

Kansas Off-Site Wetland Conventions

A Technical Document for Off-site Wetland Determinations/Delineations in Kansas

INTRODUCTION

This document outlines the procedures and methods the Kansas Natural Resources Conservation Service (NRCS) will use for off-site wetland determinations/delineations.

Remote Sensing Tools for Wetland Determinations/Delineations:

- Archived county soil survey publications
- Official copy soil survey information (Soil Data Mart/electronic Field Office Technical Guide [eFOTG])
- All available NRCS aerial imagery (example digital ortho, digital raster graphs [drg])
- U.S. Geological Survey (USGS) topographic maps
- Color infrared (CIR) aerial imagery
- State, county, and local wetland maps and data (where available)
- LANDSAT imagery
- Archived Farm Service Agency (FSA) aerial slides
- Digital National Wetland Inventory (NWI) maps, if available
- Historical land survey maps (to identify native timber cleared and cropped by December 23, 1985)
- Old conservation plan maps
- Archived field office (FO) black and white aerial photography
- 100-Year Flood Plain Maps (if available)
- National Agriculture Imagery Program (NAIP) Imagery

Step 1: Identify wetland signatures and delineate wetland signature boundaries on the wetland-based map by using remote sensing tools described above.

When reviewing the above remote sensing tools, look for the following wetland signatures:

- On USGS maps, look for conventional water-feature symbols such as depression, marsh or swamp, wet spots, reservoirs, lakes, ponds, and streams.
- On archived published soil surveys look at the spot symbol legend. Hydrographic features may also be helpful. Also, many of our old published soil surveys have imagery that predates December 23, 1985.
- On NWI maps, look for delineated areas.
- On archived black and white, color infrared (CIR), digital ortho, and NAIP maps, look for abrupt variations in tone. Sometimes the tone variation will be darker, sometimes lighter, but this variation in tone is usually an indication of a change in the landform.
- Identification of hydrologic manipulations or areas of tree removal is the fundamental controlling factor to consider in any on-site determination. Correct interpretation of the landforms is the key to quality remote sensing.

Step 2: Hydrology

Review archived FSA slides to confirm wetland signatures delineated from Step 1 and address wetland hydrology criteria. If FSA slides are not available, then the off-site procedure cannot be used.

The following process will be used when reviewing archived FSA slides:

- Place a clear overlay on a planning map. Make a sketch map and document the number of wetland indicators. This information will be important if an on-site visit is necessary because remote sensing could not document hydrology.
 - If a potential wetland conversion is involved, review all pre- and post-December 23, 1985, imagery for evidence of manipulation (tree removal, drainage, diversion, etc.,) and other changes that effect hydrology, such as installation of irrigation systems. If a potential wetland manipulation or conversion exists, an on-site determination is required.

Remote Sensing Method for Wetland Hydrology

- Use at least five growing season slide/aerial imagery with "Normal" year rainfall between 1985 and the current year. "Normal" condition shall be determined using the most current WETS Table (example: 1971 – 2000 as of 2003). If there are less than five "Normal" slide/aerial imagery available, balance out the normal slide/aerial imagery with an equal number of "wet" and "dry" slide/aerial imagery, with the least departure from normal conditions.
- For signature documentation and analysis, use the approved Remote Sensing Procedure Worksheet (Attachment 1).
 - **Remote Sensing Procedure 1:** This procedure is not used for off-site hydrology.
 - **Remote Sensing Procedure 2:** For counties (See map on Attachment 2) on and east of the 98th Meridian (98 degrees W. Longitude and east), at least one "NORMAL" year slide/aerial imagery must have a Primary Signature (P) and the remaining slide/aerial imagery may be either a P or Secondary Signature (S) to count in the frequency analysis calculation. A frequency of greater than or equal to 50 percent will confirm off-site wetland hydrology.
 - **Remote Sensing Procedure 3:** For counties (See map on Attachment 2) west of the 98th Meridian (98 degrees W. Longitude and west), both P and S count equally in the frequency analysis calculation. A frequency of greater than 30 percent will confirm off-site wetland hydrology.

Primary Signature (P)	Secondary Signature (S)
Shallow surface water (sw)	Saturated soil conditions (ss)
Flooded or drowned-out crops (fd)	Patches of greener vegetation (gv)
Hydrophytic vegetation (hv)	Crop stress (due to wetness) (cs)
Isolated areas that are not farmed with rest of field (ia)	Changes in tillage pattern (due to replanting or non-tilled spots) (tp)
	Unharvested crop (uc)

NOTE: If the Remote Sensing Method cannot be used, an on-site visit will be required. If the area under consideration is being irrigated, then an on-site visit will also be required.

Step 3: Hydric Soils

A hydric soil is met when a wetland signature meets off-site hydrology in Step 2.

The following will be used to document hydric soils for the case file on mapunits where the major component is a hydric soil or on mapunits where the major component is not a hydric soil (must be same landform):

- All archived on-site wetland determination data; or
- Comparison site data; or
- The county Soil Data Mart Report Hydric Soils with the applicable mapunit(s) highlighted.

If the wetland delineator determines the archived data, comparison site data, or Hydric Soils Report data is not sufficient, an on-site evaluation of the soils will be necessary. For on-site determinations use the current version of "Field Indicators of Hydric Soils" and/or the U.S. Army Corps of Engineers (COE) 1987 Manual to determine if the soil is hydric.

Step 4: Hydrophytic Vegetation

Hydrophytic vegetation criterion is met when a wetland signature meets off-site hydrology in Step 2.

Archived wetland determinations or archived comparison sites will use scientifically defensible verification tools. These include county plant lists from the Kansas Biological Survey; NRCS area office (AO) archived plant collections, or verification from the Kansas University Ronald L. McGregor Herbarium, Kansas State University Herbarium, Emporia State University Herbarium, Fort Hays State University Herbarium, the U.S. Department of Agriculture (USDA) Plant Data Base, *the Midwest Wetland Flora*, *Flora of the Great Plains*, or qualified expert identification which includes the COE 87 Manual certified wetland delineators. The current COE list of plant species that occurs in wetlands, formally the U.S. Fish and Wildlife Service *National List of Plant Species That Occur in Wetlands: Central Plains (Region 5)*, will be used to identify the wetland indicator status (obligate, facultative wet, facultative, facultative upland, or upland). Either one of the following will be used to document hydrophytic vegetation for the case file:

- Archived, on-site, wetland determination data; or
- Comparison site data

Archived data must be from the same or similar array of soil map units, a similar hydrology condition, and the same landscape position as compared to the determination site. The extent of geographic use of archived data will be determined by the responsible wetland delineator.