

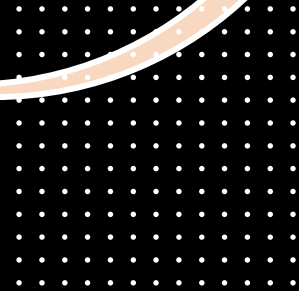
A pair of hands is shown from the right side, cupping a mound of dark, rich soil. A small, vibrant green seedling with two leaves is growing out of the soil. The background is a soft, out-of-focus green with bokeh light effects, suggesting a natural, sunlit environment. In the top left corner, there is a small orange horizontal bar.

Soils & Soil Mapping

Why do Soils matter?

- Practice Choice – Hydric Soils support different practices than Non-Hydric Soils – CP23A for example
- Species Choice – Different species thrive in Hydric Soils vs. Non-Hydric Soils. Knowing the soils will help plan species that will create a nice establishment





CONSERVATION DESKTOP
A CDSI Solution

- Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world.
- Phone App: “SoilWeb” – In field option – only accurate to the GPS on your phone. Would not rely on it the same as a soil probe.
- Conservation Desktop can be used to create soil maps and generate soil reports as well. Need to verify hydric soils with Web Soil Survey if using Conservation Desktop.

Area 4 Helpful Links

Home State Office Area 1 Area 2 Area 3 Area 4

USDA United States Department of Agriculture
Natural Resources Conservation Service

Area 4

+ New Upload Edit in grid view Share Copy

Shared Documents > **Area 4 Soils**

Name	Modified
Maps	March 15, 2019
Presentations	March 15, 2019
Soil Health	June 15, 2021
WSS FAQ SHEETS	March 24, 2020
FPPA_handout.pdf	January 13, 2020

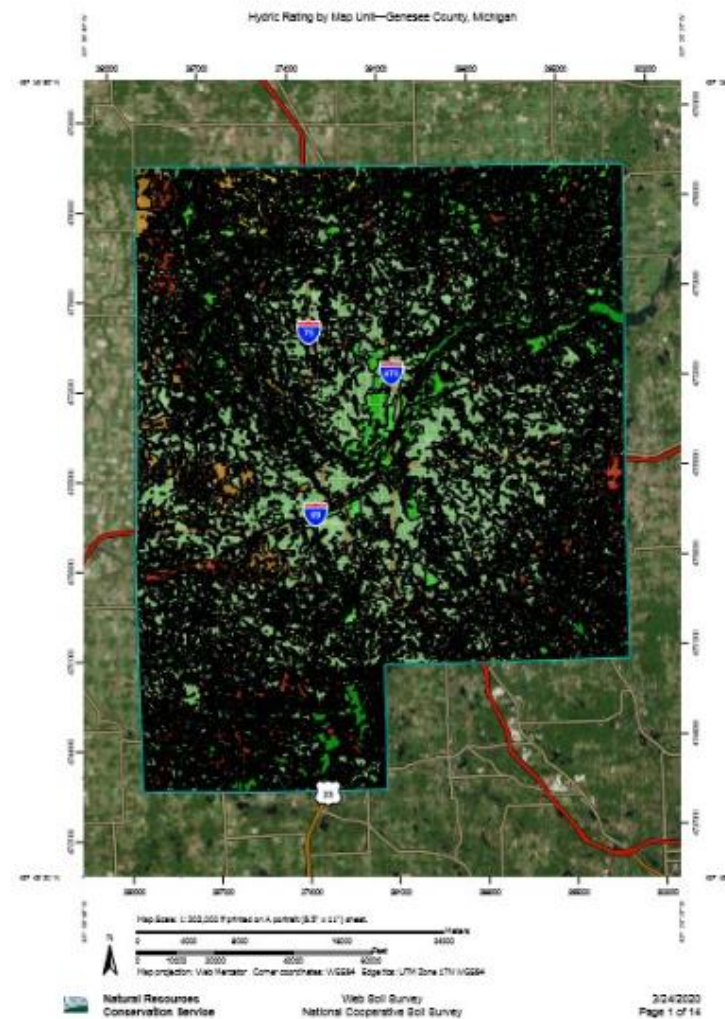
- SharePoint > Michigan > Area 4 > Shared Documents > Area 4 Soils

Generating County Wide Maps and Reports

Bonus Tip—Change transparency of the displayed soil data element

Web Soil Survey FAQ Sheets – Volume 1

- Generating County Wide Maps and Reports
- Step by Step instructions for setting an area of interest to entire county, selecting the soil data to display, and saving/printing report



The following procedure can be used to generate a county wide map of soil properties and interpretations in Web Soil Survey. Common interpretations to display in a county wide map include Farmland Classification and Hydric Soils; however, the same procedure can be used for any of the interpretations and properties listed in WSS. In addition, county wide reports can also be generated using a similar procedure.

Web Soil Survey FAQ Sheets – Volume 2

- Web Soil Survey Homepage Helpful Links
- Covers where to locate information, help, how to guides, tips, shortcuts and announcements.

Area 4 – Web Soil Survey FAQ's and How To Tips

Vol 2.

Web Soil Survey Home Page Helpful Links

Bonus Tip—Search Function

Web Soil Survey Home Page: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

The Web Soil Survey (WSS) Home Page is an excellent site to have bookmarked on your browser. The site provides access to the Nation's soil survey data, but also several links to USDA-NRCS soils information, guidance documents, and other geospatial data. The following FAQ sheet outlines the structure of the page, pertinent information that is provided for the successful use of WSS, and some of the links to other USDA-NRCS sites.

The screenshot shows the Web Soil Survey homepage layout. At the top, there's a header with the USDA logo and 'Web Soil Survey' text. Below that is a navigation bar with 'LEFT', 'CENTER', and 'RIGHT' sections. The 'LEFT' section contains a search bar and a list of navigation links including 'Soils Home', 'National Cooperative Soil Survey (NCSS)', 'Archived Soil Surveys', 'Status Maps', 'Official Soil Series Descriptions (OSD)', 'Series Extent Explorer', 'Geospatial Data Gateway', 'eFOG', 'National Soil Characterization Data', 'Soil Health', and 'Soil Geography'. The 'CENTER' section has a 'You are here:' breadcrumb, a 'START WSS' button, and a 'Welcome to Web Soil Survey (WSS)' section with a description of the site and a 'Four Basic Steps' section. The 'RIGHT' section contains a 'I Want To...' list of links and an 'Announcements/Events' section.

Web Soil Survey FAQ Sheets – Volume 3

- Understanding Data Aggregation for Thematic Map Displays
- Covers creating a thematic map of depth to a soil restrictive layer, depth to water table, depth to densic material

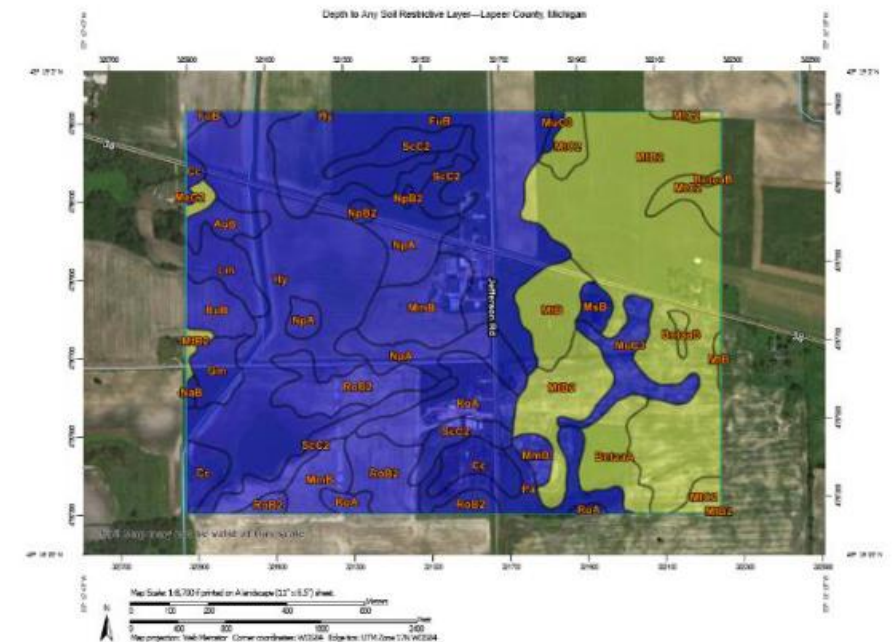
Area 4 – Web Soil Survey FAQ's and How To Tips

Vol 3. (04/17/2020)

Understanding Data Aggregation for Thematic Map Displays

Bonus Tip—Soil Map Unit Types and Considerations

One of the best applications of Web Soil Survey (WSS) is the ability to display thematic maps of soil property and interpretation data. This visual rating depiction, rather than a table or report, is a useful tool when conducting inventories, initial planning, and discussing site conditions with a landowner or producer. However, while a report can show a range of values for multiple properties and interpretations across all components of a map unit(s) in a single table, a thematic map can only depict a single value or rating at a time.



Example of a thematic map of Depth to a Soil Restrictive Layer.

To create that thematic map, the underlying data of that map unit(s) must be 'aggregated'. WSS defines 'aggregation' as the process by which a set of component attribute values is reduced to a single value

Web Soil Survey FAQ Sheets – Volume 4

- Working with Shape Files
- Covers the import AOI option that allows the user to clip soils data in Web Soil Survey to multi-part AOI's as well as AOI's with a complex shape.

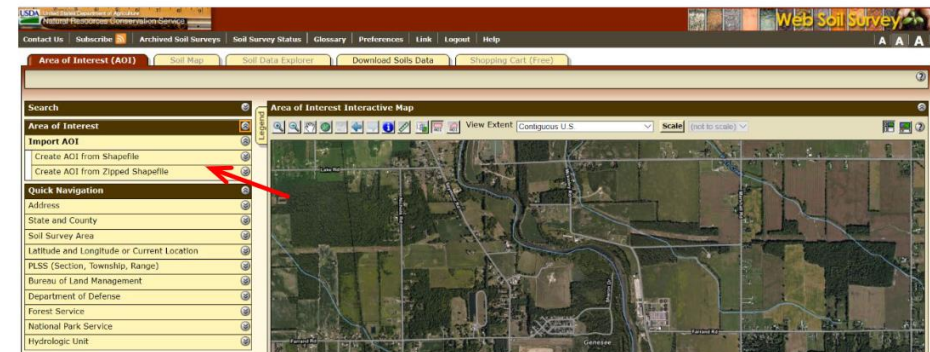
Area 4 – Web Soil Survey FAQ's and How To Tips

Vol 4. (04/24/2020)

Working with Shapefiles

Bonus Tip—Return to AOI by Saving Link

Working with Shapefiles:



If you use multiple GIS platforms to review site data, it might be useful to import and export areas of interest (AOI) to and from WSS.

Web Soil
Survey: What
We Need for
our Site Visit



Soil Map



Soil Report



Water Features Report



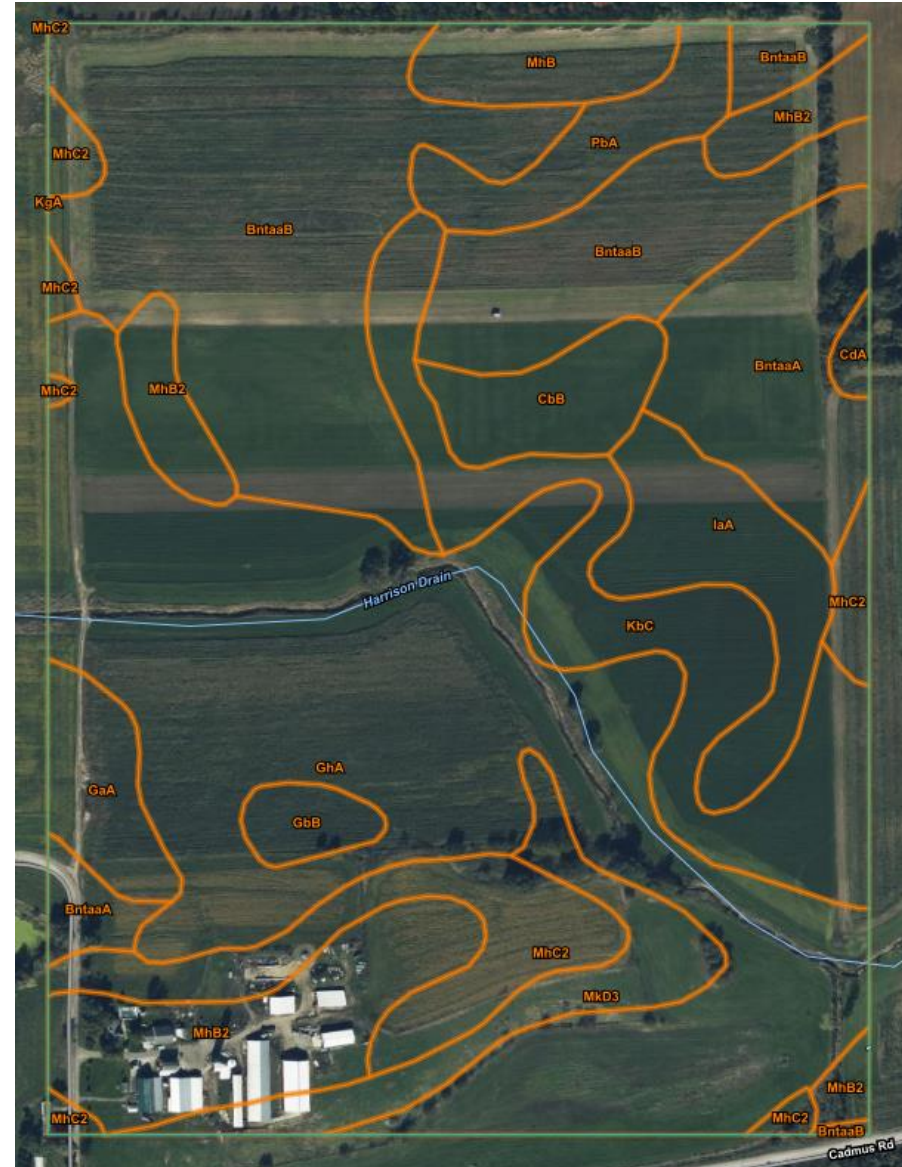
Hydric Soils List

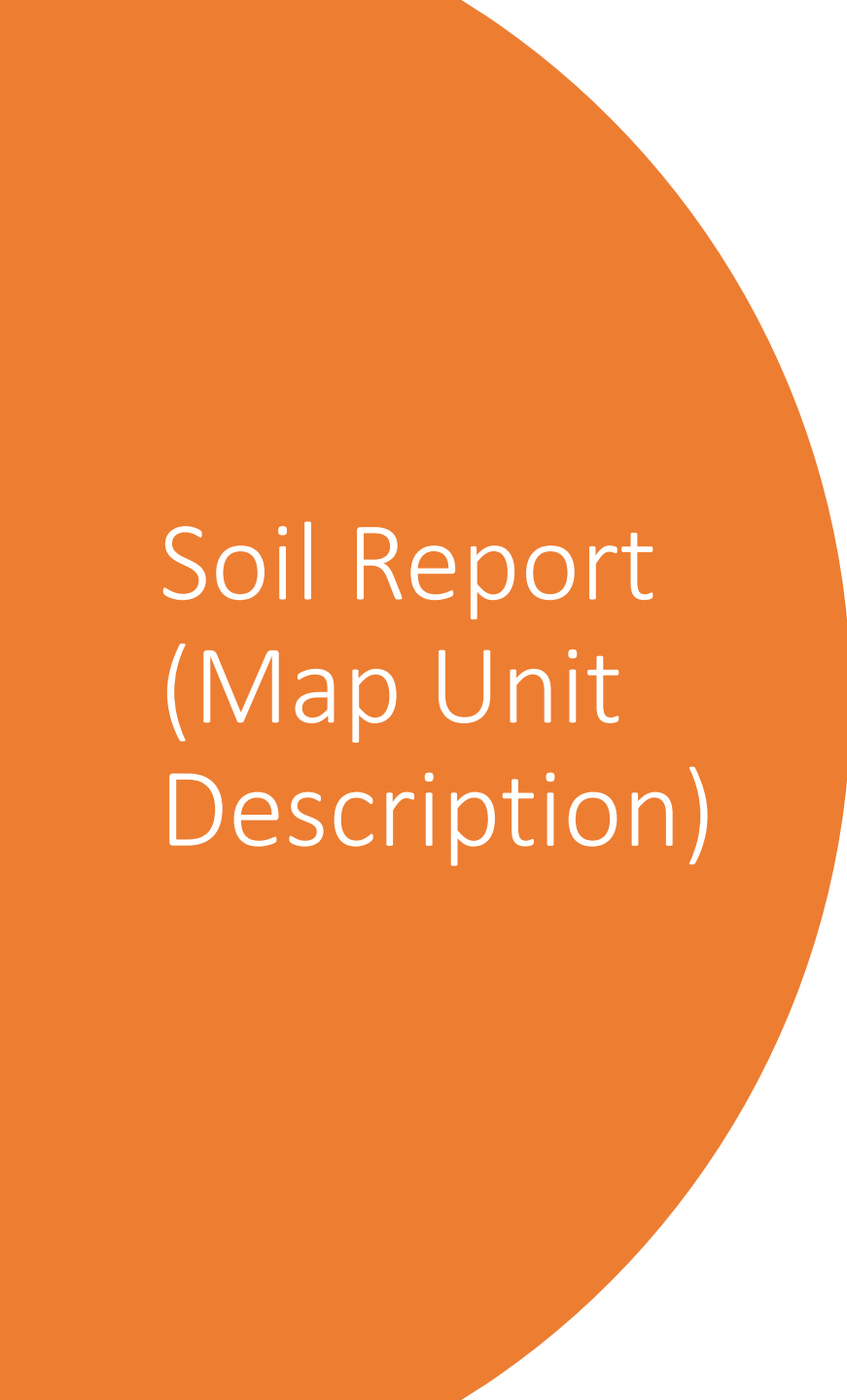
Soil Map

Web Soil Survey produces a map of the AOI (Area of Interest) with the different soils present labeled and located.

Can also use Conservation Desktop. Verify results with Web Soil Survey.


Soil Map





Soil Report (Map Unit Description)

Helpful Portions of the Soil Report for your site visit and planning:

- Mean Annual Precipitation
 - Mean Annual Air Temperature
 - Landform
 - Down-slope Shape
 - Parent Material
 - Typical Profile
 - Slope
 - Drainage Class
 - Frequency of flooding/ponding
 - Hydrologic Soil Group
 - Hydric Soil Rating
- 

Soil Report (Map Unit Description)

Lenawee County, Michigan

Bntaa—Blount loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2wp2k
Elevation: 660 to 1,130 feet
Mean annual precipitation: 31 to 39 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluvium
Down-slope shape: Concave, linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 9 inches: loam
Bt - 9 to 30 inches: silty clay
BC - 30 to 37 inches: clay loam
Cd - 37 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 28 to 48 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: F111BY502IN - Wet Till Ridge
Hydric soil rating: No

Minor Components

Pewamo

Percent of map unit: 6 percent
Landform: Depressions on ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111BY501IN - Till Depression
Hydric soil rating: Yes

Conover

Percent of map unit: 4 percent
Landform: Ground moraines, end moraines
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluvium
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: F111BY502IN - Wet Till Ridge
Hydric soil rating: No

Glynwood

Percent of map unit: 3 percent
Landform: Ground moraines, end moraines
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Ecological site: F111BY503IN - Till Ridge
Hydric soil rating: No

Badaxe

Percent of map unit: 2 percent
Landform: End moraines, ground moraines
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluvium
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Water Features Report

- This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.
- Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.
- Surface runoff
- Months when a water table, ponding, and/or flooding is most concerning
- Water table
- Ponding
- Flooding
- Duration and Frequency

Report—Water Features

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				ft	ft		ft				
Bntaa—Blount loam, 0 to 2 percent slopes											
Blount	D	Very high	Jan-May	0.5-1.0	2.3-4.0	Perched	—	—	None	—	None
			Jun	1.0-3.0	2.3-4.0	Perched	—	—	None	—	None
			Jul-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	0.5-1.0	2.3-4.0	Perched	—	—	None	—	None
BntaaB—Blount loam, 2 to 6 percent slopes											
Blount	D	Very high	Jan-May	0.5-1.0	2.2-3.7	Perched	—	—	None	—	None
			Jun	1.0-3.0	2.3-4.0	Perched	—	—	None	—	None
			Jul-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	0.5-1.0	2.2-3.7	Perched	—	—	None	—	None
CbB—Cadmus sandy loam, 3 to 7 percent slopes											
Cadmus	C	Medium	Jan-May	2.0-3.0	2.5-3.5	Perched	—	—	None	—	None
			Jun-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	2.0-3.0	2.5-3.5	Perched	—	—	None	—	None
CdA—Carlisle muck, disintegration moraine, 0 to 2 percent slopes											
Carlisle	A/D	Negligible	Jan-Jun	0.0	6.0	Apparent	0.0-1.0	Very long (more than 30 days)	Frequent	—	None
			Jul-Aug	0.5-1.5	6.0	Apparent	—	—	—	—	None
			Sep-Dec	0.0	6.0	Apparent	0.0-1.0	Very long (more than 30 days)	Frequent	—	None

Report—Hydric Soil List - All Components

Hydric Soils List

- This table lists the map unit components and their hydric status 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.
- Can help with planning, knowing hydric vs. non-hydric before site visit to discuss possible practice options with producer.
- Example: If a producer wants to plan a CP2 but the hydric soils list shows hydric soils, a CP2 would likely not be successful.

Hydric Soil List - All Components—MI091-Lenawee County, Michigan					
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
BntaaA: Blount loam, 0 to 2 percent slopes	Blount	75-90	End moraines,ground moraines	No	—
	Pewamo	5-7	Depressions on ground moraines	Yes	2
	Conover	3-10	Ground moraines,end moraines	No	—
	Glynwood	2-8	Ground moraines,end moraines	No	—
BntaaB: Blount loam, 2 to 6 percent slopes	Blount	75-90	Ground moraines,end moraines	No	—
	Glynwood-Eroded	2-10	Ground moraines,end moraines	No	—
	Conover	3-8	End moraines,ground moraines	No	—
	Pewamo	2-7	Depressions on end moraines	Yes	2
CbB: Cadmus sandy loam, 3 to 7 percent slopes	Cadmus	100	Knolls on ice-contact slopes	No	—
	Linwood	0-12	Depressions on moraines	Yes	1,3
CdA: Carlisle muck, disintegration moraine, 0 to 2 percent slopes	Carlisle	80-90	Depressions on moraines	Yes	1,3
	Linwood	0-12	Depressions on moraines	Yes	1,3
	Pewamo	0-9	Drainageways on moraines,depressions on moraines	Yes	2,3
Gaa: Genesee loam, 0 to 2 percent slopes, occasionally flooded	Genesee-Occasionally flooded	80-95	Natural levees,flood-plain steps	No	—
	Eel-Frequently flooded	0-12	Flood plains	No	—
	Sloan-Occasionally ponded	0-10	Flood-plain steps,depressions	Yes	2
Gbb: Genesee sandy loam, 3 to 7 percent slopes	Shoals-Occasionally flooded	0-8	Flood-plain steps	No	—
	Genesee	100	Knolls on flood plains	No	—

Onsite Visits

- Web Soil Survey and/or Conservation Desktop do NOT take the place of a site visit.
- Accuracy varies – relying on GPS and aerial photography – possibility that you may find something different onsite.
- If your site visit does not confirm what Web Soil Survey reported, schedule another site visit with your DC for more on the ground investigation.

