	6.1 to 7.3
Bg1,2 -- 18 to 28 in	loam	moderate	1.67 to 1.87 in	6.1 to 7.3
2BC,2C -- 28 to 80 in	gravelly loamy sand	rapid	1.04 to 2.08 in	6.6 to 8.4

L138B--Estherville loam, 1 to 6 percent slopes

Estherville

Extent: 80 to 95 percent of the unit
Landform(s): hills on outwash plains, hills on terraces
Slope gradient: 1 to 6 percent
Parent material: 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 3s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	loam	moderately rapid	1.69 to 2.34 in	5.6 to 7.3
Bw1 -- 13 to 18 in	sandy loam	moderately rapid	0.61 to 0.85 in	5.6 to 7.3
2Bw2 -- 18 to 23 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C -- 23 to 60 in	gravelly coarse sand	rapid	0.74 to 1.48 in	6.6 to 8.4

L139A--Wadena loam, 0 to 2 percent slopes

Wadena

Extent: 80 to 90 percent of the unit
Landform(s): flats on outwash plains, rises on outwash plains, flats on stream terraces, rises on stream terraces
Slope gradient: 0 to 2 percent
Parent material: loamy sediments over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	loam	moderate	2.60 to 2.86 in	6.1 to 7.3
Bw1 -- 13 to 20 in	loam	moderate	0.99 to 1.35 in	5.6 to 7.3
Bw2 -- 20 to 30 in	sandy loam	moderately rapid	1.28 to 1.77 in	5.6 to 7.3
2C -- 30 to 60 in	gravelly coarse sand	rapid	0.60 to 1.20 in	6.6 to 8.4

L139B--Wadena loam, 2 to 6 percent slopes

Wadena

Extent: 80 to 90 percent of the unit
Landform(s): hills on outwash plains, hills on terraces
Slope gradient: 2 to 6 percent
Parent material: loamy sediments over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	loam	moderate	2.60 to 2.86 in	6.1 to 7.3
Bw1 -- 13 to 20 in	loam	moderate	0.99 to 1.35 in	5.6 to 7.3
Bw2 -- 20 to 30 in	sandy loam	moderately rapid	1.28 to 1.77 in	5.6 to 7.3
2C -- 30 to 60 in	gravelly coarse sand	rapid	0.60 to 1.20 in	6.6 to 8.4

L140A--Ocheda silty clay loam, 1 to 3 percent slopes

Ocheda

Extent: 75 to 90 percent of the unit
Landform(s): flats on lake plains, rises on lake plains, flats on moraines, rises on moraines
Slope gradient: 1 to 3 percent
Parent material: lacustrine sediments over 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): 4
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: C
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 20 in	silty clay loam	moderately slow	3.21 to 3.81 in	5.6 to 7.3
Bw -- 20 to 28 in	silty clay loam	moderately slow	1.02 to 1.26 in	5.6 to 7.3
Bkg -- 28 to 57 in	silty clay	moderately slow	3.20 to 4.37 in	7.4 to 8.4
2Cg -- 57 to 80 in	loam	moderate	3.43 to 4.34 in	7.4 to 8.4

L141A--Spillville loam, 0 to 2 percent slopes, occasionally flooded

Spillville, occasionally flooded

Extent: 80 to 90 percent of the unit
Landform(s): flats on flood plains, rises on flood plains
Slope gradient: 0 to 2 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 51 in	loam	moderate	9.72 to 10.75 in	5.6 to 7.3
C -- 51 to 60 in	loam	moderately rapid	1.30 to 1.56 in	5.6 to 7.3

L144A--Chetomba silty clay loam, 0 to 2 percent slopes

Chetomba

Extent: 65 to 85 percent of the unit
Landform(s): flats on lake plains, swales on lake plains, flats on moraines, swales on moraines
Slope gradient: 0 to 2 percent
Parent material: lacustrine sediments over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 23 in	silty clay loam	moderate	4.11 to 5.48 in	6.1 to 7.3
Bg -- 23 to 31 in	silty clay loam	moderate	1.32 to 1.82 in	6.6 to 7.8
Cg -- 31 to 43 in	silt loam	moderate	1.89 to 2.60 in	7.4 to 8.4
2Cg -- 43 to 60 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4

L145A--Canisteo silty clay loam, 0 to 2 percent slopes

Canisteo

Extent: 75 to 85 percent of the unit
Landform(s): rims on depressions on moraines, flats on moraines
Slope gradient: 0 to 2 percent
Parent material: lacustrine sediments over 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .24
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 17 in	silty clay loam	moderate	3.05 to 3.72 in	7.4 to 8.4
Bg -- 17 to 27 in	silty clay loam	moderate	1.48 to 1.87 in	7.4 to 8.4
Cg -- 27 to 60 in	loam	moderate	4.63 to 5.29 in	7.4 to 8.4

L146A--Glencoe silty clay loam, depressional, 0 to 1 percent slopes

Glencoe, depressional

Extent: 75 to 100 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 3w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.87 to 2.07 in	6.6 to 7.3
A,AB -- 10 to 29 in	clay loam	moderate	3.47 to 4.24 in	6.1 to 7.8
Bg -- 29 to 40 in	clay loam	moderate	1.65 to 2.09 in	6.6 to 7.8
Cg -- 40 to 80 in	loam	moderate	5.96 to 7.56 in	7.4 to 8.4

L150A--Prinsburg silty clay loam, 0 to 2 percent slopes

Prinsburg

Extent: 65 to 80 percent of the unit
Landform(s): rims on depressions on lake plains, flats on lake plains, rims on depressions on moraines, flats on moraines
Slope gradient: 0 to 2 percent
Parent material: lacustrine sediments over 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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 19 in	silty clay loam	moderate	3.40 to 4.54 in	7.4 to 8.4
Bkg -- 19 to 29 in	silt loam	moderate	1.64 to 2.25 in	7.4 to 8.4
Bg,Cg -- 29 to 46 in	silt loam	moderate	2.71 to 3.72 in	7.4 to 8.4
2Cg -- 46 to 60 in	loam	moderate	2.07 to 2.62 in	7.4 to 8.4

L151A--Glencoe mucky silty clay loam, ponded, 0 to 1 percent slopes

Glencoe, ponded

Extent: 75 to 90 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: till
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) .28
Land capability, nonirrigated 8w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 42 in	mucky silty clay loam	moderate	7.58 to 9.27 in	6.1 to 7.8
Bg -- 42 to 50 in	clay loam	moderate	1.18 to 1.50 in	6.6 to 7.8
Cg -- 50 to 60 in	loam	moderate	1.48 to 1.87 in	7.4 to 8.4

L152B--Lowlein-Round lake complex, 1 to 6 percent slopes

Lowlein

Extent: 35 to 70 percent of the unit
Landform(s): hills on moraines, stream terraces
Slope gradient: 1 to 5 percent
Parent material: outwash over 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 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderately rapid	1.84 to 2.13 in	6.1 to 7.3
Bw1 -- 14 to 24 in	loam	moderately rapid	1.18 to 1.38 in	6.1 to 7.3
Bw2 -- 24 to 31 in	loamy sand	rapid	0.43 to 0.78 in	6.1 to 7.3
2C -- 31 to 60 in	loam	moderate	4.31 to 5.46 in	7.4 to 8.4

Round Lake

Extent: 15 to 40 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 6 percent
Parent material: outwash over lacustrine silty sediments
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): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated 3s
Hydric soil: no
Hydrologic group: B
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.43 to 1.98 in	5.6 to 7.3
Bw -- 11 to 14 in	sandy loam	moderately rapid	0.41 to 0.57 in	5.6 to 7.3
2Bw -- 14 to 26 in	loamy coarse sand	rapid	0.24 to 0.47 in	5.6 to 7.3
2Bk -- 26 to 35 in	gravelly coarse sand	rapid	0.18 to 0.36 in	6.6 to 8.4
2C -- 35 to 48 in	coarse sand	rapid	0.26 to 0.52 in	6.6 to 8.4
3Cg -- 48 to 80 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

L153A--Essexville sandy loam, 0 to 2 percent slopes

Essexville

Extent: 75 to 90 percent of the unit

Landform(s): beaches on moraines, rims on depressions on moraines, flats on moraines

Slope gradient: 0 to 2 percent

Parent material: glaciolacustrine sediments over 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 3w

Hydric soil: yes

Hydrologic group: A/D

Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	sandy loam	moderately rapid	1.02 to 1.42 in	7.4 to 8.4
A -- 8 to 13 in	loamy sand	rapid	0.20 to 0.61 in	7.4 to 8.4
Bg -- 13 to 22 in	sand	rapid	0.36 to 1.09 in	7.4 to 8.4
2Cg -- 22 to 60 in	loam	moderate	5.67 to 7.18 in	7.4 to 8.4

L154E--Belview-Ridgeton complex, 15 to 45 percent slopes

Belview

Extent: 30 to 70 percent of the unit
Landform(s): escarpments on moraines
Slope gradient: 18 to 45 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 9 in	loam	moderate	1.81 to 1.99 in	7.4 to 8.4
Bk -- 9 to 50 in	loam	moderate	6.14 to 7.78 in	7.4 to 8.4
C -- 50 to 60 in	loam	moderate	1.48 to 1.87 in	7.4 to 8.4

Ridgeton

Extent: 15 to 50 percent of the unit
Landform(s): escarpments on moraines
Slope gradient: 15 to 40 percent
Parent material: colluvium over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 6e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1,A2,A3 -- 0 to 32 in	loam	moderate	6.38 to 7.02 in	6.1 to 7.3
Bw -- 32 to 40 in	loam	moderate	1.32 to 1.49 in	6.1 to 7.3
C1,C2 -- 40 to 80 in	loam	moderate	5.96 to 7.56 in	7.4 to 8.4

L155A--Okoboji mucky silty clay loam, ponded, 0 to 1 percent slopes

Okoboji, ponded

Extent: 75 to 90 percent of the unit
Landform(s): depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: alluvium or lacustrine sediments over till
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) .32
Land capability, nonirrigated 8w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1 -- 0 to 10 in	mucky silty clay loam	moderate	2.17 to 2.46 in	6.1 to 7.8
A2 -- 10 to 52 in	silty clay loam	moderately slow	7.58 to 8.43 in	6.6 to 7.8
Bg -- 52 to 60 in	silty clay loam	moderately slow	1.42 to 1.57 in	6.6 to 7.8

L156C2--Omsrud-Storden-Pilot Grove complex, 6 to 12 percent slopes, moderately eroded

Omsrud, moderately eroded

Extent: 30 to 50 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loam	moderate	1.81 to 1.99 in	5.6 to 7.3
Bw -- 9 to 19 in	clay loam	moderate	1.67 to 1.87 in	5.6 to 7.3
Bk -- 19 to 36 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4
C -- 36 to 80 in	loam	moderate	6.61 to 8.38 in	7.4 to 8.4

Storden, moderately eroded

Extent: 15 to 50 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 55 in	loam	moderate	7.20 to 9.13 in	7.4 to 8.4
C -- 55 to 80 in	loam	moderate	3.72 to 4.71 in	7.4 to 8.4

L156C2--Omsrud-Storden-Pilot Grove complex, 6 to 12 percent slopes, moderately eroded

Pilot Grove

Extent: 15 to 25 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: outwash over till
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 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:

		Texture	Permeability	Available water capacity	pH
Ap --	0 to 9 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
Bw --	9 to 17 in	sandy loam	moderately rapid	1.02 to 1.42 in	5.6 to 7.3
2BC --	17 to 22 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C1 --	22 to 39 in	gravelly coarse sand	rapid	0.34 to 0.68 in	6.6 to 8.4
2C2 --	39 to 55 in	gravelly coarse sand	rapid	0.32 to 0.65 in	6.6 to 8.4
3C --	55 to 80 in	loam	moderate	3.97 to 5.46 in	7.4 to 8.4

L156D2--Omsrud-Storden-Pilot Grove complex, 12 to 18 percent slopes, moderately eroded

Omsrud, moderately eroded

Extent: 30 to 60 percent of the unit
Landform(s): hills on moraines
Slope gradient: 12 to 18 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	loam	moderate	1.81 to 1.99 in	5.6 to 7.3
Bw -- 9 to 19 in	clay loam	moderate	1.67 to 1.87 in	5.6 to 7.3
Bk -- 19 to 36 in	loam	moderate	2.54 to 3.22 in	7.4 to 8.4
C -- 36 to 80 in	loam	moderate	6.61 to 8.38 in	7.4 to 8.4

Storden, moderately eroded

Extent: 15 to 30 percent of the unit
Landform(s): hills on moraines
Slope gradient: 12 to 18 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	loam	moderate	1.42 to 1.56 in	7.4 to 8.4
Bk -- 7 to 55 in	loam	moderate	7.20 to 9.13 in	7.4 to 8.4
C -- 55 to 80 in	loam	moderate	3.72 to 4.71 in	7.4 to 8.4

L156D2--Omsrud-Storden-Pilot Grove complex, 12 to 18 percent slopes, moderately eroded

Pilot Grove

Extent: 15 to 20 percent of the unit
Landform(s): hills on moraines
Slope gradient: 12 to 18 percent
Parent material: outwash over till
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*
Ap -- 0 to 9 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
Bw -- 9 to 17 in	sandy loam	moderately rapid	1.02 to 1.42 in	5.6 to 7.3
2BC -- 17 to 22 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C1 -- 22 to 39 in	gravelly coarse sand	rapid	0.34 to 0.68 in	6.6 to 8.4
2C2 -- 39 to 55 in	gravelly coarse sand	rapid	0.32 to 0.65 in	6.6 to 8.4
3C -- 55 to 80 in	loam	moderate	3.97 to 5.46 in	7.4 to 8.4

L157A--Lowlein loam, 0 to 2 percent slopes

Lowlein

Extent: 65 to 85 percent of the unit

Landform(s): flats on moraines, rises on moraines, flats on stream terraces, rises on stream terraces

Slope gradient: 0 to 2 percent

Parent material: outwash over 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): 3

Wind erodibility index (WEI): 86

Kw factor (surface layer) .20

Land capability, nonirrigated 1

Hydric soil: no

Hydrologic group: B

Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderately rapid	1.84 to 2.13 in	6.1 to 7.3
Bw1 -- 14 to 24 in	loam	moderately rapid	1.18 to 1.38 in	6.1 to 7.3
Bw2 -- 24 to 31 in	loamy sand	rapid	0.43 to 0.78 in	6.1 to 7.3
2C -- 31 to 60 in	loam	moderate	4.31 to 5.46 in	7.4 to 8.4

L158B--Round lake sandy loam, 1 to 6 percent slopes

Round Lake

Extent: 70 to 85 percent of the unit
Landform(s): hills on moraines
Slope gradient: 1 to 6 percent
Parent material: outwash over lacustrine silty sediments
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): 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*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.43 to 1.98 in	5.6 to 7.3
Bw -- 11 to 14 in	sandy loam	moderately rapid	0.41 to 0.57 in	5.6 to 7.3
2Bw -- 14 to 26 in	loamy coarse sand	rapid	0.24 to 0.47 in	5.6 to 7.3
2Bk -- 26 to 35 in	gravelly coarse sand	rapid	0.18 to 0.36 in	6.6 to 8.4
2C -- 35 to 48 in	coarse sand	rapid	0.26 to 0.52 in	6.6 to 8.4
3Cg -- 48 to 80 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

L159A--Knoke mucky silty clay loam, depressional, 0 to 1 percent slopes

Knoke, depressional

Extent: 70 to 90 percent of the unit

Landform(s): depressions on lake plains, depressions on moraines

Slope gradient: 0 to 1 percent

Parent material: lacustrine 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): 4L

Wind erodibility index (WEI): 86

Kw factor (surface layer) .32

Land capability, nonirrigated 3w

Hydric soil: yes

Hydrologic group: B/D

Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	mucky silty clay loam	moderately slow	2.07 to 2.26 in	7.4 to 8.4
A -- 10 to 42 in	silty clay loam	moderately slow	6.78 to 7.43 in	7.4 to 8.4
Cg -- 42 to 80 in	silty clay loam	moderately slow	6.80 to 7.56 in	7.4 to 8.4

L160B--Dickinson sandy loam, loamy substratum, 1 to 6 percent slopes

Dickinson, loamy substratum

Extent: 70 to 90 percent of the unit
Landform(s): hills on moraines, hills on outwash plains
Slope gradient: 1 to 6 percent
Parent material: outwash over till
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): 3
Wind erodibility index (WEI): 86
Kw factor (surface layer) .20
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,AB -- 0 to 16 in	sandy loam	moderately rapid	1.94 to 2.42 in	5.6 to 7.3
Bw -- 16 to 30 in	fine sandy loam	moderately rapid	1.65 to 2.07 in	5.1 to 6.5
C1 -- 30 to 47 in	loamy sand	rapid	0.34 to 0.68 in	5.6 to 7.8
C2 -- 47 to 76 in	sand	rapid	0.58 to 1.17 in	5.6 to 7.8
2C -- 76 to 80 in	loam	moderate	0.59 to 0.75 in	7.4 to 8.4

L161C--Estherville-Pilot Grove complex, 6 to 12 percent slopes

Estherville

Extent: 15 to 65 percent of the unit
Landform(s): moraines, hills on outwash plains, hills on stream terraces
Slope gradient: 6 to 12 percent
Parent material: 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 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	sandy loam	moderately rapid	1.69 to 2.34 in	5.6 to 7.3
Bw1 -- 13 to 18 in	sandy loam	moderately rapid	0.61 to 0.85 in	5.6 to 7.3
2Bw2 -- 18 to 23 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C -- 23 to 60 in	gravelly coarse sand	rapid	0.74 to 1.48 in	6.6 to 8.4

Pilot Grove

Extent: 15 to 65 percent of the unit
Landform(s): hills on moraines
Slope gradient: 6 to 12 percent
Parent material: outwash over till
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 4s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 9 in	sandy loam	moderately rapid	1.18 to 1.63 in	5.6 to 7.3
Bw -- 9 to 17 in	sandy loam	moderately rapid	1.02 to 1.42 in	5.6 to 7.3
2Bw -- 17 to 22 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C1 -- 22 to 39 in	gravelly coarse sand	rapid	0.34 to 0.68 in	6.6 to 8.4
2C2 -- 39 to 55 in	gravelly coarse sand	rapid	0.32 to 0.65 in	6.6 to 8.4
3C -- 55 to 80 in	silt loam	moderate	3.97 to 5.46 in	7.4 to 8.4

L162B--Clarion-Round lake complex, 2 to 6 percent slopes

Clarion

Extent: 40 to 60 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 5 percent
Parent material: till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	loam	moderate	2.83 to 3.12 in	5.6 to 7.3
Bw -- 14 to 33 in	loam	moderate	3.21 to 3.59 in	5.6 to 7.3
Bk -- 33 to 60 in	loam	moderate	4.02 to 5.09 in	7.4 to 8.4

Round Lake

Extent: 15 to 50 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 6 percent
Parent material: outwash over lacustrine silty sediments
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): 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*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.43 to 1.98 in	5.6 to 7.3
Bw -- 11 to 14 in	sandy loam	moderately rapid	0.41 to 0.57 in	5.6 to 7.3
2Bw -- 14 to 26 in	loamy coarse sand	rapid	0.24 to 0.47 in	5.6 to 7.3
2Bk -- 26 to 35 in	gravelly coarse sand	rapid	0.18 to 0.36 in	6.6 to 8.4
2C -- 35 to 48 in	coarse sand	rapid	0.26 to 0.52 in	6.6 to 8.4
3Cg -- 48 to 80 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

L163A--Okoboji silty clay loam, depressional, 0 to 1 percent slopes

Okoboji, depressional

Extent: 70 to 95 percent of the unit
Landform(s): depressions on lake plains, depressions on moraines
Slope gradient: 0 to 1 percent
Parent material: alluvium/lacustrine sediments over till
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) .32
Land capability, nonirrigated 3w
Hydric soil: yes
Hydrologic group: C/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 26 in	silty clay loam	moderately slow	5.46 to 5.98 in	6.1 to 7.8
Bg -- 26 to 42 in	silty clay	moderately slow	2.91 to 3.23 in	6.6 to 7.8
Cg -- 42 to 60 in	silty clay loam	moderately slow	3.19 to 3.54 in	6.6 to 8.4

L170B--Estherville-Round lake complex, 2 to 6 percent slopes

Estherville

Extent: 35 to 70 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 6 percent
Parent material: 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 3s
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 13 in	sandy loam	moderately rapid	1.69 to 2.34 in	5.6 to 7.3
Bw1 -- 13 to 18 in	sandy loam	moderately rapid	0.61 to 0.85 in	5.6 to 7.3
2Bw2 -- 18 to 23 in	loamy coarse sand	rapid	0.10 to 0.20 in	5.6 to 7.3
2C -- 23 to 60 in	gravelly coarse sand	rapid	0.74 to 1.48 in	6.6 to 8.4

Round Lake

Extent: 15 to 50 percent of the unit
Landform(s): hills on moraines
Slope gradient: 2 to 6 percent
Parent material: outwash over lacustrine silty sediments
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): 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*
Ap -- 0 to 11 in	sandy loam	moderately rapid	1.43 to 1.98 in	5.6 to 7.3
Bw -- 11 to 14 in	sandy loam	moderately rapid	0.41 to 0.57 in	5.6 to 7.3
2Bw -- 14 to 26 in	loamy coarse sand	rapid	0.24 to 0.47 in	5.6 to 7.3
2Bk -- 26 to 35 in	gravelly coarse sand	rapid	0.18 to 0.36 in	6.6 to 8.4
2C -- 35 to 48 in	coarse sand	rapid	0.26 to 0.52 in	6.6 to 8.4
3Cg -- 48 to 80 in	silt loam	moderate	5.10 to 7.02 in	7.4 to 8.4

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:
Hydrologic group:
Potential for frost action:

Representative soil profile:

Texture	Permeability	Available water capacity	pH

P1B--Annieville silty clay loam, 2 to 5 percent slopes

Annieville

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 2 to 5 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
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
Ap,A,AB -- 0 to 11 in	silty clay loam	moderate	2.31 to 2.54 in	6.1 to 7.3
Bw1-3 -- 11 to 52 in	silty clay loam	moderate	7.37 to 8.19 in	6.1 to 7.3
2BC1 -- 52 to 57 in	sandy loam	moderately rapid	0.41 to 0.67 in	6.6 to 7.8
2BC2,2BC3 -- 57 to 80 in	clay loam	moderately slow	3.20 to 4.11 in	7.4 to 8.4

P2A--McCreath silty clay loam, 1 to 3 percent slopes

McCreath

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 1 to 3 percent
Parent material: loess
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .32
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 17 in	silty clay loam	moderate	3.56 to 3.89 in	6.1 to 7.3
Bw1,2 -- 17 to 35 in	silty clay loam	moderate	3.26 to 3.62 in	6.1 to 7.3
Bk -- 35 to 44 in	silt loam	moderate	1.54 to 1.81 in	7.4 to 8.4
2BC -- 44 to 49 in	gravelly loam	moderately rapid	0.41 to 0.67 in	6.6 to 7.8
2C -- 49 to 80 in	clay loam	moderately slow	4.30 to 5.53 in	7.4 to 8.4

P3A--Biscay silty clay loam, 0 to 2 percent slopes, occasionally flooded

Biscay, occasionally flooded

Extent: 80 to 90 percent of the unit
Landform(s): flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1 -- 0 to 16 in	silty clay loam	moderate	3.23 to 3.55 in	6.1 to 7.3
A2 -- 16 to 21 in	clay loam	moderate	0.80 to 0.90 in	6.6 to 7.3
Bg -- 21 to 31 in	clay loam	moderate	1.74 to 1.94 in	6.6 to 7.3
2Cg -- 31 to 60 in	coarse sand	rapid	0.57 to 1.15 in	7.4 to 8.4

P7A--Comfrey clay loam, 0 to 2 percent slopes, occasionally flooded

Comfrey, occasionally flooded

Extent: 75 to 85 percent of the unit
Landform(s): flats on flood plains
Slope gradient: 0 to 2 percent
Parent material: alluvium
Restrictive feature(s): greater than 60 inches
Flooding: occasional
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) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1,A2 -- 0 to 26 in	clay loam	moderate	4.68 to 5.72 in	6.6 to 7.3
Bg -- 26 to 35 in	clay loam	moderate	1.45 to 1.81 in	6.6 to 7.3
BCg,Cg -- 35 to 60 in	clay loam	moderate	3.72 to 4.71 in	6.6 to 8.4

P9A--Gillett Grove silty clay loam, 0 to 2 percent slopes

Gillett Grove

Extent: 80 to 90 percent of the unit
Landform(s): hills on till plains
Slope gradient: 0 to 2 percent
Parent material: loess
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap, A1,2 -- 0 to 17 in	silty clay loam	moderate	3.56 to 3.89 in	6.1 to 7.3
BA,Bg1-3 -- 17 to 44 in	silty clay loam	moderate	4.89 to 5.43 in	6.1 to 7.3
BCg -- 44 to 57 in	silt loam	moderate	2.60 to 2.86 in	7.9 to 8.4
2Cg -- 57 to 80 in	loam	moderately slow	3.20 to 4.11 in	7.4 to 8.4

P12B--Everly silty clay loam, 2 to 6 percent slopes

Everly

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 2 to 6 percent
Parent material: loess over till
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.67 to 1.87 in	6.1 to 7.3
Bw -- 10 to 18 in	silty clay loam	moderate	1.24 to 1.41 in	6.1 to 7.3
2Bk,2BC -- 18 to 80 in	clay loam	moderately slow	8.65 to 11.13 in	7.4 to 8.4

P12C2--Everly silty clay loam, 6 to 12 percent slopes, moderately eroded

Everly, moderately eroded

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 6 to 12 percent
Parent material: loess over till
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .24
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	silty clay loam	moderate	1.20 to 1.35 in	6.1 to 7.3
Bw -- 7 to 16 in	silty clay loam	moderate	1.36 to 1.54 in	6.1 to 7.3
2Bk,2BC -- 16 to 80 in	clay loam	moderately slow	8.93 to 11.48 in	7.4 to 8.4

P15B--Galva silty clay loam, 2 to 5 percent slopes

Galva

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 2 to 5 percent
Parent material: loess
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 11 in	silty clay loam	moderate	2.09 to 2.43 in	6.1 to 7.3
BA,Bw1,2 -- 11 to 31 in	silty clay loam	moderate	3.41 to 4.02 in	6.1 to 7.3
BC -- 31 to 45 in	silt loam	moderate	2.34 to 2.76 in	6.1 to 7.3
C -- 45 to 60 in	silt loam	moderate	2.54 to 2.99 in	7.4 to 8.4

P20B--Judson silt loam, 3 to 8 percent slopes

Judson

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 3 to 8 percent
Parent material: colluvium
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 36 in	silt loam	moderate	6.81 to 7.88 in	6.1 to 7.3
Bw1,Bw2 -- 36 to 56 in	silty clay loam	moderate	3.81 to 4.42 in	6.1 to 7.3
C -- 56 to 60 in	silty clay loam	moderate	0.67 to 0.79 in	6.6 to 7.8

P21A--Marcus silty clay loam, 0 to 2 percent slopes

Marcus

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 0 to 2 percent
Parent material: loess
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap, A1,2 -- 0 to 17 in	silty clay loam	moderately slow	3.56 to 3.89 in	6.1 to 7.3
BA,Bg1-3 -- 17 to 44 in	silty clay loam	moderately slow	4.89 to 5.43 in	6.1 to 7.3
Cg1 -- 44 to 57 in	silt loam	moderately slow	2.60 to 2.86 in	7.9 to 8.4
2Cg2 -- 57 to 60 in	loam	moderately slow	0.47 to 0.52 in	7.9 to 8.4

P27A--Primghar silty clay loam, 1 to 3 percent slopes

Primghar

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 1 to 3 percent
Parent material: loess
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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 --	0 to 21 in	silty clay loam	moderate	3.96 to 4.59 in	6.1 to 7.3
Bw1,Bw2,Bw3 --	21 to 42 in	silty clay loam	moderate	3.61 to 4.25 in	6.1 to 7.3
C --	42 to 60 in	silty clay loam	moderate	3.01 to 3.54 in	7.4 to 8.4

P28A--Ransom silty clay loam, 1 to 3 percent slopes

Ransom

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 1 to 3 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .32
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: high

Representative soil profile:		*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB --	0 to 16 in	silty clay loam	moderate	2.91 to 3.55 in	6.6 to 7.3
Bw1,Bw2,Bw3 --	16 to 33 in	silty clay loam	moderate	2.71 to 3.22 in	6.6 to 7.3
2BCk,2BC --	33 to 80 in	clay loam	moderately slow	6.56 to 8.43 in	7.4 to 8.4

P29A--Rushmore silty clay loam, 0 to 2 percent slopes

Rushmore

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 0 to 2 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 18 in	silty clay loam	moderate	3.26 to 3.98 in	6.6 to 7.3
Bg1,Bg2 -- 18 to 24 in	silty clay loam	moderate	0.94 to 1.12 in	6.6 to 7.3
BCg -- 24 to 32 in	silty clay loam	moderate	1.26 to 1.50 in	7.4 to 7.8
2BCkg,2BCg -- 32 to 80 in	clay loam	moderately slow	6.72 to 8.65 in	7.4 to 8.4

P30B--Sac silty clay loam, 2 to 5 percent slopes

Sac

Extent: 75 to 85 percent of the unit
Landform(s): hills on till plains
Slope gradient: 2 to 5 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
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*
Ap,A -- 0 to 11 in	silty clay loam	moderate	2.31 to 2.54 in	6.1 to 7.3
BA,Bw1 -- 11 to 28 in	silty clay loam	moderate	3.05 to 3.39 in	6.1 to 7.3
2Bw2 -- 28 to 33 in	clay loam	moderately slow	0.72 to 0.92 in	6.1 to 7.3
2BCk,2BC -- 33 to 60 in	clay loam	moderately slow	3.75 to 4.82 in	7.4 to 8.4

P31A--Spicer silty clay loam, 0 to 2 percent slopes

Spicer

Extent: 80 to 90 percent of the unit
Landform(s): hills on till plains
Slope gradient: 0 to 2 percent
Parent material: loess
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 17 in	silty clay loam	moderate	3.05 to 4.06 in	7.4 to 8.4
Bg1,Bg2 -- 17 to 35 in	silty clay loam	moderate	2.90 to 3.98 in	7.4 to 8.4
Cg -- 35 to 60 in	silty clay loam	moderate	3.97 to 5.46 in	7.4 to 8.4

P33A--Spillco silt loam, 0 to 2 percent slopes, occasionally flooded

Spillco, occasionally flooded

Extent: 80 to 90 percent of the unit
Landform(s): flats on flood plains
Slope gradient: 0 to 2 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A1 -- 0 to 10 in	silt loam	moderate	1.87 to 2.07 in	6.6 to 7.3
A2,A3,A4 -- 10 to 35 in	silt loam	moderate	4.79 to 5.29 in	6.6 to 8.4
C -- 35 to 60 in	loam	moderate	4.71 to 5.21 in	6.6 to 8.4

P36A--Talcot silty clay loam, 0 to 2 percent slopes, occasionally flooded

Talcot, occasionally flooded

Extent: 80 to 90 percent of the unit
Landform(s): flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: alluvium over outwash
Restrictive feature(s): greater than 60 inches
Flooding: occasional
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A1,A2 -- 0 to 22 in	silty clay loam	moderate	3.97 to 4.85 in	7.4 to 8.4
Bg -- 22 to 33 in	silty clay loam	moderate	1.87 to 2.20 in	7.4 to 8.4
2Cg -- 33 to 60 in	coarse sand	rapid	0.54 to 1.07 in	7.4 to 8.4

P37D--Talmo gravelly sandy loam, 6 to 35 percent slopes

Talmo

Extent: 85 to 95 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 6 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): 3
Wind erodibility group (WEG): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .10
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 9 in	gravelly sandy loam	moderately rapid	0.91 to 1.09 in	6.1 to 8.4
AC -- 9 to 12 in	gravelly loamy sand	rapid	0.06 to 0.11 in	7.4 to 8.4
C1,C2 -- 12 to 60 in	very gravelly sand	rapid	0.96 to 1.92 in	7.4 to 8.4

P38B--Thurman sandy loam, 2 to 6 percent slopes

Thurman

Extent: 85 to 95 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 2 to 6 percent
Parent material: 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 3e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 10 in	sandy loam	moderately rapid	1.28 to 1.48 in	6.1 to 6.5
AC -- 10 to 20 in	sandy loam	moderately rapid	1.23 to 1.43 in	6.1 to 7.3
C1,C2 -- 20 to 60 in	sand	rapid	0.80 to 2.78 in	6.1 to 7.8

P38C--Thurman sandy loam, 6 to 12 percent slopes

Thurman

Extent: 85 to 95 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 6 to 12 percent
Parent material: 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 4e
Hydric soil: no
Hydrologic group: A
Potential for frost action: low

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 10 in	sandy loam	moderately rapid	1.28 to 1.48 in	6.1 to 6.5
AC -- 10 to 20 in	sandy loam	moderately rapid	1.23 to 1.43 in	6.1 to 7.3
C1,C2 -- 20 to 60 in	sand	rapid	0.80 to 2.78 in	6.1 to 7.8

P43A--Wilmonton silty clay loam, 1 to 3 percent slopes

Wilmonton

Extent: 80 to 90 percent of the unit
Landform(s): hills on till plains
Slope gradient: 1 to 3 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 1
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 15 in	silty clay loam	moderate	2.99 to 3.89 in	6.1 to 7.3
Bw -- 15 to 20 in	loam	moderate	0.92 to 1.23 in	6.1 to 7.3
2Bw -- 20 to 25 in	clay loam	moderately slow	0.72 to 0.92 in	6.1 to 7.3
2Bk -- 25 to 55 in	clay loam	moderately slow	4.19 to 5.39 in	7.4 to 8.4
2BC1,2BC2 -- 55 to 80 in	clay loam	moderately slow	3.47 to 4.46 in	7.4 to 8.4

P45E--Moneta clay loam, 15 to 45 percent slopes

Moneta

Extent: 80 to 90 percent of the unit
Landform(s): hills on till plains
Slope gradient: 15 to 45 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
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 9 in	clay loam	moderately slow	1.27 to 1.63 in	7.4 to 8.4
BA -- 9 to 13 in	clay loam	moderately slow	0.55 to 0.71 in	7.4 to 8.4
Bk,BC1 -- 13 to 53 in	clay loam	moderately slow	5.62 to 7.23 in	7.4 to 8.4
BC2 -- 53 to 80 in	clay loam	moderately slow	3.75 to 4.82 in	7.4 to 8.4

P48A--Allendorf silty clay loam, 0 to 2 percent slopes

Allendorf

Extent: 80 to 90 percent of the unit
Landform(s): flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2s
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	silty clay loam	moderate	2.69 to 3.12 in	6.1 to 7.3
Bw1,Bw2,Bw3 -- 14 to 34 in	silty clay loam	moderate	3.35 to 3.94 in	6.1 to 7.3
2BC,2C1 -- 34 to 60 in	very gravelly loamy coarse sand	very rapid	0.52 to 1.04 in	6.1 to 8.4

P48B--Allendorf silty clay loam, 2 to 6 percent slopes

Allendorf

Extent: 80 to 90 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 2 to 6 percent
Parent material: loess over 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): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 14 in	silty clay loam	moderate	2.69 to 3.12 in	6.1 to 7.3
Bw1,Bw2,Bw3 -- 14 to 34 in	silty clay loam	moderate	3.35 to 3.94 in	6.1 to 7.3
2BC,2C1 -- 34 to 60 in	very gravelly loamy coarse sand	very rapid	0.52 to 1.04 in	6.1 to 8.4

P49A--Comfrey clay loam, 0 to 2 percent slopes, frequently flooded

Comfrey, frequently flooded

Extent: 80 to 90 percent of the unit
Landform(s): flats 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .28
Land capability, nonirrigated 5w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 40 in	clay loam	moderate	7.23 to 8.83 in	6.6 to 7.3
Cg -- 40 to 60 in	clay loam	moderate	2.95 to 3.74 in	6.6 to 8.4

P50B--Everly-Kanaranzi complex, 2 to 6 percent slopes

Everly

Extent: 55 to 65 percent of the unit
Landform(s): hills on till plains
Slope gradient: 2 to 6 percent
Parent material: loess over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 15 in	silty clay loam	moderate	2.54 to 2.84 in	6.1 to 7.3
Bw -- 15 to 26 in	silty clay loam	moderate	1.65 to 1.87 in	6.1 to 7.3
2Bw -- 26 to 44 in	clay loam	moderately slow	2.54 to 3.26 in	6.1 to 7.3
2Bk,2BCk -- 44 to 80 in	clay loam	moderately slow	5.02 to 6.45 in	7.4 to 8.4

Kanaranzi

Extent: 20 to 30 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 2 to 6 percent
Parent material: loess over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated 2e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A -- 0 to 10 in	silt loam	moderate	2.17 to 2.36 in	6.1 to 7.3
Bw -- 10 to 16 in	loam	moderate	1.26 to 1.39 in	6.1 to 7.3
2C -- 16 to 80 in	very gravelly sand	rapid	1.28 to 2.55 in	6.1 to 8.4

P51C2--Everly-Moneta-Talmo complex, 6 to 12 percent slopes, moderately eroded

Everly, moderately eroded

Extent: 35 to 45 percent of the unit
Landform(s): hills on till plains
Slope gradient: 6 to 12 percent
Parent material: loess over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silty clay loam	moderate	1.34 to 1.50 in	6.1 to 7.3
Bw -- 8 to 26 in	silty clay loam	moderate	2.72 to 3.08 in	6.1 to 7.3
2Bk,2BC -- 26 to 80 in	clay loam	moderately slow	7.55 to 9.71 in	7.4 to 8.4

Moneta, moderately eroded

Extent: 15 to 25 percent of the unit
Landform(s): hills on till plains
Slope gradient: 8 to 12 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	clay loam	moderately slow	1.10 to 1.42 in	7.4 to 8.4
Bk -- 8 to 38 in	clay loam	moderately slow	4.24 to 5.46 in	7.4 to 8.4
BC -- 38 to 80 in	clay loam	moderately slow	5.84 to 7.51 in	7.4 to 8.4

P51C2--Everly-Moneta-Talmo complex, 6 to 12 percent slopes, moderately eroded

Talmo, moderately eroded

Extent: 15 to 25 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 6 to 12 percent
Parent material: outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: excessively drained

Soil loss tolerance (T factor): 3
Wind erodibility group (WEG): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .10
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 6 in	gravelly sandy loam	moderately rapid	0.59 to 0.71 in	6.1 to 8.4
C --	6 to 60 in	very gravelly sand	rapid	1.08 to 2.16 in	7.4 to 8.4

P52D2--Moneta-Everly-Talmo complex, 12 to 18 percent slopes, moderately eroded

Moneta, moderately eroded

Extent: 35 to 45 percent of the unit
Landform(s): hills on till plains
Slope gradient: 12 to 18 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 7 in	clay loam	moderately slow	0.99 to 1.28 in	7.4 to 8.4
Bk -- 7 to 30 in	clay loam	moderately slow	3.20 to 4.11 in	7.4 to 8.4
BCk -- 30 to 80 in	clay loam	moderately slow	7.00 to 9.00 in	7.4 to 8.4

Everly, moderately eroded

Extent: 15 to 25 percent of the unit
Landform(s): hills on till plains
Slope gradient: 12 to 18 percent
Parent material: loess over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 8 in	silty clay loam	moderate	1.34 to 1.50 in	6.1 to 7.3
Bw -- 8 to 16 in	silty clay loam	moderate	1.24 to 1.41 in	6.1 to 7.3
2Bw -- 16 to 38 in	clay loam	moderately slow	3.09 to 3.97 in	6.7 to 7.3
2Bk,2BC -- 38 to 80 in	clay loam	moderately slow	5.84 to 7.51 in	7.4 to 8.4

P52D2--Moneta-Everly-Talmo complex, 12 to 18 percent slopes, moderately eroded

Talmo, moderately eroded

Extent: 15 to 25 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 12 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): 8
Wind erodibility index (WEI): 0
Kw factor (surface layer) .10
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 8 in	gravelly sandy loam	moderately rapid	0.79 to 0.94 in	6.1 to 8.4
C -- 8 to 60 in	very gravelly sand	rapid	1.04 to 2.08 in	7.4 to 8.4

P53C2--Everly-Moneta complex, 6 to 12 percent slopes, moderately eroded

Everly, moderately eroded

Extent: 50 to 60 percent of the unit
Landform(s): hills on till plains
Slope gradient: 6 to 12 percent
Parent material: loess over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.67 to 1.87 in	6.1 to 7.3
Bw -- 10 to 18 in	silty clay loam	moderate	1.24 to 1.41 in	6.1 to 7.3
2Bk,2BC -- 18 to 80 in	clay loam	moderately slow	8.65 to 11.13 in	7.4 to 8.4

Moneta, moderately eroded

Extent: 20 to 30 percent of the unit
Landform(s): hills on till plains
Slope gradient: 8 to 12 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	clay loam	moderately slow	0.99 to 1.28 in	7.4 to 8.4
Bk -- 7 to 33 in	clay loam	moderately slow	3.64 to 4.68 in	7.4 to 8.4
BC -- 33 to 80 in	clay loam	moderately slow	6.56 to 8.43 in	7.4 to 8.4

P54D2--Moneta-Everly complex, 12 to 18 percent slopes, moderately eroded

Moneta, moderately eroded

Extent: 40 to 50 percent of the unit
Landform(s): hills on till plains
Slope gradient: 12 to 18 percent
Parent material: till
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): 4L
Wind erodibility index (WEI): 86
Kw factor (surface layer) .32
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
A -- 0 to 9 in	clay loam	moderately slow	1.27 to 1.63 in	7.4 to 8.4
BA -- 9 to 13 in	clay loam	moderately slow	0.55 to 0.71 in	7.4 to 8.4
Bk,BC1 -- 13 to 53 in	clay loam	moderately slow	5.62 to 7.23 in	7.4 to 8.4
BC2 -- 53 to 80 in	clay loam	moderately slow	3.75 to 4.82 in	7.4 to 8.4

Everly, moderately eroded

Extent: 35 to 45 percent of the unit
Landform(s): hills on till plains
Slope gradient: 12 to 18 percent
Parent material: loess over till
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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .24
Land capability, nonirrigated 4e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 10 in	silty clay loam	moderate	1.67 to 1.87 in	6.1 to 7.3
Bw -- 10 to 15 in	silty clay loam	moderate	0.77 to 0.87 in	6.1 to 7.3
2Bw -- 15 to 44 in	clay loam	moderately slow	4.08 to 5.24 in	6.7 to 7.3
2Bk,2BC -- 44 to 80 in	clay loam	moderately slow	5.02 to 6.45 in	7.4 to 8.4

P55A--Kato silty clay loam, 0 to 2 percent slopes

Kato

Extent: 85 to 95 percent of the unit
Landform(s): flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over outwash
Restrictive feature(s): greater than 60 inches
Flooding: none
Ponding: none
Drainage class: poorly drained

Soil loss tolerance (T factor): 4
Wind erodibility group (WEG): 7
Wind erodibility index (WEI): 38
Kw factor (surface layer) .28
Land capability, nonirrigated 2w
Hydric soil: yes
Hydrologic group: B/D
Potential for frost action: high

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap,A,AB -- 0 to 21 in	silty clay loam	moderate	4.17 to 4.59 in	6.1 to 7.3
Bg1,Bg2 -- 21 to 31 in	silty clay loam	moderate	2.05 to 2.25 in	6.1 to 7.3
BCg -- 31 to 35 in	sandy loam	rapid	0.47 to 0.55 in	6.1 to 7.3
2Cg1,2Cg2 -- 35 to 60 in	coarse sand	rapid	0.50 to 0.99 in	7.4 to 8.4

P56A--Kanaranzi silt loam, 0 to 2 percent slopes

Kanaranzi

Extent: 75 to 85 percent of the unit
Landform(s): flats on outwash plains
Slope gradient: 0 to 2 percent
Parent material: loess over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated 3s
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	6.1 to 7.3
BA,Bw -- 7 to 20 in	loam	moderate	2.60 to 2.86 in	6.1 to 7.3
2C1-3 -- 20 to 80 in	very gravelly coarse sand	rapid	1.20 to 2.39 in	6.1 to 8.4

Map Unit Description (MN)

Nobles County, Minnesota

P56B--Kanaranzi silt loam, 2 to 6 percent slopes

Kanaranzi

Extent: 75 to 85 percent of the unit
Landform(s): hills on outwash plains
Slope gradient: 2 to 6 percent
Parent material: loess over 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): 6
Wind erodibility index (WEI): 48
Kw factor (surface layer) .32
Land capability, nonirrigated 3e
Hydric soil: no
Hydrologic group: B
Potential for frost action: moderate

Representative soil profile:	*Texture*	*Permeability*	*Available water capacity*	*pH*
Ap -- 0 to 7 in	silt loam	moderate	1.56 to 1.70 in	6.1 to 7.3
BA,Bw -- 7 to 20 in	loam	moderate	2.60 to 2.86 in	6.1 to 7.3
2C1-3 -- 20 to 80 in	very gravelly coarse sand	rapid	1.20 to 2.39 in	6.1 to 8.4

W--Water

Water

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:
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.