Hydric Soils

Le Sueur 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
8B:					
Sparta loamy fine sand, 1 to 6 percent slopes	Sparta	90	Outwash plains	No	---
	Dickinson	5	Outwash plains	No	---
	Dickman	5	Outwash plains	No	---
8C:					
Sparta loamy fine sand, 6 to 12 percent slopes	Sparta	90	Outwash plains	No	---
	Dickinson	5	Outwash plains	No	---
	Dickman	5	Outwash plains	No	---
27A:					
Dickinson sandy loam, 0 to 2 percent slopes	Dickinson	90	Outwash plains	No	---
	Dickman	5	Outwash plains	No	---
	Sparta	5	Outwash plains	No	---
27B:					
Dickinson sandy loam, 2 to 6 percent slopes	Dickinson	90	Outwash plains	No	---
	Dickman	5	Outwash plains	No	---
	Sparta	5	Outwash plains	No	---
27C:					
Dickinson sandy loam, 6 to 12 percent slopes	Dickinson	90	Outwash plains	No	---
	Dickman	10	Outwash plains	No	---
35:					
Blue Earth mucky silt loam	Blue Earth	95	Moraines, Relict lakebeds	Yes	2B3, 3
	Muskego	3	Depressions	Yes	1, 3
	Dassel	2	Depressions	Yes	2B3, 3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
39A:					
Wadena loam, 0 to 2 percent slopes	Wadena	90	Outwash plains	No	---
	Estherville	5	Outwash plains	No	---
	Dickinson	3	Outwash plains	No	---
	Kasota	2	Outwash plains	No	---
39B:					
Wadena loam, 2 to 6 percent slopes	Wadena	90	Outwash plains	No	---
	Estherville	5	Outwash plains	No	---
	Dickinson	3	Outwash plains	No	---
	Kasota	2	Outwash plains	No	---
41B:					
Estherville sandy loam, 1 to 6 percent slopes	Estherville	90	Outwash plains	No	---
	Dickinson	5	Outwash plains	No	---
	Wadena	5	Outwash plains	No	---
86:					
Canisteo clay loam	Canisteo	90	Depressions, Moraines, Rims	Yes	2B3
	Glencoe	5	Depressions	Yes	2B3, 3
	Le Sueur	5	Moraines	No	---
94B:					
Terril loam, 1 to 8 percent slopes	Terril	90	Hillslopes, Moraines	No	---
	Glencoe	5	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
100B:					
Copaston loam, 1 to 6 percent slopes	Copaston	90	Terraces	No	---
	Joliet	5	Stream terraces	Yes	2B3
	Tilfer	5	Flood plains	Yes	2B3, 3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
106B:					
Lester loam, 2 to 6 percent slopes	Lester	90	Hills, Moraines	No	---
	Cordova	5	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
106C2:					
Lester loam, 6 to 12 percent slopes, eroded	Lester, eroded	90	Hills, Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
106D2:					
Lester loam, 12 to 18 percent slopes, eroded	Lester, eroded	90	Hills, Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---
106E:					
Lester loam, 18 to 24 percent slopes	Lester	90	Hills, Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---
109:					
Cordova clay loam	Cordova	90	Moraines, Swales	Yes	2B3
	Glencoe	4	Depressions	Yes	2B3, 3
	Le Sueur	3	Moraines	No	---
	Rolfe	3	Depressions	Yes	2B3, 3
114:					
Glencoe clay loam	Glencoe	85	Depressions, Moraines	Yes	2B3, 3
	Canisteo	10	Rims	Yes	2B3
	Cordova	5	Drainageways	Yes	2B3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
123:					
Dundas loam	Dundas	85	Flats, Moraines	Yes	2B3
	Cordova	10	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
129:					
Cylinder loam, 1 to 4 percent slopes	Cylinder	90	Terraces	No	---
	Biscay	4	Drainageways	Yes	2B3
	Cordova	3	Drainageways	Yes	2B3
	Dickinson	3	Outwash plains	No	---
138B:					
Lerdal clay loam, 2 to 6 percent slopes	Lerdal	90	Hills, Moraines	No	---
	Kilkenny	5	Moraines	No	---
	Mazaska	5	Drainageways	Yes	2B3
138C:					
Lerdal clay loam, 6 to 12 percent slopes	Lerdal	90	Hills, Moraines	No	---
	Kilkenny	5	Moraines	No	---
	Mazaska	5	Drainageways	Yes	2B3
156A:					
Fairhaven silt loam, 0 to 2 percent slopes	Fairhaven	90	Terraces	No	---
	Dickinson	5	Terraces	No	---
	Estherville	5	Terraces	No	---
156B:					
Fairhaven silt loam, 2 to 6 percent slopes	Fairhaven	90	Terraces	No	---
	Dickinson	5	Terraces	No	---
	Estherville	5	Terraces	No	---

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
183:					
Dassel loam	Dassel	85	Depressions, Terraces	Yes	2B3, 3
	Caron	5	Depressions	Yes	1, 3
	Glencoe	5	Depressions	Yes	2B3, 3
	Palms	3	Depressions	Yes	1, 3
	Canisteo	2	Rims	Yes	2B3
206B:					
Kasota silt loam, 1 to 6 percent slopes	Kasota	90	Terraces	No	---
	Dickinson	5	Terraces	No	---
	Estherville	5	Terraces	No	---
238B:					
Kilkenny loam, 2 to 6 percent slopes	Kilkenny	90	Hills, Moraines	No	---
	Lerdal	5	Moraines	No	---
	Mazaska	5	Drainageways	Yes	2B3
238C2:					
Kilkenny clay loam, 6 to 12 percent slopes, eroded	Kilkenny, eroded	90	Hills, Moraines	No	---
	Derrynane	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---
238D2:					
Kilkenny clay loam, 12 to 18 percent slopes, eroded	Kilkenny, eroded	90	Hills, Moraines	No	---
	Derrynane	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---
238E:					
Kilkenny clay loam, 18 to 24 percent slopes	Kilkenny	90	Hills, Moraines	No	---
	Derrynane	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
239B:					
Le Sueur clay loam, 1 to 4 percent slopes	Le Sueur	90	Moraines, Rises	No	---
	Cordova	5	Drainageways	Yes	2B3
	Lester	5	Moraines	No	---
256:					
Mazaska silty clay loam	Mazaska	90	Flats, Moraines	Yes	2B3
	Lerdal	5	Moraines	No	---
	Shields	5	Drainageways	Yes	2B3
271:					
Minneiska fine sandy loam, frequently flooded	Minneiska, frequently flooded	90	Flood plains	No	---
	Chaska	5	Flood plains	No	---
	Oshawa	5	Flood plains	Yes	2B3, 3, 4
317:					
Oshawa silt loam	Oshawa	85	Flood plains	Yes	2B3, 3, 4
	Chaska	10	Flood plains	No	---
	Millington	5	Flood plains	Yes	2B3
323:					
Shields silty clay loam	Shields	90	Flats, Moraines	Yes	2B3
	Mazaska	5	Drainageways	Yes	2B3
	Rolfe	5	Depressions	Yes	2B3, 3
327A:					
Dickman fine sandy loam, 0 to 2 percent slopes	Dickman	90	Terraces	No	---
	Dickinson	5	Terraces	No	---
	Sparta	5	Terraces	No	---

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
327B:					
Dickman fine sandy loam, 2 to 6 percent slopes	Dickman	90	Terraces	No	---
	Dickinson	5	Terraces	No	---
	Sparta	5	Terraces	No	---
329:					
Chaska silt loam	Chaska	90	Flood plains	No	---
	Minneiska	5	Flood plains	No	---
	Oshawa	5	Flood plains	Yes	2B3, 3, 4
392:					
Biscay loam	Biscay	90	Flats, Outwash plains	Yes	2B3
	Glencoe	5	Depressions	Yes	2B3, 3
	Le Sueur	5	Moraines	No	---
414:					
Hamel clay loam	Hamel	90	Drainageways, Moraines	Yes	2B3
	Glencoe	5	Depressions	Yes	2B3, 3
	Le Sueur	5	Moraines	No	---
463:					
Minneiska fine sandy loam, occasionally flooded	Minneiska, occasionally flooded	90	Flood plains	No	---
	Chaska	5	Flood plains	No	---
	Oshawa	5	Flood plains	Yes	2B3, 3, 4
468:					
Otter silt loam	Otter	85	Flood plains	Yes	2B3, 4
	Glencoe	10	Depressions	Yes	2B3, 3
	Caron	5	Depressions	Yes	1, 3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
524:					
Caron muck	Caron	85	Depressions, Moraines	Yes	1, 3
	Dassel	5	Depressions	Yes	2B3, 3
	Glencoe	5	Depressions	Yes	2B3, 3
	Palms	5	Depressions	Yes	1, 3
525:					
Muskego muck	Muskego	85	Depressions, Moraines	Yes	1, 3
	Dassel	5	Depressions	Yes	2B3, 3
	Glencoe	5	Depressions	Yes	2B3, 3
	Palms	5	Depressions	Yes	1, 3
539:					
Palms muck	Palms	85	Depressions, Moraines	Yes	1, 3
	Canisteo	5	Rims	Yes	2B3
	Glencoe	5	Depressions	Yes	2B3, 3
	Houghton	5	Drainageways	Yes	1, 3
611C:					
Hawick sandy loam, 6 to 12 percent slopes	Hawick	90	Hills, Outwash plains	No	---
	Terril	10	Moraines	No	---
611D:					
Hawick sandy loam, 12 to 18 percent slopes	Hawick	90	Hills, Outwash plains	No	---
	Terril	10	Moraines	No	---
611F:					
Hawick sandy loam, 18 to 40 percent slopes	Hawick	95	Hills, Outwash plains	No	---
	Terril	5	Moraines	No	---

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
944B:					
Lester-Estherville complex, 2 to 6 percent slopes	Lester	45	Hills, Moraines	No	---
	Estherville	40	Hills, Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
	Terril	5	Moraines	No	---
944C:					
Lester-Hawick-Storden complex, 6 to 12 percent slopes	Lester	40	Hills, Moraines	No	---
	Hawick	35	Hills, Moraines	No	---
	Storden	10	Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Le Sueur	5	Moraines	No	---
	Terril	5	Moraines	No	---
944D:					
Lester-Hawick-Storden complex, 12 to 18 percent slopes	Lester	40	Hills, Moraines	No	---
	Hawick	35	Hills, Moraines	No	---
	Storden	10	Moraines	No	---
	Terril	10	Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
944F:					
Lester-Hawick-Storden complex, 18 to 40 percent slopes	Lester	40	Hills, Moraines	No	---
	Hawick	35	Hills, Moraines	No	---
	Storden	10	Moraines	No	---
	Terril	10	Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
945B:					
Lester-Storden loams, 2 to 6 percent slopes	Lester	60	Hills, Moraines	No	---
	Storden	30	Hills, Moraines	No	---
	Le Sueur	4	Moraines	No	---
	Hamel	3	Drainageways	Yes	2B3
	Terril	3	Moraines	No	---
945C:					
Lester-Storden loams, 6 to 12 percent slopes	Lester	60	Hills, Moraines	No	---
	Storden	30	Hills, Moraines	No	---
	Le Sueur	4	Moraines	No	---
	Hamel	3	Drainageways	Yes	2B3
	Terril	3	Moraines	No	---
945D:					
Lester-Storden loams, 12 to 18 percent slopes	Lester	60	Hills, Moraines	No	---
	Storden	30	Hills, Moraines	No	---
	Hamel	5	Drainageways	Yes	2B3
	Terril	5	Moraines	No	---
945F:					
Lester-Storden loams, 18 to 40 percent slopes	Lester	50	Hills, Moraines	No	---
	Storden	25	Hills, Moraines	No	---
	Terril	15	Moraines	No	---
	Hamel	10	Drainageways	Yes	2B3

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
978:					
Cordova-Rolfe complex	Cordova	65	Flats, Moraines	Yes	2B3
	Rolfe	25	Depressions, Moraines	Yes	2B3, 3
	Glencoe	4	Depressions	Yes	2B3, 3
	Canisteo	3	Rims	Yes	2B3
	Le Sueur	3	Moraines	No	---
1013:					
Pits, quarry	Pits, quarry	100	Outwash plains, Terraces		---
1030:					
Udorthents-Pits, gravel, complex	Pits, gravel	50	Moraines, Outwash plains, Stream terraces		---
	Udorthents	50	Moraines, Outwash plains, Stream terraces		---
1057:					
Caron, Blue Earth, and Palms soils, ponded	Blue Earth, ponded	30	Moraines, Relict lakebeds	Yes	2B3, 3
	Caron, ponded	30	Depressions, Moraines	Yes	1, 3
	Palms, ponded	30	Depressions, Moraines	Yes	1, 3
	Dassel	5	Depressions	Yes	2B3, 3
	Glencoe	5	Depressions	Yes	2B3, 3
1855B:					
Dickinson sandy loam, loamy substratum, 2 to 6 percent slopes	Dickinson, loamy substratum	90	Outwash plains, Terraces	No	---
	Cylinder	5	Outwash plains	No	---
	Dickman	5	Outwash plains	No	---

Hydric Soils

Le Sueur County, Minnesota

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
1901B:					
Le Sueur-Lester complex, 1 to 6 percent slopes	Le Sueur	60	Moraines, Rises	No	---
	Lester	30	Hills, Moraines	No	---
	Cordova	5	Drainageways	Yes	2B3
	Hamel	5	Drainageways	Yes	2B3
1962:					
Mazaska-Rolfe complex	Mazaska	65	Flats, Moraines	Yes	2B3
	Rolfe	25	Depressions, Moraines	Yes	2B3, 3
	Shields	10	Drainageways	Yes	2B3
	Lerdal	5	Moraines	No	---
M-W:					
Water, miscellaneous	Water, miscellaneous	100	---		---
W:					
Water	Water	100	---		---

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.

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