

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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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

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
007AE: ALBION AND SHELLABARGER SOILS, 4 TO 15 PERCENT SLOPES	ALBION	No	paleoterrace	---	---	---	---
	SHELLABARGER Unnamed wet soils	No Yes	paleoterrace drainageway	--- 2A,2B3	--- YES	--- NO	--- NO
007AS: CLAIREMONT SOILS, SALINE, CHanneled	CLAIREMONT	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,2B3,4	YES	YES	NO
007FU: FARNUM CLAY LOAM, 1 TO 3 PERCENT SLOPES, ERODED	FARNUM	No	paleoterrace	---	---	---	---
007KA: KANZA SOILS, FREQUENTLY FLOODED	KANZA	Yes	flood plain	2B3	YES	NO	NO
095AD: ALBION SANDY LOAM, 6 TO 15 PERCENT SLOPES	ALBION	No	paleoterrace	---	---	---	---
095DA: DILLWYN-PLEVNA COMPLEX, OCCASIONALLY FLOODED	DILLWYN	No	interdune, dune,	---	---	---	---
	PLEVNA Unnamed wet soils	Yes Yes	flood plain depression	2B3,4 2A,2B3,3	YES YES	YES NO	NO YES
095LA: LINCOLN LOAMY SAND, OCCASIONALLY FLOODED	LINCOLN	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
095NB: NASHVILLE-QUINLAN COMPLEX, 5 TO 15 PERCENT SLOPES	NASHVILLE	No	hillslope	---	---	---	---
	QUINLAN Unnamed wet soils	No Yes	hillslope depression	--- 2A,2B3,4	--- YES	--- YES	--- NO
095SA: SHELLABARGER LOAMY SAND, 0 TO 3 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
095SC: SHELLABARGER SANDY LOAM, 3 TO 6 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
095SD: SHELLABARGER SANDY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	SHELLABARGER	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3	YES	NO	NO
095ZA: ZENDA CLAY LOAM, OCCASIONALLY FLOODED	ZENDA	No	dune, paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3	YES	NO	YES
191EA: ELANDCO SILTY CLAY LOAM, RARELY FLOODED	ELANDCO	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	depression	2B3,3,4	YES	YES	YES
191EC: ELANDCO SILT LOAM, FREQUENTLY FLOODED	ELANDCO	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2B3,4,3	YES	YES	YES
191LS: LINCOLN SOILS, FREQUENTLY FLOODED	LINCOLN	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
191OP: WELLSFORD-ELANDCO COMPLEX, 0 TO 25 PERCENT SLOPES	WELLSFORD	No	hillslope	---	---	---	---
	ELANDCO	No	flood plain	---	---	---	---
191PD: POND CREEK SILTY CLAY LOAM, 2 TO 6 PERCENT SLOPES, ERODED	POND CREEK	No	terrace	---	---	---	---

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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
191RA: RENFROW-GRAINOLA COMPLEX, 1 TO 3 PERCENT SLOPES	RENFROW	No	hillslope	---	---	---	---
	GRAINOLA	No	hillslope	---	---	---	---
191TA: TABLER SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	TABLER	No	paleoterrace	---	---	---	---
191US: USTIFLUVENTS, CHanneled	USTIFLUVENTS	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2B3, 2A, 4, 2B2	YES	YES	NO
1439: CRISFIELD SANDY LOAM, RARELY FLOODED	CRISFIELD	No	terrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A, 2B3	YES	NO	NO
An: KASKI LOAM, FREQUENTLY FLOODED	KASKI	Unranked	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B3	YES	NO	NO
At: ATTICA FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	ATTICA	No	dune, paleoterrace	---	---	---	---
Be: BETHANY SILT LOAM, 0 TO 1 PERCENT SLOPES	BETHANY	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A, 3, 2B3	YES	NO	YES
Bh: BETHANY SILT LOAM, 1 TO 3 PERCENT SLOPES	BETHANY	No	paleoterrace	---	---	---	---
Bm: LINCOLN LOAMY FINE SAND, OCCASIONALLY FLOODED	LINCOLN	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B2	YES	NO	NO
Bo: GERLANE VARIANT LOAMY FINE SAND, OCCASIONALLY FLOODED	GERLANE	No	terrace	---	---	---	---
Bp: WOODWARD-PORT COMPLEX, 0 TO 20 PERCENT SLOPES	WOODWARD	No	hillslope	---	---	---	---
	PORT Unnamed wet soils	Unranked Yes	terrace depression	3, 2B3, 2A, 4	YES	YES	YES
Br: FLUVENTS, FREQUENTLY FLOODED	BROKEN ALLUVIAL LAND	Unranked	flood plain	---	---	---	---
Ca: CARWILE FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A, 3, 2B3	YES	NO	YES
Cc: CASE-CLARK COMPLEX, 2 TO 6 PERCENT SLOPES	CASE	No	paleoterrace	---	---	---	---
	CLARK	No	paleoterrace	---	---	---	---
Ce: CORBIN SILT LOAM, 0 TO 1 PERCENT SLOPES	CORBIN	No	hillslope	---	---	---	---
Cf: CORBIN SILT LOAM, 1 TO 3 PERCENT SLOPES	CORBIN	No	hillslope	---	---	---	---
Fa: FARNUM CLAY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	FARNUM	No	paleoterrace	---	---	---	---
Fm: FARNUM LOAM, 0 TO 1 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A, 3, 2B3	YES	NO	YES

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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
Fn: FARNUM LOAM, 1 TO 3 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
Fu: FARNUM LOAM, 3 TO 6 PERCENT SLOPES	FARNUM	No	paleoterrace	---	---	---	---
Ge: GERLANE FINE SANDY LOAM, OCCASIONALLY FLOODED	GERLANE	No	terrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
Gn: GRANT SILT LOAM, 0 TO 1 PERCENT SLOPES	GRANT	No	terrace	---	---	---	---
Gr: GRANT SILT LOAM, 1 TO 3 PERCENT SLOPES	GRANT	No	terrace	---	---	---	---
GRP: GRAVEL PITS	GRAVEL PITS	Unranked	---	---	---	---	---
Gs: GRANT SILT LOAM, 3 TO 6 PERCENT SLOPES	GRANT	No	terrace	---	---	---	---
INT: AQUOLLS	AQUOLLS	Yes	depression, terrace	3,2B3	YES	NO	YES
Ka: KANZA LOAMY FINE SAND, FREQUENTLY FLOODED	KANZA	Yes	flood plain	2B3	YES	NO	NO
	Unnamed wet soils	Yes	drainageway	2A,2B3	YES	NO	NO
Kk: KASKI LOAM, OCCASIONALLY FLOODED	KASKI	No	flood plain	---	---	---	---
	WET ALLUVIAL LAND	Yes	depression	2B2	YES	NO	NO
Km: KIRKLAND SILT LOAM, 0 TO 1 PERCENT SLOPES	KIRKLAND	No	hillslope	---	---	---	---
Kr: KIRKLAND-RENFROW CLAY LOAMS, 1 TO 3 PERCENT SLOPES	KIRKLAND	No	hillslope	---	---	---	---
	RENFROW	No	hillslope	---	---	---	---
Kw: KIRKLAND-RENFROW SOILS, 1 TO 3 PERCENT SLOPES, ERODED	KIRKLAND	No	hillslope	---	---	---	---
	RENFROW	No	hillslope	---	---	---	---
Mc: MINCO SILT LOAM, 0 TO 1 PERCENT SLOPES	MINCO	No	hillslope	---	---	---	---
Mn: MINCO SILT LOAM, 1 TO 3 PERCENT SLOPES	MINCO	No	hillslope	---	---	---	---
Mo: MINCO SILT LOAM, 3 TO 6 PERCENT SLOPES	MINCO	No	hillslope	---	---	---	---
Na: NASHVILLE SILT LOAM, 0 TO 1 PERCENT SLOPES	NASHVILLE	No	hillslope	---	---	---	---
Ne: NASHVILLE SILT LOAM, 1 TO 3 PERCENT SLOPES	NASHVILLE	No	hillslope	---	---	---	---
Nh: NASHVILLE SILT LOAM, 3 TO 6 PERCENT SLOPES	NASHVILLE	No	hillslope	---	---	---	---
Nn: NASHVILLE SILT LOAM, 3 TO 6 PERCENT SLOPES, ERODED	NASHVILLE	No	hillslope	---	---	---	---
No: MILAN LOAM, 1 TO 3 PERCENT SLOPES	NORGE	No	hillslope	---	---	---	---
Pc: POND CREEK SILT LOAM, 0 TO 1 PERCENT SLOPES	POND CREEK	No	terrace	---	---	---	---
Pd: POND CREEK SILT LOAM, 1 TO 3 PERCENT SLOPES	POND CREEK	No	terrace	---	---	---	---
Pe: POND CREEK SILT LOAM, 3 TO 6 PERCENT SLOPES	POND CREEK	No	terrace	---	---	---	---

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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
Pg: POND CREEK SILT LOAM, 3 TO 6 PERCENT SLOPES, ERODED	POND CREEK	No	terrace	---	---	---	---
Ph: DALE SILT LOAM, RARELY FLOODED	DALE	No	terrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3,4	YES	YES	YES
Pk: BUTTERMILK SILT LOAM, RARELY FLOODED	PORT	No	terrace	---	---	---	---
	SLICKSPOTS	No	---	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3,4	YES	YES	YES
Pm: PRATT LOAMY FINE SAND, 3 TO 8 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A,2B3,3	YES	NO	YES
Pn: PRATT LOAMY FINE SAND, SILTSTONE SUBSTRATUM, 3 TO 8 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A,2B3,3	YES	NO	YES
Po: PRATT-CARWILE COMPLEX, 0 TO 8 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A	YES	NO	NO
	Unnamed wet soils	Yes	depression	2A,2B3,3	YES	NO	YES
Pt: PRATT-TIVOLI LOAMY FINE SANDS, 8 TO 15 PERCENT SLOPES	PRATT	No	dune, paleoterrace	---	---	---	---
	TIVOLI	No	dune, paleoterrace	---	---	---	---
	CARWILE	Yes	depression, paleoterrace	2A,3	YES	NO	YES
	Unnamed wet soils	Yes	depression	2A,2B3,2B2	YES	NO	NO
Qa: QUINLAN LOAM, 0 TO 1 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
Qn: QUINLAN LOAM, 1 TO 3 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
Qu: QUINLAN LOAM, 3 TO 6 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
Rc: RENFROW-VERNON CLAY LOAMS, 1 TO 3 PERCENT SLOPES	RENFROW	No	hillslope	---	---	---	---
	VERNON	No	hillslope	---	---	---	---
Re: RUELLA LOAM, 0 TO 1 PERCENT SLOPES	RUELLA	No	hillslope	---	---	---	---
Rh: RUELLA LOAM, 1 TO 3 PERCENT SLOPES	RUELLA	No	hillslope	---	---	---	---
Ru: RUELLA LOAM, 3 TO 6 PERCENT SLOPES	RUELLA	No	hillslope	---	---	---	---
Sa: LESHO CLAY LOAM, SALINE, OCCASIONALLY FLOODED	LESHO	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,2B3	YES	NO	NO
Sb: SHELLABARGER FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
Se: SHELLABARGER FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---

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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
Sf: SHELLABARGER FINE SANDY LOAM, 3 TO 6 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
Sg: SHELLABARGER FINE SANDY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	SHELLABARGER	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
Sh: ZELLMONT SANDY LOAM, 1 TO 3 PERCENT SLOPES	ZELLMONT	No	strath terrace	---	---	---	---
SHH: SHELLABARGER SANDY LOAM, 1 TO 3 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
Sk: ZELLMONT SANDY LOAM, 3 TO 6 PERCENT SLOPES	ZELLMONT	No	strath terrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
Sm: ZELLMONT SANDY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	ZELLMONT	No	strath terrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A,2B3,2B2	YES	NO	NO
Sn: SHELLABARGER LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
So: SHELLABARGER AND ALBION SOILS, 7 TO 15 PERCENT SLOPES	SHELLABARGER	No	paleoterrace	---	---	---	---
	ALBION Unnamed wet soils	No Yes	paleoterrace drainageway	--- 2B3	--- YES	--- NO	--- NO
Sp: DRUMMOND LOAM, 0 TO 2 PERCENT SLOPES	DRUMMOND	No	terrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3	YES	NO	YES
Ta: TABLER CLAY LOAM, 0 TO 1 PERCENT SLOPES	TABLER	No	paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	depression	2A,3,2B3	YES	NO	YES
Th: TIVOLI FINE SAND, 8 TO 15 PERCENT SLOPES	TIVOLI	No	dune, paleoterrace	---	---	---	---
Vr: VERNON-RENFROW COMPLEX, 2 TO 6 PERCENT SLOPES, ERODED	VERNON	No	hillslope	---	---	---	---
	RENFROW	No	hillslope	---	---	---	---
W: WATER	WATER	Unranked	---	---	---	---	---
Wa: KINGMAN CLAY LOAM, OCCASIONALLY FLOODED	KINGMAN	Yes	flood plain	2B2	YES	NO	NO
Wd: WOODWARD-QUINLAN LOAMS, 0 TO 1 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
	WOODWARD	No	hillslope	---	---	---	---
We: WOODWARD-QUINLAN LOAMS, 1 TO 3 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
	WOODWARD Unnamed wet soils	No Yes	hillslope drainageway	--- 2A,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
Ww: WOODWARD-QUINLAN LOAMS, 3 TO 6 PERCENT SLOPES	QUINLAN	No	hillslope	---	---	---	---
	WOODWARD Unnamed wet soils	No Yes	hillslope drainageway	--- 2A, 2B3	--- YES	--- NO	--- NO
Za: CANADIAN FINE SANDY LOAM, RARELY FLOODED	CANADIAN	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2B2, 2A, 2B3	YES	NO	NO
Zf: ZENDA FINE SANDY LOAM, OCCASIONALLY FLOODED	ZENDA	No	dune, paleoterrace	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 2B3, 2B2	YES	NO	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.

