Snitz Creek Park Wetland Mitigation Bank Prospectus

Pennsylvania Department of Transportation Engineering District 8-0

February 2010

In accordance with 33 CFR 332.8(d)(2), The Pennsylvania Department of Transportation, Engineering District 8-0 (PennDOT) submits the following Wetland Banking Prospectus to the U.S. Army Corps of Engineers (USACE) and the Pennsylvania Department of Environmental Protection (PADEP).

Objectives

The goals and objectives of the proposed Snitz Creek Park Wetland Mitigation Bank are to create approximately 4.0 acres of Palustrine emergent, Palustrine scrub shrub and open water wetland habitats and approximately 2 acres of riparian buffer. The objective of the wetland bank is to provide mitigation for unavoidable wetland impacts on future PennDOT projects, especially bridge and roadway projects on the Lebanon County (LEBCO) MPO Transportation Improvement Program (TIP). This bank will serve the Lower Susquehanna Watershed. The Lower Susquehanna Watershed is shown in dark purple (Subbasin #7) on the attached watershed service area map.

The Snitz Creek Park Property is owned by North Cornwall Township, Lebanon County, Pennsylvania. The project area is located in the central portion of Lebanon County (Figure 1). North Cornwall Township has coordinated development of this park for active and passive recreation with Lebanon County and the Pennsylvania Department of Conservation and Natural Resources (DCNR). A walking trail, wildlife habitat structures and educational kiosks will be incorporated into the site design so as to enhance the use of the site.

Snitz Creek is a tributary to Quittapahilla Creek, a tributary of Swatara Creek in the Susquehanna River Basin. In 2006, a detailed watershed assessment, restoration and management plan was completed for the Quittapahilla Watershed. The major land use in the watershed is agriculture; however, there are significant urban and suburban areas as well. Farms continue to be replaced with increasing suburban residential development within the watershed. Past and present land use practices have resulted in degraded water quality, stream bank erosion, sedimentation, flooding and the loss of riparian and in-stream habitats. The mainstem of Quittapahilla Creek and all of the major tributaries thereto, including Snitz Creek are listed as impaired in 303(d). Sources of impairment include nutrients, silt, suspended solids, organic enrichment, low dissolved oxygen concentrations and flow and habitat alterations.

Two major types of restorative measures are identified in the comprehensive restoration and management plan for the watershed; source-based measures and stream-based measures. The construction of wetlands in floodplain areas to increase valley storage, reduce the erosive effects of flooding and create wildlife habitat is identified in the plan as a

source-based measure. Stream bank stabilization and native plantings (e.g. re-establishment of riparian buffers) are identified in the stream-based measures.

Need and Technical Feasibility

The proposed Snitz Creek Park Wetland Mitigation Bank will provide approximately 4.0 acres of wetland credits. The need for wetland mitigation credit in the proposed service area is generated by the recent COE Mitigation Rule in 33 CFR Section 332.3 where mitigation banking is considered the preferred avenue for satisfying compensatory mitigation requirements. There is an identified need in the Quittapahilla Creek Watershed for floodplain and wetland restoration and creation where practical in order in increase flood storage, provide water quality treatment for urban and agricultural runoff, and to create wildlife habitat. A specific project including the creation of wetland in the floodplain of Snitz Creek and riparian buffer near the intersection of Oak Street is identified in the Quittapahilla Creek Watershed Assessment, Restoration and Management Plan (2006).

In addition to the aforementioned needs, PennDOT, as a result of the implementation of the 2008 Rebuild Pennsylvania Initiative and the 2009 American Recovery and Reinvestment Act (ARRA), has increased its bridge preservation and replacement efforts and anticipates continued increases in this program. As part of ARRA, Pennsylvania will receive $1.026 billion to help create jobs, stimulate our economy and help improve the Commonwealth's highways, bridges and public transportation systems. A key requirement of ARRA projects is that they be let for bid to contractors quickly to achieve the swiftest positive impact on job creation in the recession economy. PennDOT is tasked with advancing these projects to letting expeditiously.

Unavoidable impacts to wetlands may occur as a result of these projects and wetland mitigation banking is the most expeditious manner of mitigating these impacts. Over the course of the last 10-15 years, PennDOT has realized that larger wetland mitigation sites positioned in the landscape within a mosaic of upland, wetland and riverine habitats provide the best wetland functions and values. PennDOT has also been able to reduce project delivery time and costs through the establishment of these larger sites, wetland banks, developed in advance of application for the permitting of unavoidable impacts. With a rapidly expanding transportation program the need and value for established mitigation banks to provide mitigation of future transportation projects is increased. A wetland mitigation bank does not presently exist in the Lower Susquehanna Watershed; therefore, a specific need for a wetland bank in this service area exists.

The Snitz Creek Park location exhibits excellent conditions for the establishment of a wetland bank. The site was found suitable for wetland development based on background

research, field conditions; interagency site visits, and studies, including soils testing, wetland delineation and a Phase 1A Geologic and Geomorphology Investigation. The 4.0 +/- acres wetland mitigation area is located linearly along Snitz Creek. The cost for construction, monitoring and maintenance will be moderate due to the access and minimal excavation required in implementing a design that integrates a low berm. The wetland will function to support wildlife, provide passive recreation and education opportunities, provide flood storage and nutrient removal. The surrounding area includes several residential developments and active (preserved) farms. This is an excellent site from a constructability view point since it has access off of Oak Street and from a wetland resource view point because the wetland is being integrated into a future park.

Establishment and Operations

PennDOT has an established process for the development wetland mitigation banks that includes close coordination with the federal and state permitting agencies, the U.S. Army Corp of Engineers and Pennsylvania Department of Environmental Protection. Additionally, PennDOT includes many agencies that participate as commenting agencies on Interagency Review Teams such as, the Environmental Protection Agency, the United States Fish and Wildlife Service, the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, and the Pennsylvania Historic and Museum Commission in the review of wetland mitigation banks during site selection, design, construction and monitoring. The process for development of each site includes on-site interagency field tours, hydrologic studies, the preparation of NEPA documents (typically Categorical Exclusions), and the preparation and agency review of draft and final mitigation plans.

The monitoring requirements for all wetland banks developed by PennDOT, includes monitoring annually for a minimum of five (5) years. PennDOT will monitor the proposed Snitz Creek Wetland Bank for five years from the date of construction completion with periodic monitoring events beyond five years for the purpose of verifying wetland acreage and condition by wetland type (Palustrine emergent, Palustrine scrub shrub, etc.).

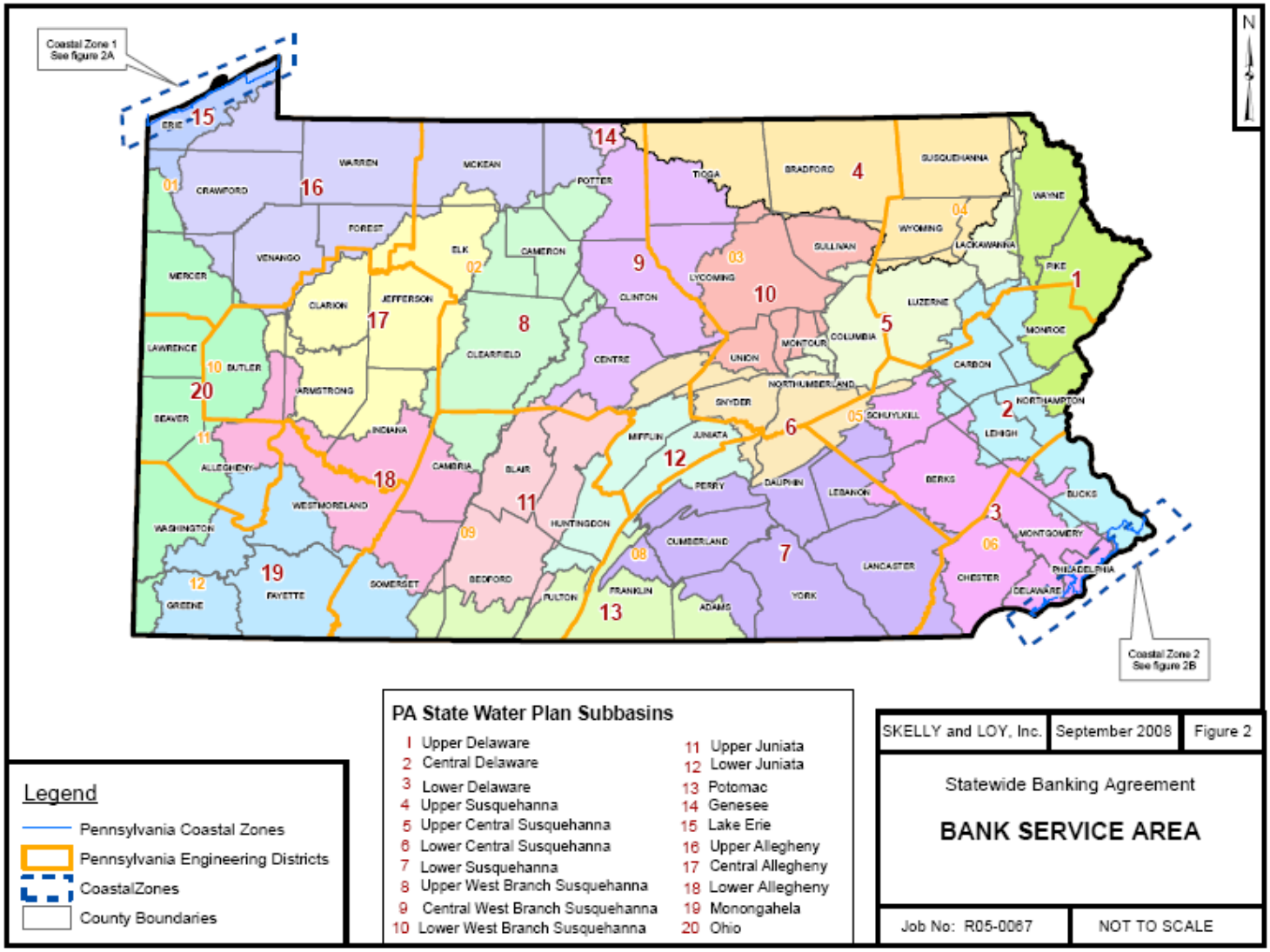
The following credit release schedule will be used as a guide for determining the availability of bank credits. Bank credits are available to the sponsor and with the approval of the sponsor to other local, county and state transportation agencies within Pennsylvania for mitigation of unavoidable impacts that are the result of transportation projects.

Mitigation Bank Site Milestone	Credits Released
Final Mitigation Plan approval by USACE and PADEP	0 % of planned credit
Successful Post Construction Submittal	10 % of as-built credits
First annual monitoring report deemed successful by USACE and PADEP	20 % of as-built credits
Second annual monitoring report deemed successful by USACE and PADEP	30 % of as-built credits
Third annual monitoring report deemed successful by USACE and PADEP	45 % of as-built credits
Fourth annual monitoring report deemed successful by USACE and PADEP	60 % of as-built credits
The fifth annual monitoring report, or two consecutive years of comparable monitoring results.	100 % of the accepted as-built credits

Proposed Service Area

PennDOT seeks consistency between its service areas for wetland mitigation banking and the Commonwealth In-Lieu-Fee Program, the Pennsylvania Wetland Replacement Program (PWRP). Currently, the PWRP utilizes twenty (20) "Service Areas" based on Pennsylvania State Water Plan Sub-basins. PennDOT requires the addition of separate service areas for the two (2) coastal zones, therefore two service areas exclusive to these coastal zones have been added to the PWRP Service Areas for PennDOT's Wetland Mitigation Banks. Figure 1 identifies the proposed service areas. These watershed-based divisions were delineated in consultation with PADEP and USACE and represent marketable service area sizes to improve prospects for future mitigation bank development. The Snitz Creek Park Wetland Bank is located in Service Area 7 on the Figure.

Figure 2: PennDOT Wetland Banking Service Areas



Ownership Arrangements

North Cornwall Township will continue to own the property, and they will maintain the wetland after it is constructed and well established. Declarations of Restrictive Covenants will be applied to this wetland mitigation bank to assure that the mitigation area is protected in perpetuity in its natural condition and to prevent any use that will impair or interfere with its natural resource functions and values. Initial integrity monitoring including an evaluation of the effectiveness of measures implemented during construction for the control of the invasive, reed canary grass will be conducted by the U.S. Fish and Wildlife Service. PennDOT will conduct routine wetland monitoring and reporting for the site as specified previously.

Qualifications of Sponsor

PennDOT has been engaged in the development of advanced compensation and mitigation banking for wetland habitat since the mid 1990s. To date twenty two (22) wetland mitigation bank sites have been developed by PennDOT. Two USACE Districts (Baltimore and Pittsburgh) have jurisdictional authority over these existing banks, with eleven existing mitigation banks each. All of the sites developed to date have been constructed and monitored in compliance with associated permits and the debiting of credits from many of the sites has been approved as mitigation for unavoidable wetland impacts resulting from transportation improvements. In addition to successful completion and management of these wetland mitigation banks, PennDOT has developed numerous project specific wetland mitigation sites over the course of the past 25 – 30 years. This long term experience qualifies PennDOT as a sponsor for the continued development and management of wetland mitigation banks.

Ecological Suitability

The soils and hydrology observed at the Snitz Creek Wetland Bank Site are ideal for development as a wetland bank. The site is located in a perennial stream flood plain within the Great Valley Section of the Ridge and Valley physiographic province. Hydrology within the study area is conveyed via overland sheet flow to the west and directly into Snitz Creek. Runoff and flooding along Snitz Creek are precipitation dependent. The highest annual discharges typically occur in late winter and early spring when groundwater is at a surplus and higher surface runoff rates occur. The driest periods occur in late summer and early fall during periods of increased evapotranspiration and decreased precipitation.

The two distinct soils present on the site consist principally of Melvin Variant and Linsdale Series (Figure 3). The Melvin Variant are poorly drained soils with hydric inclusions and the Linsdale a moderately well drained soil typical to floodplains. During the Geologic and geomorphology study, excavation and mapping (Figure 4) of nine deep backhoe trenches was undertaken to confirm soils, hydrology and low probability for archeological resources. The

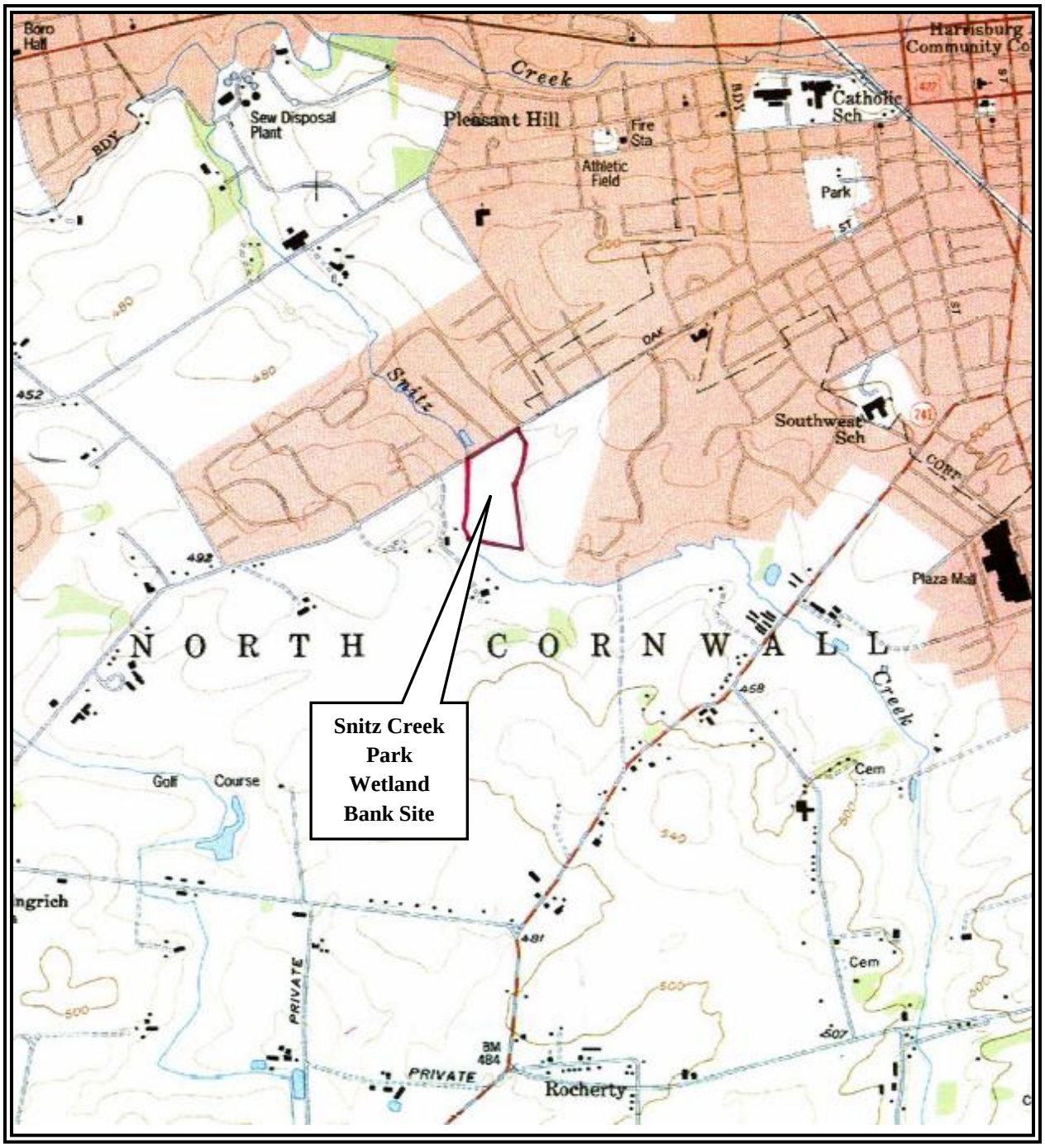
soils were found to contain considerable clay content and groundwater was intercepted within one foot. The well developed floodplain soils indicate thousands of years of poor soil drainage and persistent wetlands, supporting the adequacy of hydrology for the planned wetland bank and the low probability of the site having been used in the past for prehistoric occupation.

Snitz Creek flows from south to north along the western boundary of the study area. There is a 0.72 acre narrow emergent wetland fringe adjacent to Snitz Creek in the area to be planted as a riparian buffer. One additional 0.01 acre isolated emergent wetland located in a depressed area of the floodplain was also identified on site. The wetland vegetation was dominated by reed canary grass, teasel, smartweed, jewelweed, purple-leaf willow-herb, and silky dogwood. Indicators of wetland hydrology observed included saturation in the upper 12 inches of the soil profile, water marks and oxidized root channels in the upper 12 inches of the soil profile.

The conceptual restoration design approach (Figure 4) incorporates a low berm approximately two to three feet in height and approximately 1400 feet long with incorporated water control structures to allow dewatering and for emergency spillway purposes. The use of a dike structure assures that adequate hydrology to support the wetland will be captured and that excessive amounts of water can be regulated. In consideration of controlling the spread of reed canary grass on the developed wetland bank site the top sod will be removed and buried in the dike to prevent re-growth. The site will be seeded with native species immediately following grading and grading will be over accentuated to create microhabitats to further minimizing reestablishment of this invasive plant.

Water Rights

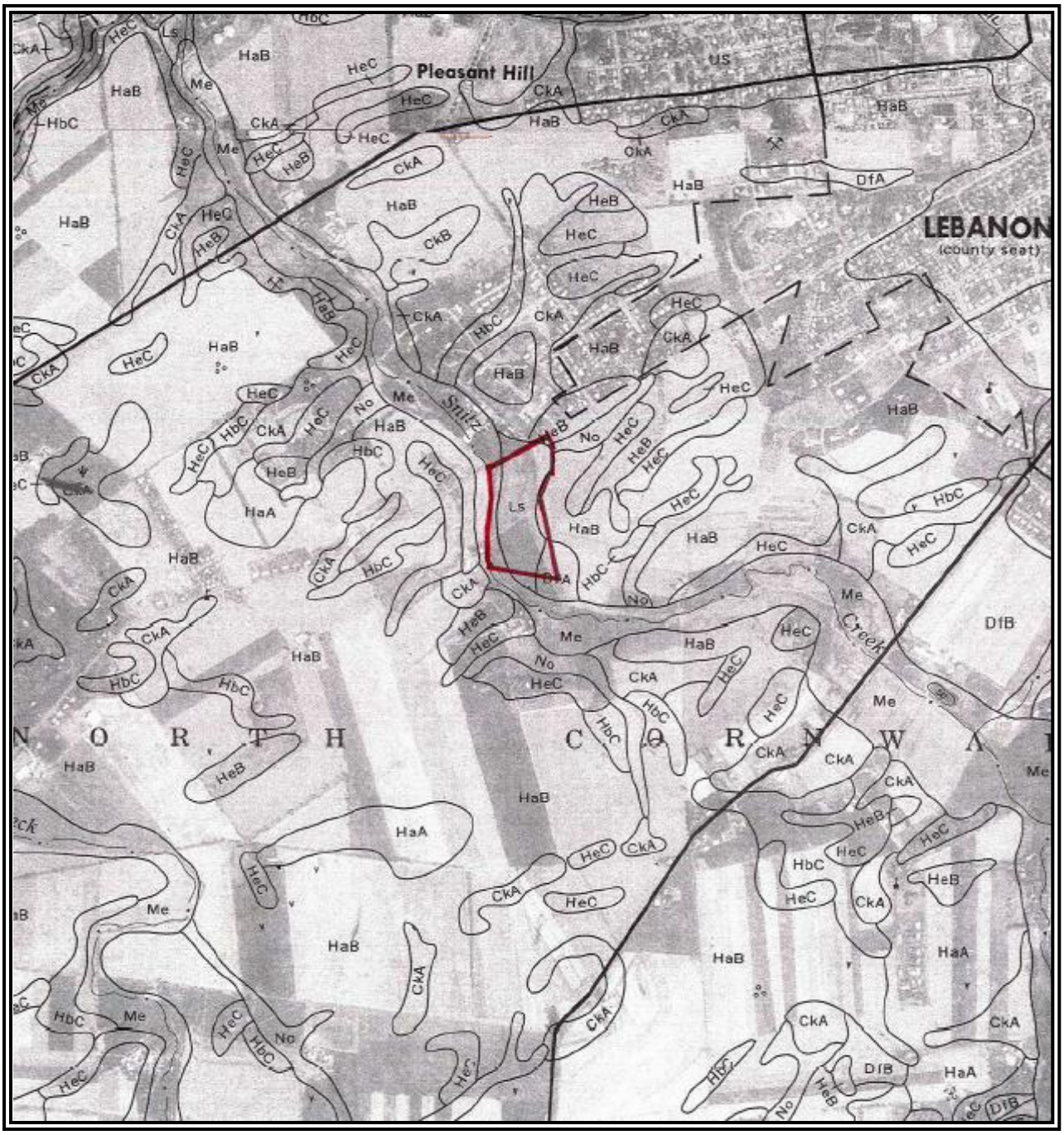
The site has sufficient hydrology to support wetland development and maintenance. Based upon the soil test pits, evidence of suitable groundwater hydrology was observed at approximately one (1) foot below the ground surface. The soil texture is silt loam and clay loam. Site design will integrate a low berm and a water control structure to assure that water levels are adjusted within the first few years in a manner that maximizes the establishment of Palustrine emergent and Palustrine scrub shrub wetlands. Once the site has become established it is anticipated that water level manipulation will be rarely necessary.



Legend: SCALE 1" = 2,000'

Property Boundary

Figure 1: USGS Map for the Snitz Creek Park Wetland Mitigation Bank
Lebanon, PA – 7.5 minute USGS Topographic Quadrangle 1995
North Cornwall Township, Lebanon County, Pennsylvania



Legend: SCALE: 1” = 1,667’

Property Boundary

Figure 3: Soil Map for the Snitz Creek Park Wetland Mitigation Bank
Soil Survey of Lebanon County, PA 1991
North Cornwall Township, Lebanon County, Pennsylvania

Figure 4. Conceptual Plan