

## INTRODUCTION

This document outlines the procedures and methods the Natural Resources Conservation Service (NRCS) will use in Minnesota to conduct off-site wetland determinations for FSA purposes. These methods supplement the offsite methodology found in the Corps of Engineers Wetlands Delineation Manual and approved Regional Supplements to that manual. These methods replace the Minnesota Wetland Mapping Conventions of August, 1994.

All pertinent information shall be reviewed before determining that a site is or is not a wetland. Decisions and the supporting material will be documented according to the requirements of these offsite methods. Size of an area is not part of the wetland criteria. Therefore, sites large enough to detect will be considered.

NRCS personnel conducting certified wetland determinations must have appropriate Wetland Job Approval Authority as documented in the Field Office Technical Guide (eFOTG), Section III.

Non-agency personnel and/or private consultants may collect and submit to NRCS both onsite and offsite data for consideration in a determination. Qualified NRCS personnel will review all submissions for technical adequacy and completeness. Only designated NRCS personnel will issue a certified wetland determination via the NRCS-CPA-026E.

## PROCEDURE

This section outlines the steps to be used in Minnesota to complete a wetland determination using off-site methods and when on-site inspection may be necessary for a site(s). Identified sites are called potential wetlands in this procedure until the user determines if the preponderance of evidence supports an off-site determination.

- Step 1. Inventory and Remote Sensing
- Step 2. Complete Aerial Imagery Review and Analysis
- Step 3. Determine if a Field Visit is Required per NFSAM Policy
- Step 4. On-Site Determination of Soils/Vegetation/Hydrology
- Step 5. Making a Wetland Determination
- Step 6. Wetland Delineation

### **Step 1. Inventory and Remote Sensing:**

The reviewer may use any or all of the actions below to maximize the information on the potential wetland(s). The NRCS policy, manual, and regulations do not limit the resources used.

A. Review the soil survey and the State Technical Guide county hydric soils list to identify areas that may be potential wetlands. Identify listed hydric soil map units, map units with hydric soils as part of their name, or soils with hydric inclusions, and map units with conventional wetland symbols as evidence of potential wetlands.

B. Review the NRCS wetland inventory maps and official determinations, if available, to identify previously mapped wetlands as potential wetlands.

C. Review the National Wetland Inventory (NWI) maps to identify previously mapped wetlands as potential wetlands. Use USGS quadrangle maps and other tools including LIDAR to note potential wetlands and manipulations.

D. Review the appropriate aerial imagery to identify potential wetlands. See Appendix 1 on conducting an aerial imagery review.

E. Review all other inventory tools (where available) for evidence of potential wetlands.

### **Step 2. Complete Aerial Imagery Review and Analysis:**

Conduct the aerial imagery review per Appendix 1 and analyze the preliminary status along with all other available information.

- If the site has 30% or less normal year wetland signatures, and the site has not been manipulated, and the preponderance of evidence supports that the site does not meet wetland criteria; the site is determined non-wetland (NW). No field visit is required.
- If the site has 30% or less normal year wetland signatures, and the site has been manipulated prior to December 23, 1985, and the site has been cropped prior to December 23, 1985, and the preponderance of evidence supports that the site does not meet wetland criteria; the site is determined prior converted cropland (PC or PC/NW). No field visit is required.
- If the site has 50% or more normal year wetland signatures, is not manipulated and if the site has mapped hydric soil and/or mapped hydric soil inclusions, and the preponderance of evidence supports that the site meets wetland criteria; the site is determined wetland (W). No field visit is required.
- FOR POTHOLE SITES: If the site has 50% or more normal year wetland signatures, and the site has been manipulated prior to December 23, 1985, and if the site has mapped hydric soil and/or mapped hydric soil inclusions, and the preponderance of evidence supports that the site meets farmed wetland criteria FOR POTHOLE; the site is determined farmed wetland (FW or FWP). No field visit is required.  
FOR NON-POTHOLE SITES: IN MINNESOTA THESE SITES WILL GENERALLY NOT MEET FARM WETLAND HYDROLOGY CRITERIA UNLESS LOCATED NEAR A MAJOR RIVER.
- If the site has 30% or more normal year wetland signatures, and the site has been manipulated prior to December 23, 1985, then the evidence supports that the site meets farmed wetland hydrology criteria FOR POTHOLE. Sites with 30% to 50% normal year signatures will require field verification.

### **Step 3. Determine if a Field Visit is Required per NFSAM Policy at 514.1A.(3):**

Inadequate off-site information and other factors may require an on-site determination. If a field visit is required, the off-site documentation may still be used to support the determination.

**Step 4. On-site Evaluation of Soils/Vegetation/Hydrology:**

Refer to the approved onsite procedure documents for each criteria.

Document the findings and proceed to Step 5.

**Step 5. Make a Wetland Determination:**

- Wetland decisions are based on what the site conditions would be under Normal Circumstances.
- If, under Normal Circumstances, the site failed the criterion of any of the three parameters – soils, vegetation, or hydrology – label the site PC/NW, NW, or PC as appropriate.
- If, under Normal Circumstances, the site met all three criteria, conduct any further analysis needed to determine which NFSAM label is appropriate. NFSAM labels identify exemptions or restrictions that apply to the site and reflect its status as of December 23, 1985. Post December 23, 1985, alterations via manipulation or abandonment will be reflected in the NFSAM label (see Appendix 1, Step F). Refer to 514.10 through 514.60 in the NFSAM for guidance.
- Ensure documentation is adequate for the scope and effect for all manipulated sites. Complete the data sheets and confirm that all are providing evidence toward the same final conclusion.
- If the site is a potential converted wetland, consider whether any exemptions apply prior to labeling the site CW or CW+year.
- Proceed to Step 6.

**Step 6. Wetland Delineation:**

Refer to the procedures in the NFSAM and approved onsite procedures documents to complete the wetland map and appropriate form(s). (NRCS-CPA-026E)

**Appendix 1. Use of Supplemental Data for Remote Sensing in Minnesota:**

National Engineering Handbook (NEH), Part 650, Engineering Field Handbook (EFH), Chapter 19, Hydrology Tools for Wetland Determination, provides a tool for evaluating precipitation data to be used with remote sensing imagery.

The objective of the procedure is to identify all potential sites and narrow the focus for subsequent data collection. This can be used to determine whether a wetland determination will be made using on-site or off-site procedures.

All available resources should be used in conducting the initial inventory of potential wetland sites. The availability and quality of resource information varies across the state and not every resource may be appropriate or available to every determination.

**Step A.** Examine aerial imagery for an extremely wet year. For much of Minnesota, 1993 is the wettest year for which images are available. Use this to determine all the potential sites that will be reviewed in other years.

**Step B.** Prepare a CPA-32 form to record what is seen in each aerial image for each of the potential sites being examined.

**Step C.** Use a rainfall spreadsheet for the nearest NOAA weather station. This can be obtained from the Area Engineer, who updates it annually. Reflective of the NFSAM labels as of December 23, 1985, the data for determining Normal years will be based on 1971-2000 rainfall. Identify each year on the form as Wet – W, Normal – N, or Dry –D based on the analysis of growing season precipitation. The Hydrology Tools for Wetland Determination chapter (EFH Chapter 19) recommends evaluation of the precipitation for the 3 months prior to the date of the slide. Aerial imagery is normally obtained starting in late June and moving into July in Minnesota as flight conditions allow. It is suggested that the southern portion of the state use April, May and June, and the northern part of the state use May, June and July. However, this is up to the discretion of the Area Engineer. The rainfall spreadsheets are developed for three specific months and used consistently. Note the name and location number of the NOAA weather station used on the form.

Use the rainfall spreadsheet for the closest available weather station. The closest available station does not have to be located within the same county or state as the site you are evaluating. For example, western parts of Clay County may be best characterized by data collected at the Fargo, North Dakota weather station.

**Step D.** Review the site(s) starting with 1980 crop year and stopping after 10 years of images have been reviewed. Discard extremely wet and extremely dry years. Focus on normal years, omitting years with poor quality aerial imagery. Make notes on the CPA form indicating what is seen and what conclusion is drawn. Note any evidence of manipulations. At least 5 normal years are required in the analysis. If 5 normal years are not found within the 10 year period, proceed with adding years until 5 normal years have been reviewed. Use the notations shown in Table A2 below.

Keep in mind that saturation and inundation seen on aerial imagery are either primary or secondary field indicators of hydrology according to the Corps' regional supplements. Note

when these are observed in a year with normal precipitation during the growing season. Confirm the description of the field indicator in the appropriate regional supplement.

Make a notation for each year as to whether the image shows one of the indicators in Table A2 for wetness, such that it counts as a “hit” toward satisfying the wetland hydrology criterion.

Table A1. Categories for Results of Aerial Imagery Review

<b>% of normal year signatures</b>	<b>Preliminary status</b>
< 30%	Non wetland or PC
30% to 50%	Field verify
>50%	Wetland

Table A2. Notations to be used in review of aerial imagery

Signatures considered as evidence of wetness	
Notation	Description
<b>CT</b>	Color Tone is an obvious difference in the condition of the site compared to crop condition in the surrounding field(s); this may include color, size, different planting dates. Color tone may also indicate drown out where a site may have been tilled and/or planted, but the pattern of the crop indicates that a portion drowned out.
<b>WNC</b>	Wet Not Cropped indicates the site appears to have natural vegetation cover rather than annual crops. No obvious tillage pattern lines are seen in the site. The area may be squared up.
<b>SW</b>	Standing water indicates that the image shows standing water at the time of the photo. This difference is important for use as a hydrology field indicator in the Corps' regional supplements.
Signatures considered as evidence of dry or normal	
<b>C</b>	The site is dry enough to be cropped (tilled and planted). The crop seems to have the same health and vigor as in surrounding fields.
<b>DNC</b>	Dry Not cropped. The site appears to have natural vegetation rather than annual crops. No tillage pattern lines are seen in the site.

- Note that years when the image showed crop stress are less conclusive than those with drown-outs and standing water. Crop stress may occur in annual crops if the water persists for a relatively short period of time. The wetland hydrology criterion requires that the water be present for sufficient duration and frequency for hydrophytic vegetation to dominate.
- More than one reason causes an area to be non-cropped. Often it is not possible to tell whether a non-cropped site is wet or dry without additional information because the vegetation masks any presence of water.

**Step E.** Use only the normal years and count the number of hits compared to the total number of normal years evaluated. Express this as a percentage on the data form. Then compare it to the breakpoints in table A1. This indicates the site's potential to be completed with an off-site evaluation.

**Step F.** Review the 2 most recent years of images available. Record site use, any manipulations, conversions, abandonment, or other changes which may impact the NFSAM label. If a conversion is noted, review additional years of imagery as needed to determine the

year of conversion. These years do not count in the total number of years reviewed for Step D or Step E.

Step G. Review the aerial images quickly, selecting a year where the site appears “typical” of what is seen in normal years of the images. Use this to estimate the size and shape of the wetland and draw a polygon in GIS.