

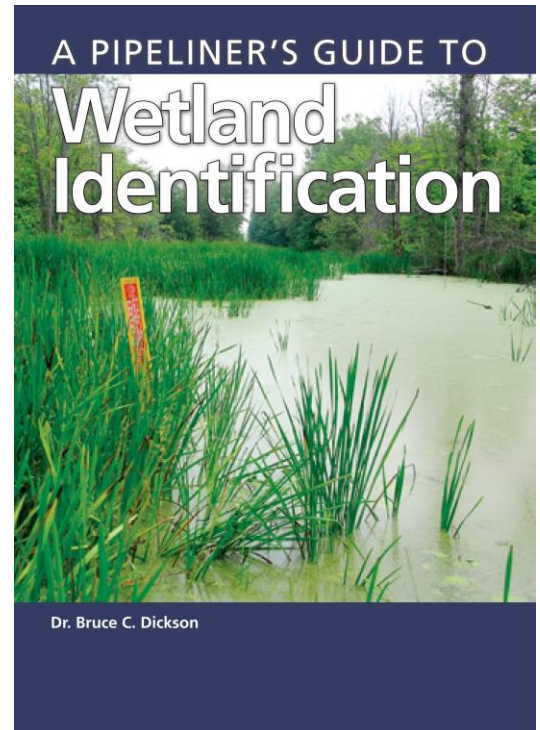
## A Pipeliner's Guide to Wetland Identification

RedHorse Environmental designed, developed and published a wetland identification guide for oil and gas pipeline personnel to facilitate locating wetlands on rights-of-way. A **Pipeliner's Guide to Wetland Identification** is intended to assist individuals with little prior exposure to the general characteristics of wetlands to recognize wetland indicators through direct observation of landscape and site features and the various indicator species of plants commonly encountered in wetlands of the Northeastern Region of the United States when conducting pipeline site assessments.

While the guide is designed to help in the identification of wetlands, it is not a comprehensive document and does not cover all the aspects of generally accepted indicators of wetland conditions. In particular, site hydrology and vegetation is featured in this guide whereas soils are omitted.

The guide is not designed for formal wetland delineation purposes nor is it intended to replace the 1987 US Army Corps of Engineers Delineation Manual or Regional Supplements.

The guide is 110 pages and is printed on water proof pages and is available at RedHorse Environmental.



### Wetland Classification and the National Wetlands Inventory Program

The United States Fish and Wildlife Service have a comprehensive wetland classification and associated inventory program that provides data on wetlands in the US. One of the primary products of the National Wetlands Inventory Program (NWIP) is the National Wetlands Inventory Maps that shows where known wetlands occur and their particular classification. Each classification carries a specific code that is displayed on NWIP maps to identify that wetland's type. While many wetlands can be found in the NWIP system many have not been mapped to date. Therefore, reliance on NWIP maps to determine wetland presence/absence is not recommended. For a thorough treatment of the NWIP Program see: <http://www.fws.gov/wetlands/index.html>

#### Legal Definition of Wetlands:

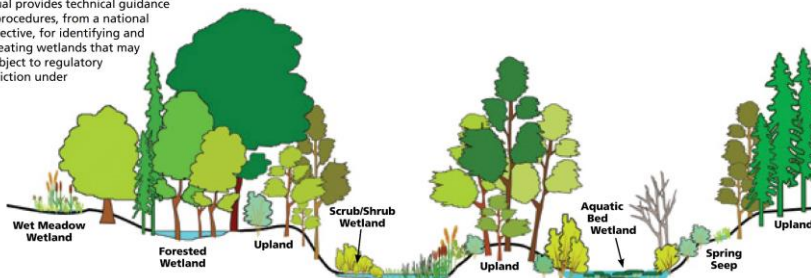
Wetlands are a subset of the "waters of the United States" that may be subject to regulation under Section 404 of the Clean Water Act. The United States Army Corps of Engineers 1987 Wetlands Delineation Manual provides technical guidance and procedures, from a national perspective, for identifying and delineating wetlands that may be subject to regulatory jurisdiction under

Section 404 of the Clean Water Act (33 U.S.C. 1344) or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403).

According to the Corps Manual, identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The 1987 Manual and later Supplements present wetland indicators, delineation guidance, and other information that is specific to geographic regions of the United States.

Understanding the legal definition of wetlands is important in that those areas that meet the criteria of the 1987 Manual and Supplements are defined as jurisdictional wetlands. These wetland areas are subject to regulation and may require permitting at the National and/or State level for any type of disturbance to occur within their boundaries.

Although a wetland may be identified during a routine site assessment using this guide it must be understood that the user is NOT conducting formal wetland delineations. In instances where wetland indicators are observed it is recommended that the site be referred to a qualified wetland scientist for further assessment and, if required, delineated according to USACE 87 Delineation Manual criteria.



### Common Arrowhead (*Sagittaria latifolia*)

**FORM:** Perennial Forb; rosette of basal leaves and one or more flowering stalks to 3.5'

**FOLIAGE:** Leaf blades up to 16" long and 10" across, but usually smaller; smooth with parallel veins

**FLOWERS:** Approximately 1" across consisting of 3 rounded white petals; blooms late Spring

**FRUIT:** Globe-shaped heads, green then brown, Spring to Summer



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Forbes, Ferns & Horsetails

### Example Plant Page

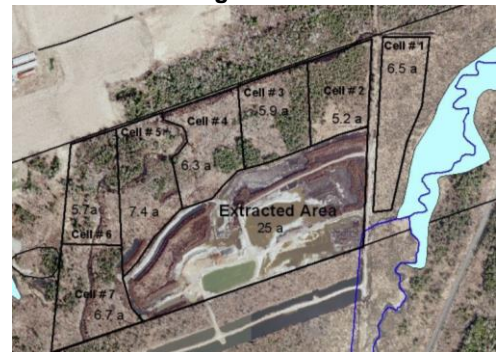


## PEAT EXTRACTION and WETLAND RESTORATION, SIMCOE COUNTY, ONTARIO

Peat mining is an ongoing activity in many locations in North America. Peat deposits develop at locations that were previously shallow lakes and emergent wetlands. Peat extraction requires extensive permitting and regulatory compliance with approvals at the regional, provincial, and federal level. Extensive mitigation/restoration with long-term monitoring was required at this 50 acre site in southern Ontario. Several wetland types were present on this property including a Red Cedar/White Birch Forested Wetland, an Aspen-Mixed Shrub Wetland, and several riparian shrub wetlands. A shallow emergent wetland was designed to mitigate for losses.



Pre-mining site conditions



Extraction Sequence Map



Active Peat Mining



Peat extracted from cell



Post Mining Condition Prior to Restoration

For additional information contact Dr. Bruce Dickson at 814-806-6073 or [bdickson@redhorseenvironmental.com](mailto:bdickson@redhorseenvironmental.com)

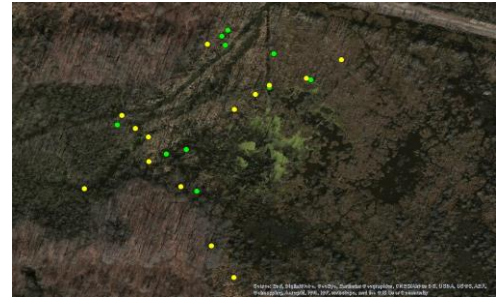


## Wetland Compensation: Enhancement By Means Of *Phragmites* Control

RedHorse Environmental conducted an environmental site assessment to facilitate the replacement of a defective section of a liquid fuels pipeline along a right-of-way near Braceville, Trumbull County, Ohio. Located within a NWI mapped wetland along an abandoned rail line, an extensive site evaluation including a wetland delineation per U.S. Army Corps of Engineers protocols and an Ohio EPA ORAM Assessment of the approximate 200 acre wetland was completed. The wetland was a Category 3 (ORAM score of 91). The site was also screened for the presence of sensitive species.

The USACE Pittsburgh District issued a Nationwide Permit for the site following a public hearing by OEPA. As part of the permit a *Phragmites* control program as compensation was developed to maintain the integrity of this exceptional wetland. RedHorse secured all permits, managed all construction work, and is implementing the compensation and long-term monitoring program.

*Phragmites* stands were initially treated in the fall of 2011 with Habitat herbicide. Effectiveness was evaluated in spring 2012 with control exceeding 95%. Successive yearly herbicide applications have nearly eliminated *Phragmites* from the majority of the wetland complex. Transport of vegetative materials down Eagle Creek has enabled new, albeit very low-density stands, to become established. The long-term prognosis is that when enhancement requirements are met in 2016 *Phragmites* may eventually become reestablished in this high quality wetland.



Locations of treated *Phragmites* stands within 200 acre wetland



Recolonization of reviously reated *Phragmites* stand by *Peltandra virginica*



*Phragmites* stand treated Fall 2014

For additional information contact  
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