

**PHOENIX RESOURCES, INC.
LANDFILL EXPANSION PROJECT,
TIOGA COUNTY, PENNSYLVANIA**

When Phoenix Resources, Inc. needed to expand its construction/demolition landfill in Tioga County, Pennsylvania, WHM was retained to avoid or minimize impact to aquatic resources. Delineations were conducted throughout 1,200 acres, despite a number of challenges. First, this required prompt field activity and a huge effort to cover a large amount of land in a relatively short time, even when weather made delineations difficult. Second, numerous small "pothole" wetlands were inadvertently created by human activities, particularly in forested areas. This increased the degree of difficulty associated with the delineation process. Third, a number of state and federal regulatory agencies were involved. WHM worked with the owner and all regulatory groups to avoid those wetlands with the highest value. By working with all groups, including the landfill designers, the need for mitigation was reduced from the initial designs to permissible quantities.



Once all of the alternatives had been exhausted, several low-quality wetland impacts became unavoidable. These impacts were compensated through effective mitigation programs developed by WHM. Such mitigation includes the creation of larger, high-quality wetlands. With the approach that large wetlands bring more value than many smaller ones, WHM attempts to match functions and values to meet agency expectations. Our wetland replacement plan was prepared based on procedures and guidelines from the Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers. Prior to conducting field investigations, we completed a review of natural resource data associated with the project site. Specifically, WHM reviewed mapping by the U.S. Geological Survey, U.S. Fish and Wildlife National Wetland Inventory and the U.S.D.A. Soil Conservation Service.

Our goal was to create approximately 5 acres of mixed open-water, emergent and scrub-shrub/forested wetland systems within the Phoenix Resources property. In addition, this mitigation site aimed to provide expanded wetland and upland habitat, enhanced aesthetic conditions and improved quality of water runoff into Babb Creek through increased nutrient and toxicant sequestration. Land use within the property boundary consisted of the existing construction/demolition landfill, its adjacent soil borrow area, idle forest, reclaimed strip mines and deep mined areas. Wetlands and watercourses located on the property were delineated by WHM and evaluated using the Ohio Rapid Assessment Method. This evaluation characterized wetland habitats ranging from low to high quality habitat and function.

Our investigations on the subject property followed a three-pronged approach to characterizing wetlands. This involved hydrophytic vegetation, hydric soils and wetland hydrology. Upon completing our investigations, areas exhibiting all three criteria presented above were characterized as jurisdictional wetlands. In addition, adjacent waterways were identified and flagged as regulated waters of the United States. The monitoring involved periodic inspections by a qualified wetland specialist for a period of not less than five years.