

Hydric Soils

Chisago County, Minnesota

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

| Map symbol and map unit name | Component | Percent of map unit | Landform | Hydric rating | Hydric criteria |
|---|-----------|---------------------|-----------------------|---------------|-----------------|
| 40B: | | | | | |
| Nebish loam, 2 to 6 percent slopes | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| | Talmoon | 5 | Drainageways | Yes | 2B3 |
| 40C: | | | | | |
| Nebish loam, 6 to 12 percent slopes | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| | Talmoon | 5 | Drainageways | Yes | 2B3 |
| 40D: | | | | | |
| Nebish loam, 12 to 25 percent slopes | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| | Talmoon | 5 | Drainageways | Yes | 2B3 |
| 40F: | | | | | |
| Nebish loam, 25 to 40 percent slopes | Talmoon | 3 | Drainageways | Yes | 2B3 |
| | Bluffton | 2 | Depressions | Yes | 2B3, 3 |
| 75: | | | | | |
| Bluffton loam | Bluffton | 90 | Depressions, Moraines | Yes | 2B3, 3 |
| | Cathro | 5 | Depressions | Yes | 1, 3 |
| | Talmoon | 5 | Drainageways | Yes | 2B3 |
| 119B: | | | | | |
| Pomroy loamy fine sand, 1 to 6 percent slopes | Newson | 8 | Depressions | Yes | 2B2, 3 |
| 119C: | | | | | |
| Pomroy loamy fine sand, 6 to 12 percent slopes | Newson | 8 | Depressions | Yes | 2B2, 3 |
| 155B: | | | | | |
| Chetek sandy loam, 1 to 6 percent slopes | Warman | 5 | Depressions | Yes | 2B3, 3 |
| 155C: | | | | | |
| Chetek loam, 6 to 12 percent slopes | Warman | 8 | Depressions | Yes | 2B3, 3 |
| 158B: | | | | | |
| Zimmerman loamy fine sand, 1 to 6 percent slopes | Isanti | 8 | Depressions | Yes | 2B2, 3 |
| 158C: | | | | | |
| Zimmerman loamy fine sand, 6 to 12 percent slopes | Isanti | 8 | Depressions | Yes | 2B2, 3 |

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|--|-----------|---------------------|-----------------------------|---------------|-----------------|
| 159B: Anoka loamy very fine sand, 1 to 6 percent slopes | Isanti | 5 | Depressions | Yes | 2B2, 3 |
| 159C: Anoka loamy fine sand, 6 to 12 percent slopes | Isanti | 8 | Depressions | Yes | 2B2, 3 |
| 161: Isanti loamy fine sand | Isanti | 90 | Depressions, Outwash plains | Yes | 2B2, 3 |
| | Markey | 3 | Depressions | Yes | 1, 3 |
| 162: Lino loamy fine sand | Isanti | 3 | Depressions | Yes | 2B2, 3 |
| 169B: Braham loamy fine sand, 2 to 6 percent slopes | Kratka | 8 | Depressions | Yes | 2B2, 3 |
| | Blomford | 7 | Drainageways | Yes | 2B2 |
| 169C: Braham loamy fine sand, 6 to 12 percent slopes | Kratka | 8 | Depressions | Yes | 2B2, 3 |
| | Blomford | 7 | Drainageways | Yes | 2B2 |
| 182: Halder sandy loam | Newson | 5 | Depressions | Yes | 2B2, 3 |
| 204B: Cushing loam, 2 to 6 percent slopes | Bluffton | 3 | Depressions | Yes | 2B3, 3 |
| | Cathro | 3 | Depressions | Yes | 1, 3 |
| | Talmoon | 3 | Drainageways | Yes | 2B3 |
| 204C: Cushing loam, 6 to 12 percent slopes | Bluffton | 3 | Depressions | Yes | 2B3, 3 |
| | Cathro | 3 | Depressions | Yes | 1, 3 |
| | Talmoon | 3 | Drainageways | Yes | 2B3 |

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|--|-------------------------------|---------------------|-----------------------------|---------------|-----------------|
| 204D: | | | | | |
| Cushing loam, 12 to 20 percent slopes | Talmoon | 5 | Drainageways | Yes | 2B3 |
| | Cathro | 4 | Depressions | Yes | 1, 3 |
| | Bluffton | 3 | Depressions | Yes | 2B3, 3 |
| 204F: | | | | | |
| Cushing loam, 20 to 35 percent slopes | Talmoon | 8 | Drainageways | Yes | 2B3 |
| | Bluffton | 7 | Depressions | Yes | 2B3, 3 |
| 207B: | | | | | |
| Nymore loamy sand, 1 to 6 percent slopes | Newson | 8 | Depressions | Yes | 2B2, 3 |
| 207C: | | | | | |
| Nymore loamy sand, 6 to 12 percent slopes | Newson | 15 | Depressions | Yes | 2B2, 3 |
| 207D: | | | | | |
| Nymore loamy sand, 12 to 18 percent slopes | Newson | 8 | Depressions | Yes | 2B2, 3 |
| 207E: | | | | | |
| Nymore loamy sand, 18 to 25 percent slopes | Newson | 15 | Depressions | Yes | 2B2, 3 |
| 265: | | | | | |
| Soderville loamy fine sand | Isanti | 5 | Depressions | Yes | 2B2, 3 |
| 274: | | | | | |
| Newson mucky loamy sand | Newson | 90 | Depressions, Outwash plains | Yes | 2B2, 3 |
| | Markey | 5 | Depressions | Yes | 1, 3 |
| 292: | | | | | |
| Alstad loam | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| 325: | | | | | |
| Prebish sandy loam | Prebish | 85 | Depressions, Moraines | Yes | 2B3, 3 |
| | Cathro | 5 | Depressions | Yes | 1, 3 |
| | Soils with more silt and clay | 5 | Depressions | Yes | 2B3, 3 |
| 328B: | | | | | |
| Sartell fine sand, 1 to 6 percent slopes | Isanti | 8 | Depressions | Yes | 2B2, 3 |

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|--|-------------|---------------------|-----------------------------|---------------|-----------------|
| 328C: Sartell fine sand, 6 to 12 percent slopes | Isanti | 8 | Depressions | Yes | 2B2, 3 |
| 328D: Sartell fine sand, 12 to 25 percent slopes | Isanti | 5 | Depressions | Yes | 2B2, 3 |
| 337: Warman loam | Warman | 90 | Depressions, Outwash plains | Yes | 2B3, 3 |
| | Markey | 5 | Depressions | Yes | 1, 3 |
| 346: Talmoon loam | Talmoon | 90 | Moraines, Swales | Yes | 2B3 |
| | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| 454F: Mahtomedi loamy sand, 20 to 35 percent slopes | Warman | 5 | Depressions | Yes | 2B3, 3 |
| 540: Seelyeville muck | Seelyeville | 90 | Swamps | Yes | 1, 3 |
| | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| | Newson | 5 | Depressions | Yes | 2B2, 3 |
| 543: Markey muck | Markey | 90 | Swamps | Yes | 1, 3 |
| | Warman | 4 | Depressions | Yes | 2B3, 3 |
| | Isanti | 3 | Depressions | Yes | 2B2, 3 |
| | Newson | 3 | Depressions | Yes | 2B2, 3 |
| 544: Cathro muck | Cathro | 90 | Swamps | Yes | 1, 3 |
| | Bluffton | 10 | Depressions | Yes | 2B3, 3 |

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| Map symbol and map unit name | Component | Percent of map unit | Landform | Hydric rating | Hydric criteria |
|---|---------------------------------|---------------------|-----------------------|---------------|-----------------|
| 545: Rondeau muck | Rondeau | 90 | Swamps | Yes | 1, 3 |
| | Newson | 5 | Depressions | Yes | 2B2, 3 |
| | Warman | 5 | Depressions | Yes | 2B3, 3 |
| 565: Eckvoll loamy sand | Blomford | 5 | Drainageways | Yes | 2B2 |
| | Kratka | 5 | Depressions | Yes | 2B2, 3 |
| 676B: Kost loamy fine sand, 1 to 6 percent slopes | Isanti | 8 | Depressions | Yes | 2B2 |
| 677: Siren silt loam | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| | Warman | 5 | Depressions | Yes | 2B3, 3 |
| 678: Beltrami loam, thick solum | Bluffton | 5 | Depressions | Yes | 2B3, 3 |
| 682B: Milaca sandy loam, 2 to 6 percent slopes, very stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| 682C: Milaca sandy loam, 6 to 12 percent slopes, very stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| 682D: Milaca sandy loam, 12 to 18 percent slopes, very stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| 682E: Milaca sandy loam, 18 to 25 percent slopes, very stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| 722: Blomford loamy sand, lacustrine substratum | Blomford, lacustrine substratum | 90 | Moraines, Swales | Yes | 2B2 |
| | Kratka | 5 | Depressions | Yes | 2B2, 3 |
| 726: Kratka loamy fine sand, thick solum | Kratka, thick solum | 90 | Depressions, Moraines | Yes | 2B2, 3 |
| | Markey | 10 | Depressions | Yes | 1, 3 |

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| Map symbol and map unit name | Component | Percent of map unit | Landform | Hydric rating | Hydric criteria |
|--|-----------------------------------|---------------------|---------------------------|---------------|-----------------|
| 792: Fordum sandy loam, frequently flooded | Fordum, frequently flooded | 90 | Flats, Flood plains | Yes | 2B3, 4 |
| | Very poorly drained organic soils | 5 | Depressions, Flood plains | Yes | 1, 4 |
| 928B: Mahtomedi-Cushing complex, 2 to 6 percent slopes | Talmoon | 8 | Drainageways | Yes | 2B3 |
| 928C: Mahtomedi-Cushing complex, 6 to 12 percent slopes | Talmoon | 8 | Drainageways | Yes | 2B3 |
| 1068: Caryville sandy loam, occasionally flooded | Fordum | 10 | Depressions, Flood plains | Yes | 2B3, 4 |
| 1977: Mora loam, very stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |
| 1980: Ronneby loam, extremely stony | Prebish | 5 | Depressions | Yes | 2B3, 3 |

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

References:

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