

# Hydric Soils

Dodge 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
1003: Udorthents, loamy (cut and fill land)	Udorthents, loamy	100	Till plains	No	---
1007: Udorthents, shallow (sanitary landfill)	Udorthents, shallow	100	Till plains	No	---
1010: Pits, quarry	Pits, quarry	100	Hills, Valley sides	No	---
1027A: Coland-Spillville complex, 0 to 2 percent slopes, flooded	Coland, frequently flooded	50	Flood plains	Yes	2B3
	Spillville, occasionally flooded	40	Flood plains	No	---
	Fluvaquents, frequently flooded, ponded	5	Flood plains	Yes	2B3
	Klum, occasionally flooded	5	Flood plains	No	---
1033A: Spillville loam, 0 to 2 percent slopes, occasionally flooded	Spillville, occasionally flooded	75	Flood plains	No	---
	Lawson, occasionally flooded	15	Flood plains	No	---
	Lawler	10	Stream terraces	No	---
GP: Pits, gravel-Udipsammments complex	Pits, gravel	50	Eskers, Moraines, Outwash plains, Stream terraces	No	---
	Udipsammments	45	Eskers, Moraines, Outwash plains, Stream terraces	No	---
	Water	5	---	---	---
L57A: Medo muck, depressional, 0 to 1 percent slopes	Medo, depressional	90	Depressions, Outwash plains, Till plains	Yes	1, 3
	Houghton, depressional	5	Depressions	Yes	1, 3
	Mayer	5	Till plains	Yes	2B3

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<b>L171A:</b>					
Merton silt loam, 1 to 3 percent slopes	Merton	80	Ground moraines, Rises	No	---
	Maxcreek	10	Ground moraines	Yes	2B3
	Moland	10	Ground moraines	No	---
<b>L177B:</b>					
Moland silt loam, 2 to 6 percent slopes	Moland	90	Ground moraines	No	---
	Merton	10	Ground moraines	No	---
<b>L180A:</b>					
Maxcreek silty clay loam, 0 to 2 percent slopes	Maxcreek	85	Flats, Ground moraines	Yes	2B3
	Canisteo	10	Ground moraines	Yes	2B3
	Maxcreek, swales	3	Ground moraines	Yes	2B3
	Merton	2	Ground moraines	No	---
<b>L181A:</b>					
Kish, till substratum-Mayer complex, 0 to 2 percent slopes	Kish, till substratum	70	Flats, Outwash plains, Swales, Till plains	Yes	2B3
	Mayer	25	Flats, Outwash plains, Swales, Till plains	Yes	2B3
	Mayer, depressional	5	Depressions	Yes	2B3, 3
<b>L182A:</b>					
Newry silt loam, 1 to 3 percent slopes	Newry	85	Ground moraines, Rises	No	---
	Blooming	10	Ground moraines	No	---
	Maxcreek	5	Ground moraines	Yes	2B3
<b>L183B:</b>					
Blooming silt loam, 2 to 6 percent slopes	Blooming	90	Ground moraines	No	---
	Newry	10	Ground moraines	No	---

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<b>L183C2:</b>					
Blooming silt loam, 6 to 12 percent slopes, moderately eroded	Blooming, moderately eroded	95	Ground moraines	No	---
	Newry	5	Ground moraines	No	---
<b>L190B:</b>					
Warsaw loam, morainic, 2 to 6 percent slopes	Warsaw, morainic	80	Moraines	No	---
	Estherville, morainic	10	Moraines	No	---
	Moland	10	Ground moraines	No	---
<b>L190C2:</b>					
Warsaw loam, morainic, 6 to 12 percent slopes, moderately eroded	Warsaw, morainic, moderately eroded	80	Moraines	No	---
	Estherville, morainic, moderately eroded	15	Moraines	No	---
	Moland	5	Ground moraines	No	---
<b>M502A:</b>					
Warsaw loam, 0 to 3 percent slopes	Warsaw	85	Stream terraces	No	---
	Lawler	5	Stream terraces	No	---
	Marshan	5	Stream terraces	Yes	2B3
	Moderately well drained soils	5	Stream terraces	No	---
<b>M504A:</b>					
Marshan clay loam, 0 to 2 percent slopes	Marshan	90	Flats, Outwash plains, Stream terraces	Yes	2B3
	Lawler	10	Stream terraces	No	---
<b>M505A:</b>					
Klinger silt loam, 1 to 3 percent slopes	Klinger	85	Rises, Till plains	No	---
	Maxfield	10	Till plains	Yes	2B3
	Marquis	5	Till plains	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
<b>M506B:</b>					
Kasson silt loam, 1 to 6 percent slopes	Kasson	85	Till plains	No	---
	Oran	15	Till plains	No	---
<b>M507A:</b>					
Marquis silt loam, 1 to 3 percent slopes	Marquis	85	Till plains	No	---
	Readlyn	15	Till plains	No	---
<b>M507B:</b>					
Marquis silt loam, 2 to 6 percent slopes	Marquis	85	Till plains	No	---
	Readlyn	10	Till plains	No	---
	Kenyon	5	Till plains	No	---
<b>M508A:</b>					
Oran silt loam, 1 to 3 percent slopes	Oran	85	Till plains	No	---
	Kasson	10	Till plains	No	---
	Clyde	5	Till plains	Yes	2B3
<b>M509A:</b>					
Mantorville loam, 0 to 2 percent slopes	Mantorville	80	Terraces, Till plains	No	---
	Mantorville, till substratum	10	Terraces, Till plains	No	---
	Marquis	10	Till plains	No	---
<b>M509B:</b>					
Mantorville loam, 2 to 6 percent slopes	Mantorville	85	Till plains	No	---
	Mantorville, till substratum	10	Till plains	No	---
	Marquis	5	Till plains	No	---

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<b>M509C2:</b>					
Mantorville loam, 6 to 12 percent slopes, moderately eroded	Mantorville, moderately eroded	80	Till plains	No	---
	Mantorville, till substratum, moderately eroded	10	Till plains	No	---
	Burkhardt, moderately eroded	5	Till plains	No	---
	Kenyon, moderately eroded	5	Till plains	No	---
<b>M510A:</b>					
Maxfield silty clay loam, 0 to 2 percent slopes	Maxfield	93	Flats, Till plains	Yes	2B3
	Klinger	5	Till plains	No	---
	Maxfield, swales	2	Till plains	Yes	2B3
<b>M511A:</b>					
Readlyn silt loam, 1 to 3 percent slopes	Readlyn	95	Till plains	No	---
	Tripoli	3	Till plains	Yes	2B3
	Marquis	2	Till plains	No	---
<b>M512A:</b>					
Menomin-Hayfield complex, 0 to 4 percent slopes	Menomin	50	Outwash plains, Rises, Stream terraces	No	---
	Hayfield	45	Outwash plains, Rises, Stream terraces	No	---
	Marshan	5	Stream terraces	Yes	2B3
<b>M513A:</b>					
Meridian loam, 0 to 3 percent slopes	Meridian	80	Stream terraces	No	---
	Lawler	10	Stream terraces	No	---
	Marshan	5	Stream terraces	Yes	2B3
	Menomin	5	Stream terraces	No	---

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<b>M514A:</b>					
Lawler-Marshan complex, 0 to 2 percent slopes	Lawler	50	Stream terraces	No	---
	Marshan	45	Stream terraces	Yes	2B3
	Moderately well drained soils	5	Stream terraces	No	---
<b>M515A:</b>					
Tripoli silty clay loam, 0 to 2 percent slopes	Tripoli	95	Flats, Swales, Till plains	Yes	2B3
	Readlyn	5	Till plains	No	---
<b>M517A:</b>					
Clyde silty clay loam, 0 to 2 percent slopes	Clyde	90	Drainageways, Till plains	Yes	2B3
	Clyde, swales	5	Till plains	Yes	2B3
	Soils that are calcareous	5	Drainageways	Yes	2B3
<b>M518B:</b>					
Clyde-Floyd complex, 1 to 4 percent slopes	Clyde	55	Drainageways, Till plains	Yes	2B3
	Floyd	40	Till plains	No	---
	Clyde, swales	5	Till plains	Yes	2B3
<b>M521C2:</b>					
Kenyon silt loam, 6 to 12 percent slopes, moderately eroded	Kenyon, moderately eroded	85	Till plains	No	---
	Mantorville	10	Till plains	No	---
	Marquis	5	Till plains	No	---
<b>M522D2:</b>					
Bassett-Racine complex, 12 to 18 percent slopes, moderately eroded	Bassett, moderately eroded	50	Till plains	No	---
	Racine, moderately eroded	40	Till plains	No	---
	Kasson	5	Till plains	No	---
	Oran	5	Till plains	No	---

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Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
<b>M522E:</b>					
Bassett-Racine complex, 18 to 25 percent slopes	Bassett	50	Till plains	No	---
	Racine	40	Till plains	No	---
	Kasson	10	Till plains	No	---
<b>M523C2:</b>					
Bassett-Kasson complex, 6 to 12 percent slopes, moderately eroded	Bassett, moderately eroded	50	Till plains	No	---
	Kasson, moderately eroded	40	Till plains	No	---
	Racine, moderately eroded	10	Till plains	No	---
<b>M524A:</b>					
Hayfield silt loam, 0 to 2 percent slopes	Hayfield	85	Outwash plains, Rises	No	---
	Menomin	10	Stream terraces	No	---
	Marshan	5	Stream terraces	Yes	2B3
<b>M525A:</b>					
Dakota silt loam, 0 to 3 percent slopes	Dakota	85	Stream terraces	No	---
	Lawler	10	Stream terraces	No	---
	Marshan	5	Stream terraces	Yes	2B3
<b>M526B:</b>					
Winneshiek silt loam, 2 to 6 percent slopes	Winneshiek	80	Hills	No	---
	Waucoma	10	Hills	No	---
	Channahon	5	Hills	No	---
	Kasson	5	Hills	No	---

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<b>M526C2:</b>					
Winneshiek silt loam, 6 to 12 percent slopes, moderately eroded	Winneshiek, moderately eroded	75	Hills	No	---
	Channahon, moderately eroded	15	Hills	No	---
	Kasson, moderately eroded	5	Hills	No	---
	Waucoma, moderately eroded	5	Hills	No	---
<b>M527D2:</b>					
Nasset-Winneshiek complex, 12 to 18 percent slopes, moderately eroded	Nasset, moderately eroded	45	Hills	No	---
	Winneshiek, moderately eroded	35	Hills	No	---
	Channahon, moderately eroded	10	Hills	No	---
	Downs, moderately eroded	10	Hills	No	---
<b>M532A:</b>					
Maxfield silty clay loam, 0 to 2 percent slopes, occasionally flooded	Maxfield, occasionally flooded	70	Drainageways	Yes	2B3
	Colo, frequently flooded	15	Drainageways	Yes	2B3
	Maxfield	15	Drainageways	Yes	2B3
<b>M533A:</b>					
Marshan clay loam, depressional, 0 to 1 percent slopes	Marshan, depressional	85	Depressions, Outwash plains	Yes	2B3, 3
	Marshan	15	Outwash plains	Yes	2B3
<b>M-W:</b>					
Water, miscellaneous	Water, miscellaneous	100	---		---
<b>N501B:</b>					
Downs silt loam, 2 to 6 percent slopes	Downs	95	Loess hills	No	---
	Newvienna	5	Loess hills	No	---

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<b>N501C2:</b>					
Downs silt loam, 6 to 12 percent slopes, moderately eroded	Downs, moderately eroded	90	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Newvienna	5	Loess hills	No	---
<b>N501D2:</b>					
Downs silt loam, 12 to 18 percent slopes, moderately eroded	Downs, moderately eroded	90	Loess hills	No	---
	Barremills, drainageway	10	Drainageways, Loess hills	No	---
<b>N510E:</b>					
Sylvester-Downs complex, 20 to 45 percent slopes	Sylvester	70	Valley sides	No	---
	Downs	25	Valley sides	No	---
	Frankville	2	Valley sides	No	---
	Lindstrom	2	Valley sides	No	---
	Rock outcrop, sandstone	1	Valley sides	No	---
<b>N514B:</b>					
Joy-Ossian, occasionally flooded, complex, 1 to 5 percent slopes	Joy	60	Drainageways	No	---
	Ossian, occasionally flooded	20	Drainageways	Yes	2B3
	Buckhart	10	Loess hills	No	---
	Barremills, drainageway	5	Drainageways	No	---
	Otter, drainageway, frequently flooded	5	Drainageways	Yes	2B3
<b>N522A:</b>					
Otter silt loam, drainageway, 0 to 2 percent slopes, frequently flooded	Otter, channeled upland, frequently flooded	85	Drainageways	Yes	2B3
	Littleton, occasionally flooded	10	Drainageways	No	---
	Barremills, drainageway	5	Drainageways	No	---

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<b>N534E:</b>					
Downs-Nasset complex, 18 to 25 percent slopes	Downs	50	Valley sides	No	---
	Nasset	30	Valley sides	No	---
	Barremills, drainageway	10	Drainageways	No	---
	Winneshiek	10	Valley sides	No	---
<b>N536B:</b>					
Tama silt loam, 2 to 6 percent slopes	Tama	90	Loess hills	No	---
	Buckhart	5	Loess hills	No	---
	Osco	5	Loess hills	No	---
<b>N536C2:</b>					
Tama silt loam, 6 to 12 percent slopes, moderately eroded	Tama, moderately eroded	85	Loess hills	No	---
	Barremills, drainageway	10	Drainageways	No	---
	Buckhart	5	Loess hills	No	---
<b>N537E2:</b>					
Fayette-Hersey, bedrock substratum, complex, 18 to 25 percent slopes, moderately eroded	Fayette, moderately eroded	60	Loess hills	No	---
	Hersey, bedrock substratum, moderately eroded	25	Loess hills	No	---
	Pepin	10	Loess hills	No	---
	Barremills, drainageway	5	Drainageways	No	---
<b>N538C2:</b>					
Waubeek and Massbach soils, 6 to 12 percent slopes, moderately eroded	Massbach, moderately eroded	40	Hills	No	---
	Waubeek, moderately eroded	40	Hills	No	---
	Mantorville, till substratum, moderately eroded	10	Hills	No	---
	Haverhill	5	Structural benches	Yes	2B3
	Shullsburg	5	Hills	No	---

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<b>N552B:</b>					
Schapville-Winneshiek complex, 2 to 6 percent slopes	Schapville	40	Hills	No	---
	Winneshiek	40	Hills	No	---
	Massbach	15	Hills	No	---
	Shullsburg	5	Hills	No	---
<b>N555B:</b>					
Tama-Dinsmore complex, 2 to 6 percent slopes	Tama	50	Loess hills	No	---
	Dinsmore	45	Loess hills	No	---
	Klingmore	5	Loess hills	No	---
<b>N555C2:</b>					
Tama-Dinsmore complex, 6 to 12 percent slopes, moderately eroded	Tama, moderately eroded	55	Loess hills	No	---
	Dinsmore, moderately eroded	35	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Klingmore	5	Loess hills	No	---
<b>N560E2:</b>					
Fayette-Hersey complex, 18 to 25 percent slopes, moderately eroded	Fayette, moderately eroded	40	Loess hills	No	---
	Hersey, moderately eroded	40	Loess hills	No	---
	Renova, moderately eroded	15	Hills	No	---
	Barremills, drainageway	5	Drainageways	No	---
<b>N572B:</b>					
Downs-Hersey, bedrock substratum, complex, 2 to 6 percent slopes	Downs	75	Loess hills	No	---
	Hersey, bedrock substratum	20	Loess hills	No	---
	Nasset	5	Loess hills	No	---

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<b>N572C2:</b>					
Downs-Hersey, bedrock substratum, complex, 6 to 12 percent slopes, moderately eroded	Downs, moderately eroded	65	Loess hills	No	---
	Hersey, bedrock substratum, moderately eroded	25	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Nasset, moderately eroded	5	Loess hills	No	---
<b>N572D2:</b>					
Downs-Hersey, bedrock substratum, complex, 12 to 18 percent slopes, moderately eroded	Downs, moderately eroded	65	Loess hills	No	---
	Hersey, bedrock substratum, moderately eroded	25	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Nasset, moderately eroded	5	Loess hills	No	---
<b>N574B:</b>					
Downs-Hersey complex, 2 to 6 percent slopes	Downs	50	Loess hills	No	---
	Hersey	45	Loess hills	No	---
	Somewhat poorly drained soils	5	Loess hills, Swales	No	---
<b>N574C2:</b>					
Downs-Hersey complex, 6 to 12 percent slopes, moderately eroded	Downs, moderately eroded	50	Loess hills	No	---
	Hersey, moderately eroded	40	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Muscatune, till substratum	5	Loess hills, Swales	No	---

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<b>N574D2:</b>					
Downs-Hersey complex, 12 to 18 percent slopes, moderately eroded	Downs, moderately eroded	45	Loess hills	No	---
	Hersey, moderately eroded	40	Loess hills	No	---
	Barremills, drainageway	5	Drainageways, Loess hills	No	---
	Newwienna, till substratum	5	Loess hills	No	---
	Racine, moderately eroded	5	Hills	No	---
<b>N575F:</b>					
Channahon-Emeline-Rockton complex, 25 to 50 percent slopes	Channahon	25	Valley sides	No	---
	Emeline	25	Valley sides	No	---
	Rockton	25	Valley sides	No	---
	Ashdale	10	Valley sides	No	---
	Lacrescent	10	Valley sides	No	---
	Lindstrom, loamy-skeletal substratum	5	Valley sides	No	---
<b>N578B:</b>					
Barremills silt loam, drainageway, 1 to 5 percent slopes, occasionally flooded	Barremills, drainageway, occasionally flooded	85	Drainageways	No	---
	Osco	10	Drainageways	No	---
	Huntsville, drainageway, frequently flooded	5	Drainageways	No	---
<b>N595A:</b>					
Otter-Lawson complex, bedrock substratum, 0 to 2 percent slopes, occasionally flooded	Otter, bedrock substratum, occasionally flooded	60	Flood plains	Yes	2B3
	Lawson, bedrock substratum, occasionally flooded	35	Flood plains	No	---
	Otter, frequently flooded	5	Flood plains	Yes	2B3
<b>W:</b>					
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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