

Soil Descriptions - Non Technical

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GP--Pits, Gravel-Udipsamments Complex

Component Description

Pits, gravel

Extent: 50 to 100 percent of the unit  
Geomorphic description: Moraine, outwash plain, stream terrace  
Parent material: Sandy and gravelly outwash

Gravel pits are areas that have been mined for gravel or sand. This map unit is actively being mined or is an abandoned pit. Because of the variability of this component in this map unit, interpretation for specific uses are not available. Onsite investigation is needed.

Udipsamments

Extent: 15 to 30 percent of the unit  
Geomorphic description: Stream terrace, outwash plain, moraine  
Parent material: Outwash

Udipsamments are areas of soil that support plant growth and are areas of the pit that have been reclaimed or abandoned. Because of the variability of this component in this map unit, interpretations for specific uses are not available. Onsite investigation is needed.

L5A--Delft, Overwash-Delft Complex, 1 To 4 Percent Slopes

Component Description

Delft, overwash and similar soils

Extent: 40 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 4 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Colluvium over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): 4.5 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.3 inches  
Content of organic matter in the upper 10 inches: 3.5 percent  
Typical profile:  
Ap--0 to 12 inches; loam  
A--12 to 37 inches; loam  
Bg--37 to 47 inches; clay loam  
Cg--47 to 80 inches; loam

Delft and similar soils

Extent: 30 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 3 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Colluvium over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April

Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.4 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A--0 to 37 inches; loam  
Bg--37 to 50 inches; clay loam  
Cg--50 to 60 inches; loam

#### L13A--Klossner Muck, Depressional, 0 To 1 Percent Slopes

##### Component Description

###### Klossner, drained and similar soils

Extent: 65 to 85 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding does not occur (months): January February May June July August September  
October November December  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 17.7 inches  
Content of organic matter in the upper 10 inches: 50.0 percent  
Typical profile:  
Op,Oa--0 to 26 inches; muck  
2A1--26 to 36 inches; mucky silty clay loam  
2A2--36 to 48 inches; silty clay loam  
2Cg--48 to 80 inches; loam

##### Additional Components

Mineral soil, drained and similar soils: 5 to 20 percent of the unit

#### L14A--Houghton Muck, Depressional, 0 To 1 Percent Slopes

##### Component Description

###### Houghton, drained and similar soils

Extent: 65 to 85 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding does not occur (months): January February May June July August September  
October November December  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 23.9 inches  
Content of organic matter in the upper 10 inches: 75.0 percent  
Typical profile:  
Op--0 to 10 inches; muck  
Oa--10 to 80 inches; muck

#### L15A--Klossner, Okoboji And Glencoe Soils, Ponded, 0 To 1 Percent Slopes

##### Component Description

Klossner, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over till  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 17.4 inches  
Content of organic matter in the upper 10 inches: 42.5 percent  
Typical profile:  
Oa--0 to 26 inches; muck  
2A1--26 to 33 inches; silt loam  
2A2--33 to 40 inches; loam  
2Cg--40 to 80 inches; loam

Okoboji, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Mucky silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Alluvium or lacustrine sediments over till  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 11.9 inches  
Content of organic matter in the upper 10 inches: 14.0 percent  
Typical profile:  
A1--0 to 10 inches; mucky silty clay loam  
A2--10 to 52 inches; silty clay loam  
Bg--52 to 60 inches; silty clay loam

Glencoe, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 11.4 inches  
Content of organic matter in the upper 10 inches: 7.0 percent  
Typical profile:  
A--0 to 42 inches; silty clay loam  
Bg--42 to 50 inches; clay loam  
Cg--50 to 60 inches; loam

L16A--Muskego, Blue Earth And Houghton Soils, Ponded, 0 To 1 Percent Slopes

Component Description

Muskego, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck

Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over coprogenous earth  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 19.4 inches  
Content of organic matter in the upper 10 inches: 75.0 percent  
Typical profile:  
Oa1--0 to 9 inches; muck  
Oa2--9 to 36 inches; muck  
Lco--36 to 60 inches; coprogenous earth

Blue earth, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Coprogenous earth  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 12.6 inches  
Content of organic matter in the upper 10 inches: 17.5 percent  
Typical profile:  
A--0 to 50 inches; silt loam  
Cg--50 to 60 inches; silt loam

Houghton, ponded and similar soils

Extent: 0 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material  
Flooding: None  
Wet soil moisture status: At the surface all year  
Ponding is shallowest (depth, months): 0.5 foot, August  
Ponding is deepest (depth, months): 3.0 feet, March April May  
Available water capacity to a depth of 60 inches: 23.9 inches  
Content of organic matter in the upper 10 inches: 84.5 percent  
Typical profile:  
Oa--0 to 80 inches; muck

L26B--Shorewood Silty Clay Loam, 3 To 6 Percent Slopes

Component Description

Shorewood and similar soils

Extent: 85 to 95 percent of the unit  
Geomorphic description: Hill on moraine, hill on lake plain  
Position on landform: Summit, backslope  
Slope range: 2 to 6 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, January  
February July August September October  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.2 inches  
Content of organic matter in the upper 10 inches: 6.0 percent

Typical profile:  
Ap,A,AB--0 to 17 inches; silty clay loam  
Bt--17 to 39 inches; silty clay  
2BCg,2Cg--39 to 60 inches; loam

#### L36A--Hamel, Overwash-Hamel Complex, 1 To 4 Percent Slopes

##### Component Description

###### Hamel, overwash and similar soils

Extent: 40 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 4 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Colluvium over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): 4.5 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.8 inches  
Content of organic matter in the upper 10 inches: 3.5 percent  
Typical profile:  
Ap--0 to 13 inches; loam  
A--13 to 29 inches; clay loam  
Btg--29 to 50 inches; clay loam  
Cg--50 to 80 inches; loam

###### Hamel and similar soils

Extent: 30 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 3 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Colluvium over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.6 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 24 inches; loam  
Btg--24 to 46 inches; clay loam  
Cg--46 to 80 inches; loam

#### L40B--Angus-Kilkenny Complex, 2 To 6 Percent Slopes

##### Component Description

###### Angus and similar soils

Extent: 35 to 55 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 2.5 percent

Typical profile:

Ap--0 to 8 inches; loam  
Bt--8 to 35 inches; clay loam  
BC--35 to 40 inches; clay loam  
C--40 to 80 inches; loam

Kilkenny and similar soils

Extent: 30 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Summit, shoulder  
Slope range: 2 to 6 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.7 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, February  
July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.3 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap--0 to 11 inches; clay loam  
Bt--11 to 35 inches; clay loam  
2Bk,2C--35 to 80 inches; loam

L41C2--Lester-Kilkenny Complex, 6 To 12 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 40 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

Kilkenny, eroded and similar soils

Extent: 35 to 45 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, summit  
Slope range: 6 to 12 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February March June July August September October November December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.3 inches  
Content of organic matter in the upper 10 inches: 1.9 percent  
Typical profile:  
Ap--0 to 9 inches; clay loam  
Bt--9 to 53 inches; clay loam  
2BC,2C--53 to 80 inches; loam

L41D2--Lester-Kilkenny Complex, 12 To 18 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 40 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

Kilkenny, eroded and similar soils

Extent: 25 to 45 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, summit  
Slope range: 12 to 18 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February March June July August September October November December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.3 inches  
Content of organic matter in the upper 10 inches: 1.9 percent  
Typical profile:  
Ap--0 to 9 inches; clay loam  
Bt--9 to 53 inches; clay loam  
2BC,2C--53 to 80 inches; loam

L41E--Lester-Kilkenny Complex, 18 To 25 Percent Slopes

Component Description

Lester and similar soils

Extent: 40 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 18 to 25 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.4 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
A--0 to 5 inches; loam  
BE,Bt--5 to 34 inches; clay loam  
Bk--34 to 60 inches; loam  
C--60 to 80 inches; loam

Kilkenny and similar soils

Extent: 35 to 45 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Summit, shoulder  
Slope range: 18 to 25 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February March June July August September October November December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.2 inches  
Content of organic matter in the upper 10 inches: 2.7 percent  
Typical profile:  
A--0 to 7 inches; clay loam  
Bt--7 to 31 inches; clay loam  
2Bk,2C--31 to 80 inches; loam

L48A--Derrynane, Overwash-Derrynane Complex, 1 To 4 Percent Slopes

Component Description

Derrynane, overwash and similar soils

Extent: 40 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 4 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Colluvium or glaciofluvial sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): 4.5 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 9.7 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A1--0 to 16 inches; clay loam  
A2,AE,Bt--16 to 48 inches; clay loam  
Btg--48 to 67 inches; clay loam  
Cg--67 to 80 inches; loam

Derrynane and similar soils

Extent: 30 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Drainageways and swales  
Slope range: 1 to 3 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Colluvium or glaciofluvial sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.0 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A1--0 to 19 inches; clay loam  
A2--19 to 39 inches; silty clay  
Bg,2Bg--39 to 65 inches; clay loam  
2Cg--65 to 80 inches; loam

L49A--Klossner Soils, Depressional, 0 To 1 Percent Slopes

Component Description

Klossner, surface drained and similar soils

Extent: 50 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, April May June  
Wet soil moisture status is lowest (depth, months): 1.5 feet, February  
Ponding does not occur (months): January February July August September October November December  
Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 17.4 inches  
Content of organic matter in the upper 10 inches: 42.5 percent  
Typical profile:  
Oa--0 to 26 inches; muck  
2A1--26 to 33 inches; silt loam  
2A2--33 to 40 inches; loam  
2Cg--40 to 80 inches; loam

Klossner, drained and similar soils

Extent: 0 to 40 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding does not occur (months): January February May June July August September October November December  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 17.7 inches  
Content of organic matter in the upper 10 inches: 50.0 percent  
Typical profile:  
Op,Oa--0 to 26 inches; muck  
2A1--26 to 36 inches; mucky silty clay loam  
2A2--36 to 48 inches; silty clay loam  
2Cg--48 to 80 inches; loam

Additional Components

Mineral soil, drained and similar soils: 5 to 25 percent of the unit

L50A--Houghton And Muskego Soils, Depressional, 0 To 1 Percent Slopes

Component Description

Houghton, surface drained and similar soils

Extent: 20 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, April May June  
Wet soil moisture status is lowest (depth, months): 1.5 feet, February  
Ponding does not occur (months): January February July August September October November December

Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 23.9 inches  
Content of organic matter in the upper 10 inches: 84.5 percent  
Typical profile:  
Oa--0 to 80 inches; muck

Muskego, surface drained and similar soils

Extent: 20 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over coprogenous earth  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, April May June  
Wet soil moisture status is lowest (depth, months): 1.5 feet, February  
Ponding does not occur (months): January February July August September October November December  
Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 19.4 inches  
Content of organic matter in the upper 10 inches: 75.0 percent  
Typical profile:  
Oa1--0 to 9 inches; muck  
Oa2--9 to 36 inches; muck  
Lco--36 to 60 inches; coprogenous earth

L51C2--Gladek Silt Loam, 6 To 12 Percent Slopes, Eroded

Component Description

Gladek, eroded and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Hill on lake plain  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Lacustrine sediments  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.6 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap--0 to 10 inches; silt loam  
Bt--10 to 39 inches; silt loam  
C--39 to 80 inches; silt loam

L56A--Muskego And Klossner Soils, 0 To 1 Percent Slopes, Frequently Flooded

Component Description

Muskego, frequently flooded and similar soils

Extent: 30 to 100 percent of the unit  
Geomorphic description: Flood plain  
Position on landform: Flats  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over coprogenous earth  
Flooding does not occur (months): January February August September October November December  
Flooding is most likely (frequency, months): Frequent, March April May June  
Wet soil moisture status is highest (depth, months): At the surface, April May June

Wet soil moisture status is lowest (depth, months): 1.5 feet, February  
Ponding is shallowest (depth, months): 0.5 foot, June  
Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 19.4 inches  
Content of organic matter in the upper 10 inches: 75.0 percent  
Typical profile:  
Oa1--0 to 9 inches; muck  
Oa2--9 to 36 inches; muck  
Lco--36 to 60 inches; coprogenous earth

Klossner, frequently flooded and similar soils

Extent: 30 to 100 percent of the unit  
Geomorphic description: Flood plain  
Position on landform: Flats  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over till  
Flooding does not occur (months): January February August September October  
November December  
Flooding is most likely (frequency, months): Frequent, March April May June  
Wet soil moisture status is highest (depth, months): At the surface, April May  
June  
Wet soil moisture status is lowest (depth, months): 1.5 feet, February  
Ponding is shallowest (depth, months): 0.5 foot, June  
Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 17.4 inches  
Content of organic matter in the upper 10 inches: 42.5 percent  
Typical profile:  
Oa--0 to 26 inches; muck  
2A1--26 to 33 inches; silt loam  
2A2--33 to 40 inches; loam  
2Cg--40 to 80 inches; loam

L57A--Medo Muck, Depressional, 0 To 1 Percent Slopes

Component Description

Medo, drained and similar soils

Extent: 65 to 85 percent of the unit  
Geomorphic description: Stream terrace, outwash plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over outwash  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 14.3 inches  
Content of organic matter in the upper 10 inches: 70.0 percent  
Typical profile:  
Op,Oa--0 to 27 inches; muck  
2A--27 to 35 inches; mucky loam  
2Bg--35 to 39 inches; sandy clay loam  
2Cg--39 to 80 inches; gravelly loamy coarse sand

Additional Components

Mineral soil, drained and similar soils: 5 to 20 percent of the unit

L63A--Klossner Muck, Lake Plain, Depressional, 0 To 1 Percent Slopes

Component Description

Klossner and similar soils

Extent: 75 to 95 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material over lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 17.4 inches  
Content of organic matter in the upper 10 inches: 42.5 percent  
Typical profile:  
Op,Oa--0 to 25 inches; muck  
2A--25 to 40 inches; silty clay loam  
2Cg--40 to 80 inches; silty clay loam

#### L64A--Tadkee-Tadkee, Depressional, Complex, 0 To 2 Percent Slopes

##### Component Description

##### Tadkee and similar soils

Extent: 20 to 70 percent of the unit  
Geomorphic description: Beach on moraine  
Position on landform: Flats  
Slope range: 0 to 2 percent  
Surface layer texture: Loamy fine sand  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Beach sand over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 7.6 inches  
Content of organic matter in the upper 10 inches: 4.3 percent  
Typical profile:  
A--0 to 6 inches; loamy fine sand  
Bg--6 to 34 inches; sand  
2Cg--34 to 80 inches; loam

##### Tadkee, depressional and similar soils

Extent: 20 to 70 percent of the unit  
Geomorphic description: Beach on moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Mucky loamy fine sand  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Beach sand over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
May June  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, June  
Ponding is deepest (depth, months): 1.0 foot, March April May  
Available water capacity to a depth of 60 inches: 9.8 inches  
Content of organic matter in the upper 10 inches: 12.1 percent  
Typical profile:  
A--0 to 6 inches; mucky loamy fine sand  
Bg--6 to 27 inches; sand  
2Cg--27 to 80 inches; loam

#### L73A--Blue Earth Mucky Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

##### Component Description

Blue earth and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Lake plain, moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Mucky silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Coprogenous earth over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 12.6 inches  
Content of organic matter in the upper 10 inches: 17.5 percent  
Typical profile:  
Ap--0 to 10 inches; mucky silty clay loam  
Cg--10 to 68 inches; mucky silty clay loam  
2Cg--68 to 80 inches; loam

L74A--Estherville Sandy Loam, Terrace, 0 To 2 Percent Slopes

Component Description

Estherville and similar soils

Extent: 80 to 90 percent of the unit  
Geomorphic description: Stream terrace  
Position on landform: Flats and slight rises  
Slope range: 0 to 2 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 4.1 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; sandy loam  
Bw1--13 to 18 inches; sandy loam  
2Bw2--18 to 23 inches; loamy coarse sand  
2C--23 to 60 inches; gravelly coarse sand

L75B--Barrington Silt Loam, 2 To 6 Percent Slopes

Component Description

Barrington and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Hill on lake plain  
Position on landform: Backslope, summit  
Slope range: 2 to 6 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 9.4 inches  
Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap,A--0 to 15 inches; silt loam  
Bt--15 to 33 inches; silt loam  
C--33 to 60 inches; stratified loamy very fine sand to silt loam

L76B--Dickinson Fine Sandy Loam, 1 To 6 Percent Slopes

Component Description

Dickinson and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Hill on delta, hill on outwash plain  
Position on landform: Summit, backslope  
Slope range: 1 to 6 percent  
Surface layer texture: Fine sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 6.1 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap,A--0 to 14 inches; fine sandy loam  
Bw--14 to 39 inches; fine sandy loam  
C--39 to 60 inches; loamy fine sand

L77A--Brownton Silty Clay Loam, 0 To 2 Percent Slopes

Component Description

Brownton and similar soils

Extent: 65 to 90 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Rims of depressions  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 22 inches; silty clay loam  
Bg--22 to 38 inches; silty clay  
2Cg--38 to 60 inches; loam

Additional Components

Marna and similar soils: 5 to 20 percent of the unit

L78A--Canisteo Clay Loam, 0 To 2 Percent Slopes

Component Description

Canisteo and similar soils

Extent: 55 to 85 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and rims of depressions  
Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent

Typical profile:  
Ap,A--0 to 18 inches; clay loam  
Bkg--18 to 39 inches; loam  
Cg--39 to 80 inches; loam

L79B--Clarion Loam, 2 To 5 Percent Slopes

Component Description

Clarion and similar soils

Extent: 50 to 80 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, January  
February July August September October December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 4.5 percent  
Typical profile:  
Ap,A--0 to 14 inches; loam  
Bw--14 to 33 inches; loam  
Bk--33 to 60 inches; loam

Additional Components

Clarion, eroded and similar soils: 10 to 40 percent of the unit

L80C2--Lester Loam, 6 To 12 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 65 to 90 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

L80D2--Lester Loam, 12 To 18 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 60 to 80 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained

Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

#### L81A--Cordova Clay Loam, 0 To 2 Percent Slopes

##### Component Description

###### Cordova and similar soils

Extent: 75 to 90 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 18 inches; clay loam  
Btg--18 to 38 inches; clay loam  
Cg--38 to 80 inches; loam

#### L82A--Marna Silty Clay Loam, 0 To 2 Percent Slopes

##### Component Description

###### Marna and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Moraine, lake plain  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 20 inches; silty clay loam  
Bg--20 to 32 inches; clay  
2Bg--32 to 41 inches; clay loam  
2Bkg--41 to 60 inches; loam

#### L83A--Webster Clay Loam, 0 To 2 Percent Slopes

##### Component Description

###### Webster and similar soils

Extent: 50 to 85 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and swales

Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 19 inches; clay loam  
Bg--19 to 26 inches; clay loam  
BCg,Cg--26 to 60 inches; loam

#### Additional Components

Glencoe and similar soils: 0 to 20 percent of the unit

L84A--Glencoe Clay Loam, Depressional, 0 To 1 Percent Slopes

#### Component Description

##### Glencoe and similar soils

Extent: 75 to 100 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 11.2 inches  
Content of organic matter in the upper 10 inches: 7.5 percent  
Typical profile:  
Ap--0 to 10 inches; clay loam  
A,ABg--10 to 35 inches; clay loam  
Bg--35 to 48 inches; loam  
Cg--48 to 60 inches; loam

L85A--Nicollet Clay Loam, 1 To 3 Percent Slopes

#### Component Description

##### Nicollet and similar soils

Extent: 70 to 95 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A--0 to 17 inches; clay loam  
Bw,Bg--17 to 33 inches; clay loam  
Bg--33 to 36 inches; clay loam  
Cg--36 to 60 inches; loam

L86A--Madelia Silty Clay Loam, 0 To 2 Percent Slopes

Component Description

Madelia and similar soils

Extent: 80 to 95 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.7 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 19 inches; silty clay loam  
Bg--19 to 37 inches; silty clay loam  
Cg--37 to 60 inches; silt loam

L87A--Kingston Silty Clay Loam, 1 To 3 Percent Slopes

Component Description

Kingston and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.3 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A--0 to 16 inches; silty clay loam  
Bw--16 to 25 inches; silty clay loam  
C--25 to 60 inches; silt loam

L88A--Lura Silty Clay, Depressional, 0 To 1 Percent Slopes

Component Description

Lura and similar soils

Extent: 75 to 95 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silty clay  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 9.6 inches

Content of organic matter in the upper 10 inches: 8.0 percent

Typical profile:

Ap--0 to 10 inches; silty clay

A--10 to 58 inches; clay

Bg--58 to 72 inches; silty clay

#### L89A--Guckeen Silty Clay Loam, 0 To 3 Percent Slopes

##### Component Description

###### Guckeen and similar soils

Extent: 70 to 90 percent of the unit

Geomorphic description: Lake plain, moraine

Position on landform: Flats and slight rises

Slope range: 0 to 3 percent

Surface layer texture: Silty clay loam

Depth to restrictive feature: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Parent material: Lacustrine sediments over till

Flooding: None

Wet soil moisture status is highest (depth, months): 1.5 feet, April May

Wet soil moisture status is lowest (depth, months): 4.9 feet, February August

Ponding: None

Available water capacity to a depth of 60 inches: 10.1 inches

Content of organic matter in the upper 10 inches: 5.0 percent

Typical profile:

Ap,A--0 to 15 inches; silty clay loam

Bw--15 to 24 inches; silty clay loam

2Bw--24 to 30 inches; clay loam

2Cg--30 to 60 inches; loam

#### L90A--Le Sueur Clay Loam, 0 To 3 Percent Slopes

##### Component Description

###### Le sueur and similar soils

Extent: 70 to 85 percent of the unit

Geomorphic description: Moraine

Position on landform: Flats and slight rises

Slope range: 1 to 3 percent

Surface layer texture: Clay loam

Depth to restrictive feature: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Parent material: Till

Flooding: None

Wet soil moisture status is highest (depth, months): 1.5 feet, April

Wet soil moisture status is lowest (depth, months): 5.9 feet, February August

Ponding: None

Available water capacity to a depth of 60 inches: 10.5 inches

Content of organic matter in the upper 10 inches: 5.0 percent

Typical profile:

Ap,AB--0 to 17 inches; clay loam

Bt--17 to 37 inches; clay loam

Bk--37 to 46 inches; loam

C--46 to 80 inches; loam

#### L91A--Mazaska Silty Clay Loam, 0 To 2 Percent Slopes

##### Component Description

###### Mazaska and similar soils

Extent: 75 to 95 percent of the unit

Geomorphic description: Moraine

Position on landform: Flats and swales

Slope range: 0 to 2 percent

Surface layer texture: Silty clay loam

Depth to restrictive feature: Very deep (more than 60 inches)

Drainage class: Poorly drained

Parent material: Glaciofluvial sediments and reworked till over till

Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 9.5 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 15 inches; silty clay loam  
Btg--15 to 42 inches; clay  
Bkg--42 to 80 inches; loam

#### L92A--Darfur Loam, 0 To 2 Percent Slopes

##### Component Description

###### Darfur and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Outwash plain  
Position on landform: Flats  
Slope range: 0 to 2 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Outwash  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 8.5 inches  
Content of organic matter in the upper 10 inches: 6.3 percent  
Typical profile:  
Ap,A--0 to 9 inches; loam  
A,AB--9 to 19 inches; loam  
Bg--19 to 31 inches; fine sandy loam  
Cg--31 to 60 inches; stratified fine sand to loamy fine sand to fine sandy loam

#### L93A--Muskego Muck, Depressional, 0 To 1 Percent Slopes

##### Component Description

###### Muskego and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Muck  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Organic material/coprogenous earth over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 15.6 inches  
Content of organic matter in the upper 10 inches: 75.0 percent  
Typical profile:  
Op,Oa--0 to 16 inches; muck  
Lco--16 to 76 inches; coprogenous earth  
Cg--76 to 80 inches; loam

#### L94A--Lowlein Fine Sandy Loam, Terrace, 0 To 3 Percent Slopes

##### Component Description

###### Lowlein and similar soils

Extent: 60 to 85 percent of the unit  
Geomorphic description: Stream terrace  
Position on landform: Flats and slight rises

Slope range: 0 to 3 percent  
Surface layer texture: Fine sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Outwash over lacustrine silty sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 8.5 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 18 inches; fine sandy loam  
Bw1--18 to 27 inches; fine sandy loam  
Bw2--27 to 46 inches; stratified loamy sand to fine sandy loam  
2Bw--46 to 72 inches; silt loam  
2C--72 to 80 inches; silt loam

#### Additional Components

Linder and similar soils: 10 to 25 percent of the unit

L95E--Hawick Gravelly Coarse Sandy Loam, 12 To 25 Percent Slopes

#### Component Description

##### Hawick and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Hill on outwash plain, hill on stream terrace  
Position on landform: Summit, shoulder, backslope  
Slope range: 12 to 25 percent  
Surface layer texture: Gravelly coarse sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.8 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly coarse sandy loam  
AC--7 to 10 inches; gravelly loamy coarse sand  
C--10 to 60 inches; gravelly coarse sand

L96B--Estherville-Hawick Complex, 2 To 6 Percent Slopes

#### Component Description

##### Estherville and similar soils

Extent: 40 to 65 percent of the unit  
Geomorphic description: Hill on terrace, hill on outwash plain  
Position on landform: Backslope, summit  
Slope range: 2 to 6 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 4.1 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; sandy loam  
Bw1--13 to 18 inches; sandy loam  
2Bw2--18 to 23 inches; loamy coarse sand  
2C--23 to 60 inches; gravelly coarse sand

##### Hawick and similar soils

Extent: 25 to 40 percent of the unit

Geomorphic description: Hill on outwash plain, hill on stream terrace  
Position on landform: Summit, shoulder, backslope  
Slope range: 2 to 6 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

#### L97C--Hawick-Estherville Complex, 6 To 12 Percent Slopes

##### Component Description

###### Hawick and similar soils

Extent: 45 to 70 percent of the unit  
Geomorphic description: Hill on stream terrace, hill on outwash plain  
Position on landform: Shoulder, summit, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Gravelly sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

###### Estherville and similar soils

Extent: 25 to 40 percent of the unit  
Geomorphic description: Hill on outwash plain, hill on stream terrace  
Position on landform: Backslope, summit  
Slope range: 6 to 12 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 4.1 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; sandy loam  
Bw1--13 to 18 inches; sandy loam  
2Bw2--18 to 23 inches; loamy coarse sand  
2C--23 to 60 inches; gravelly coarse sand

#### L98A--Crippin-Nicollet Complex, 1 To 3 Percent Slopes

##### Component Description

###### Crippin and similar soils

Extent: 40 to 60 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained

Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, February  
August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,AB--0 to 15 inches; loam  
Bw--15 to 27 inches; loam  
C--27 to 60 inches; loam

#### Nicollet and similar soils

Extent: 30 to 45 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, February  
August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A--0 to 17 inches; clay loam  
Bw,Bg--17 to 33 inches; clay loam  
Bg--33 to 36 inches; clay loam  
Cg--36 to 60 inches; loam

#### L99B--Clarion-Swanlake Complex, 2 To 6 Percent Slopes

##### Component Description

#### Clarion and similar soils

Extent: 50 to 70 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, January  
February July August September October December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 4.5 percent  
Typical profile:  
Ap,A--0 to 14 inches; loam  
Bw--14 to 33 inches; loam  
Bk--33 to 60 inches; loam

#### Swanlake and similar soils

Extent: 15 to 30 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder  
Slope range: 3 to 6 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April

Wet soil moisture status is lowest (depth, months): More than 5.0 feet, January  
February July August September October December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.8 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bk--9 to 43 inches; loam  
C--43 to 60 inches; loam

#### L100B--Clarion-Estherville Complex, 2 To 6 Percent Slopes

##### Component Description

###### Clarion and similar soils

Extent: 40 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Summit, backslope  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 5.0 feet, January  
February July August September October December  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 4.5 percent  
Typical profile:  
Ap,A--0 to 14 inches; loam  
Bw--14 to 33 inches; loam  
Bk--33 to 60 inches; loam

###### Estherville and similar soils

Extent: 30 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Slope range: 2 to 6 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 4.1 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; sandy loam  
Bw1--13 to 18 inches; sandy loam  
2Bw2--18 to 23 inches; loamy coarse sand  
2C--23 to 60 inches; gravelly coarse sand

#### L101C2--Omsrud-Hawick-Storden Complex, 6 To 12 Percent Slopes, Eroded

##### Component Description

###### Omsrud, eroded and similar soils

Extent: 30 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None

Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.9 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bw--9 to 19 inches; clay loam  
Bk--19 to 36 inches; loam  
C--36 to 80 inches; loam

#### Hawick and similar soils

Extent: 25 to 35 percent of the unit  
Geomorphic description: Hill on moraine  
Slope range: 6 to 12 percent  
Surface layer texture: Gravelly sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

#### Storden, eroded and similar soils

Extent: 15 to 25 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

#### L101D2--Omsrud-Hawick-Storden Complex, 12 To 18 Percent Slopes, Eroded

##### Component Description

#### Omsrud, eroded and similar soils

Extent: 30 to 50 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.9 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bw--9 to 19 inches; clay loam  
Bk--19 to 36 inches; loam  
C--36 to 80 inches; loam

#### Hawick and similar soils

Extent: 25 to 35 percent of the unit  
Geomorphic description: Hill on moraine

Slope range: 12 to 18 percent  
Surface layer texture: Gravelly coarse sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly coarse sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

Storden, eroded and similar soils

Extent: 15 to 25 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

L102C2--Omsrud-Storden Complex, 6 To 12 Percent Slopes, Eroded

Component Description

Omsrud, eroded and similar soils

Extent: 40 to 70 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.9 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bw--9 to 19 inches; clay loam  
Bk--19 to 36 inches; loam  
C--36 to 80 inches; loam

Storden, eroded and similar soils

Extent: 20 to 30 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent

Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

#### Additional Components

Omsrud and similar soils: 10 to 20 percent of the unit

L102D2--Omsrud-Storden Complex, 12 To 18 Percent Slopes, Eroded

#### Component Description

##### Omsrud, eroded and similar soils

Extent: 40 to 75 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.9 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bw--9 to 19 inches; clay loam  
Bk--19 to 36 inches; loam  
C--36 to 80 inches; loam

##### Storden, eroded and similar soils

Extent: 15 to 25 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

#### Additional Components

Omsrud and similar soils: 10 to 25 percent of the unit

L103A--Fieldon-Canisteo Complex, 0 To 2 Percent Slopes

#### Component Description

##### Fieldon and similar soils

Extent: 45 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats with deltaic sediments  
Slope range: 0 to 2 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Deltaic sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, August

Ponding: None  
Available water capacity to a depth of 60 inches: 7.9 inches  
Content of organic matter in the upper 10 inches: 6.5 percent  
Typical profile:  
Ap,A,AB--0 to 19 inches; loam  
Bg,Bw--19 to 37 inches; fine sandy loam  
C,Cg--37 to 60 inches; stratified fine sand to loamy fine sand

#### Canisteo and similar soils

Extent: 30 to 40 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and rims of depressions  
Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 18 inches; clay loam  
Bkg--18 to 39 inches; loam  
Cg--39 to 80 inches; loam

#### L105C2--Lester-Hawick Complex, 6 To 12 Percent Slopes, Eroded

##### Component Description

#### Lester, eroded and similar soils

Extent: 30 to 55 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.6 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

#### Hawick and similar soils

Extent: 25 to 45 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 6 to 12 percent  
Surface layer texture: Gravelly sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.6 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

L105D2--Lester-Hawick Complex, 12 To 18 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 30 to 55 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

Hawick and similar soils

Extent: 30 to 40 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 12 to 18 percent  
Surface layer texture: Gravelly coarse sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 2.7 inches  
Content of organic matter in the upper 10 inches: 1.5 percent  
Typical profile:  
Ap--0 to 7 inches; gravelly coarse sandy loam  
Bw,C--7 to 80 inches; gravelly coarse sand

L106C2--Lester-Storden Complex, 6 To 12 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 50 to 70 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

Storden, eroded and similar soils

Extent: 15 to 25 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 6 to 12 percent

Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

L106D2--Lester-Storden Complex, 12 To 18 Percent Slopes, Eroded

Component Description

Lester, eroded and similar soils

Extent: 50 to 70 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.6 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bt--7 to 38 inches; clay loam  
Bk--38 to 60 inches; loam  
C--60 to 80 inches; loam

Storden, eroded and similar soils

Extent: 15 to 25 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, shoulder  
Slope range: 12 to 18 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 1.2 percent  
Typical profile:  
Ap--0 to 7 inches; loam  
Bk--7 to 55 inches; loam  
C--55 to 80 inches; loam

L107A--Canisteeo-Glencoe, Depressional Complex, 0 To 2 Percent Slopes

Component Description

Canisteeo and similar soils

Extent: 30 to 70 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and rims of depressions  
Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till

Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 18 inches; clay loam  
Bkg--18 to 39 inches; loam  
Cg--39 to 80 inches; loam

#### Glencoe and similar soils

Extent: 15 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 11.2 inches  
Content of organic matter in the upper 10 inches: 7.5 percent  
Typical profile:  
Ap--0 to 10 inches; clay loam  
A,ABg--10 to 35 inches; clay loam  
Bg--35 to 48 inches; loam  
Cg--48 to 60 inches; loam

#### L108A--Cordova-Rolfe, Depressional, Complex, 0 To 2 Percent Slopes

##### Component Description

#### Cordova and similar soils

Extent: 50 to 75 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.7 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 18 inches; clay loam  
Btg--18 to 38 inches; clay loam  
Cg--38 to 80 inches; loam

#### Rolfe and similar soils

Extent: 15 to 35 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Glaciolacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April

Available water capacity to a depth of 60 inches: 10.3 inches  
Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap,A--0 to 12 inches; silt loam  
E--12 to 20 inches; silt loam  
Btg--20 to 35 inches; silty clay  
2Bt--35 to 51 inches; clay loam  
2Cg--51 to 60 inches; loam

L109A--Marna-Barbert, Depressional, Complex, 0 To 2 Percent Slopes

Component Description

Marna and similar soils

Extent: 55 to 75 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 20 inches; silty clay loam  
Bg--20 to 32 inches; clay  
2Bg--32 to 41 inches; clay loam  
2Bkg--41 to 60 inches; loam

Barbert and similar soils

Extent: 20 to 35 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 3.7 percent  
Typical profile:  
Ap--0 to 7 inches; silt loam  
E--7 to 17 inches; silt loam  
Btg--17 to 43 inches; clay  
C--43 to 60 inches; silty clay loam

L110E--Lester-Ridgeton Complex, 18 To 25 Percent Slopes

Component Description

Lester and similar soils

Extent: 45 to 65 percent of the unit  
Geomorphic description: Escarpment on moraine  
Position on landform: Backslope, shoulder  
Slope range: 18 to 25 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None

Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.4 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
A--0 to 5 inches; loam  
BE,Bt--5 to 34 inches; clay loam  
Bk--34 to 60 inches; loam  
C--60 to 80 inches; loam

Ridgeton and similar soils

Extent: 20 to 40 percent of the unit  
Geomorphic description: Escarpment on moraine  
Position on landform: Backslope, footslope  
Slope range: 12 to 25 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Colluvium over till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.4 inches  
Content of organic matter in the upper 10 inches: 5.0 percent  
Typical profile:  
A1,A2,A3--0 to 32 inches; loam  
Bw--32 to 40 inches; loam  
C1,C2--40 to 80 inches; loam

L110F--Lester-Ridgeton Complex, 25 To 45 Percent Slopes

Component Description

Lester and similar soils

Extent: 45 to 65 percent of the unit  
Geomorphic description: Escarpment on moraine  
Position on landform: Shoulder, backslope  
Slope range: 25 to 45 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.4 inches  
Content of organic matter in the upper 10 inches: 3.3 percent  
Typical profile:  
A--0 to 6 inches; loam  
Bt--6 to 25 inches; clay loam  
C--25 to 60 inches; loam

Ridgeton and similar soils

Extent: 20 to 40 percent of the unit  
Geomorphic description: Escarpment on moraine  
Position on landform: Backslope, footslope  
Slope range: 18 to 25 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Colluvium over till  
Flooding: None  
Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.4 inches  
Content of organic matter in the upper 10 inches: 5.0 percent  
Typical profile:  
A1,A2,A3--0 to 32 inches; loam  
Bw--32 to 40 inches; loam  
C1,C2--40 to 80 inches; loam

L111A--Nicollet Silty Clay Loam, 1 To 3 Percent Slopes

Component Description

Nicollet and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, February  
August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap--0 to 10 inches; silty clay loam  
Bw--10 to 31 inches; clay loam  
Bk--31 to 42 inches; loam  
C--42 to 80 inches; loam

L112A--Webster Silty Clay Loam, 0 To 2 Percent Slopes

Component Description

Webster and similar soils

Extent: 75 to 90 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A,AB--0 to 24 inches; silty clay loam  
Bg--24 to 45 inches; clay loam  
Cg--45 to 80 inches; loam

L113B--Reedslake Loam, 2 To 5 Percent Slopes

Component Description

Reedslake and similar soils

Extent: 65 to 80 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches

Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap--0 to 12 inches; loam  
Bt--12 to 26 inches; clay loam  
Bk--26 to 48 inches; loam  
C--48 to 80 inches; loam

L114A--Hanlon Fine Sandy Loam, 0 To 3 Percent Slopes, Rarely Flooded

Component Description

Hanlon, rarely flooded and similar soils

Extent: 70 to 95 percent of the unit  
Geomorphic description: Flood plain  
Position on landform: Flats and slight rises  
Slope range: 0 to 3 percent  
Surface layer texture: Fine sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Alluvium  
Flooding does not occur (months): January February July August September October  
November December  
Flooding is most likely (frequency, months): Rare, March April May June  
Wet soil moisture status is highest (depth, months): 2.5 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 9.9 inches  
Content of organic matter in the upper 10 inches: 2.5 percent  
Typical profile:  
A--0 to 24 inches; fine sandy loam  
AB--24 to 52 inches; fine sandy loam  
Bw1--52 to 57 inches; fine sandy loam  
Bw2,C--57 to 80 inches; stratified fine sand to loamy fine sand  
to fine sandy loam

L115A--Brownton-Lura, Depressional, Complex, 0 To 2 Percent Slopes

Component Description

Brownton and similar soils

Extent: 50 to 60 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Flats and rims of depressions  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A,AB--0 to 22 inches; silty clay loam  
Bg--22 to 38 inches; silty clay  
2Cg--38 to 60 inches; loam

Lura and similar soils

Extent: 30 to 40 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silty clay  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April

Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 9.6 inches  
Content of organic matter in the upper 10 inches: 8.0 percent  
Typical profile:  
Ap--0 to 10 inches; silty clay  
A--10 to 58 inches; clay  
Bg--58 to 72 inches; silty clay

#### L116A--Le Sueur-Lerdal Complex, 1 To 3 Percent Slopes

##### Component Description

###### Le sueur and similar soils

Extent: 35 to 55 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.5 feet, April  
Wet soil moisture status is lowest (depth, months): 5.9 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 5.0 percent  
Typical profile:  
Ap,AB--0 to 17 inches; clay loam  
Bt--17 to 37 inches; clay loam  
Bk--37 to 46 inches; loam  
C--46 to 80 inches; loam

###### Lerdal and similar soils

Extent: 30 to 50 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and slight rises  
Slope range: 1 to 3 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat poorly drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 1.6 feet, November  
Wet soil moisture status is lowest (depth, months): 4.9 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.2 inches  
Content of organic matter in the upper 10 inches: 2.6 percent  
Typical profile:  
Ap--0 to 8 inches; clay loam  
E--8 to 12 inches; clay loam  
Bt,Btg--12 to 41 inches; silty clay loam  
Bk--41 to 80 inches; loam

#### L117C2--Omsrud Loam, 6 To 12 Percent Slopes, Eroded

##### Component Description

###### Omsrud, eroded and similar soils

Extent: 55 to 75 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 6 to 12 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None

Depth to wet soil moisture status: More than 6.7 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 2.9 percent  
Typical profile:  
Ap--0 to 9 inches; loam  
Bw--9 to 19 inches; clay loam  
Bk--19 to 36 inches; loam  
C--36 to 80 inches; loam

#### Additional Components

Omsrud and similar soils: 5 to 20 percent of the unit

L118A--Rushriver Fine Sandy Loam, 0 To 1 Percent Slopes, Frequently Flooded

#### Component Description

Rushriver, frequently flooded and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Flood plain  
Slope range: 0 to 1 percent  
Surface layer texture: Stratified sandy loam to fine sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Alluvium  
Flooding does not occur (months): January February September October November  
December  
Flooding is most likely (frequency, months): Frequent, March April May June  
Wet soil moisture status is highest (depth, months): At the surface, April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 7.8 inches  
Content of organic matter in the upper 10 inches: 2.5 percent  
Typical profile:  
A--0 to 41 inches; stratified sandy loam to fine sandy loam  
C--41 to 80 inches; stratified fine sand to loamy very fine sand  
to silt loam

L119B--Angus Loam, 2 To 5 Percent Slopes

#### Component Description

Angus and similar soils

Extent: 50 to 90 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Summit, backslope  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.5 inches  
Content of organic matter in the upper 10 inches: 2.5 percent  
Typical profile:  
Ap--0 to 8 inches; loam  
Bt--8 to 35 inches; clay loam  
BC--35 to 40 inches; clay loam  
C--40 to 80 inches; loam

L120A--Good Thunder Silty Clay Loam, 0 To 3 Percent Slopes

#### Component Description

Good thunder and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Lake plain  
Position on landform: Flats and slight rises  
Slope range: 0 to 3 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Lacustrine sediments  
Flooding: None  
Wet soil moisture status is highest (depth, months): 2.5 feet, April May  
Wet soil moisture status is lowest (depth, months): 5.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 15 inches; silty clay loam  
Bt--15 to 32 inches; silty clay  
C--32 to 80 inches; silt loam

#### L121B--Clarion Clay Loam, 2 To 5 Percent Slopes

##### Component Description

###### Clarion and similar soils

Extent: 70 to 90 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Summit, backslope  
Slope range: 2 to 5 percent  
Surface layer texture: Clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.9 inches  
Content of organic matter in the upper 10 inches: 4.5 percent  
Typical profile:  
Ap,A--0 to 13 inches; clay loam  
Bw--13 to 37 inches; clay loam  
C--37 to 80 inches; loam

##### Additional Components

Guckeen and similar soils: 10 to 20 percent of the unit

#### L122B--Reedslake-Estherville Complex, 2 To 6 Percent Slopes

##### Component Description

###### Reedslake and similar soils

Extent: 45 to 65 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Backslope, summit  
Slope range: 2 to 5 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Well drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 10.6 inches  
Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap--0 to 12 inches; loam  
Bt--12 to 26 inches; clay loam

Bk--26 to 48 inches; loam  
C--48 to 80 inches; loam

Estherville and similar soils

Extent: 15 to 40 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Shoulder, backslope  
Slope range: 2 to 6 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Somewhat excessively drained  
Parent material: Outwash  
Flooding: None  
Depth to wet soil moisture status: More than 5.0 feet all year  
Ponding: None  
Available water capacity to a depth of 60 inches: 4.1 inches  
Content of organic matter in the upper 10 inches: 3.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; sandy loam  
Bw1--13 to 18 inches; sandy loam  
2Bw2--18 to 23 inches; loamy coarse sand  
2C--23 to 60 inches; gravelly coarse sand

L123A--Bellville Sandy Loam, 0 To 2 Percent Slopes

Component Description

Belleville and similar soils

Extent: 80 to 95 percent of the unit  
Geomorphic description: Beach on moraine  
Position on landform: Flats  
Slope range: 0 to 2 percent  
Surface layer texture: Sandy loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Glaciolacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, August  
Ponding: None  
Available water capacity to a depth of 60 inches: 8.4 inches  
Content of organic matter in the upper 10 inches: 4.5 percent  
Typical profile:  
Ap--0 to 11 inches; sandy loam  
Bg--11 to 27 inches; loamy sand  
2Bg--27 to 48 inches; loam  
2Cg--48 to 80 inches; loam

Additional Components

Granby and similar soils: 10 to 20 percent of the unit

L124A--Glencoe Mucky Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Glencoe mucky and similar soils

Extent: 80 to 90 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Mucky clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 11.4 inches

Content of organic matter in the upper 10 inches: 14.0 percent

Typical profile:

Ap--0 to 10 inches; mucky clay loam

A--10 to 29 inches; clay loam

Bg--29 to 42 inches; loam

Cg--42 to 60 inches; loam

L125A--Hanlon, Rarely Flooded-Coland, Occasionally Flooded, Complex, 0 To 3 Percent Slopes

#### Component Description

Hanlon, rarely flooded and similar soils

Extent: 35 to 65 percent of the unit

Geomorphic description: Flood plain

Position on landform: Flats and slight rises

Slope range: 0 to 3 percent

Surface layer texture: Fine sandy loam

Depth to restrictive feature: Very deep (more than 60 inches)

Drainage class: Moderately well drained

Parent material: Alluvium

Flooding does not occur (months): January February July August September October  
November December

Flooding is most likely (frequency, months): Rare, March April May June

Wet soil moisture status is highest (depth, months): 2.5 feet, April

Wet soil moisture status is lowest (depth, months): More than 6.7 feet, August

Ponding: None

Available water capacity to a depth of 60 inches: 9.9 inches

Content of organic matter in the upper 10 inches: 2.5 percent

Typical profile:

A--0 to 24 inches; fine sandy loam

AB--24 to 52 inches; fine sandy loam

Bw1--52 to 57 inches; fine sandy loam

Bw2,C--57 to 80 inches; stratified fine sand to loamy fine sand  
to fine sandy loam

Coland, occasionally flooded and similar soils

Extent: 25 to 40 percent of the unit

Geomorphic description: Flood plain

Position on landform: Flats

Slope range: 0 to 2 percent

Surface layer texture: Silty clay loam

Depth to restrictive feature: Very deep (more than 60 inches)

Drainage class: Poorly drained

Parent material: Alluvium

Flooding does not occur (months): January February September October November  
December

Flooding is most likely (frequency, months): Occasional March April May June  
July August

Wet soil moisture status is highest (depth, months): 0.5 foot, April

Wet soil moisture status is lowest (depth, months): 3.3 feet, February August

Ponding: None

Available water capacity to a depth of 60 inches: 12.2 inches

Content of organic matter in the upper 10 inches: 6.0 percent

Typical profile:

Ap,A--0 to 25 inches; silty clay loam

AC,Cg1--25 to 54 inches; loam

Cg2--54 to 60 inches; sandy loam

#### Additional Components

Minneopa, rarely flooded and similar soils: 10 to 25 percent of  
the unit

L126A--Coland Silty Clay Loam, 0 To 2 Percent Slopes, Occasionally Flooded

#### Component Description

Coland, occasionally flooded and similar soils

Extent: 65 to 90 percent of the unit

Geomorphic description: Flood plain

Position on landform: Flats  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Alluvium  
Flooding does not occur (months): January February September October November  
December  
Flooding is most likely (frequency, months): Occasional March April May June  
July August  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 12.2 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
Ap,A--0 to 25 inches; silty clay loam  
AC,Cg1--25 to 54 inches; loam  
Cg2--54 to 60 inches; sandy loam

L127A--Coland Silty Clay Loam, Channeled, 0 To 2 Percent Slopes, Frequently  
Flooded

#### Component Description

Coland, frequently flooded and similar soils

Extent: 65 to 90 percent of the unit  
Geomorphic description: Flood plain  
Position on landform: Flats  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Alluvium  
Flooding does not occur (months): January February September October November  
December  
Flooding is most likely (frequency, months): Frequent, March April May June  
Wet soil moisture status is highest (depth, months): 0.5 foot, April  
Wet soil moisture status is lowest (depth, months): 3.3 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 12.3 inches  
Content of organic matter in the upper 10 inches: 6.0 percent  
Typical profile:  
A1--0 to 12 inches; silty clay loam  
A2--12 to 30 inches; loam  
A3--30 to 55 inches; stratified fine sandy loam to loam  
AB,Bg--55 to 80 inches; fine sandy loam

L128A--Mazaska-Rolfe, Depressional, Complex, 0 To 2 Percent Slopes

#### Component Description

Mazaska and similar soils

Extent: 50 to 70 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Flats and swales  
Slope range: 0 to 2 percent  
Surface layer texture: Silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Poorly drained  
Parent material: Glaciofluvial sediments and reworked till over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 0.5 foot, April May  
Wet soil moisture status is lowest (depth, months): 2.6 feet, February August  
Ponding: None  
Available water capacity to a depth of 60 inches: 9.5 inches  
Content of organic matter in the upper 10 inches: 5.5 percent  
Typical profile:  
Ap,A--0 to 15 inches; silty clay loam  
Btg--15 to 42 inches; clay

Bkg--42 to 80 inches; loam

Rolfe and similar soils

Extent: 20 to 35 percent of the unit  
Geomorphic description: Moraine  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Silt loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Glaciolacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 10.3 inches  
Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap,A--0 to 12 inches; silt loam  
E--12 to 20 inches; silt loam  
Btg--20 to 35 inches; silty clay  
2Bt--35 to 51 inches; clay loam  
2Cg--51 to 60 inches; loam

L129B--Terril Loam, 2 To 6 Percent Slopes

Component Description

Terril and similar soils

Extent: 80 to 95 percent of the unit  
Geomorphic description: Hill on moraine  
Position on landform: Footslope  
Slope range: 2 to 6 percent  
Surface layer texture: Loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Moderately well drained  
Parent material: Colluvium over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): 3.6 feet, April  
Wet soil moisture status is lowest (depth, months): More than 6.7 feet, January  
February July August September  
Ponding: None  
Available water capacity to a depth of 60 inches: 11.4 inches  
Content of organic matter in the upper 10 inches: 4.0 percent  
Typical profile:  
Ap,A1--0 to 27 inches; loam  
A2,BA--27 to 40 inches; loam  
BW--40 to 63 inches; loam  
C--63 to 80 inches; loam

L130A--Okoboji Mucky Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Okoboji, mucky and similar soils

Extent: 60 to 85 percent of the unit  
Geomorphic description: Moraine, lake plain  
Position on landform: Depressions  
Slope range: 0 to 1 percent  
Surface layer texture: Mucky silty clay loam  
Depth to restrictive feature: Very deep (more than 60 inches)  
Drainage class: Very poorly drained  
Parent material: Lacustrine sediments over till  
Flooding: None  
Wet soil moisture status is highest (depth, months): At the surface, March April  
Wet soil moisture status is lowest (depth, months): 2.0 feet, February August  
Ponding is shallowest (depth, months): 0.5 foot, March  
Ponding is deepest (depth, months): 1.0 foot, April  
Available water capacity to a depth of 60 inches: 12.0 inches

Content of organic matter in the upper 10 inches: 14.0 percent  
Typical profile:  
Ap,A--0 to 13 inches; mucky silty clay loam  
A--13 to 35 inches; silty clay loam  
Bg--35 to 60 inches; silty clay loam

#### Additional Components

Okoboji and similar soils: 10 to 20 percent of the unit

M-W--Water, Miscellaneous

#### Component Description

Water, miscellaneous

Extent: 100 percent of the unit

Miscellaneous water map units are not naturally occurring water areas. They are constructed and include; sewage lagoons, storm water sediment basins with a permanent pool of water, and aquaculture ponds. This map unit is not soil, no interpretations assigned.

U3B--Udorthents, Loamy (cut And Fill Land), 1 To 6 Percent Slopes

#### Component Description

Udorthents (cut and fill land)

Extent: 100 percent of the unit

Geomorphic description: Moraine

Slope range: 0 to 6 percent

Parent material: Variable loamy material

Flooding: None

The Udorthents component, consists primarily of cut or fill operations to the landscape to level and or fill areas for development. The cut and or fill material is dominantly loamy soil material. Up to 30 percent of this map unit is covered by impervious surfaces. The majority of the area has been disturbed by construction activity. Because of the variability of the component in this map unit, interpretations for specific uses are not available. Onsite investigation is needed.

W--Water

#### Component Description

Water

Extent: 100 percent of the unit

This mapunit consists of natural occurring bodies of water or water that has been impounded by structures in natural waterways. They range in size from 1.5 acres to tens of thousands of acres. This map unit is not soil, no interpretations assigned.