



United States
Department of
Agriculture

In cooperation with
Minnesota Agricultural
Experiment Station



Natural
Resources
Conservation
Service

Soil Survey of Sherburne County, Minnesota



erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. The name of a soil phase commonly indicates a feature that affects use or management. For example, Hubbard loamy sand, 0 to 2 percent slopes, is a phase of the Hubbard series.

A map unit is named for the component or components that make up a dominant percentage of the map unit. Many map units consist of one dominant component. These map units are consociations. Zimmerman fine sand, 3 to 6 percent slopes, is an example.

Some map units are made up of two or more dominant components. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more components in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. Attempting to delineate the individual components of a complex would result in excessive clutter that could make the map illegible. The pattern and proportion of the components in a complex are somewhat similar in all areas. Stonelake-Nebish complex, 2 to 6 percent slopes, is an example.

An *undifferentiated group* is made up of two or more components that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the components in a mapped area are not uniform. An area can be made up of only one of the dominant components, or it can be made up of all of them. Seelyeville and Bowstring soils, 0 to 1 percent slopes, frequently flooded, is an undifferentiated group in this survey area.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Pits, quarry, is an example.

Table 2 gives the acreage and proportionate extent of each map unit. Other tables (see Contents) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

7A—Hubbard loamy sand, 0 to 2 percent slopes

Component Description

Hubbard and similar soils

Extent: 95 percent of the unit

Geomorphic description: Outwash plains and stream terraces

Position on the landform: Flats

Slope range: 0 to 2 percent

Texture of the surface layer: Loamy sand

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: 4.0 inches

Content of organic matter in the upper 10 inches: 3.0 percent

Typical profile:

Ap,AB—0 to 20 inches; loamy sand

Bw—20 to 32 inches; loamy sand

BC,C—32 to 80 inches; sand

Additional Components

Soils that have a gravelly substratum

Extent: 2 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

Soils that have a substratum of till or bedrock

Extent: 1 percent of the unit

7B—Hubbard loamy sand, 2 to 6 percent slopes

Component Description

Hubbard and similar soils

Extent: 95 percent of the unit

Geomorphic description: Hills on outwash plains and hills on stream terraces

Position on the landform: Summits, shoulders, and backslopes

Slope range: 2 to 6 percent

Texture of the surface layer: Loamy sand

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: 3.9 inches

Content of organic matter in the upper 10 inches: 3.0 percent

Typical profile:

Ap,A—0 to 18 inches; loamy sand

Bw—18 to 23 inches; loamy sand

BC,C—23 to 80 inches; sand

Additional Components

Soils that have a gravelly substratum

Extent: 2 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

Soils that have a till substratum

Extent: 1 percent of the unit

7C—Hubbard loamy sand, 6 to 12 percent slopes

Component Description

Hubbard and similar soils

Extent: 95 percent of the unit

Geomorphic description: Hills on outwash plains and hills on stream terraces

Position on the landform: Backslopes, shoulders, and summits

Slope range: 6 to 12 percent

Texture of the surface layer: Loamy sand

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: 3.6 inches

Content of organic matter in the upper 10 inches: 2.0 percent

Typical profile:

Ap,AB—0 to 12 inches; loamy sand

Bw—12 to 33 inches; coarse sand

C—33 to 80 inches; coarse sand

Additional Components

Isan and similar soils

Extent: 2 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Soils that have a substratum of fine sand

Extent: 1 percent of the unit

Soils that have a gravelly substratum

Extent: 1 percent of the unit

32B—Nebish fine sandy loam, 2 to 6 percent slopes

Component Description

Nebish and similar soils

Extent: 85 percent of the unit

Geomorphic description: Hills on moraines

Position on the landform: Backslopes and summits

Slope range: 2 to 6 percent

Texture of the surface layer: Fine sandy 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: 9.8 inches

Content of organic matter in the upper 10 inches: 1.1 percent

Typical profile:

Ap—0 to 5 inches; fine sandy loam

Bt—5 to 43 inches; clay loam

C—43 to 80 inches; loam

Additional Components

Beltrami and similar soils

Extent: 5 percent of the unit

Nebish and similar soils*Extent:* 2 percent of the unit**Soils that have a substratum of sand or gravel***Extent:* 1 percent of the unit**204B—Cushing fine sandy loam, 2 to 8 percent slopes*****Component Description*****Cushing and similar soils***Extent:* 90 percent of the unit*Geomorphic description:* Hills on moraines*Position on the landform:* Backslopes and summits*Slope range:* 2 to 8 percent*Texture of the surface layer:* Fine sandy 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:* 9.0 inches*Content of organic matter in the upper 10 inches:* 1.1 percent*Typical profile:*

A—0 to 6 inches; fine sandy loam

E,B/E—6 to 22 inches; fine sandy loam

Bt,BC—22 to 44 inches; clay loam

C—44 to 80 inches; loam

Additional Components**Talmoon and similar soils***Extent:* 4 percent of the unit**Bluffton and similar soils***Extent:* 3 percent of the unit**Beltrami and similar soils***Extent:* 2 percent of the unit**Soils that have a sandy substratum***Extent:* 1 percent of the unit**204C—Cushing fine sandy loam, 8 to 15 percent slopes*****Component Description*****Cushing and similar soils***Extent:* 95 percent of the unit*Geomorphic description:* Hills on moraines*Position on the landform:* Shoulders and backslopes*Slope range:* 8 to 15 percent*Texture of the surface layer:* Fine sandy 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:* 9.0 inches*Content of organic matter in the upper 10 inches:* 1.2 percent*Typical profile:*

Ap—0 to 7 inches; fine sandy loam

E—7 to 21 inches; fine sandy loam

Bt—21 to 44 inches; clay loam

C—44 to 80 inches; sandy loam

Additional Components**Bluffton and similar soils***Extent:* 2 percent of the unit**Beltrami and similar soils***Extent:* 1 percent of the unit**Soils that have a substratum of sand or gravel***Extent:* 1 percent of the unit**Talmoon and similar soils***Extent:* 1 percent of the unit**258B—Sandberg loamy coarse sand, 1 to 6 percent slopes*****Component Description*****Sandberg and similar soils***Extent:* 95 percent of the unit*Geomorphic description:* Hills on stream terraces

Position on the landform: Summits, shoulders, and backslopes
Slope range: 1 to 6 percent
Texture of the surface layer: Loamy coarse sand
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: 3.9 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
 Ap,A—0 to 14 inches; loamy coarse sand
 Bw—14 to 32 inches; gravelly coarse sand
 C—32 to 80 inches; sand

Additional Components

Soils that have a sandy substratum

Extent: 3 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

258C—Sandberg loamy coarse sand, 6 to 12 percent slopes

Component Description

Sandberg and similar soils

Extent: 95 percent of the unit
Geomorphic description: Hills on stream terraces
Position on the landform: Shoulders and backslopes
Slope range: 6 to 12 percent
Texture of the surface layer: Loamy coarse sand
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: 3.6 inches

Content of organic matter in the upper 10 inches: 2.0 percent

Typical profile:

Ap—0 to 11 inches; loamy coarse sand
 Bw—11 to 26 inches; coarse sand
 C—26 to 80 inches; coarse sand

Additional Components

Soils that have a sandy substratum

Extent: 2 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

Soils that have a substratum of sandy loam

Extent: 1 percent of the unit

258E—Sandberg loamy coarse sand, 12 to 35 percent slopes

Component Description

Sandberg and similar soils

Extent: 95 percent of the unit
Geomorphic description: Hills on stream terraces; escarpments
Position on the landform: Shoulders and backslopes
Slope range: 12 to 35 percent
Texture of the surface layer: Loamy coarse sand
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: 3.6 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
 A—0 to 11 inches; loamy coarse sand
 Bw—11 to 27 inches; coarse sand
 C—27 to 80 inches; gravelly coarse sand

Additional Components

Soils that have a sandy substratum

Extent: 3 percent of the unit

Duelm and similar soils*Extent:* 1 percent of the unit**Isan and similar soils***Extent:* 1 percent of the unit**260—Duelm loamy sand, 0 to 2 percent slopes*****Component Description*****Duelm and similar soils***Extent:* 95 percent of the unit*Geomorphic description:* Outwash plains and stream terraces*Position on the landform:* Flats and slight rises*Slope range:* 0 to 2 percent*Texture of the surface layer:* Loamy sand*Depth to restrictive feature:* Very deep (more than 60 inches)*Drainage class:* Moderately well drained*Parent material:* Outwash*Flooding:* None*Wet soil moisture status is highest (depth, months):* 2.5 feet (April, May)*Wet soil moisture status is lowest (depth, months):* 4.0 feet (February, August, September)*Ponding:* None*Available water capacity to a depth of 60 inches:* 4.4 inches*Content of organic matter in the upper 10 inches:* 4.0 percent*Typical profile:*

Ap,AB—0 to 16 inches; loamy sand

Bw—16 to 30 inches; coarse sand

C—30 to 80 inches; coarse sand

Additional Components**Isan and similar soils***Extent:* 2 percent of the unit**Soils that have a gravelly substratum or a bedrock substratum***Extent:* 1 percent of the unit**Bushville and similar soils***Extent:* 1 percent of the unit**Hubbard and similar soils***Extent:* 1 percent of the unit**261—Isan sandy loam, depressional, 0 to 1 percent slopes*****Component Description*****Isan, depressional, and similar soils***Extent:* 95 percent of the unit*Geomorphic description:* Outwash plains and stream terraces*Position on the landform:* Depressions*Slope range:* 0 to 1 percent*Texture of the surface layer:* Sandy loam*Depth to restrictive feature:* Very deep (more than 60 inches)*Drainage class:* Very poorly drained*Parent material:* Outwash*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 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:* 4.7 inches*Content of organic matter in the upper 10 inches:* 6.5 percent*Typical profile:*

A—0 to 14 inches; sandy loam

AB,Bg—14 to 34 inches; loamy sand

Cg—34 to 80 inches; coarse sand

Additional Components**Duelm and similar soils***Extent:* 2 percent of the unit**Soils that have a gravelly substratum***Extent:* 2 percent of the unit**Soils that have a surface layer of muck***Extent:* 1 percent of the unit**325—Prebish fine sandy loam, depressional, 0 to 1 percent slopes*****Component Description*****Prebish, depressional, and similar soils***Extent:* 95 percent of the unit*Geomorphic description:* Interdrumlins

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: 3.5 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
 Ap—0 to 11 inches; loamy coarse sand
 Bw—11 to 27 inches; loamy sand
 BC,C—27 to 80 inches; coarse sand

Verndale and similar soils

Extent: 35 percent of the unit
Geomorphic description: Stream terraces and outwash plains
Position on the landform: Flats
Slope range: 0 to 2 percent
Texture of the surface layer: Coarse 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 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
 Ap—0 to 10 inches; coarse sandy loam
 Bt—10 to 16 inches; coarse sandy loam
 2Bw—16 to 45 inches; coarse sand
 2C—45 to 80 inches; sand

Additional Components

Soils that have a gravelly substratum

Extent: 3 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

1231—Hubbard-Mosford complex, 0 to 3 percent slopes

Component Description

Hubbard and similar soils

Extent: 60 percent of the unit
Geomorphic description: Outwash plains and stream terraces
Position on the landform: Slight rises
Slope range: 0 to 3 percent
Texture of the surface layer: Loamy sand
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: 3.6 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
 Ap,A—0 to 13 inches; loamy sand
 Bw—13 to 19 inches; loamy sand
 BC,C—19 to 80 inches; sand

Mosford and similar soils

Extent: 35 percent of the unit
Geomorphic description: Outwash plains and stream terraces
Position on the landform: Flats
Slope range: 0 to 2 percent
Texture of the surface layer: 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 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
 Ap,A—0 to 13 inches; sandy loam
 Bw—13 to 16 inches; coarse sandy loam

2Bw—16 to 35 inches; coarse sand

2C—35 to 80 inches; sand

Additional Components

Soils that have a gravelly substratum

Extent: 3 percent of the unit

Duelm and similar soils

Extent: 1 percent of the unit

Isan and similar soils

Extent: 1 percent of the unit

1253B—Stonelake-Sanburn complex, 1 to 6 percent slopes

Component Description

Stonelake and similar soils

Extent: 60 percent of the unit

Geomorphic description: Hills on moraines

Position on the landform: Shoulders and summits

Slope range: 1 to 6 percent

Texture of the surface layer: Gravelly loamy sand

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: 2.9 inches

Content of organic matter in the upper 10 inches: 1.1 percent

Typical profile:

Ap—0 to 4 inches; gravelly loamy sand

Bw—4 to 11 inches; gravelly coarse sand

Bt—11 to 24 inches; very gravelly coarse sand

BC,C—24 to 80 inches; gravelly sand

Additional Components

Sanburn and similar soils

Extent: 30 percent of the unit

Geomorphic description: Hills on moraines

Position on the landform: Footslopes and backslopes

Slope range: 1 to 6 percent

Texture of the surface layer: 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 6.7 feet all year

Ponding: None

Available water capacity to a depth of 60 inches: 3.4 inches

Content of organic matter in the upper 10 inches: 1.4 percent

Typical profile:

Ap—0 to 5 inches; sandy loam

Bt—5 to 20 inches; gravelly sandy loam

2BC,2C—20 to 80 inches; gravelly coarse sand

Additional Components

Soils that have a sandy substratum

Extent: 5 percent of the unit

Isan and similar soils

Extent: 2 percent of the unit

Markey and similar soils

Extent: 2 percent of the unit

Moderately well drained soils

Extent: 1 percent of the unit

1253C—Stonelake-Sanburn complex, 6 to 15 percent slopes

Component Description

Stonelake and similar soils

Extent: 65 percent of the unit

Geomorphic description: Hills on moraines

Position on the landform: Summits and shoulders

Slope range: 6 to 15 percent

Texture of the surface layer: Gravelly loamy coarse sand

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: 3.0 inches

Content of organic matter in the upper 10 inches: 1.4 percent

Typical profile:

Ap—0 to 5 inches; gravelly loamy coarse sand