



Mitigation and Monitoring Plan

Union Square Development Site
Green, Summit County, Ohio

June 2012



OHIO WETLANDS
FOUNDATION



A Division of The Davey Tree Expert Company



Mitigation and Monitoring Plan

Union Square Development Site Green, Summit County, Ohio

June, 2012

Prepared for:

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and

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Introduction

Union Square Investments, Ltd. and Diebold Incorporated (Co-Applicants) are proposing to construct a mixed use development project (Union Square) located in the City of Green, Summit County, Ohio. In order to compensate for the unavoidable impacts to wetlands at the Union Square development site, the applicant has retained Ohio Wetlands Foundation (OWF) to complete the development of this off-site mitigation and monitoring plan. OWF proposes to complete the compensatory mitigation for wetlands impacts at the Little Stillwater site located in Franklin Township, Harrison County, Ohio.

This *Mitigation and Monitoring Plan* was prepared by Davey Resource Group for OWF using the U.S. Army Corps of Engineers (USACE) rule for compensatory mitigation for losses of aquatic resources. Specifically, this document complies with §332.4 and includes the components listed in paragraphs (c) (2) through (c) (14) of this section of the USACE rule.

Details of the Little Stillwater mitigation project are provided in this comprehensive mitigation and monitoring plan for the Union Square development project. An overview of the locations of the mitigation site and the impact site is provided on the map in Appendix A. The Union Square development site and the proposed wetlands mitigation area are all located within the Tuscarawas River Watershed (HUC 05040001).

The wetland impacts for the Union Square project include 4.605 acres of forested wetlands and 1.925 acre of non-forested wetlands; all wetlands impacted are ORAM Category 1 or 2 wetlands. For a complete list of the wetland impacts and compensatory mitigation provided at the Little Stillwater site see Table 1.

The 11.5-acre Little Stillwater mitigation area is located south of U.S. 250 (Appendix B). This site is part of a larger, 86-acre parcel owned by the Harrison County Commissioners. The restoration area has been used for agriculture for many years and contains numerous underground drainage tiles. It is believed that prior to being cleared and drained, the site would have been mostly forested and scrub/shrub wetland surrounded by a mixed riparian forest. The final boundary of the mitigation area for the Union Square project will be defined after construction and planting, during the first year of monitoring. This will be after hydrology and vegetation communities have started to become established to ensure that an adequate amount of mitigation for the Union Square project will be provided on the mitigation site.

The applicant is seeking a Section 401 Water Quality Certification from Ohio Environmental Protection Agency (EPA) and a Section 404 Individual Permit from the USACE. A minimum of 4.6 acres of forested wetlands and 2.0 acres of non-forested wetlands will be re-established on the Little Stillwater site. This will provide the required compensatory mitigation for wetland impacts that will occur at the Union Square project.

Table 1. The Union Square Wetlands Impacts and Mitigation Provided at Little Stillwater

Wetland	Total Area (acres)	Connectivity	Vegetation	Impacts (acres)	ORAM Category	Ratio for Mitigation Provided at Little Stillwater	Required Restoration
A	0.795	Non-isolated	Lowland woods	0	Modified 2	1:1	0
B	2.548	Non-isolated	Lowland woods, scrub/shrub	0.328	2	1:1	0.328
C	4.318	Non-isolated	Scrub/shrub, emergent	0.480	2	1:1	0.480
D	1.338	Non-isolated	Lowland woods, scrub/shrub	1.321	Modified 2	1:1	1.321
E	0.038	Isolated	Emergent	0.038	Modified 2	1:1	0.038
F	0.007	Isolated	Emergent	0.007	1	1:1	0.007
G	0.329	Non-isolated	Lowland woods	0.149	Modified 2	1:1	0.149
H	0.069	Non-isolated	Scrub/shrub	0.069	2	1:1	0.069
I	0.150	Non-isolated	Lowland woods	0.150	Modified 2	1:1	0.150
J	0.065	Non-isolated	Emergent	0.065	1	1:1	0.065
K	0.147	Isolated	Emergent	0.147	1	1:1	0.147
L	0.019	Isolated	Emergent	0.019	1	1:1	0.019
M	1.747	Non-isolated	Scrub/shrub, emergent	0.444	Modified 2	1:1	0.444
N	0.204	Non-isolated	Lowland woods, scrub/shrub, emergent	0.204	Modified 2	1:1	0.204
O	0.442	Non-isolated	Lowland woods, scrub/shrub, emergent	0.442	2	1:1	0.442
P	0.005	Isolated	Emergent	0.005	1	1:1	0.005
Q	2.006	Non-isolated	Lowland woods, scrub/shrub, emergent	2.006	2	1:1	2.006
R	0.550	Non-isolated	Scrub/shrub	0.550	2	1:1	0.550
S	0.029	Non-isolated	Emergent	0	1	1:1	0
T	0.101	Non-isolated	Scrub/shrub	0.101	Modified 2	1:1	0.101
U	0.016	Non-isolated	Emergent	0	1	1:1	0
V	0.007	Non-isolated	Emergent	0	Modified 2	1:1	0
W	0.005	Isolated	Lowland woods	0.005	Modified 2	1:1	0.005
Total	14.935			6.530			6.530

Objectives

The primary objective of the proposed wetland mitigation at the Little Stillwater Site is to restore 6.6 acres of forested and non-forested wetlands through re-establishment and rehabilitate 2.4 acres of non-forested wetlands. Specifically, the Little Stillwater Site will be designed, constructed, and managed to attain the following basic goals:

- **Re-establish 2.0 acres of non-forested wetlands.** Restoration of high-quality, emergent wetlands will take place through construction of a small berm, microtopography restoration, disruption of existing subsurface tiles, installation of ditch plugs, and supplemental plantings of native vegetation. This re-establishment of a high-quality wetlands ecosystem will result in a gain in aquatic resource area and functions not currently present. The site will be maintained as described in the *Mitigation Work Plan* section of this document. A diverse wetlands ecosystem will be restored in an area where it likely historically existed prior to the conversion of the site for agricultural uses.
- **Re-establish 4.6 acres forested wetlands.** Restoration of high-quality forested wetlands will take place through microtopography restoration, disruption of existing sub surface tiles, installation of ditch plugs, and supplemental plantings of native vegetation. This re-establishment of a high-quality wetlands ecosystem will result in a gain in aquatic resource area and functions not currently present. The site will be maintained as described in the *Mitigation Work Plan* section of this document.
- **Rehabilitate 2.4 acres wet meadow wetlands.** One low-quality Category 2 wetland exists on the site in a depression. Rehabilitation of this area will be accomplished through invasive species control, restoration of hydrology with ditch plugs, disruption of the sub-surface tile, and supplemental plantings of native vegetation. This rehabilitation of a low-quality wetland ecosystem does not result in a gain of aquatic resource area but does improve species diversity and restore hydrology more closely to what existed prior to this land being put into crop production decades ago. The rehabilitation efforts will, therefore, result in a gain of aquatic resource functions; no adverse impacts to any existing aquatic resource functions will occur.

Appendix C contains the habitat map and construction drawings for the proposed wetlands restoration at the Little Stillwater Site. The final boundary of the wetland mitigation area for the Union Square project will be defined during the first year of monitoring. At this point in time, hydrology and vegetation communities should be established enough to ensure that an adequate amount of mitigation for the Union Square project will be provided on the mitigation site. The report section entitled *Performance Standards* contains details on how the success of high-quality wetlands restoration will be measured.

Site Selection

Harrison County Board of Commissioners acquired the project parcel with the assistance of a Clean Ohio grant. In fall 2007, the County contacted Ohio Wetlands Foundation to assist in determining the feasibility to use the site for compensatory mitigation. The wetlands restoration proposed at the Little Stillwater Site will promote the protection and restoration of the Little Stillwater Creek riparian corridor and floodplain located on the property. In addition, the wetlands functions that will be restored on the site will further aid in improving the water quality and the cessation of farming on the property will reduce nutrient loading and sedimentation in this section of Little Stillwater Creek.

Little Stillwater Creek has little remaining natural riparian corridor, floodplain, and wetlands. Most of this area has been farmed for many decades. Restoration of wetlands on this property represents a first step in restoring the natural functions and values of the riparian corridor and floodplain of Little Stillwater Creek.

Locating a wetlands mitigation project on the selected site provides a practicable mitigation solution on a property where there is a very high likelihood of accomplishing the goals of this plan and establishing an ecologically, self-sustaining restoration of aquatic resources.

Site Protection Instrument

The Little Stillwater Site is owned by Harrison County Commissioners. Ohio Wetlands Foundation will be responsible for the implementation of the wetlands mitigation plan, including construction, monitoring, maintenance, and, if necessary, remedial activities. The Harrison County Soil and Water Conservation District or other entity meeting the requirements of Ohio Revised Code §5301.69 will hold a permanent conservation easement on the project site. The conservation easement will include the entire mitigation site proposed for the Union Square Project as well as the area proposed for the Robert L. Stark Enterprises, Inc. (permit numbers pending) and the J.M. Smucker Mitigation Project (permit numbers: USACE 2010-00378-TUS and Ohio EPA ID No. 103698). This approach will protect the site in advance of the mitigation bank being authorized and allow for flexibility in determining the boundary or limits of the mitigation project for the Union Square Project. The draft easement is contained in Appendix D.

Baseline Information

The site was last used for row crops in 2006 and in recent years, the site has been used primarily for hay production. One existing wetland was delineated within the Union Square mitigation site. This wetland is a 2.382-acre wet meadow with an ORAM score of 35, placing it within the range of Modified Class 2 wetlands. An existing conditions map of the site is in Appendix E.

The mitigation site is shown on the Deersville Quadrangle of the United States Geological Survey (USGS) map in Appendix F. Elevations on the site are around 878 feet. The National Wetlands Inventory (NWI) map (Deersville Quadrangle) is in Appendix G. No NWI-mapped wetlands appear to be located within the mitigation site.



Photograph 1 (November 3, 2008). The majority of the site is primarily used for agricultural purposes.

A map showing soil types located on and adjacent to the site from the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (2007) is in Appendix H. Caneadea silty clay loam soil (CcA, 0 to 2 percent slopes) is the only mapped soil type on the site. This soil is classified as a hydric soil by NRCS and is somewhat poorly drained and its permeability is very slow. The depth to an intermittent perched water table is 0.5 to 1.0 foot from November to May in most years. The NRCS hydric soils list for Harrison County indicates that on average about 15 percent of the Caneadea soil is hydric.

Observations of soils on the site during the wetland delineation suggest that the extent of hydric soils, as defined by the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), is far greater than 15 percent of the land area for this project. In general, most of the areas planned for wetland re-establishment contain hydric soils, and other areas contain soils that barely meet non-hydric soil criteria. The high clay content combined with the poorly drained and somewhat poorly drained nature of these soils make them very suitable for wetlands restoration.

A review of the Natural Heritage maps and files by Ohio DNR Division of Natural Areas and Preserves (DNAP) indicated that no records of rare or endangered species are located in the project area or within a one-mile radius of the site (Appendix I). No unique ecological sites, geological features, or animal assemblages or state parks, nature preserves, forests, or wildlife areas are found within a one-mile radius of the project area. Two parcels owned by the Muskingum Watershed Conservancy District associated with Tappan Lake are located within one mile of the site, including one parcel that is directly east of the project area.

Ohio Historic Preservation Office (OHPO) was contacted for information of important cultural resources recorded for the project area and the surrounding lands. The search reviewed files from the Ohio Archaeological Inventory, Ohio Historic Inventory, and National Register of Historic Places. Just north of the site and to the north of U.S. 250 is the Law, Henry, Farm Historic District. Two archaeological sites, Huss Site #1 and Huss Site #2, are also located within this area. None of the listed resources are located within the project area. A copy of the OHPO findings is included in Appendix J.

Mitigation Work Plan

Restoring Hydrology

Tile Search

Many of the sub-surface drainage tiles have been located in the field with a GPS unit and are shown on the map in Appendix C. These known tiles will be disrupted and disabled to ensure the restoration of pre-agricultural historical site hydrology. In addition, a tile search will be conducted to locate additional tiles on the site. A track hoe or similar piece of construction equipment will be used to excavate a trench to a depth of at least 4 feet. Tiles discovered in the search will be crushed and disabled. Once disabled, tile lines will be excavated for approximately 15 feet inward from the trench and refilled to create compacted clayey soil plugs that will block the flow of water through the lines.

Topography and Hydrology

The project is located along Little Stillwater Creek, immediately downstream of the Tappan Lake Dam. Remnants of the original creek meanders still exist outside of the subject mitigation area. Elevations of the agricultural field range from 866 feet to 868 feet. The fields are smooth and nearly level, with minor local depressions smoothed from the decades of farming. U.S. 250, along the northern portion of the property, was constructed 7 to 10 feet higher than the adjacent fields in order to elevate it out of the Little Stillwater floodplain.

Earth Embankment Construction and Microtopography Restoration

One broad, low earth embankment (0 to 3 feet high with 15:1 side slopes) will be created as shown on the construction site plans in Appendix C. The berm will establish a wetland cell with a normal pool elevation of 867.5 feet. The forested wetlands will have saturated soils and little or no standing water during the growing season, and the emergent wetlands will typically have standing water depths ranging from 0 to 18 inches. A few depressions will provide temporary, maximum water depths of 24 inches; however, actual water depths will vary in accordance with hydrologic and precipitation patterns.

The center portion of the earth embankment will be created of compacted clayey soils. The 15:1 front and back slopes of the embankment will be comprised of excess soils excavated from on site. The ground surface of the entire pool area created by each embankment will have a minimum of 6 inches of topsoil placed on it.

Ruts caused by the movement of construction equipment through the site will be encouraged and left ungraded so that microtopographic features and small pools can be restored to this area. During the construction process, care will be taken to avoid over-compaction of the soil to provide a more suitable planting substrate.

Planting Plan

The goal of this project is to re-establish a minimum of 4.6 acres of forested wetland habitat and 2.0 acre of non-forested wetland habitat and enhance 2.4 acres of non-forested wetlands habitat within the mitigation area as shown on the habitat map in Appendix C.

The mitigation project goals establish that there will be a minimum of 75 percent relative cover of native hydrophytic vegetation within the restored wetlands by the end of the monitoring period. Within the restored forested wetlands, the performance goals require that there will be 400 vigorous, free-growing and healthy stems per acre at the end of monitoring. Vigorous and healthy woody plants within the reforested areas should exhibit twig elongation and foliage typical for its species. Free growing is defined as those woody plants having breached the existing herbaceous layer and are no longer being negatively influenced by this vegetation layer.

In order to achieve the goal of 400 viable stems per acre, of which 200 will be tree species, in the restored forested areas with reasonable certainty, a minimum of 400 stems per acre will be planted. Typically, bare-root stock will be utilized; however, the use of cuttings, tree bands, container plants, tree spaded, balled and burlapped plant materials, and Root Production Method (RPM) trees may also be used on a limited basis. Additional tree plantings may be implemented after the mid-term (fifth year) monitoring report is completed, if gathered data at that time indicate that it is necessary to meet the performance standards.

The species under consideration are provided in Appendix K. At a minimum, eight species of trees and eight species of shrubs will be planted to ensure species diversity on the site. The species planted will be native to the region as described in Andreas, et al., 2004; Braun, 1967; Furlow, unpublished; Cooperider, 1995; and Fisher, 1988.

A forested habitat will be created throughout most of the restoration area and be designed to have an integrated upland and wetlands community wherever appropriate. Numerous wetlands pools and depressions will be created; none will be larger than a half-acre in size.

The pools will be encompassed by an extensive hummock-hollow terrain similar to what probably existed prior to years of agricultural use. Depending on post-construction site hydrology, wetlands plantings may also include a selection of wetlands forbs (Appendix K).

Planting Methods

Planting will generally be performed by hand in early spring when soil conditions are suitable for planting. Some planting of the larger stock may occur in the fall season as appropriate per species and soil conditions, but smaller bare root stock will be planted in the spring to minimize frost heave. Where possible, planting will occur while plants are still dormant and prior to budbreak.

No soil amendments will be used or added during planting. Only organic fertilizers, water gels, biostimulants, and beneficial mycorrhizae fungi products, appropriate for each species and size of tree, will be used at the time of planting. Detailed soil samples of the site will dictate the use, formulas, and types of these products.

Areas disturbed during construction will be seeded. A diverse, native seed mix of native grasses, sedges, shrubs, and forbs will be sown to stabilize soils, minimize compaction, and improve overall plant diversity within restored wetlands and emergent areas. Areas where emergent wetlands are anticipated will be seeded with an emergent wetland seed mix at a rate recommended by the supplier. A sedge, wet meadow seed mix will be applied to areas that will have hydrology varying from seasonal inundation to soil saturation. Disturbed upland areas will be sown with a seed mix that includes *Elymus virginiana* (Virginia wild-rye), *E. canadensis* (Canada rye), *E. riparius* (riverbank wild-rye), and *Hystrix patula* (bottlebrush grass).

Maintenance Plan

Vegetation Control

Invasive plant treatments will occur annually, as needed. Invasive plants species identified within and around the restoration area will be treated with a glyphosate herbicide specifically labeled for use in wetlands before they are able to set seed. Foliar application rates will be in accordance with label specifications. Delineation and reporting of invasive plant cover will occur in Years 3, 5, 7, and 10 following construction and planting.

There will be less than 5 percent relative cover of *Typha* spp. and less than 10 percent relative vegetative cover of all invasive plant species including *Typha* spp., as listed in Table 2 within the restored wetland areas that are receiving mitigation credit. The total relative cover of all invasive species, including all *Typha* spp., will be less than 10 percent.

Table 2. Invasive Plant Species

Species	Common Name	Species	Common Name
<i>Ailanthus altissima</i>	tree-of-heaven	<i>Myriophyllum spicatum</i>	European milfoil
<i>Alliaria petiolata</i>	garlic mustard	<i>Najas minor</i>	lesser naiad
<i>Berberis thunbergii</i>	Japanese barberry	<i>Nasturtium officinale</i>	watercress
<i>Butomus umbellatus</i>	flowering rush	<i>Phalaris arundinacea</i>	reed canary grass
<i>Celastrus orbiculatus</i>	Asian bittersweet	<i>Phragmites australis</i>	common reed
<i>Elaeagnus angustifolia</i>	Russian olive	<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Elaeagnus umbellata</i>	autumn olive	<i>Potamogeton crispus</i>	curly pondweed
<i>Euonymus alatus</i>	winged euonymus	<i>Ranunculus ficaria</i>	lesser celandine
<i>Euonymus fortunei</i>	wintercreeper	<i>Rhamnus cathartica</i>	common buckthorn
<i>Iris pseudacorus</i>	yellow flag	<i>Rhamnus frangula</i>	glossy buckthorn
<i>Ligustrum vulgare</i>	common privet	<i>Rosa multiflora</i>	multiflora rose
<i>Lonicera japonica</i>	Japanese honeysuckle	<i>Typha angustifolia</i>	narrow-leaved cattail
<i>Lonicera maackii</i>	amur honeysuckle	<i>Typha x glauca</i>	hybrid cattail
<i>Lonicera morrowii</i>	Morrow honeysuckle	<i>Virburnum opulus var. opulus</i>	European cranberry-bush
<i>Lonicera tartarica</i>	tartarian honeysuckle	<i>Vinca minor</i>	periwinkle
<i>Lythrum salicaria</i>	purple loosestrife		

Hydrology

Post-construction maintenance may include corrective earthwork upon discovery of any additional swales, failed ditch plugs, or operational subsurface tiles found to be negatively affecting the restoration area's hydrology.

Performance Standards

The long-term goal is to develop and manage the site such that high-quality, forested wetlands and non-forested wetlands are restored within the mitigation area. A complementary blend of emergent, scrub/shrub, and forested wetland communities are planned as depicted on the Little Stillwater habitat map in Appendix C. Both re-establishment and rehabilitation measures are proposed. Given the long-term nature of forest succession (multi-decadal), it is understood that a high-quality forest will not be fully developed by the end of the monitoring period. The following performance standards will be achieved on the site.

1. Restored wetlands, including re-established and enhanced wetlands, (*i.e.*, restored depressional wetlands, including swamp forest and marsh) shall meet minimum **VIBI scores of 51** (Category 2, Western Allegheny Plateau Region).
2. There will be **less than 10 percent un-vegetated open water areas within the mitigation site**. Un-vegetated open water is defined as permanently to regularly inundated areas where there is no or minimal emergent, rooted aquatic bed (*e.g.*, *Nuphar advena*, *Nymphaeae odorata*, *Potamogeton* spp.), or submersed or floating, non-rooted aquatic bed (*e.g.*, *Utricularia* spp., *Ceratophyllum* spp., excluding species in the family *Lemnaceae*) vegetation growing in the area of inundation, but does not include inundated areas where there is a closed canopy of living trees or shrubs over the area of inundation.
3. The goal is to **re-establish 6.6 acres of wetlands and enhance 2.4 acres of wetlands**. Wetlands delineations following the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and applicable regional supplement will be performed in Years 3 and 5 after construction and planting. The full delineation for Year 5 may be waived if Year 3 shows good potential with no major issues. A review of potential wetland areas will be implemented in Year 1 and will include vegetation, soils, and hydrology sampling at designated sampling locations.
4. For the projected 4.6 acres of forested wetlands re-establishment, the goal will be **400 vigorously free-growing and healthy woody plants per acre, of which a minimum of 200 will be tree species**. To demonstrate that these areas are on a trajectory to being forested communities in the long run, frequency, density, and dominance data will be recorded from the established VIBI plots. This information as well as importance values will be graphed against time.
5. There will be **less than 5 percent relative cover of *Typha* spp. and less than 10 percent relative cover of all other invasive plant species including *Typha* spp.** as listed in Table 2 of this document in the restored wetland areas. These species will be managed through active methods of invasive plant control as necessary. The total relative cover of all invasive species, including *Typha* spp., will be less than 10 percent.
6. There will be at least **75 percent relative cover of native hydrophytes** within the restored wetlands. If it appears during the monitoring period that the project is not on a strong trajectory to meeting this goal, appropriate planting measures will be implemented.

Monitoring Requirements

Monitoring Methods

Because forested wetlands take many years to develop, monitoring will occur over 10 years. Monitoring will occur 1, 3, 5, 7, and 10 years after completion of construction and planting. Site visits will be scheduled with Ohio EPA and USACE after the submittal of Years 3 and 7 monitoring reports to review and discuss the success of the mitigation site. Additional site visits by the USACE and the Ohio EPA may be implemented as desired and/or needed. If the agencies agree, and all of the monitoring goals have been met before the end of the 10-year monitoring period, monitoring will cease.

A minimum of six photograph monitoring stakes will be installed at appropriate locations within the mitigation area following construction. These will be located based on the projected habitat types and hydrologic situations. The actual location and number of stakes will be dependent on the site conditions after construction. These stakes will be of an ultraviolet (UV), light-resistant polyvinyl chloride (PVC) material and will have permanent unique numbers. Photo documentation of site conditions will be taken at these locations and will include the stake and stake number. Subsequent photographs will be taken in the same area and with the same direction of view to allow for an accurate portrayal of site development over an extended time.

Comprehensive wetlands delineations will be conducted in Years 3, 5, 7, and 10, using the protocols in the 1987 Corps Manual and applicable Regional Supplement, including the use of field forms. The full delineation for Year 5 may be waived if Year 3 shows good potential with no major issues. A review of potential wetland areas will be implemented in Year 1 and will include vegetation, soils, and hydrology sampling at designated sampling locations.

VIBI Monitoring

Monitoring protocols will follow the *Integrated Wetlands Assessment Program: Part 9: Field Manual for the Vegetation Index of Biotic Integrity for Wetlands v. 1.4* (Mack, 2007). The Vegetation Index of Biotic Integrity (VIBI) is an intensive statistical wetlands monitoring methodology used by Ohio EPA at mitigation sites. The VIBI measures the ecological condition of wetlands.

One focus plot will be established in the restoration area. A VIBI score will be calculated using the data gathered from the focus plot. It is premature at this time to commit to the location of the focus plot until final earthwork is completed and site hydrology is re-established. The focus plot will be monitored in Years 3, 5, 7, and 10. Data collected will include soils, hydrology, and vegetation information, as well as stem counts of all woody vegetation present.

Hydrology

Water level data will be collected in spring and late summer in each monitoring year and included in the monitoring report.

Monitoring Report

A baseline as-built report will be submitted in a letter format within 90 days of completing construction and planting. It is anticipated that construction will occur in the fall and planting will begin the subsequent spring. The baseline letter report shall include the following information:

-  A drawing showing the as-built conditions of the mitigation area. This drawing will include water levels, as applicable. A full sized, 11- by 17-inch drawing will be provided.
-  Color photographs and a photograph location map.

- 🌿 A list of all seed mixes applied and a map showing locations and densities of installed trees, shrubs, and/or forbs will be provided. Wetlands Vegetation Indicator Status (Reed, 1988) and strata (e.g., herb or shrub) will also be included.

Monitoring reports will be prepared and submitted in Years 1, 3, 5, 7, and 10 from construction or until mitigation goals are met (additional monitoring reports may be completed, if appropriate). The reports will be submitted to Ohio EPA and USACE by December 31 of each monitoring year and will include the following information based upon data collected during the monitoring site visit within the growing season:

- 🌿 A copy of the as-built map.
- 🌿 Color photographs and a photograph location map.
- 🌿 A comprehensive plant species list.
- 🌿 Water depths and/or hydrological indicators and soil chromas.
- 🌿 VIBI data and analysis (Years 3, 5, 7, and 10).
- 🌿 Wetlands delineation (Years 3, 5, 7, and 10).
- 🌿 A discussion regarding whether or not the objectives of the mitigation project are being met and a plan with an implementation timetable to correct any deficiencies.

Long-Term Management Plan

Harrison County owns in fee simple the Little Stillwater property. Ohio Wetlands Foundation is responsible for the implementation of the Wetlands Mitigation and Monitoring Plan for the Union Square project, the monitoring of the site, and the implementation of any necessary remedial activities within the monitoring period. A permanent conservation easement will be placed on the site. The easement will be held by the Harrison Soil and Water Conservation District or other entity that meets ORC §5301.69 requirements for conservation easement holders. The Harrison County Commissioners will maintain the site for passive recreational use including, but not limited to, such uses as: bird watching, hunting, hiking, education, research, and fishing. The easement language will ensure that any modifications to the mitigation area will only be done after coordination and approval by USACE and Ohio EPA.

Adaptive Management Plan

A site visit with USACE, Ohio EPA, and OWF will be held in the growing season following the submittal of the Years 3 and 7 monitoring report. Additional site visits by USACE and Ohio EPA may be implemented as desired and/or needed. If the mitigation sites are not adequately vegetated by the end of the third year, a planting plan (or other remedial measures) will be developed by OWF and submitted to USACE and Ohio EPA for review and concurrence. Once written concurrence is received from USACE and Ohio EPA, OWF will implement the plan as soon as practical (depending on the planting season and timing of the approval of the plan).

Mitigation Funding

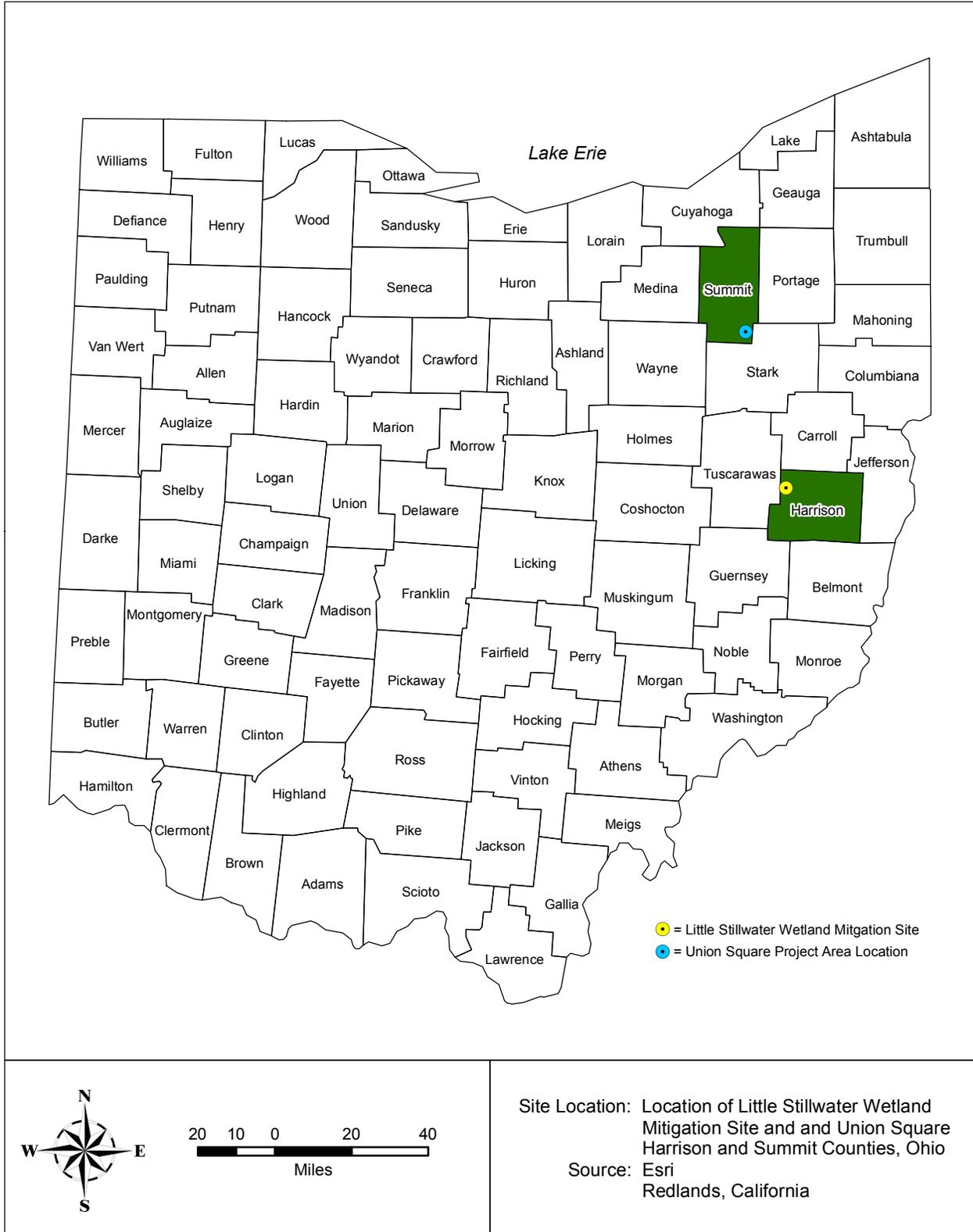
The Applicant will provide compensation to OWF for the completion of the mitigation project within 30 days of the permit issuance date. Confirmation of the payment of funds will be provided in writing by OWF to USACE and Ohio EPA.

References and Professional Staff

Please see Appendix M for a list of references consulted while conducting the field study and preparing this report and Appendix N for a list of Davey Resource Group professionals involved in the preparation of this document.

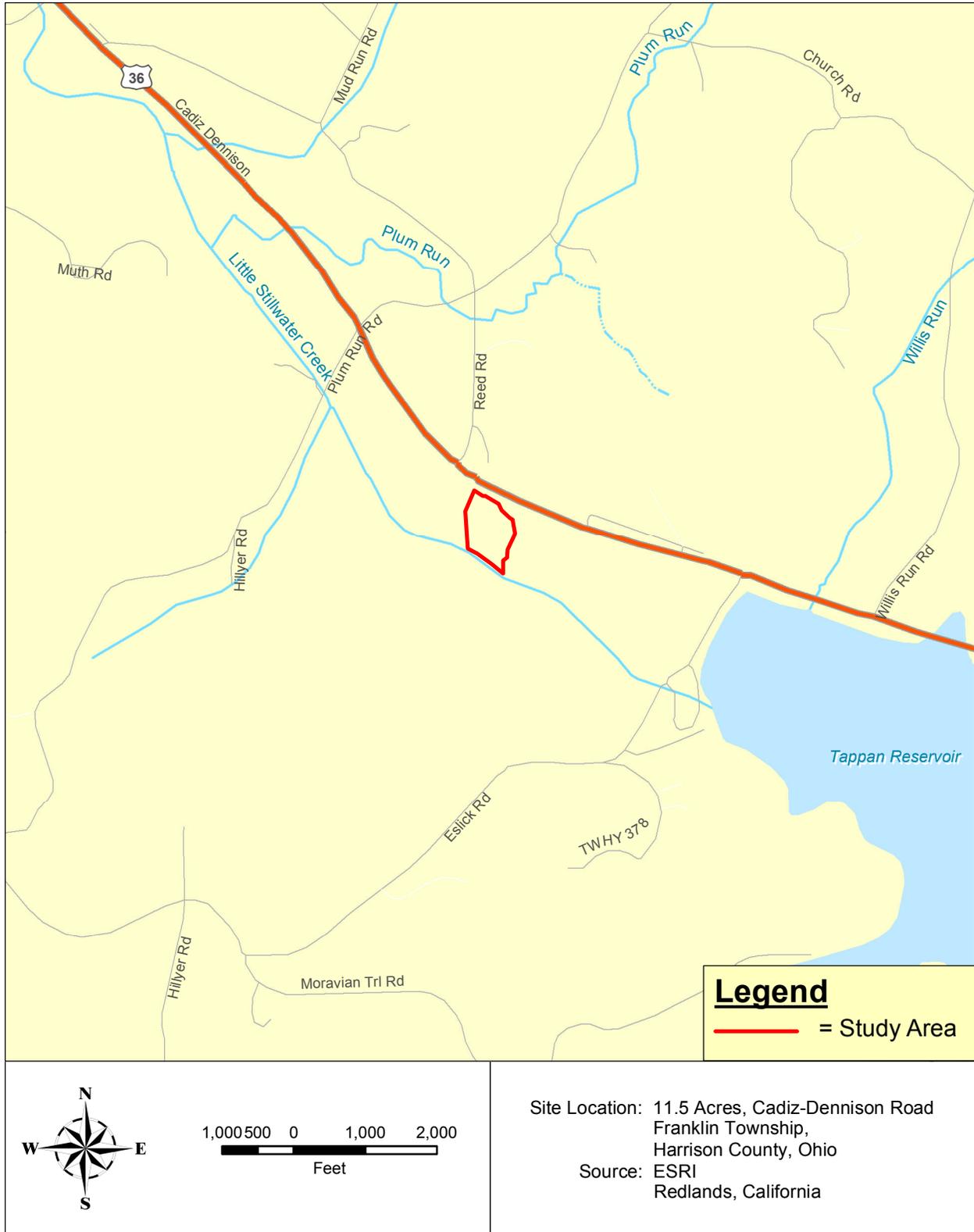
Appendix A

Locations of Sites in Harrison and Summit Counties, Ohio



Appendix B

Site Location on Highway Map



Appendix C

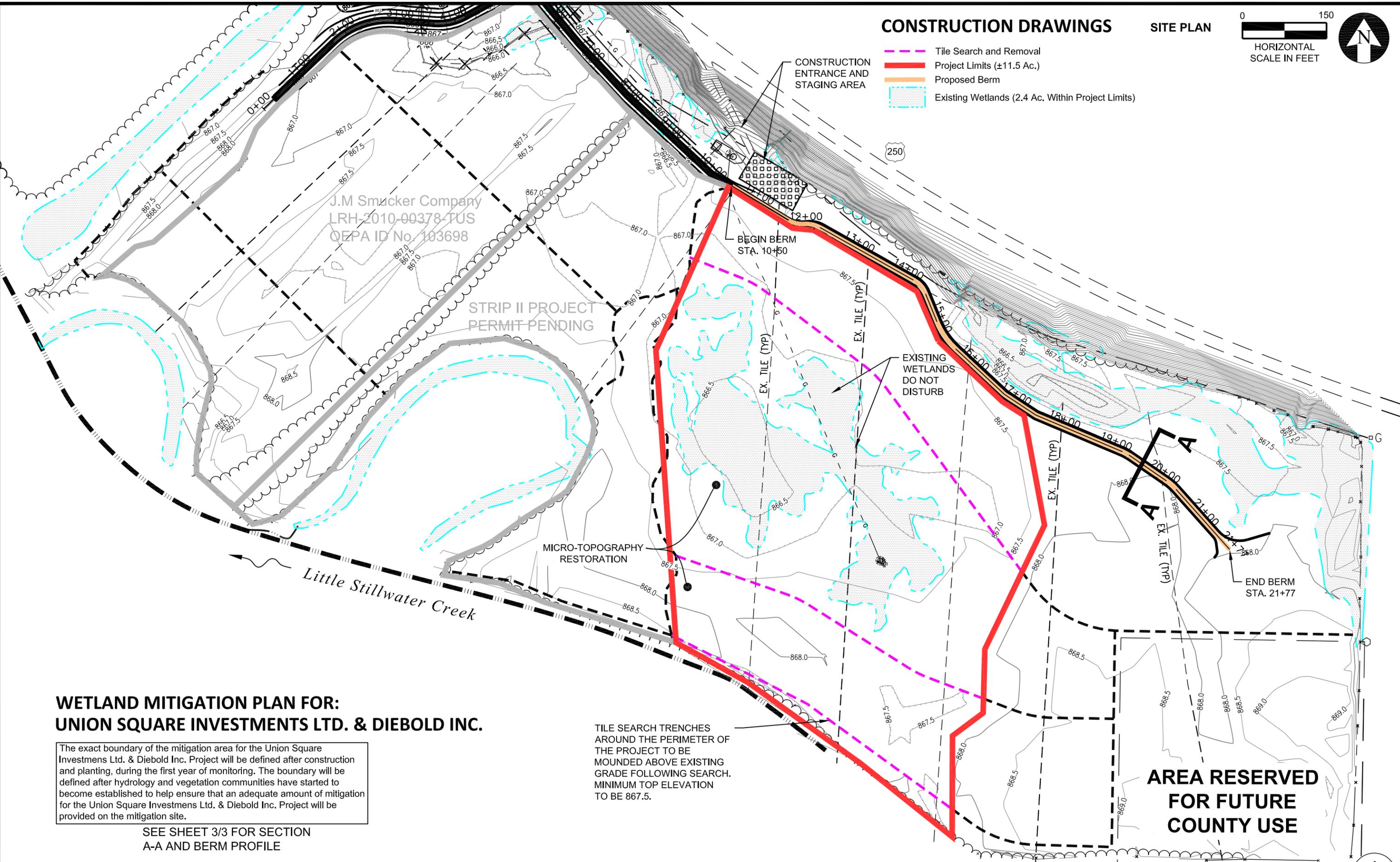
Habitat Map and Construction Drawings

CONSTRUCTION DRAWINGS

SITE PLAN



- Tile Search and Removal
- Project Limits (±11.5 Ac.)
- Proposed Berm
- Existing Wetlands (2.4 Ac. Within Project Limits)



J.M Smucker Company
LRH-2010-00378-TUS
OEPA ID No. 103698

STRIP II PROJECT
PERMIT PENDING

Little Stillwater Creek

**WETLAND MITIGATION PLAN FOR:
UNION SQUARE INVESTMENTS LTD. & DIEBOLD INC.**

The exact boundary of the mitigation area for the Union Square Investmens Ltd. & Diebold Inc. Project will be defined after construction and planting, during the first year of monitoring. The boundary will be defined after hydrology and vegetation communities have started to become established to help ensure that an adequate amount of mitigation for the Union Square Investmens Ltd. & Diebold Inc. Project will be provided on the mitigation site.

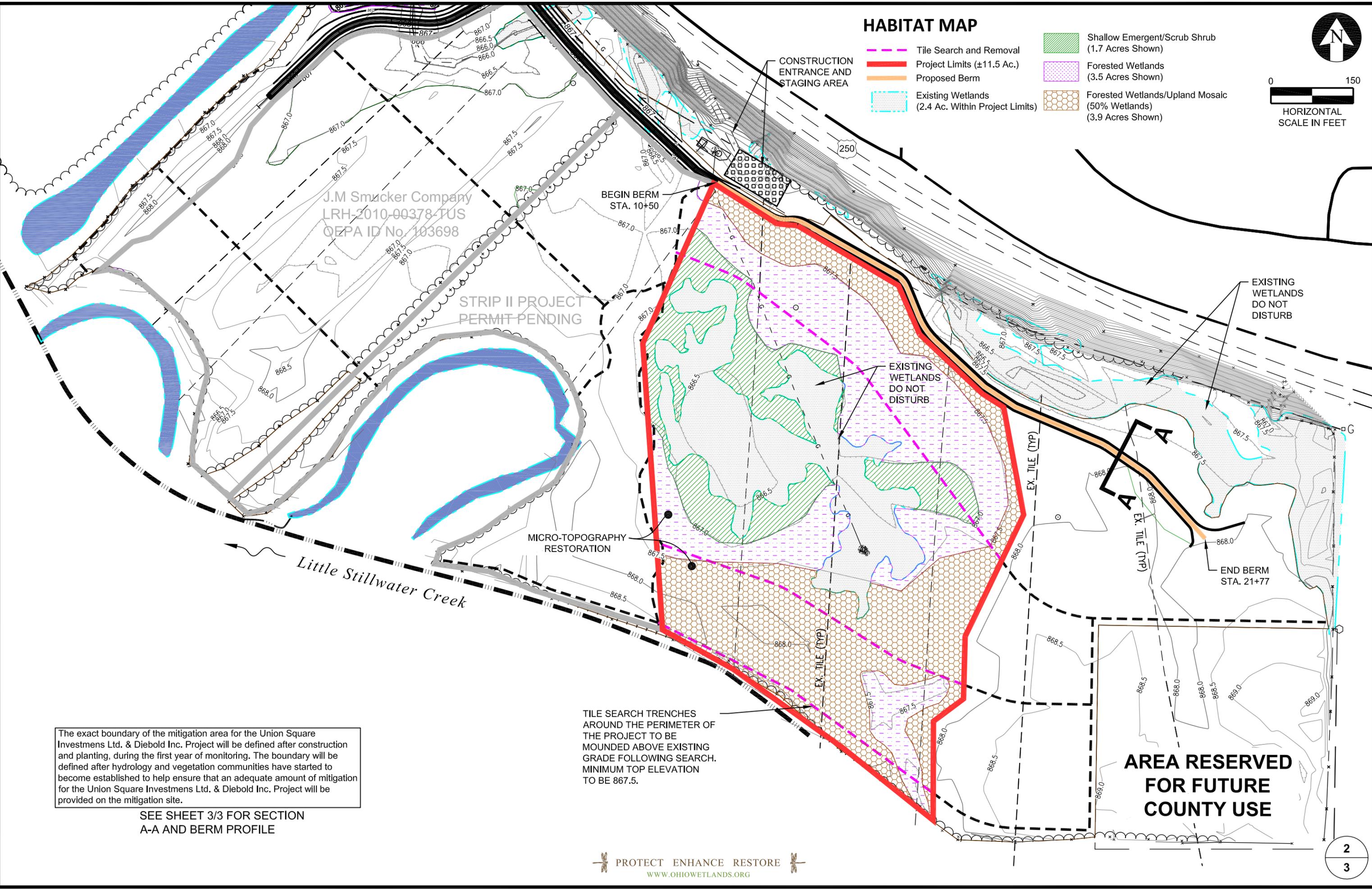
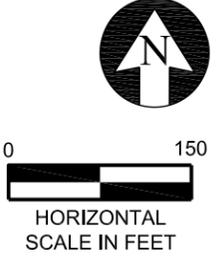
SEE SHEET 3/3 FOR SECTION
A-A AND BERM PROFILE

TILE SEARCH TRENCHES
AROUND THE PERIMETER OF
THE PROJECT TO BE
MOUNDED ABOVE EXISTING
GRADE FOLLOWING SEARCH.
MINIMUM TOP ELEVATION
TO BE 867.5.

**AREA RESERVED
FOR FUTURE
COUNTY USE**

HABITAT MAP

-  Tile Search and Removal
-  Project Limits (±11.5 Ac.)
-  Proposed Berm
-  Existing Wetlands (2.4 Ac. Within Project Limits)
-  Shallow Emergent/Scrub Shrub (1.7 Acres Shown)
-  Forested Wetlands (3.5 Acres Shown)
-  Forested Wetlands/Upland Mosaic (50% Wetlands) (3.9 Acres Shown)



J.M Smucker Company
LRH-2010-00378-TUS
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STRIP II PROJECT
PERMIT PENDING

Little Stillwater Creek

MICRO-TOPOGRAPHY
RESTORATION

BEGIN BERM
STA. 10+50

END BERM
STA. 21+77

EXISTING
WETLANDS
DO NOT
DISTURB

EXISTING
WETLANDS
DO NOT
DISTURB

TILE SEARCH TRENCHES
AROUND THE PERIMETER OF
THE PROJECT TO BE
MOUNDED ABOVE EXISTING
GRADE FOLLOWING SEARCH.
MINIMUM TOP ELEVATION
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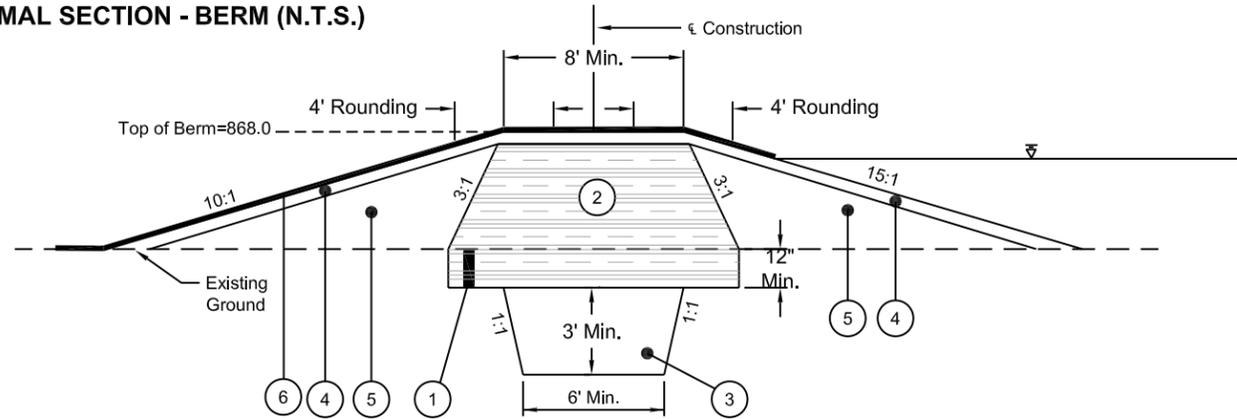
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SEE SHEET 3/3 FOR SECTION
A-A AND BERM PROFILE

PROFILES AND SECTIONS

SECTION A-A NORMAL SECTION - BERM (N.T.S.)

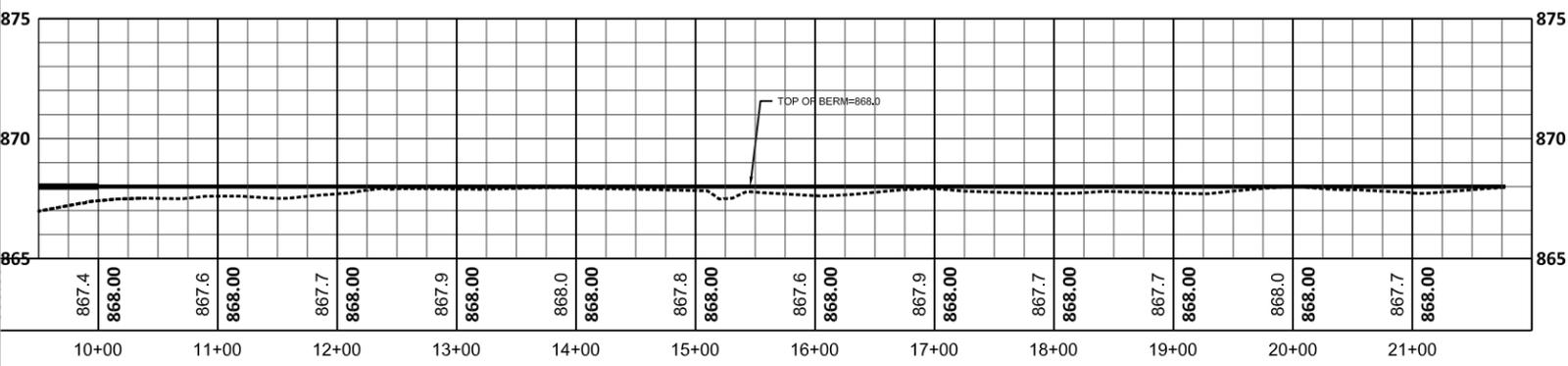


LEGEND

- ① Foundation Preparation
- ② Compacted Clay Berm
- ③ Compacted Clay Core Trench
- ④ Min. 6" topsoil, shall be free of all sod, roots, frozen soil, stones larger than 4" diameter, and all other questionable material.
- ⑤ Compacted soil, shall be free of all sod, roots, frozen soil, stones larger than 4" diameter, and all other questionable material.
- ⑥ Berm Seeding and Mulching

UNDERGROUND UTILITIES	
CONTACT BOTH SERVICES CALL TWO WORKING DAYS BEFORE YOU DIG	
	
CALL 1-800-362-2764 (TOLL FREE) OHIO UTILITIES PROTECTION SERVICE NON-MEMBERS MUST BE CALLED DIRECTLY	
OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988	

PROFILE ALONG CENTERLINE OF BERM



UTILITY LOCATIONS

LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND STRUCTURES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THEIR EXACT LOCATION AND ELEVATION WHEN WORKING IN THEIR VICINITY.

WHERE POTENTIAL GRADE CONFLICTS MIGHT OCCUR WITH EXISTING UTILITIES, THE CONTRACTOR SHALL UNCOVER SUCH UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT THE EXACT ELEVATION MAY BE DETERMINED AND THE NECESSARY ADJUSTMENTS MADE. COST OF THE ABOVE, IF ANY, WILL BE INCLUDED IN THE PRICE BID FOR THE PERTINENT ITEM.

LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL UTILITY LINES, SERVICES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THIS WORK SHALL BE INCLUDED WITH THE PRICE BID FOR THE PERTINENT ITEM, UNLESS OTHERWISE NOTED ON THE PLANS.

SITE PREPARATION

THE FOUNDATION AREA AND BORROW AREAS WILL BE CLEARED OF ALL TREES, STUMPS, ROOTS, BRUSH, ROCKS AND OTHER DEBRIS. THE DISPOSAL AREA FOR ALL CLEARED MATERIAL WILL BE SHOWN ON THE PLANS OR AT A LOCATION MUTUALLY ACCEPTABLE BY THE CONTRACTOR AND THE PROJECT OWNER.

THE FOUNDATION AREA WILL BE STRIPPED TO A MINIMUM OF 12 INCHES. AFTER STRIPPING, AN EXAMINATION OF THE FOUNDATION AREA WILL BE MADE BY THE PROJECT MANAGER AND ALL POCKETS OF ORGANIC SOIL, SAND AND GRAVELS, AND OTHER UNSUITABLE MATERIAL WILL BE REMOVED. ALL SLOPES WITHIN THE FOUNDATION AREA WILL BE NO STEEPER THAN 1:1 AND WILL BE SHAPED TO ACCOMMODATE COMPACTION EQUIPMENT.

BORROW AREAS WILL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER, AND OTHER UNSUITABLE MATERIALS.

TOPSOIL

THE TOPSOIL STOCKPILED DURING SITE PREPARATION SHALL BE PLACED AS A TOP DRESSING ON THE SURFACE OF THE EMERGENCY SPILLWAY, EARTH FILL, AND BORROW AREAS. TOPSOIL USED AS A TOP DRESSING SHALL BE FREE OF ALL SOD, ROOTS, STONES GREATER THAN 4 INCHES IN DIAMETER AND ALL OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL BE SPREAD ON THE ABOVE-MENTIONED LOCATIONS AT A MINIMUM DEPTH OF 6 INCHES. TOPSOIL MAY BE PLACED MORE THAN 6 INCHES DEEP IN AREAS SHOWN ON THE ON THE TYPICAL CROSS SECTIONS. THE CONSTRUCTION SEQUENCE OF BERMS SHALL BE DONE SO AS TO LIMIT THE AMOUNT OF TIME THE TOPSOIL IS STOCKPILED TO LESS THAN 60 DAYS. TOPSOIL STOCKPILES SHALL HAVE TEMPORARY SEEDING APPLIED TO IT IF IT IS TO BE STOCKPILED FOR MORE THAN 14 DAYS.

RESTORED MICRO-TOPOGRAPHY

THE CONTRACTOR SHALL DISRUPT THE SURFACE DRAINAGE IN THE "RESTORED MICRO-TOPOGRAPHY" AREAS BY CREATING SMALL POCKETS OF WATER BY DISTURBING A MINIMUM OF 80% OF THE SURFACE AREA BY CREATING RUTS, GOUGES, DIVOTS, DEPRESSIONS, SURFACE DRAINAGE PLUGS, SMALL POOLS, AND SMALL IMPOUNDMENTS, ETC. THE WORK SHALL LEAVE A MINIMUM OF 6-INCHES OF TOPSOIL COVERAGE OVER THE ENTIRE AREA.

SLOPES IN AND AROUND SMALL POOLS, DEPRESSIONS, AND IMPOUNDMENTS SHALL TYPICALLY HAVE A MAXIMUM SLOPE OF 10:1 AND NO LESS THAN 1/2 OF THE PERIMETER SHALL HAVE SLOPES STEEPER THAN 15:1. FOLLOWING REPLACEMENT OF THE TOPSOIL AVERAGE POOL AND DEPRESSION DEPTH SHALL BE 18-INCHES BUT NO GREATER THAN 24-INCHES. POOL AND DEPRESSION BOTTOMS, ALONG WITH IMPOUNDMENTS WILL NOT BE SMOOTH GRADED, DEPTH CAN VARY WITHIN THE POOL, BUT MINIMUM TOPSOIL COVERAGE SHALL APPLY.

SIZE OF DEPRESSIONS, POOLS, AND IMPOUNDMENTS SHALL VARY FROM 0.10 ACRES TO 0.50 ACRES, WITH A GREATER DENSITY OF SMALLER POOLS. SHAPES SHALL BE IRREGULAR AND VARY FROM POOL TO POOL.

EARTH FILL

PRIOR TO BEGINNING PLACEMENT OF EARTH FILL, THE SURFACE OF THE FOUNDATION AREA WILL BE SCARIFIED TO A DEPTH OF 6 INCHES AND COMPACTED TO THE SAME REQUIREMENTS AS SPECIFIED FOR EARTH FILL.

FILL MATERIAL WILL BE OBTAINED FROM THE BORROW AREA(S) AND SHALL BE FREE OF ALL SOD, ROOTS, FROZEN SOIL, STONES LARGER THAN 6 INCHES DIAMETER, AND OTHER OBJECTIONABLE MATERIAL. THE BORROW MATERIAL SHALL BE TESTED BY THE ENGINEER PRIOR TO USING IT AS FILL IN THE BERM. THE PLACING AND SPREADING OF THE FILL MATERIAL SHALL BE AT THE LOWEST POINT IN THE FOUNDATION AREA AND SHALL BE PLACED IN HORIZONTAL LIFTS WITH A MAXIMUM THICKNESS OF 6 INCHES PRIOR TO COMPACTION. THE SOIL SHALL BE WITHIN -2% AND 3% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO 98% OF OPTIMUM DRY DENSITY AS PER ASTM D698. A SHEEPSFOOT ROLLER SHALL BE USED TO COMPACT EACH LIFT (200 PSI MINIMUM RATING). THE PLACED FILL SHALL BE TESTED A MINIMUM OF ONCE PER 1000 S.Y. OF PLACED MATERIAL.

THE DISTRIBUTION AND GRADATION OF MATERIALS THROUGHOUT THE FILL SHALL BE SUCH THAT THERE WILL BE NO LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFERING SUBSTANTIALLY IN TEXTURE OR GRADATION FROM THE SURROUNDING MATERIAL. WHERE IT IS NECESSARY TO USE MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED IN THE UPSTREAM AND CENTER PORTIONS OF THE FILL.

THE MOISTURE CONTENT OF THE FILL MATERIAL BEING PLACED MUST BE MAINTAINED WITHIN THE LIMITS REQUIRED TO PERMIT SATISFACTORY COMPACTION. IF BORROW MATERIAL IS DRY, WATER MUST BE ADDED BY IRRIGATING THE BORROW AREA OR BY SPRINKLING EACH FILL LAYER PRIOR TO COMPACTION. AFTER ADDING WATER, THE FILL MATERIAL MUST BE MIXED TO OBTAIN A UNIFORM MOISTURE CONTENT PRIOR TO COMPACTION. MATERIAL THAT IS TOO WET WHEN PLACED ON THE FILL SHALL BE RE-MOVED, OR DRIED BY DISKING PRIOR TO COMPACTION.

IF THE TOP SURFACE OF THE PRECEDING LAYER OF COMPACTED FILL, OR ABUTMENT SURFACE IN THE ZONE OF CONTACT WITH THE FILL BECOMES TOO DRY TO PERMIT A SUITABLE BOND, IT SHALL BE SCARIFIED AND MOISTENED BY SPRINKLING TO AN ACCEPTABLE MOISTURE CONTENT PRIOR TO PLACEMENT OF THE NEXT LAYER OF FILL. IF THE TOP SURFACE OF THE FILL BECOMES TOO WET OR FROZEN, THIS MATERIAL MUST BE REMOVED PRIOR TO PLACEMENT OF THE NEXT LAYER OF FILL.

THE FINISH GRADE (AFTER PLACEMENT OF TOPSOIL) SHALL BE TO THE ELEVATIONS PLUS 0.3 FEET TO COMPENSATE FOR SETTLEMENT.

TILE SEARCH & REMOVAL

AT THE LOCATIONS SHOWN ON THE PLANS, A TILE SEARCH TRENCH SHALL BE EXCAVATED WITH A BACKHOE OR OTHER APPROVED METHOD. THE TRENCH SHALL BE A MINIMUM OF 48" DEEP AND 24" WIDE. ALL TILES ENCOUNTERED ALONG THE COURSE OF THE TRENCH SHALL BE REMOVED 15-FEET LEFT AND RIGHT OF THE TRENCH FOR A TOTAL REMOVAL OF 30-FEET. IF FIFTEEN 15-FEET IN EITHER DIRECTION IS UNOBTAINABLE, A TOTAL OF THIRTY 30-FEET OF REMOVAL SHALL BE PERFORMED. THE TILE REMOVAL TRENCH SHALL BE TO THE SAME DIMENSIONS AND BACKFILL SPECIFICATIONS AS THE TILE SEARCH TRENCH.

ALL TILES ENCOUNTERED SERVING ADJACENT PROPERTIES SHALL BE RECONNECTED. SIZES SHALL BE DETERMINED IN THE FIELD. PAYMENT FOR TILE RECONNECTION SHALL BE PAID UNDER A SEPARATE ITEM.

WHEN TILE IS ENCOUNTERED TO BE REMOVED, THE CONTRACTOR SHALL MARK THE LOCATION WITH RIBBON AND LATHE. LATHE SHALL BE LABELED WITH THE SIZE, MATERIAL, AND APPROXIMATE DEPTH TO INVERT OF THE TILE ENCOUNTERED.

BACKFILL

THE TILE SEARCH TRENCH AND 30-FEET TILE REMOVAL TRENCH SHALL BE BACKFILLED WITH CLAY IN LIFTS WITH A MAXIMUM THICKNESS OF 6-INCHES USING A HOE-PACK OR OTHER PRIOR APPROVED METHOD. IN THE EVENT NO CLAY IS PRESENT ONSITE, TRENCHES SHALL BE BACKFILLED WITH AN ENGINEER APPROVED MATERIAL. MATERIAL SHALL BE FREE FROM ALL SOD, ROOTS, FROZEN SOIL, STONES LARGER THAN 6-INCHES DIAMETER, AND OTHER OBJECTIONABLE MATERIAL. A MINIMUM OF 4-INCHES OF TOPSOIL SHALL BE PLACED OVER THE TILE SEARCH AND REMOVAL TRENCHES.

WARRANTY

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TILE WORK FOR 12 MONTHS FOLLOWING CONSTRUCTION. IF WITHIN THIS TIME PERIOD IT IS DETERMINED THAT TILES WERE NOT REMOVED WITHIN THE TILE SEARCH PATH, OR TILES CONVEYING OFFSITE DRAINAGE WERE NOT RECONNECTED, THE CONTRACTOR SHALL RETURN TO THE SITE TO COMPLETE THE WORK. COST SHALL BE INCLUDED IN THE TILE SEARCH ITEM.

Appendix D

Draft Conservation Easement

This Conservation Easement is granted this ____ day of ____, 2012 by the Harrison County Board of Commissioners (the "Owner"), having an address of 100 West Market Street, Cadiz, Ohio, 43907 to the Harrison Soil and Water Conservation District (the "Easement Holder"), having an address of 538 North Main Street, Cadiz, Ohio, 43907.

- A. The Owner is the sole owner in fee of certain real property comprising approximately 86.009 acres and situated in Franklin Township, Harrison County, Ohio, in the Tuscarawas River Watershed (the "Property") which is legally described on Exhibit A and depicted on a map shown on Exhibit B.
- B. The Property in its present and/or restored condition will support the preservation, restoration, and enhancement of wetlands, streams, and upland resources and such existing or restored wetlands, streams, and/or upland buffers will serve to mitigate for activities regulated under Sections 401 and 404 of the Federal Clean Water Act and Chapter 6111 of the Ohio Revised Code.
- C. The Property further possesses substantial value in conserving and protecting the physical, biological, and chemical integrity of the Tuscarawas River and its tributaries, including Little Stillwater Creek, and is important in the protection of the existing or designated use of the waters of the state pursuant to § 303 of the Clean Water Act, 33 U.S.C. § 1313 and § 6111.041 of the Ohio Water Pollution Control Act.
- D. The Owner wishes to grant and convey to the Easement Holder a perpetual conservation easement with respect to the Property to assure the perpetual protection of the preserved, restored, and enhanced wetlands, streams, and upland buffer. This Conservation Easement is granted consistent with Ohio Revised Code Section 5301.68. The Conservation Easement contains approximately XXXXX acres and the boundaries of this Conservation Easement are as described in Exhibit C.
- E. The Easement Holder and Owner share the common purpose of preserving the conservation values of the Property in perpetuity. The Owner intends to place restrictions on the use of the Property to protect those conservation values. The Owner further intends to convey to the Easement Holder, and the Easement Holder agrees to accept, the right to monitor and enforce these restrictions in order to preserve, enhance, and protect the conservation values of the Property.

Now therefore, the Owner and the Easement Holder agree to the following:

Terms, Conditions and Restrictions of the Conservation Easement

Activity and Use Limitations. In order to protect the conservation values of the Property, the Owner hereby imposes and agrees to comply with the following activity and use limitations:

- a. Division: Any division or subdivision of the Property is prohibited;
- b. Discharge of Fill Material. Except as may otherwise be provided in this Conservation Easement, there shall be no filling, excavations, or other changes in the general topography of the Property;
- c. Commercial Activities: Commercial development or industrial activity on the Property is prohibited;
- d. Oil and Gas Wells: The drilling of new wells for the production of oil, gas, or other related products is prohibited.
- e. Construction: The placement or construction of any man-made modifications such as buildings, structures, fences, roads, and parking lots on the Property is prohibited except as specifically authorized herein.
- f. Cutting Vegetation: Any cutting of trees, ground cover or vegetation, or destroying by means of herbicides or pesticides on the Property is prohibited except for the control of invasive plant species or as otherwise required to maintain streams and wetlands pursuant to applicable requirements or the use of designated trails or recreational uses authorized herein;
- g. Dumping: Waste, garbage, and unsightly or offensive materials are not permitted and may not be accumulated on the Property; and
- h. Water Courses: Natural water courses and streams and adjacent riparian buffers may not be dredged, straightened, filled, channelized, impeded, diverted, or otherwise altered on the Property, except as provided in approved mitigation plans or to maintain restored wetlands or streams.

Authorized Uses

Owner and Easement Holder agree that Owner or its designee shall have the right to restore and create wetlands on the Property including earth moving and vegetation planting, including the maintenance and monitoring of the restored and/or created wetlands and adjacent upland buffers. Additionally, the Owner may construct and maintain limited passive recreational and educational structures such as walking paths, restrooms, visitor parking area,

observation structures, bird nesting boxes, waterfowl nesting boxes, rain gauges, stream gauges, groundwater monitoring devices, and other related facilities provided that such construction or activity is authorized by the Easement Holder and the Owner receives applicable federal, state, and local permits prior to commencement of construction and the construction of structures will not cause a significant adverse effect on the conservation values of the property protected by this Conservation Easement.

Running with the Land. This Conservation Easement shall be binding upon the Owner and all assigns and successors in interest, including any Transferee, and shall run with the land subject to amendment or termination as set forth herein. The term "Transferee" as used in this Conservation Easement shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

Representations and Warranties. The Owner hereby represents and warrants to the other signatories hereto:

- a. that the Owner is the sole owner of the Property;
- b. that the Owner holds fee simple title to the Property which is free, clear, and unencumbered;
- c. that the Owner has the power and authority to enter into this Conservation Easement, to grant the rights and interests herein provided and to carry out all obligations hereunder; and
- d. that this Conservation Easement will not materially violate or contravene or constitute a material default under any other agreement, document, or instrument to which the Owner is a party of by which the Owner may be bound or affected.

Amendment or Termination. This Conservation Easement may be amended or terminated only by consent of the Owner or a Transferee and the Easement Holder. "Amendment" means any changes to the Conservation Easement, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. "Termination" means the elimination of all activity and use limitations set forth herein and all other obligations under this Conservation Easement.

This Conservation Easement may be amended or terminated only by a written instrument duly executed by the Owner and Easement Holder or Transferee of the Property or portion thereof, as applicable. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Conservation Easement, the Owner or Transferee shall file such instrument for recording with the Harrison County Recorder's Office.

Recordation. The Owner and its successors and assigns shall record this instrument in a timely fashion in the official record of Harrison County, Ohio and shall re-record it at any time as may be required to preserve the Easement Holder's rights in this Conservation Easement.

Assignment. This Conservation Easement is transferrable, but the Easement Holder may assign its rights and obligations hereunder only to an organization or entity that is qualified to hold conservation easements under Ohio law, and any applicable federal tax law, at the time of transfer, provided that such transfer is approved by Owner, which approval shall not be unreasonably withheld or delayed. As a condition of such transfer, the Easement Holder and Owner shall require that the conservation purposes that this grant is intended to advance continue to be carried out.

Liberal Construction. This Conservation Easement shall be liberally construed in favor of maintaining the conservation values of the Property. The section headings are subheadings identified herein are for reference purposes only and shall not be used to interpret the meaning of any provision hereof.

Notices. For purposes of this Conservation Easement, notices may be provided to all parties by personal delivery or by mailing a written notice to that party by first class mail, postage prepaid. Delivery will be complete upon depositing the properly addressed notice with the U.S. Postal Service.

The notice shall be served to the Grantor at:

Harrison County Board of Commissioners
100 West Market Street
Cadiz, Ohio, 43907

The notice shall be served to the Grantee at:

Harrison County Soil and Water Conservation District
538 North Main Street
Cadiz, Ohio 43907

Severability. If any portion of this Conservation Easement is determined to be invalid or unenforceable, the remaining provisions of this agreement will remain in full force and effect.

Subsequent Transfers. This Conservation Easement shall be a covenant running with the land and shall constitute a burden on the Property and shall run to the benefit of the parties hereto and their successors in interest. All subsequent owners of the Property shall be bound to all provision of this Conservation Easement to the same extent

Description of Soils Found on the Site from the Harrison County Soil Survey (Roth and Buzard, 1998).

CcA—*Caneadea silty clay loam, 0 to 2 percent slopes.*

Setting

Landform: Stream terraces

Position on the landform: Terrace treads

Size of areas: 5 to 300 acres

Typical Profile

Surface layer:

0 to 9 inches—dark grayish brown, firm silty clay loam

Subsoil:

9 to 55 inches—grayish brown and yellowish brown, mottled, firm silty clay

Substratum:

55 to 80 inches—dark yellowish brown, mottled, firm laminated silty clay loam and silty clay

Soil Properties and Qualities

Drainage class: Somewhat poorly drained

Seasonal high water table: 1.0 to 2.5 feet

Depth class: Very deep

Root zone: Very deep

Permeability: Very slow

Available water capacity: Moderate

Surface runoff: Slow

Composition

Caneadea soil and similar soils: 85 percent

Contrasting inclusions: 15 percent

Inclusions

Contrasting inclusions:

- The poorly drained Canadice soils in depressions

Similar inclusions:

- Soils that have a surface layer of silt loam

Use and Management

Land Use: Dominant uses—cropland; other uses—pasture and woodland

Cropland

Suitability: Moderately well suited to corn, small grain, and hay

Major management concerns: Seasonal wetness, tillth, compaction, clodding

Management measures:

- A surface drainage system helps to remove excess surface water.
- Installing a subsurface drainage system helps to overcome the wetness in the subsoil.
- Cover crops and a system of conservation tillage that leaves crop residue on the surface improve tillth and increase the rate of water infiltration.

- Tilling within the proper range of moisture content is important because the soil becomes compacted and cloddy if worked when it is wet and sticky.

Pasture

Suitability: Moderately well suited

Major management concerns: Compaction and poor tilth in overgrazed areas

Management measures:

- Controlled grazing in winter and during other wet periods helps to prevent excessive compaction and maintain the rate of water infiltration.

Woodland

Suitability: Moderately well suited.

Major management concerns: Seedling mortality; windthrow hazard; plant competition; limitations for haul roads, log landings, skid trails, logging areas, site preparation, and planting

Management measures:

- Planting techniques that spread the roots of seedlings and increase soil-root contact, reduce the seedling mortality rate.
- Harvesting procedures that do not leave the remaining trees widely spaced or isolated reduce the windthrow hazard.
- Removing vines and the less desirable trees and shrubs helps to control plant competition.
- Logging should be done when the soil is frozen or during the drier parts of the year.
- Site preparation and planting should be done during dry periods.

Buildings

Suitability: Poorly suited

Major management concerns: Dwellings with and without basements—seasonal wetness, shrink-swell potential

Management measures:

- Building sites should be landscaped so that excess water drains away from foundations.
- Waterproofing basement walls, installing drains at the base of footings, and installing sump pumps help to keep basements dry.
- Designing walls that have plasters and that are reinforced with concrete, supporting walls with large spread footings, and backfilling with material that has a low shrink-swell potential help to prevent the structural damage caused by shrinking and swelling.

Septic tank absorption fields

Suitability: Poorly suited

Major management concerns: Seasonal wetness, very slow permeability

Management measures:

- Installing perimeter drains around the absorption field helps to overcome the wetness if drainage outlets are available.
- Enlarging the absorption area helps to overcome the restricted permeability.
- An aeration septic tank absorption field that has a suitable outlet is an effective alternative system.

Camp areas

Suitability: Poorly suited

Major management concerns: Seasonal wetness, very slow permeability

Management measures:

- Installing a drainage system and installing a large absorption field for the disposal of wastewater help to overcome the limitations.

Paths and trails

Suitability: Moderately well suited

Major management concerns: Wetness

Management measures:

- A drainage system is needed.

Local roads and streets

Suitability: Poorly suited

Major management concerns: Low strength, frost action

Management measures:

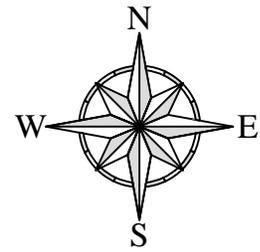
- Installing a drainage system and providing suitable base material help to prevent the damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: IIIw

Woodland ordination symbol: 4C

Pasture and hayland suitability group: C-2



Appendix E
Existing Conditions Map

Prepared for Ohio Wetlands Foundation	
Little Stillwater Wetlands Mitigation Site 11.5 Acres, U. S. 250, Franklin Township Harrison County, Ohio	
Prepared by DAVEY RESOURCE GROUP <small>A Division of The Davey Tree Expert Company</small>	Data used to produce this map were collected on January 7, 2008, June 8, and July 9, 2009 and November 18, 2011

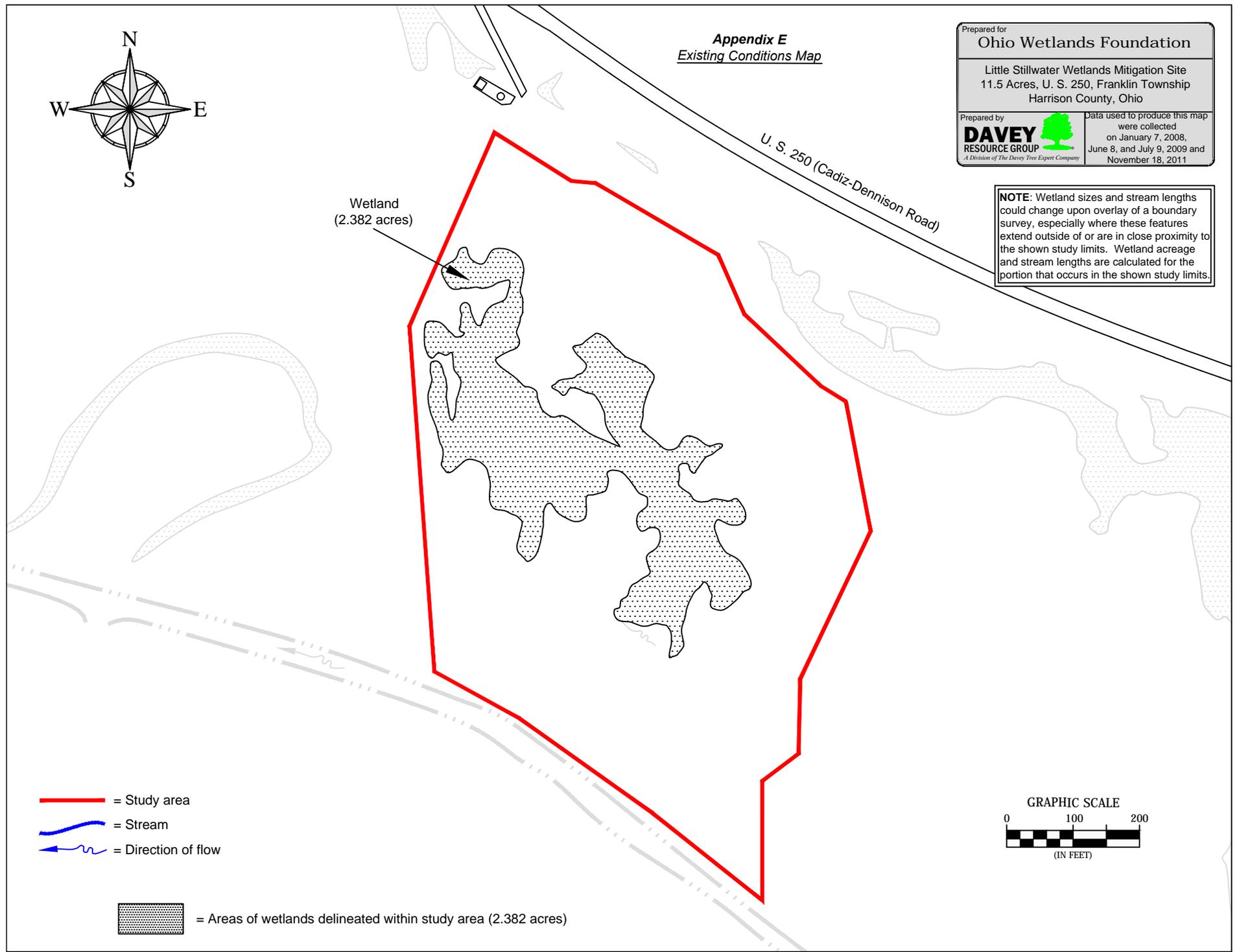
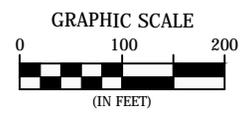
NOTE: Wetland sizes and stream lengths could change upon overlay of a boundary survey, especially where these features extend outside of or are in close proximity to the shown study limits. Wetland acreage and stream lengths are calculated for the portion that occurs in the shown study limits.

Wetland
(2.382 acres)

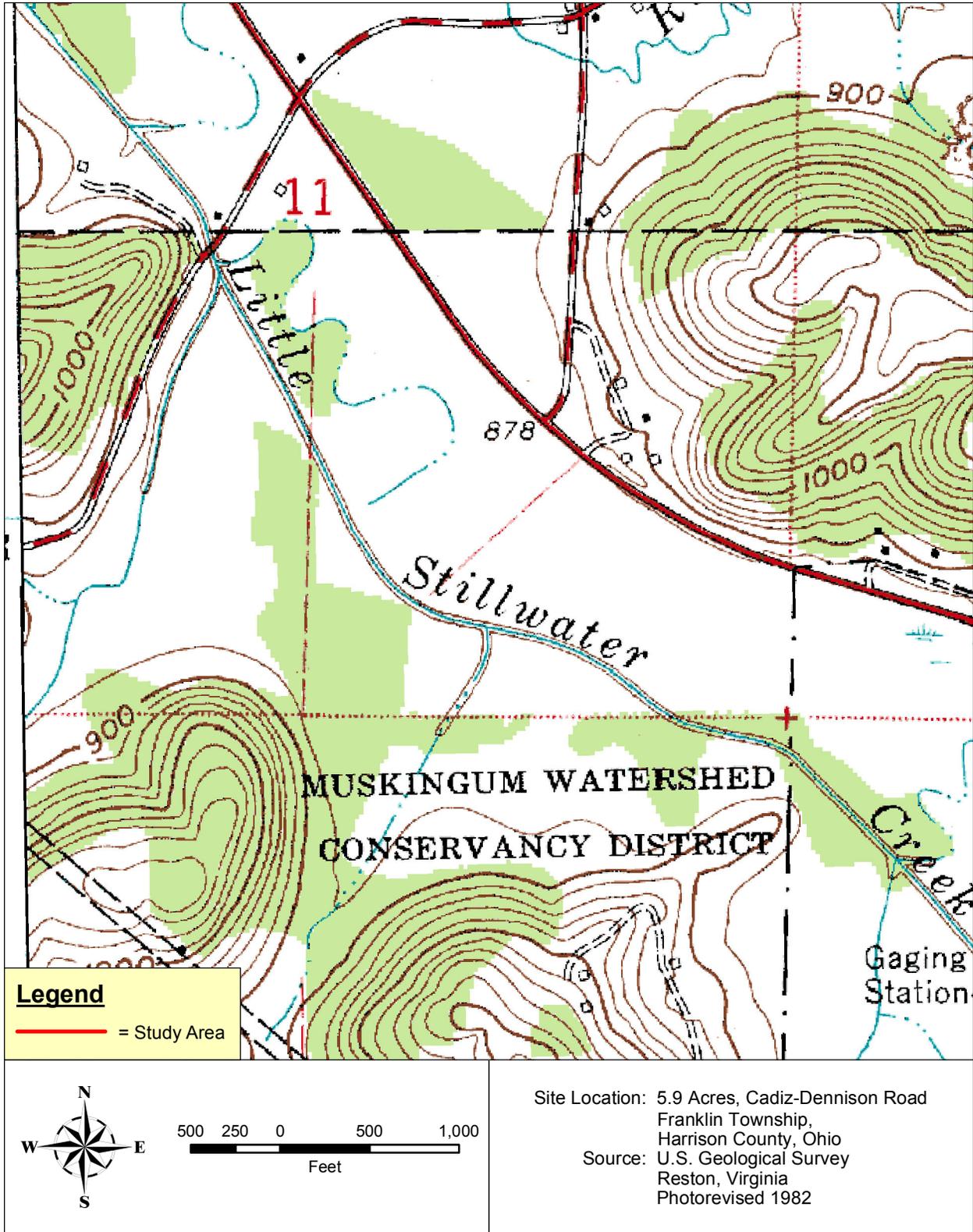
U. S. 250 (Cadiz-Dennison Road)

-  = Study area
-  = Stream
-  = Direction of flow

 = Areas of wetlands delineated within study area (2.382 acres)

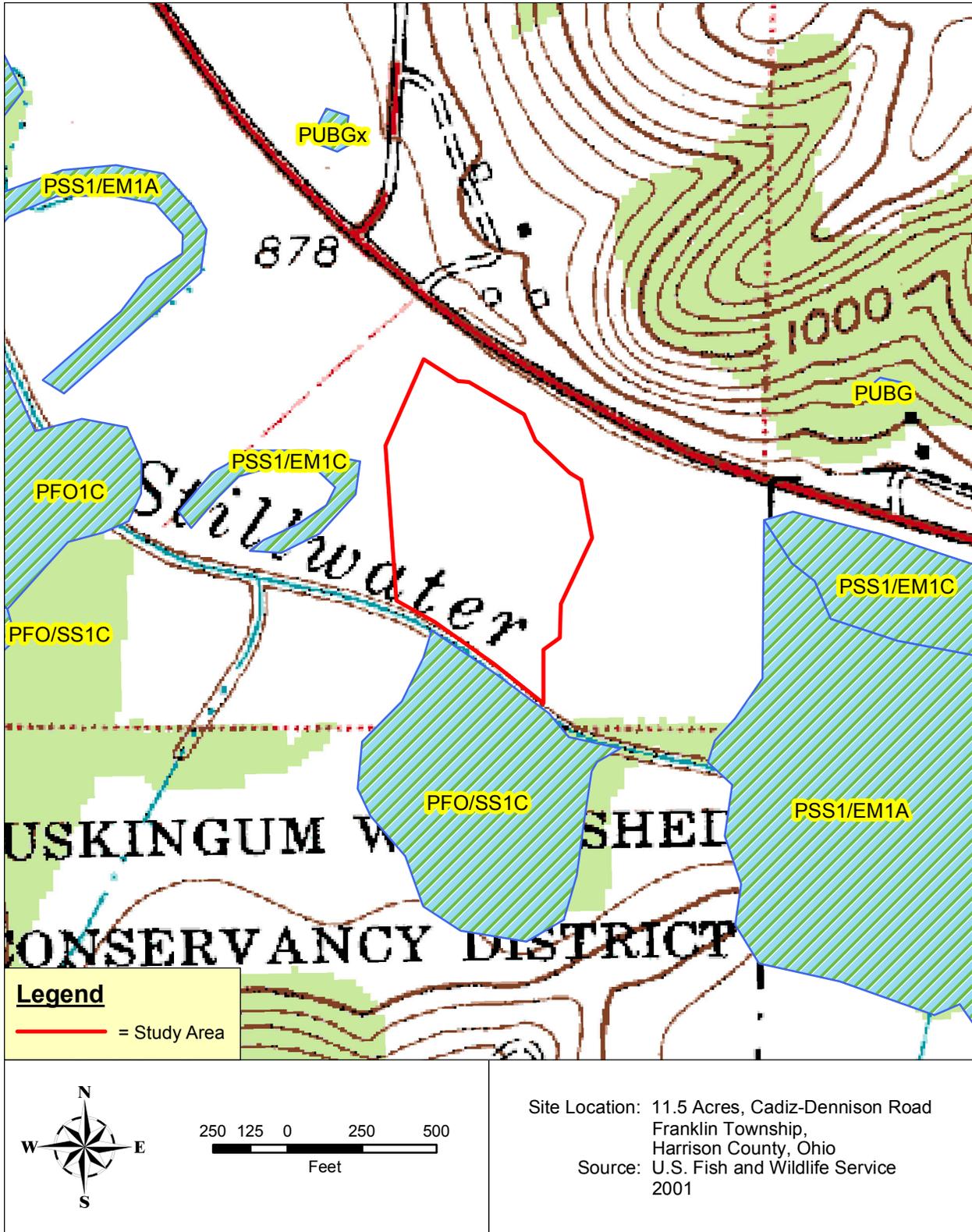


Appendix F Site Location on USGS 7.5 Minute Topographic Map (Deersville Quadrangle)

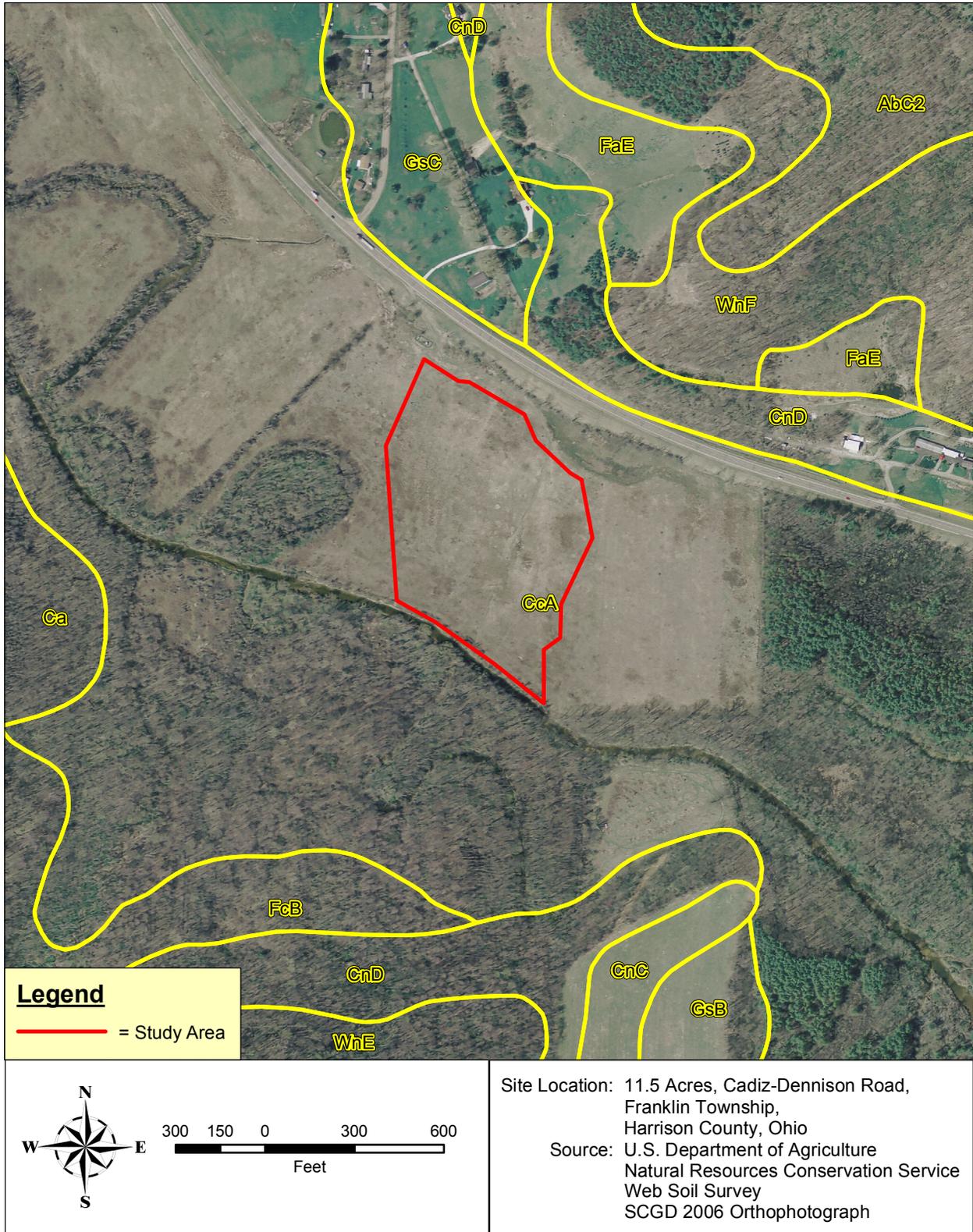


Appendix G

Site Location on National Wetlands Inventory Map (Deersville Quadrangle)



Appendix H Soils Information



Appendix I

Letter from Ohio Department of Natural Resources



Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

Division of Natural Areas and Preserves

Steven D. Maurer, Chief
2045 Morse Rd., Bldg. F-1
Columbus, OH 43229-6693
Phone: (614) 265-6453; Fax: (614) 267-3096

November 7, 2008

Todd Crandall
Davey Resource Group
3728 Fishcreek Rd.
Stow, OH 44224

Dear Mr. Crandall:

I have reviewed our Natural Heritage maps and files for the Little Stillwater Wetlands Mitigation Bank project area, including a one mile radius, in section 11 of Franklin Township, Harrison County, and on the Deersville Quad. We have no records for rare or endangered species or other significant natural features within the project area. However, please note the location of two parcels of Tappan Lake (Muskingum Watershed Conservancy District) within the one mile radius of the project site and as shown in green on the attached map.

There are no state nature preserves or scenic rivers at the project site. We are also unaware of any unique ecological sites, geologic features, animal assemblages, state parks, state forests or state wildlife areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Please note that although we inventory all types of plant communities, we only maintain records on the highest quality areas.

Please contact me at 614-265-6818 if I can be of further assistance.

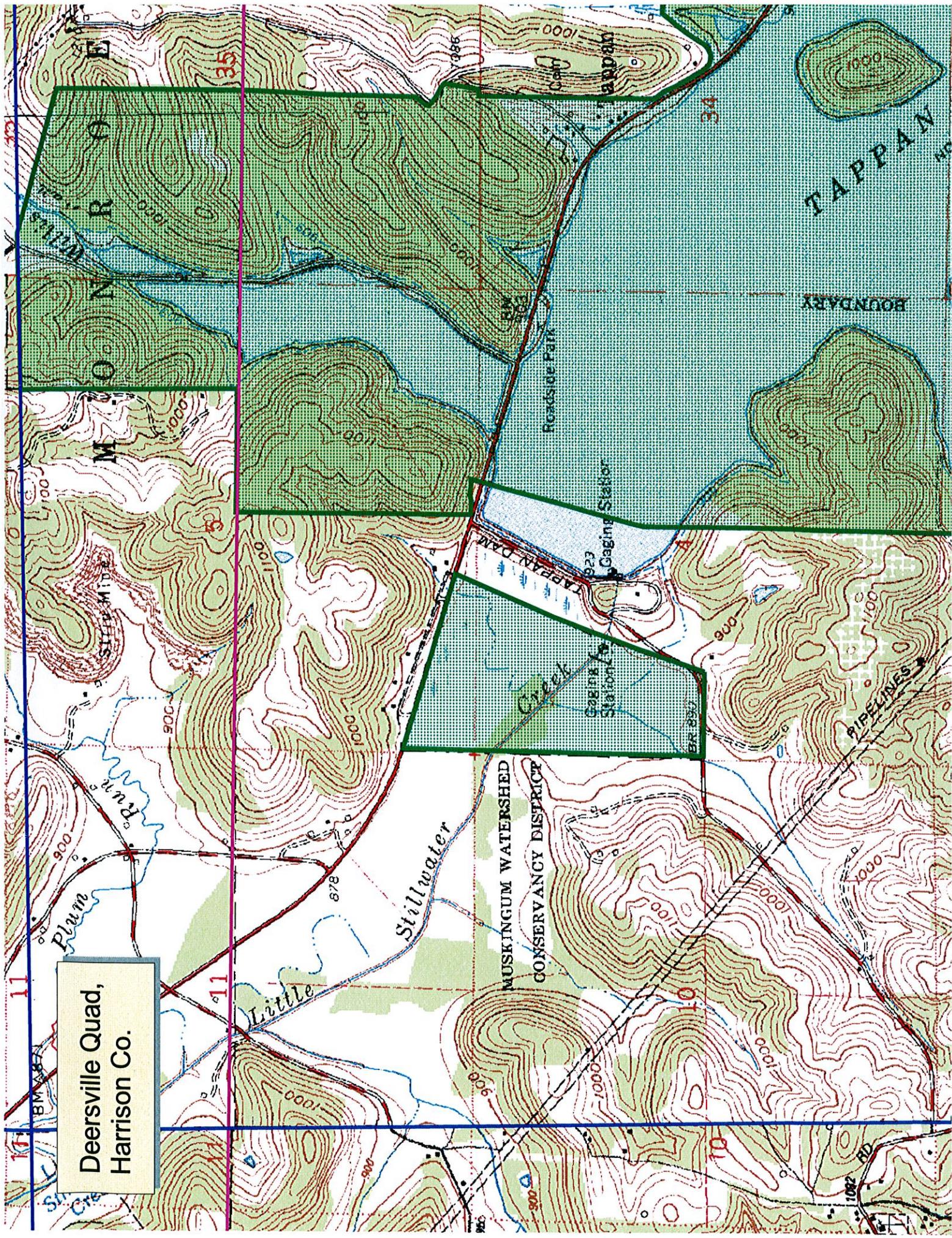
Sincerely,

A handwritten signature in blue ink, appearing to read "Debbie Woischke".

Debbie Woischke, Ecological Analyst
Natural Heritage Program

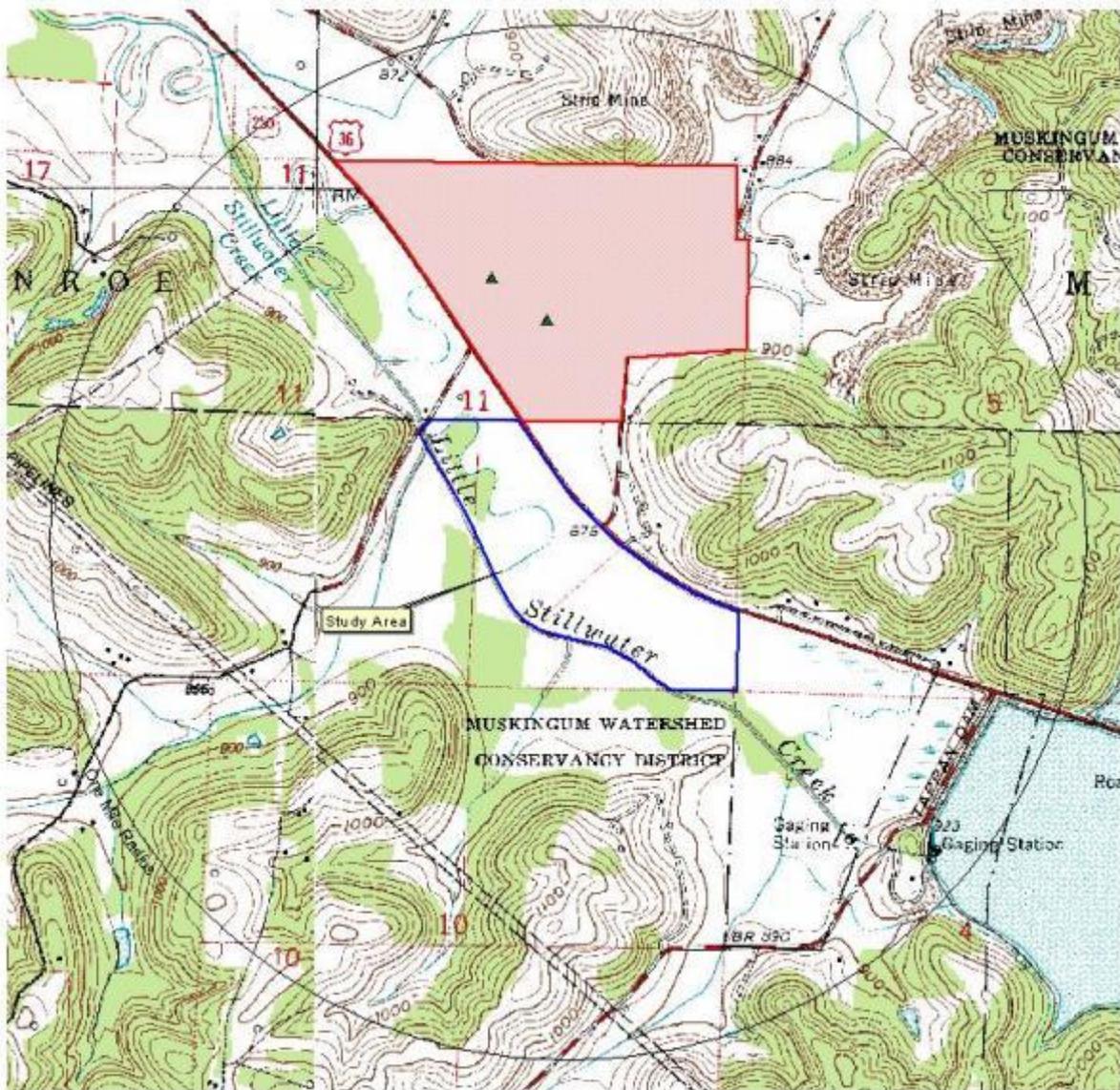


Deersville Quad,
Harrison Co.



Appendix J

Ohio Historical Preservation Office Data



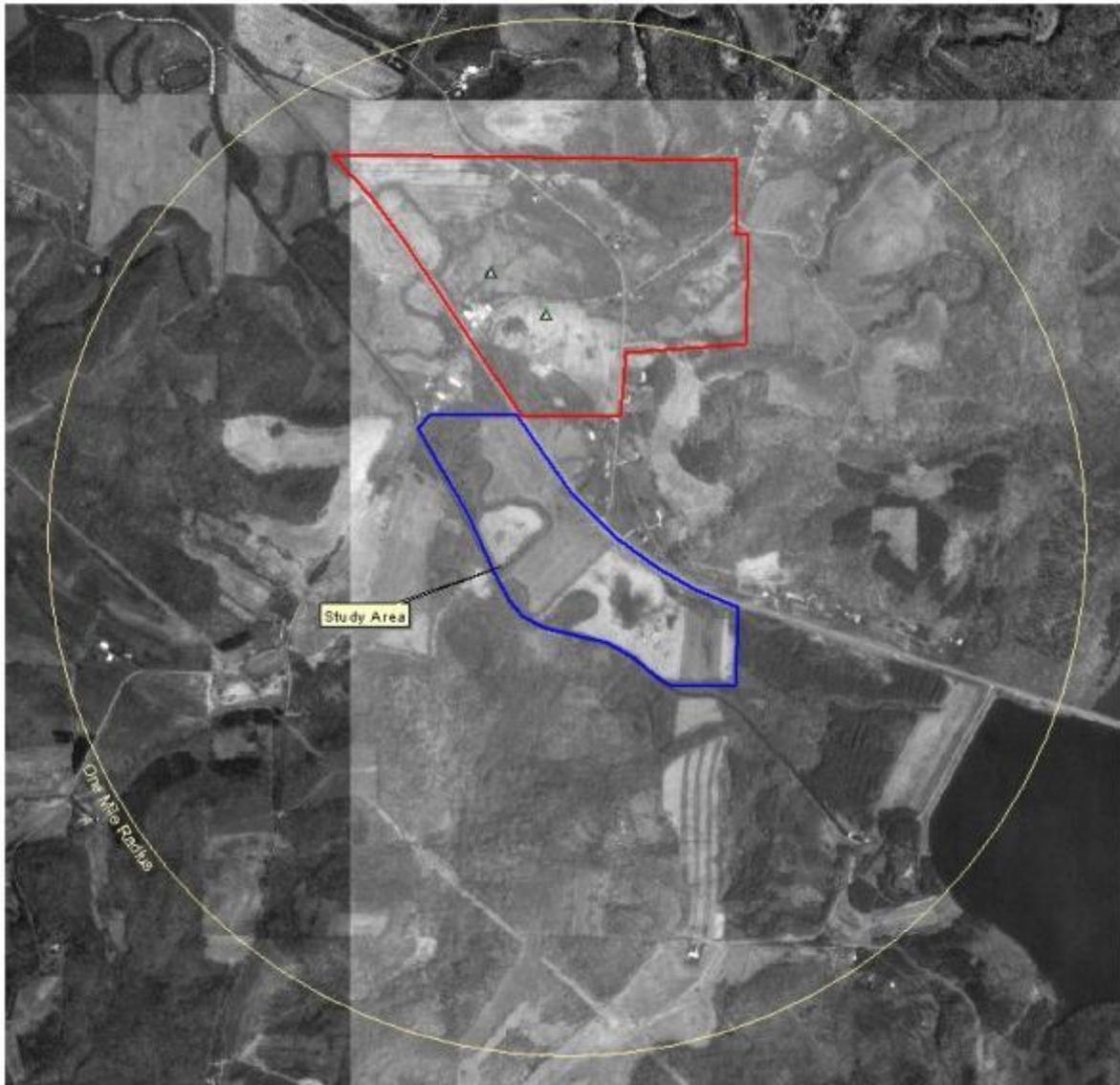
Little Stillwater Mitigation Site
Deersville Quadrangle



- National Register Listed Properties
- ▲ Archaeological Inventory Properties
- Historic Inventory Properties
- National Register Listed Districts

April 30, 2009





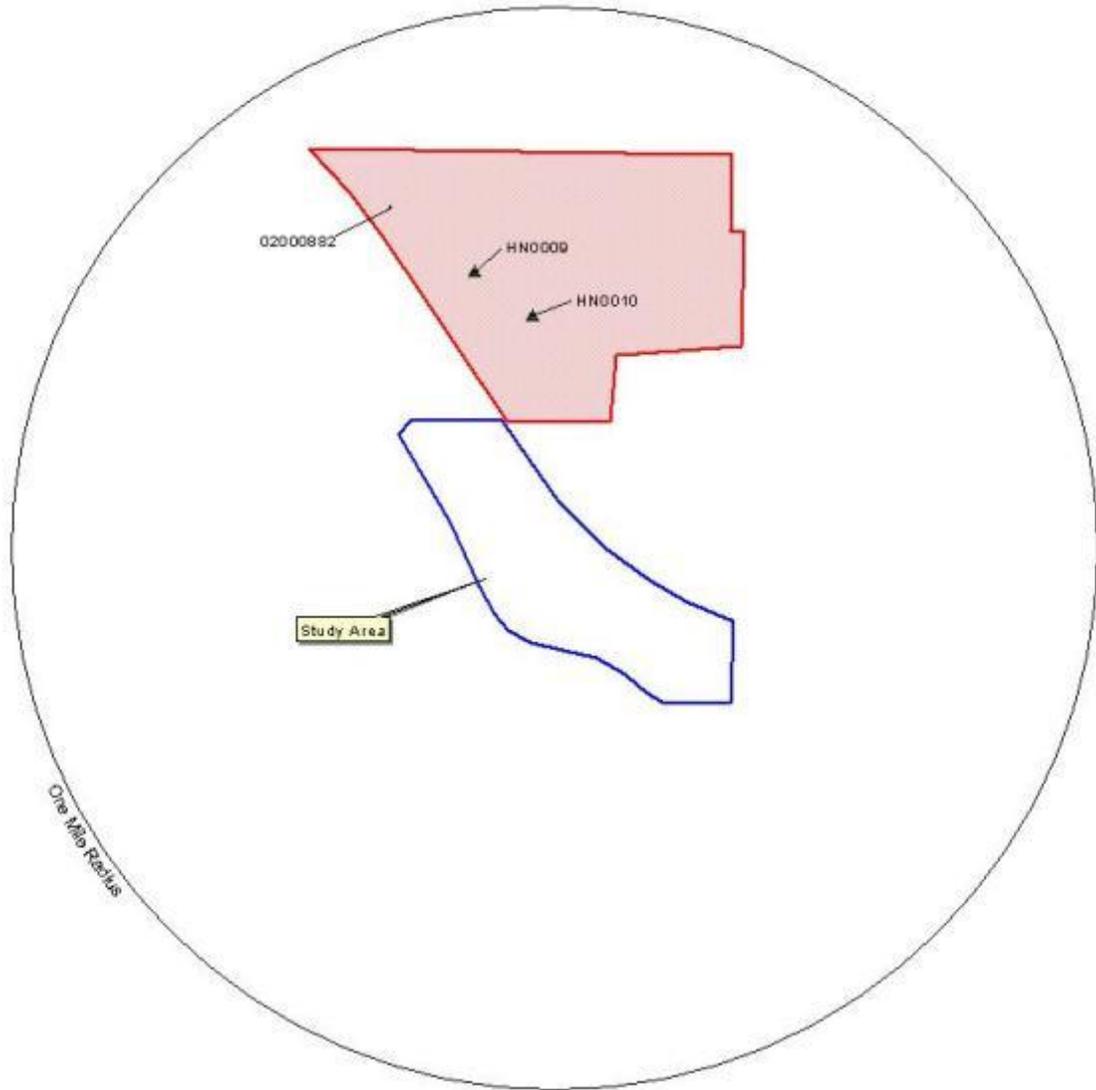
Little Stillwater Mitigation Site
Deersville Quadrangle



- National Register Listed Properties
- ▲ Archaeological Inventory Properties
- Historic Inventory Properties
- National Register Listed Districts

April 30, 2009





Little Stillwater Mitigation Site
Deersville Quadrangle



- National Register Listed Properties
- ▲ Archaeological Inventory Properties
- Historic Inventory Properties
- National Register Listed Districts

April 30, 2009



Ohio Archaeological Inventory

NUMBER	SITE NAME	UTM ZONE	EASTING	NORTHING	NADB #
HN0009	Huss Site #1	17	479320	4468920	00000
HN0010	Huss Site #2	17	479490	4468790	00000

Ohio Historic Inventory

No resources found within radius

National Register of Historic Places

NUMBER	RESOURCE NAME	ADDRESS
02000882	Law, Henry, Farm Historic District	87675 Reed Rd

Appendix K

Planting and Seed Mix Species List

Species for Planting (Dependent on Availability)

Species ¹	Common Name	Indicator Status ²	C of C ³
Trees			
<i>Acer rubrum</i>	red maple	FAC	2
<i>Acer saccharinum</i>	silver maple	FACW	3
<i>Acer saccharum</i>	sugar maple	FACU-	5
<i>Aesculus glabra</i>	Ohio buckeye	FACU+	6
<i>Alnus serrulata</i>	brook-side alder	OBL	6
<i>Amelanchier arborea</i>	downy service-berry	FAC-	5
<i>Asimina triloba</i>	pawpaw	FACU+	6
<i>Carpinus caroliniana</i>	American hornbeam	FAC	5
<i>Carya cordiformis</i>	Bitternut hickory	FACU+	5
<i>Carya laciniosa</i>	Shellbark hickory	FAC	7
<i>Carya ovata</i>	shag-bark hickory	FACU	6
<i>Cornus florida</i>	flowering dogwood	FACU-	5
<i>Diosporos virginiana</i>	persimmon	FAC-	4
<i>Fagus grandifolia</i>	American beech	FACU	7
<i>Fraxinus nigra</i>	black ash	FACW	7
<i>Gleditsia triacanthos</i>	honeylocust	FAC-	4
<i>Juglans nigra</i>	black walnut	FACU	5
<i>Liriodendron tulipifera</i>	tulip tree	FACU	6
<i>Magnolia acuminata</i>	cucumber tree	UPL	7
<i>Nyssa sylvatica</i>	black gum	FAC	7
<i>Ostrya virginiana</i>	hop-hornbeam	FACU-	5
<i>Platanus occidentalis</i>	American sycamore	FACW-	7
<i>Prunus serotina</i>	black cherry	FACU	3
<i>Quercus alba</i>	white oak	FACU-	6
<i>Quercus bicolor</i>	swamp white oak	FACW+	7
<i>Quercus imbricaria</i>	shingle oak	FAC	5
<i>Quercus macrocarpa</i>	bur oak	FAC-	6
<i>Quercus palustris</i>	pin oak	FACW	5
<i>Quercus rubra</i>	northern red oak	FACU-	6
<i>Salix nigra</i>	black willow	FACW+	2
<i>Tilia americana</i>	American basswood	FACU	6
Shrubs			
<i>Alnus serrulata</i>	Smooth alder	OBL	6
<i>Aronia melanocarpa</i>	black chokeberry	FAC	5
<i>Cephalanthus occidentalis</i>	common buttonbush	OBL	6
<i>Cornus amomum</i>	silky dogwood	FACW	2
<i>Cornus racemosa</i>	gray dogwood	FAC-	1
<i>Cornus stolonifera</i>	red-osier dogwood	FACW+	3
<i>Corylus americana</i>	American hazel	FACU-	4
<i>Hamamelis virginiana</i>	witch-hazel	FAC-	5
<i>Ilex verticillata</i>	winterberry	FACW+	6
<i>Lindera benzoin</i>	northern spicebush	FACW-	5
<i>Physocarpus opulifolius</i>	ninebark	FACW-	4
<i>Ptelea trifoliata</i>	hop-tree	FAC	5
<i>Ribes americanum</i>	wild black currant	FACW	4
<i>Rosa palustris</i>	swamp rose	OBL	5
<i>Salix discolor</i>	pussy willow	FACW	3
<i>Salix eriocephala</i>	Missouri river willow	FACW+	2
<i>Salix exigua</i>	sandbar willow	OBL	1
<i>Salix sericea</i>	silky willow	OBL	4
<i>Sambucus canadensis</i>	common elderberry	FACW-	3

¹ Most species names and indicator status were obtained from Reed, 1988. Data presented in brackets were obtained from Andreas, et al., 2004. These data are not provided in Reed, 1988.

² Please refer to Appendix L for a description of wetlands vegetation indicator status symbols.

³ The Coefficient of Conservatism (C of C) is the foundation of assessing floristic quality and an integral part of the Vegetation Index of Biotic Integrity (VIBI) (Mack, 2007). It identifies the likelihood that a plant is found within different habitats; the narrower the habitat requirements, the higher the C of C scores. Ohio EPA has assigned C of C scores for plants growing within the ecoregions particular to Ohio. These scores may be found in the *Floristic Quality Assessment Index (FQAI) for Vascular Plants and Mosses for the State of Ohio* (Andreas, et al., 2004).

Species ¹	Common Name	Indicator Status ²	C of C ³
Shrubs (continued)			
<i>Spiraea alba</i>	narrow-leaf meadow-sweet	FACW+	3
<i>Spiraea tomentosa</i>	steeple-bush	FACW-	4
<i>Staphylea trifolia</i>	American bladdernut	FAC	6
<i>Vaccinium corymbosum</i>	highbush blueberry	FACW-	6
<i>Viburnum lentago</i>	nannyberry	FACW-	5
<i>Viburnum recognitum</i>	northern arrow-wood	FAC	2
<i>Viburnum trilobum</i>	American cranberrybush	FACW	8
Forbs			
[<i>Acorus americanus</i>]	[American sweet-flag]	[OBL]	6
<i>Brasenia schreberi</i>	watershield	OBL	7
<i>Chelone glabra</i>	white turtlehead	OBL	6
<i>Iris versicolor</i>	blueflag	OBL	6
<i>Lysimachia terrestris</i>	swamp loosestrife	OBL	6
<i>Nuphar luteum</i>	yellow cow-lily	OBL	4
<i>Nymphaea odorata</i>	white water-lily	OBL	6
<i>Peltandra virginica</i>	arrow arum	OBL	5
<i>Solidago cernuus</i>	lizard's tail	OBL	8
<i>Solidago ohioensis</i>	Ohio golden-rod	OBL	8
<i>Sparganium americanum</i>	American burreed	OBL	6
<i>Sparganium eurycarpum</i>	giant burreed	OBL	4
<i>Symplocarpus foetidus</i>	skunk-cabbage	OBL	7
Ferns			
<i>Dryopteris carthusiana</i>	spinulose woodfern	FAC+	5
<i>Dryopteris clintoniana</i>	Clinton woodfern	FACW+	8
<i>Dryopteris cristata</i>	crested shield-fern	FACW+	8
<i>Matteuccia struthiopteris</i>	ostrich fern	FACW	6
<i>Osmunda cinnamomea</i>	cinnamon fern	FACW	6
<i>Osmunda regalis</i>	royal fern	OBL	7
Graminoids			
<i>Carex intumescens</i>	bladder sedge	FACW+	5
<i>Carex stipata</i>	crowded sedge	OBL	2
<i>Carex comosa</i>	bearded sedge	OBL	2
<i>Carex crinita</i>	tasseled sedge	OBL	3
<i>Carex stricta</i>	tussock sedge	OBL	5
<i>Scirpus acutus</i>	hard-stem bulrush	OBL	7
<i>Scirpus validus</i>	soft-stem bulrush	OBL	2
<i>Spartina pectinata</i>	prairie cordgrass	OBL	5

Seed Mix (Dependent on Availability)

Botanical Name	Common Name	Indicator Status	C of C
<i>Actaea alba</i>	white baneberry	UPL	7
<i>Agrimonia parviflora</i>	small flower groovebur	FACW	2
<i>Arisaema triphyllum</i>	swamp jack-in-the-pulpit	FACW-	3
<i>Asclepias incarnata</i>	swamp milkweed	OBL	4
<i>Aster puniceus</i>	swamp aster	OBL	7
<i>Aster umbellatus</i>	flat-top white aster	FACW	3
<i>Bidens cernua</i>	nodding beggar-ticks	OBL	3
<i>Boehmeria cylindrica</i>	small-spike false-nettle	FACW+	4
<i>Bolboschoenus fluviatilis (Scirpus fluviatilis)</i>	river bulrush	OBL	5
<i>Calamagrostis canadensis</i>	blue-joint reedgrass	FACW+	4
<i>Caltha palustris</i>	common marsh-marigold	OBL	6
<i>Circaea lutetiana</i>	southern broad-leaf enchanters nightshade	FACU	3
<i>Carex bromoides</i>	brome-like sedge	FACW+	7
<i>Carex crinita</i>	fringed sedge	OBL	3
<i>Carex crus-corvi</i>	raven-foot sedge	OBL	8
<i>Carex gracillima</i>	graceful sedge	FACU	4
<i>Carex grayi</i>	Asa Gray's sedge	FACW+	5
<i>Carex hyalinolepis</i>	shoreline sedge	OBL	5
<i>Carex intumescens</i>	bladder sedge	FACW+	5
<i>Carex lacustris</i>	lakebank sedge	OBL	5
<i>Carex lupuliformis</i>	false hop sedge	FACW+	9
<i>Carex lupulina</i>	hop sedge	OBL	3
<i>Carex lurida</i>	shallow sedge	OBL	3

Botanical Name	Common Name	Indicator Status	C of C
<i>Carex muskingumensis</i>	Muskingum sedge	OBL	7
<i>Carex prasina</i>	drooping sedge	OBL	8
<i>Carex scoparia</i>	pointed broom sedge	FACW	3
<i>Carex seorsa</i>	weak stellate sedge	FACW	7
<i>Carex squarrosa</i>	squarrose sedge	FACW	7
[<i>Carex stipata</i>]	[crowded sedge]	[OBL]	2
<i>Carex tribuloides</i>	blunt broom sedge	FACW+	4
<i>Carex tuckermanni</i>	Tuckermann's sedge	OBL	8
<i>Carex typhina</i>	cat-tail sedge	FACW+	5
<i>Cinna arundinacea</i>	stout wood-reed grass	FACW	4
<i>Clematis virginiana</i>	Virginia virgin's bower	FAC	3
<i>Coreopsis tripteris</i>	tall tickseed	FAC	5
<i>Dulichium arundinaceum</i>	three-way sedge	OBL	6
<i>Elymus canadensis</i>	nodding wild-rye	FACU+	6
<i>Elymus riparius</i>	riverbank wild -rye	FACW	5
<i>Elymus virginicus</i>	Virginia wild -rye	FACW-	3
<i>Eupatorium fistulosum</i>	hollow Joe-pye-weed	FACW	6
<i>Eupatorium maculatum</i>	spotted Joe-pye-weed	FACW	6
<i>Eupatorium perfoliatum</i>	common boneset	FACW+	3
<i>Glyceria canadensis</i>	rattlesnake grass	OBL	7
<i>Glyceria grandis</i>	Canada manna grass	OBL	7
<i>Glyceria septentrionalis</i>	eastern manna grass	OBL	6
<i>Glyceria striata</i>	fowl manna grass	OBL	2
<i>Hydrocotyle americana</i>	American marsh penny-wort	OBL	7
<i>Impatiens capensis</i>	spotted touch-me-not	FACW	2
<i>Iris versicolor</i>	blueflag	OBL	6
<i>Leersia virginica</i>	rice cutgrass	FACW	4
<i>Lobelia cardinalis</i>	cardinal flower	FACW+	5
<i>Lolium multiflorum</i>	annual ryegrass	not listed	n/a
<i>Ludwigia alternifolia</i>	bushy seedbox	FACW+	3
<i>Lysimachia ciliata</i>	fringed loosestrife	FACW	4
<i>Maianthemum canadense</i>	wild-lily-of-the-valley	FAC-	6
<i>Maianthemum racemosum</i>	false solomon's seal	FACU-	4
<i>Maianthemum stellatum</i>	starry false solomon's seal	FACW	7
<i>Mimulus ringens</i>	Allegheny monkey-flower	OBL	4
<i>Panicum virgatum</i>	switchgrass	FAC	4
<i>Poa palustris</i>	fowl bluegrass	FACW	5
<i>Polygonum virginianum</i>	Virginia knotweed	FAC	3
<i>Rudbeckia fulgida (speciosa)</i>	orange coneflower	FAC	6
<i>Rudbeckia laciniata</i>	cut-leaf coneflower	FACW	6
<i>Scirpus acutus</i>	hard-stemmed bulrush	OBL	7
<i>Scirpus americanus</i>	Olney's bulrush	OBL	9
<i>Scirpus polyphyllus</i>	leafy bulrush	OBL	6
<i>Senecio aureus</i>	golden ragwort	FACW	4
<i>Solidago riddelli</i>	Riddell's goldenrod	OBL	8
[<i>Solidago speciosa</i>]	[showy goldenrod]	[UPL]	5
[<i>Sorghastrum nutans</i>]	[Indian grass]	[FAC]	5
<i>Spartanium americanum</i>	American burreed	OBL	6
<i>Spartina pectinata</i>	prairie cordgrass	OBL	5
<i>Symplocarpus foetidus</i>	skunk-cabbage	OBL	7
<i>Tradescantia ohioensis</i>	Ohio spider-wort	FAC	5
<i>Verbena hastata</i>	blue vervain	FACW+	4
<i>Viola cucullata</i>	marsh blue violet	FACW+	6

Appendix L

Definition of Wetlands Vegetation Indicator Status (from Reed, 1988)

Obligate Wetlands (OBL). Occur almost always (estimated probability is greater than 99 percent) under natural conditions in wetlands.

Facultative Wetlands (FACW). Usually occur in wetlands (estimated probability 67–99 percent) but occasionally found in non-wetlands.

Facultative (FAC). Equally likely to occur in wetlands or non-wetlands (estimated probability 34–66 percent).

Facultative Upland (FACU). Usually occur in non-wetlands (estimated probability 67–99 percent) but occasionally found in wetlands (estimated probability 1–33 percent).

Obligate Upland (UPL). Occur in wetlands in another region, but occur almost always (estimated probability > 99 percent) under natural conditions in non-wetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the *National List*.

Species for which little or no information was available to base an indicator status were assigned a no indicator (NI) status. An asterisk (*) after the indicator status indicates that the indicator status was based on limited ecological information.

The wetlands indicator categories should not be equated to degrees of wetness. Many obligate wetlands species occur in permanently or semipermanently flooded wetlands, but a number of obligates also occur and some are restricted to wetlands that are only temporarily or seasonally flooded. The facultative upland species include a diverse collection of plants that range from weedy species adapted to exist in a number of environmentally stressful or disturbed sites (including wetlands) to species in which a portion of the gene pool (an ecotype) always occurs in wetlands. Both the weedy and ecotype representatives of the facultative upland category occur in seasonally and semipermanently flooded wetlands.

Davey Resource Group has added two additional indicators for situations when plants can only be identified to genus. A Wetlands Indicator Species (WIS) is a plant that is most likely obligate wetlands, facultative wetlands, or facultative. An Upland Indicator Species (UIS) is a plant that is most likely indicative of upland or facultative upland conditions. These additional indicators are used when species identification is not possible. A variety of factors are part of the UIS and WIS assignments. Indicator statuses of all locally occurring members of the genus in question are considered, as are the health and size of the population and the indicator status of nearby plants.

Appendix M

References

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Appendix N

Davey Resource Group Personnel Profiles

Ana Burns, M.S.E.S., is a biologist and Coordinator of Ecological Services for Davey's Natural Resource Consulting group. Ms. Burns has 11 years of experience in the natural resources and environmental planning fields and at Davey is responsible for overseeing all ecological surveys and environmental planning studies, as well as the specialized management of ecological and wetlands permitting projects, mitigation bank planning and monitoring projects, and natural resource restoration projects. She is knowledgeable of state and federal stream and wetlands regulations, all aspects of Section 401 and 404 permitting, isolated wetlands regulations, and the federal mitigation rule for compensatory mitigation and its application to mitigation banking. Ms. Burns has managed multiple Section 401 and 404 permitting projects along with numerous natural resource inventories and planning projects. In addition, Ms. Burns has provided assistance with grant writing and managing grant-funded projects. Ms. Burns has coordinated and facilitated public meetings and hearings and has assisted in the development of various planning documents including greenways planning, watershed planning, and urban forestry management plans. In addition to public meetings, Ms. Burns has developed many informational public outreach publications and prepared electronic sources of information for distribution. With a background in urban and rural planning, she is well versed in working with planning commissions, steering committees, and local political groups and has given many presentations at a variety of venues. Ms. Burns is a board member of the Tinkers Creek Watershed Partnership and active in the Ohio Lake Management Society. Ms. Burns graduated from Indiana University with a Bachelor of Science degree in biology and holds a Master of Science degree in environmental science from IU's School of Public and Environmental Affairs.

Ken Christensen is a senior biologist with more than 25 years of experience in the natural resource field. Mr. Christensen is involved in all aspects of wetlands and stream restoration projects, including design, planting, and implementation. He is also involved with the subsequent monitoring of mitigation and restoration projects to ensure that such endeavors reach an expected successful conclusion. Mr. Christensen assists in plant surveys and wetlands delineations and in the field identification of vertebrate populations, especially amphibians, reptiles, and mammals. Proficient with AutoCAD[®] software, Mr. Christensen is responsible for managing the Global Positioning System (GPS) data collection and AutoCAD[®] mapping operations for all natural resource studies. As an International Society of Arboriculture Certified Arborist (OH-0690A), he performs tree appraisals and inventories and also develops tree preservation plans. Mr. Christensen is a LEED[®] Accredited Professional and has received the following training: Certificate of Completion for LEED[®] for New Construction Technical Review Workshop from U.S. Green Building Council; Certificate of Completion for American Ecological Engineering Society Wetland Mitigation Design from Virginia Polytechnic Institute and State University; Certificate of Completion for AutoCAD[®] for Stream Restoration and Monitoring from North Carolina Cooperative Extension; Certificate of Completion from North Carolina Stream Restoration Institute's Stream Classification and Assessment Program; and Certificate of Completion from North Carolina Stream Restoration Institute's Stream Restoration Design Principles. Mr. Christensen is prequalified by the Ohio Department of Transportation for wetland mitigation. He has also completed training through Ohio Environmental Protection Agency for conducting the following: Headwater Habitat Evaluation Index (HHEI); Qualitative Habitat Evaluation Index (QHEI); Ohio Rapid Assessment Method (ORAM) v.5; and Vegetation Index of Biotic Integrity (VIBI). Clients for these mitigation, stream restoration, and tree preservation projects have included the Holden Arboretum, Ohio Wetlands Foundation, Medina County Park District, Metro Parks Serving Summit County, Portage Park District, and Western Reserve Land Conservancy. He is a member of the American Ecological Engineering Society, Breakneck Creek Watershed Coalition, the Ecological Landscaping Association, the Northeast Ohio Association of Herpetologists, American Ecological Engineering Society, and Association of State Wetlands Managers. Mr. Christensen holds a Bachelor of Science degree in conservation from Kent State University.

Todd A. Crandall, M.En., is a senior wetlands scientist with 19 years of experience performing wetlands delineations in Ohio and adjacent states. Mr. Crandall also performs ecological surveys, vegetation cover mapping, plant identification, and Section 401 and 404 and isolated wetlands permitting. He also contributes to the planning and design of restoration wetlands and prepares wetland mitigation reports. Mr. Crandall is responsible for vegetation monitoring at numerous wetlands mitigation sites throughout Ohio. He has completed large-scale wetlands and natural resource inventories for the Cuyahoga Valley National Park, as well as Cuyahoga, Medina, Portage, and Summit Counties in Northeast Ohio. He is certified to perform wetlands studies by the U.S. Army Wetlands Delineator Certification Program, and is a certified Professional Wetland Scientist through the Society of Wetland Scientists. He has completed the 40-hour OSHA health and safety training (OSHA Standard 29 CFR 1910.120). Mr. Crandall has successfully completed the Ohio Department of Transportation's (ODOT) Ecological Training hosted by the Office of Environmental Services. He is ODOT prequalified for ecological surveys and wetland mitigation. Mr. Crandall has also completed training through the Ohio Environmental Protection Agency for the following: Headwater Habitat Evaluation Index (HHEI); Qualitative Habitat Evaluation Index (QHEI); Ohio Rapid Assessment Method (ORAM) v.5; and Vegetation Index of Biotic Integrity (VIBI). He holds a Bachelor of Science degree from Hiram College in biology and a Master's degree in environmental science from Miami University.

Judith Mitchell is a biologist and project manager with 14 years of experience in wetland delineation and mitigation, Section 401 and 404 and isolated wetlands permitting, stream and wetland restoration and monitoring, and water quality testing. She also performs ecological surveys, including bat habitat and emergence studies, macroinvertebrate and amphibian studies, and vegetation surveys. Ms. Mitchell has provided planting and construction oversight for wetland and stream restoration projects. She has managed multiple Section 401 and 404 permitting projects and a wide variety of ecological survey and compensatory mitigation projects. Ms. Mitchell has completed training through Ohio Environmental Protection Agency for the following: Headwater Habitat Evaluation Index (HHEI); Qualitative Habitat Evaluation Index (QHEI); Ohio Rapid Assessment Method (ORAM) v.5; and Vegetation Index of Biotic Integrity (VIBI). Ms. Mitchell graduated from Kent State University with a Bachelor of Science degree in conservation with an emphasis in water resources.

Benjamin Schuplin is a field technician with Davey Resource Group. His duties include assistance with a variety of natural resource projects, including invasive species treatment, bat mist-net surveys, wetlands studies, field data collection, and ecological surveys on sites throughout Ohio and adjoining states. Prior to joining Davey, Mr. Schuplin performed biological sampling to assess stream water quality for the Ohio Environmental Protection Agency, Division of Surface Water. He is proficient with the Index of Biotic Integrity (IBI) and the Qualitative Habitat Evaluation Index (QHEI) used to set minimum criteria index scores for use designations in Ohio waters. In 2008, he was involved with monitoring the progression of invasive emerald ash borer on the Lake Erie islands and protecting the populations of endangered Lake Erie water snakes for The Ohio State University's Stone Laboratory research facility. Mr. Schuplin received a Bachelor of Science degree in natural resources and environmental sciences with a concentration in forest ecosystem management from The Ohio State University.