

Appendix K Procedure for Documenting Soil

I. To observe and document a hydric soil, first remove any loose leaves, needles, or bark from the soil surface. Do not remove the organic surface layers of the soil, which usually consist of plant remains in varying stages of decomposition.

II. Dig a hole and describe the soil profile. In general, the hole should be dug to the depth needed to document an indicator or to confirm the absence of indicators. For most soils, the recommended excavation depth is approximately 20 in. from the soil surface, although a shallower soil pit may suffice for some indicators (e.g., A2 - Histic Epipedon). Digging may be difficult in some areas due to rocks and hardpans. Use the completed profile description to determine which hydric soil indicators have been met.



III. For soils with deep, dark surface layers, deeper examination may be required when field indicators are not easily seen within 20 in. of the surface. The accumulation of organic matter in these soils may mask redoximorphic features in the surface layers. Examination to 40 in. or more may be needed to determine whether the soils meet the requirements of indicator A12 (Thick Dark Surface). A soil auger or probe may be useful for sampling soil materials below 20 in.

IV. Whenever possible, excavate the soil deep enough to determine if there are layers or materials present that might restrict soil drainage. This will help to understand why the soil may or may not be hydric. Consider taking photographs of both the soil and the overall site, including a clearly marked measurement scale in soil pictures.

V. Depths used in the indicators are measured from the muck surface, or from the mineral soil surface if a muck surface is absent. For indicators A1 (Histosol), A2 (Histic Epipedon), A3 (Black Histic), and S3 (5 cm Mucky Peat or Peat) depths are measured from the top of the organic material (peat, mucky peat, or muck), or from the top of any mineral material that may overlie the organic layer.

VI. All colors noted in this supplement refer to moist Munsell® colors (Gretag/Macbeth 2000). Dry soils should be moistened until the color no longer changes and wet soils should be allowed to dry until they no longer glisten. Care should be taken to avoid over-moistening dry soil. Soil colors specified in the indicators do not have decimal points; however, intermediate colors do occur between Munsell chips. Soil color should not be rounded to qualify as meeting an indicator. For example, a soil matrix with a chroma between 2 and 3 should be recorded as having a chroma of 2+. This soil material does not have a chroma of 2 and would not meet any indicator that requires a chroma of 2 or less. Always examine soil matrix colors in the field immediately after sampling. Ferrous iron, if present, can oxidize rapidly and create colors of higher chroma or redder hue.

VII. Soils that are saturated at the time of sampling may contain reduced iron and/or manganese that are not detectable by eye. Under saturated conditions, redox concentrations may be absent or difficult

to see, particularly in dark-colored soils. It may be necessary to let the soil dry to a moist state (S to 30 minutes or more) for the iron or manganese to oxidize and redox features to become visible.

VIII. Particular attention should be paid to changes in microtopography over short distances. Small changes in elevation may result in repetitive sequences of hydric/non-hydric soils, making the delineation of individual areas of hydric and non-hydric soils difficult. Often the dominant condition (hydric or non-hydric) is the only reliable interpretation. The shape of the local landform can greatly affect the movement of water through the landscape. Significant changes in parent material or lithologic discontinuities in the soil can affect the hydrologic properties of the soil. After a sufficient number of exploratory excavations have been made to understand the soil-hydrologic relationships at the site, subsequent excavations can be limited to the depth needed to identify hydric soil indicators.

Source: ERDC/EL TR-10-16