

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
McHenry County, North Dakota

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. 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 each 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 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, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period 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 in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

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 in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. 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, 1996).

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

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
1: TONKA SILT LOAM	TONKA	Yes	depression	2B3,3	YES	NO	YES
2: PARNELL SILTY CLAY LOAM	PARNELL	Yes	depression	2B3,3	YES	NO	YES
5: SOUTHAM SILT LOAM	SOUTHAM	Yes	depression	2B3,3	YES	NO	YES
6: RIFLE MUCKY PEAT	RIFLE	Yes	oxbow	1,3	NO	NO	YES
10: ABERDEEN-GREAT BEND COMPLEX, 0 TO 3 PERCENT SLOPES	ABERDEEN	No	---	---	---	---	---
	GREAT BEND	No	---	---	---	---	---
17B: ARVILLA SANDY LOAM, 0 TO 6 PERCENT SLOPES	ARVILLA	No	---	---	---	---	---
18B: AYLMER-BANTRY FINE SANDS, 0 TO 6 PERCENT SLOPES	AYLMER	No	---	---	---	---	---
	BANTRY	No	---	---	---	---	---
19B: AYLMER-MINNEWAUKAN COMPLEX, 0 TO 6 PERCENT SLOPES	AYLMER	No	---	---	---	---	---
	MINNEWAUKAN	Yes	depression	2B2	YES	NO	NO
24B: BARNES-BUSE LOAMS, 3 TO 6 PERCENT SLOPES	BARNES	No	---	---	---	---	---
	BUSE	No	---	---	---	---	---
24C: BARNES-BUSE LOAMS, 6 TO 9 PERCENT SLOPES	BARNES	No	---	---	---	---	---
	BUSE	No	---	---	---	---	---
24D: BUSE-BARNES LOAMS, 9 TO 15 PERCENT SLOPES	BUSE	No	---	---	---	---	---
	BARNES	No	---	---	---	---	---
24E: BUSE-BARNES, LOAMS, 15 TO 25 PERCENT SLOPES	BUSE	No	---	---	---	---	---
	BARNES	No	---	---	---	---	---
29: SVEA-BARNES LOAMS, 0 TO 2 PERCENT SLOPES	SVEA	No	---	---	---	---	---
	BARNES	No	---	---	---	---	---
29B: BARNES-SVEA LOAMS, 2 TO 5 PERCENT SLOPES	BARNES	No	---	---	---	---	---
	SVEA	No	---	---	---	---	---
36: MIRANDA-CAVOUR LOAMS	MIRANDA	No	---	---	---	---	---
	CAVOUR	No	---	---	---	---	---
37: CAVOUR-CRESBARD LOAMS, 0 TO 3 PERCENT SLOPES	CAVOUR	No	---	---	---	---	---
	CRESBARD	No	---	---	---	---	---
44B: CLAIRE-LOHNES COARSE SANDS, 1 TO 6 PERCENT SLOPES HUMMOCKY	CLAIRE	No	---	---	---	---	---
	LOHNES	No	---	---	---	---	---
50: COLVIN SILT LOAM	COLVIN	Yes	drainageway	2B3	YES	NO	NO

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
51: COLVIN SILT LOAM, SALINE	COLVIN, SALINE	Yes	flat	2B3	YES	NO	NO
52: COLVIN SILT LOAM, WET	COLVIN, WET	Yes	depression	3,2B3	YES	NO	YES
54: BARNES-CRESBARD LOAMS, 0 TO 3 PERCENT SLOPES	CRESBARD	No	---	---	---	---	---
	BARNES	No	---	---	---	---	---
54B: BARNES-CRESBARD LOAMS, 3 TO 6 PERCENT SLOPES	BARNES	No	---	---	---	---	---
	CRESBARD	No	---	---	---	---	---
56: DIVIDE LOAM, 0 TO 3 PERCENT SLOPES	DIVIDE	No	---	---	---	---	---
62B: EGELAND FINE SANDY LOAM, 0 TO 6 PERCENT SLOPES	EGELAND	No	---	---	---	---	---
65: EMBDEN FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	EMBDEN	No	---	---	---	---	---
68: FARGO SILTY CLAY	FARGO	Yes	lake plain	2B3	YES	NO	NO
72: VERENDRYE LOAMY COARSE SAND	VERENDRYE	Yes	flat	2B2	YES	NO	NO
73: FOSSUM AND ARVESON SOILS	ARVESON	Yes	flat	2B3	YES	NO	NO
	FOSSUM	Yes	flat	2B3	YES	NO	NO
74: FOSSUM FINE SANDY LOAM, WET	FOSSUM, WET	Yes	depression	3,2B3	YES	NO	YES
76: GARDENA LOAM, 0 TO 3 PERCENT SLOPES	GARDENA	No	---	---	---	---	---
79: GLYNDON LOAM, SALINE	GLYNDON	No	---	---	---	---	---
80: GLYNDON LOAM	GLYNDON	No	---	---	---	---	---
82: GREAT BEND-OVERLY COMPLEX, 0 TO 3 PERCENT SLOPES	GREAT BEND	No	---	---	---	---	---
	OVERLY	No	---	---	---	---	---
88: HAMERLY LOAM, SALINE, 0 TO 3 PERCENT SLOPES	HAMERLY, SALINE	No	---	---	---	---	---
89: HAMERLY LOAM, 0 TO 3 PERCENT SLOPES	HAMERLY	No	---	---	---	---	---
90: HAMERLY-TONKA COMPLEX, 0 TO 3 PERCENT SLOPES	HAMERLY	No	---	---	---	---	---
	TONKA	Yes	depression	2B3,3	YES	NO	YES
91: HECLA LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES	HECLA	No	---	---	---	---	---
104: COLVIN SILT LOAM, CHANNELED	COLVIN, CHANNELED	Yes	channel	2B3	YES	NO	NO

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
105: LETCHER FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	LETCHER	No	---	---	---	---	---
106: SWENODA-LARSON FINE SANDY LOAMS, 0 TO 3 PERCENT SLOPES	SWENODA	No	---	---	---	---	---
	LARSON	No	---	---	---	---	---
106B: SWENODA-LARSON FINE SANDY LOAMS, 3 TO 6 PERCENT SLOPES	SWENODA	No	---	---	---	---	---
	LARSON	No	---	---	---	---	---
107B: LOHNES-CLAIRE COARSE SANDS, 0 TO 6 PERCENT SLOPES	LOHNES	No	---	---	---	---	---
	CLAIRE	No	---	---	---	---	---
108: FALSEN-KARLSRUHE COMPLEX, 0 TO 3 PERCENT SLOPES	FALSEN	No	---	---	---	---	---
	KARLSRUHE	No	---	---	---	---	---
109D: LOHNES AND MADDOCK SOILS, 6 TO 15 PERCENT SLOPES	LOHNES	No	---	---	---	---	---
	MADDOCK	No	---	---	---	---	---
110: LUDDEN CLAY, PONDED	LUDDEN, PONDED	Yes	flood plain	2B3,3,4	YES	YES	YES
111: LUDDEN CLAY	LUDDEN	Yes	flood plain	2B3	YES	NO	NO
112B: MADDOCK-HECLA LOAMY FINE SANDS, 1 TO 6 PERCENT SLOPES	MADDOCK	No	---	---	---	---	---
	HECLA	No	---	---	---	---	---
124: MARYSLAND SILT LOAM	MARYSLAND	Yes	depression	2B3	YES	NO	NO
127: PITS, GRAVEL	PITS, GRAVEL	No	---	---	---	---	---
136: RYAN LOAM	RYAN	Yes	flood plain	2B3	YES	NO	NO
137: HARRIET SILT LOAM	HARRIET	Yes	flood plain	2B3	YES	NO	NO
139F: SERDEN SAND, 3 TO 50 PERCENT SLOPES	SERDEN	No	---	---	---	---	---
145B: SIOUX GRAVELLY SANDY LOAM, 1 TO 6 PERCENT SLOPES	SIOUX	No	---	---	---	---	---
145E: SIOUX GRAVELLY SANDY LOAM, 6 TO 25 PERCENT SLOPES	SIOUX	No	---	---	---	---	---
151: STIRUM FINE SANDY LOAM	STIRUM	Yes	depression	2B3	YES	NO	NO
157: SWENODA FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	SWENODA	No	---	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
158B: SWENODA-BARNES COMPLEX, 0 TO 6 PERCENT SLOPES	SWENODA	No	---	---	---	---	---
	BARNES	No	---	---	---	---	---
163B: TOWNER LOAMY FINE SAND, 0 TO 6 PERCENT SLOPES	TOWNER	No	---	---	---	---	---
164C: TOWNER-BUSE-MADDOCK COMPLEX, 3 TO 9 PERCENT SLOPES	TOWNER	No	---	---	---	---	---
	BUSE	No	---	---	---	---	---
	MADDOCK	No	---	---	---	---	---
165E: DICKEY-BUSE-MADDOCK COMPLEX, 9 TO 25 PERCENT SLOPES	DICKEY	No	---	---	---	---	---
	BUSE	No	---	---	---	---	---
	MADDOCK	No	---	---	---	---	---
172: ULEN FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	ULEN	No	---	---	---	---	---
175: ULEN-HECLA LOAMY FINE SANDS, 0 TO 3 PERCENT SLOPES	ULEN	No	---	---	---	---	---
	HECLA	No	---	---	---	---	---
176B: VELVA LOAM, 0 TO 6 PERCENT SLOPES	VELVA	No	---	---	---	---	---
177: LADELLE SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES	LADELLE	No	---	---	---	---	---
180: WYNDMERE FINE SANDY LOAM, SALINE	WYNDMERE, SALINE	No	---	---	---	---	---
181: WYNDMERE FINE SANDY LOAM	WYNDMERE	No	---	---	---	---	---
184: WYRENE SANDY LOAM	WYRENE	No	---	---	---	---	---
185: KARLSRUHE COARSE SANDY LOAM	KARLSRUHE	No	---	---	---	---	---
186: WILLIAMS LOAM, 0 TO 3 PERCENT SLOPES	WILLIAMS	No	---	---	---	---	---
186B: WILLIAMS LOAM, 3 TO 6 PERCENT SLOPES	WILLIAMS	No	---	---	---	---	---
187C: WILLIAMS-ZAHL LOAMS, 6 TO 9 PERCENT SLOPES	WILLIAMS	No	---	---	---	---	---
	ZAHL	No	---	---	---	---	---
188E: ZAHL-WILLIAMS LOAMS, 9 TO 20 PERCENT SLOPES	ZAHL	No	---	---	---	---	---
	WILLIAMS	No	---	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
188F: ZAHL-MAX-SVEA LOAMS, 6 TO 60 PERCENT SLOPES	ZAHL	No	---	---	---	---	---
	MAX	No	---	---	---	---	---
	SVEA	No	---	---	---	---	---
189: WILLIAMS-NIOBELL LOAMS, 0 TO 3 PERCENT SLOPES	NIOBELL	No	---	---	---	---	---
	WILLIAMS	No	---	---	---	---	---
189B: WILLIAMS-NIOBELL LOAMS, 3 TO 6 PERCENT SLOPES	NIOBELL	No	---	---	---	---	---
	WILLIAMS	No	---	---	---	---	---

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II. Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

