Permittee Responsible Mitigation Plan for the Atlantic Sunrise Project – Wyoming County Briar Creek Mitigation Site

North Centre Township, Columbia County, Pennsylvania
Transcontinental Gas Pipe Line Company, LLC.

Prepared By:
First Pennsylvania Resource, LLC.
a wholly-owned subsidiary of Resource Environmental Solutions, LLC.
33 Terminal Way, Suite 431A
Pittsburgh, PA 15219

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1.0 Introduction

First Pennsylvania Resource, LLC. (FPR), a wholly-owned subsidiary of Resource Environmental Solutions (RES), is proposing this Permittee-Responsible Mitigation (PRM) Plan on behalf of Transcontinental Gas Pipe Line Company, LLC. (Permittee or Transco) to compensate for unavoidable impacts to waters of the United States (U.S.) associated with the Atlantic Sunrise Project (Project). FPR has prepared this PRM plan in accordance with the Compensatory Mitigation for Losses of Aquatic Resources Final Rule issued on April 10, 2008 as detailed in 33 CFR §332.4(c) of the Federal Register (Volume 73, Number 70). This document addresses mitigation that will be provided at the Briar Creek Mitigation Site (PRM Site or PRM Project). ***The proposed mitigation at the PRM Site will offset temporary and permanent conversion impacts to non-exceptional value (non-EV) Palustrine Scrub Shrub (PSS) wetlands as well as EV and non-EV Palustrine Forested (PFO) wetlands in Wyoming County, Pennsylvania (PA). No conversion impacts to EV Palustrine Scrub Shrub (PSS) wetlands requiring mitigation are anticipated in Wyoming County. This PRM Site, in addition to four other PRM sites, will provide mitigation to offset impacts to EV and non-EV PSS/PFO wetlands along the remaining portions of the Project.***

The 33.47 acre PRM Site, located in North Centre Township, Columbia County, PA is approximately 2.75 miles northwest of Briar Creek. The PRM Site is generally bound by State Route (SR) 1008 to the north, Adams Road to the west and Ridge Road to the east and south. A site location map is included as Figure 1: Site Location Map. Figure 2: Impact Vicinity Map, shows the location of the PRM Site in relation to the associated impact locations of which the PRM Site will be mitigating for. These sites are located along within State Plan Watersheds 4 and 5. Figure 3: PRM Area Map, provides a view of the PRM Site on aerial background.

The physical address and coordinates of the PRM Site are provided below.

Physical Address:	997 Fowlersville Road Berwick, PA 18603
Coordinates:	41° 03’ 20.44” North 76° 20’ 04.68” West

Driving directions from the intersection of Interstates 80 and 81 are as follows:

1. Head north on I-81 N toward exit 151A (1.2 miles);
2. Take exit 151B to merge onto 1-80 W toward Bloomsburg (19.3 miles);
3. Take exit 241 to merge onto US-11 S toward Lime Ridge (0.2 mile);
4. Merge onto US-11 S (0.7 mile).
5. Turn right onto Logging Rd 19037/Lows Rd (1.0 mile).

6. Turn right onto School House Rd (0.9 mile).
7. Turn left onto Ridge Rd/School House Rd (433 feet).
8. Follow the slight right onto School House Rd (0.6 mile).
9. Turn right on State Route 1008 and travel 0.8 mile to the PRM Site, which will be on the left.

The Agent and Permittee request to be contacted prior to visiting the PRM Site.

FPR will act as the mitigation services agent (Agent) on behalf of Transco. FPR on behalf of Transco, will be responsible for implementation of the PRM plan in addition to meeting performance standards, monitoring, and long-term management of the property as described in 33 CFR §332.3(l). The Permittee will remain responsible for legal duties and responsibilities associated with wetland mitigation as necessary in accordance with PADEP Chapter 105 Rules and Regulations regarding wetland replacement criteria guidelines and 33 CFR § 332.3.

2.0 Objectives

Construction of the Project will result in ***temporary and permanent impacts due to the conversion of EV and non-EV PSS and PFO wetlands. Temporary (construction) impacts are those areas being impacted during construction, which will be allowed to revert to their previous state following construction. Permanent (operational) impacts are those areas which will be maintained on an annual basis, as required by Federal Energy Regulatory Commission (FERC) Wetland and Waterbody Construction and Mitigation Procedures. These permanent impacts will not involve dredging or filling of wetlands.***

Mitigation will be required for ***2.09*** acres of wetland impacts within Wyoming County. To compensate for these impacts, FPR will restore 17.42 wetland acres (equating to 8.94 mitigation acres) at the 33.47-acre PRM Site. FPR will enhance and re-establish approximately 16.96 and 0.46 acres of wetlands, respectively. Approximately ***1.02*** acres of the wetland mitigation available at the PRM Site will be allocated to the ***4.67*** mitigation acres needed Wyoming County. The remaining ***3.65*** acres of mitigation needed will come from the ***Towanda Creek Mitigation Site***. Surrounding upland buffers within the PRM Site will be restored and preserved. Table 1: Mitigation Summary, provides a summary of pre-and post-restoration resources for the PRM Site.

Table 1: Wetland Mitigation Summary								
Resource Type		**Existing Acres**	**Proposed Acres**	**Impact Acreage (Wyoming County)**				***Mitigation Needed for Wyoming County (Acres)***
				Non-EV PSS (1.5:1)	***EV PSS (1.75:1)***	***Non-EV PFO (2:1)***	***EV PFO (2.5:1)***	
Total Acres		**33.47**	**33.47**					
Uplands		16.51	16.05					
Wetlands	PEM	7.28	7.28					
	PEM/PSS	0.28	0.28					
	PEM/PSS/PFO	0.12	0.12	***0.17 (0.26)***	***0.00 (0.00)***	***0.79 (1.58)***	***1.13 (2.83)***	***2.09 (4.67)***
	PSS	9.27	9.27					
	PFO	-	0.46					
	PUB	0.01	0.01					
	TOTAL	**16.96**	**17.42**					
Wetland Mitigation Acreage Allocated to Wyoming County:				***1.02***				
Total Mitigation Acreage Needed:				***4.67[1, 2]***				

Note:

1. ***The remaining 3.65 mitigation acres needed to compensate for wetland impacts occurring in Wyoming County as a result of the Project will come from the Towanda Creek Mitigation Site.***
2. ***Impact totals in Wyoming County were aggregated and rounded to two significant digits to determine mitigation needs. Therefore, while 0.002 acre of permanent EV PSS impact is proposed, this impact amount rounds to 0.00 and is not reflected in the mitigation totals.***

Native wetland herbaceous and woody plantings in additional to invasive species control will enhance and re-establish a healthy vegetative community that will contribute to the restorative success of the PRM Project. The proposed restoration activities will restore and enhance the functions and values (Refer to Appendix F: Wetland Functions and Values Assessment Forms) of which the site currently performs, mitigating for the impacted functions and values at the Project. Permanent legal protection of the PRM Project will maximize the long-term potential for successful and sustainable mitigation.

3.0 Site Selection

The Permittee explored multiple mitigation options to compensate for the proposed impacts to ***EV and non-EV PSS and PFO*** wetlands as a result of the Project. Banking credits were unavailable, and there are currently no active In-Lieu Fee (ILF) programs from which to obtain ILF credits. In order to minimize impacts to aquatic features and habitat areas, the Permittee limited the width of the proposed construction limits of disturbance (LOD) to the greatest extent practicable. This avoidance measure narrowed the potential area available for on-site resource restoration, which if pursued, would provide minimal benefit to the local watersheds relative to the impacts proposed within the LOD. The Permittee therefore determined that the on-site mitigation opportunities were less conducive to complying with the "no net loss" and/or "watershed approach" policy(s) commensurate with the Final Rule ((33 CFR §332.3(b)(2)) due to the project's permanent conversion impacts to PFO wetlands. The Permittee concluded that due to the ecological demands of the Project, entrusting the logistical and environmental aspects of compensatory mitigation to FPR will ensure the greatest chance of success and most effectively address watershed needs through off-site mitigation.

The PRM Site was selected after careful consideration of multiple alternatives in the watershed. Many alternatives were eliminated as a result of unwillingness on the part of the property owner to permanently restrict property use. The remaining alternatives were ultimately rejected due to lack of sufficient degraded wetland, stream and riparian resources within the project areas to provide ecological functional uplift and meeting the mitigation needs. The PRM Site was selected because of its ability to replace the functions and values impacted at the Project site, and accomplish ecologically self-sustaining aquatic resources through enhancement, re-establishment and conservation restoration measures.

The current degraded conditions of the on-site wetland areas and stream channel make this an attractive site from a mitigation perspective. Both the wetland and stream have been degraded through historic and current anthropogenic agricultural alterations including crop cultivation, planting and maintenance of non-native pasture grasses, and grazing. Improving the functions and values of these wetlands will provide an ecological uplift congruent to the watersheds restoration needs as identified in the Briar Creek Association for Watershed Solutions' Coldwater Conservation Plan (2012).

Present land use at the PRM Site is dominated by agricultural activities, primarily crop cultivation. A riparian buffer surrounding the southern stream, also known as West Branch Briar Creek, has been allowed to establish over the last 70 years, however the area was historically farmed and has suffered from intense cultivation of the surrounding landscape. Land uses surrounding the PRM Site consist of large tracks of agricultural land. Both streams on-site are designated as cold water fisheries (CWF), and migratory fisheries (MF) according to section 93.9: Designated Water Uses and Water Quality Criteria of the PA Code Chapter 93: Water Quality Standards. At the confluence of the southern-flowing Fester Hollow and the easterly flowing West Branch Briar Creek, West Branch Briar Creek is designated as a Trout Stocked Fishery (TSF) according to Section 93.9: Designated Water Uses and Water Quality Criteria of the PA Code Chapter 93: Water Quality Standards. The PA Fish and Boat commission (PFBC) has also identified these streams as Naturally Reproducing Trout Streams and Approved Trout Waters. Both streams are listed as Attaining for aquatic life. Additionally, because of the PFBC designations assigned to West Branch Briar Creek, wetlands on-site are considered EV wetlands.

The PRM Project embodies many of the critical components of the Final Rule including the likelihood for success and sustainability, the significance of the restored water body within the watershed, and the proximity of the impact and mitigation sites from a watershed perspective. Providing functional benefits such as improvements to fish, wildlife and threatened and endangered species habitat, floodflow conveyance and alteration, nutrient removal/retention, invasive species removal, and long-term land protection will support aquatic resources within the watershed to remain in good health. The likelihood of success and long-term ecological change were the most important factors that the Permittee considered.

Selected Mitigation Site

The proposed PRM Project will strongly align with the goals of the Briar Creek Association for Watershed Solutions' Coldwater Conservation Plan (2012). The plan specifically identifies the need to restore and conserve riparian forest buffers which were degraded or absent, in an effort to control and regulate stream system temperatures, runoff and flooding, point/non-point source pollution, and sedimentation, all of which have been identified as problems with the Briar Creek Watershed (BCW). FPR protection of the site will also align with the goals of the Coldwater Conservation Plan which also aims to protect floodplain areas, specifically wetlands within the watershed.

West Branch Briar Creek is a tributary to Briar Creek, which is a direct tributary of the Susquehanna River. The Susquehanna River provides aquatic and riparian habitat to five species of special concern (SOSC) as identified by the PA Natural Heritage Program (PNHP). Enhancing and protecting headwater streams of the Susquehanna River will support the SOSC and their critical habitat.

Additionally, the surrounding landscape of the PRM Site has experienced heavy habitat fragmentation due to historic and ongoing agricultural uses and human development. Pockets of core habitat (PNHP) areas also surround the PRM Site. Restoration activities within the PRM Site will support those core habitat areas and their SOSC inhabitants.

The restoration of the on-site wetland areas represents an opportunity to improve and protect this resources within the larger watershed. Conservation measures in this area are more important now than ever as ownership fragmentation, potential future development, and continued intense agricultural land use makes the conservation process more difficult.

4.0 Site Protection Instrument(s)

The PRM Project will be protected by a declaration of restrictive covenant in advance of the proposed activities outlined in this mitigation plan, ensuring the long-term protection of the site. The site protection instrument will be recorded within 60 days in the county courthouse after USACE/PADEP approval, with subsequent approval from the Permittee to move forward with mitigation. A copy of the site protection instrument to be filed upon permit approval is included as Appendix B: Site Protection Instrument. The site protection instrument restricts activities that are incompatible with the objectives of the PRM.

FPR will act as the initial long-term steward unless another qualified, watershed-focused, entity is willing to assume long-term stewardship responsibilities. FPR's heirs, assigns, or purchasers will be responsible for protecting lands contained within the PRM Site in perpetuity in accordance with the terms of the PRM plan, unless the lands are transferred or sold to a local, state, or federal resource agency or non-profit conservation organization.

Should a trustworthy, willing third-party conservation easement holder wish to protect the PRM Project site in perpetuity, they will have the option to transfer the deed of restrictive covenant into a conservation easement as part of the easement transfer. Entrusting the PRM to a third-party conservation easement holder may commence only

when FPR, the Permittee, and the agencies have mutually concluded that the PRM has achieved all of its objectives and sufficiently satisfied performance standards, as described in Section 9: Performance Standards.

5.0 Baseline Data

Baseline site investigations were conducted to develop an appropriate functional mitigation plan for the PRM Project. These baseline site investigations yielded a significant amount of existing condition project information including, but not limited to:

- Wetland and waterbody delineation including global positioning satellite (GPS) data collection of the easement boundary and of the delineated environmental features;
- Flora community composition data;
- Informal terrestrial and aquatic fauna community composition data;
- Land steward interviews relative to historical and present site conditions including land use practices;
- Extensive photo and field note documentation attached as Appendix C: Representative Site Photographs and Photograph Location Map; and
- General documentation of site conditions including constraints, access, potential staging areas, and a resulting plan for probable construction sequencing.
- Functions and Values Assessment Based on the USACE Highway Methodology Workbook Supplement (USACE, 1993) (Appendix F: Wetland Functions and Values Assessment Forms).

5.1 Land Use

The existing degraded conditions of the on-site wetland areas make this an attractive site from a mitigation perspective. Since 1939, intense agricultural cultivation within the PRM Site and immediate surroundings has occurred, including the channelization of portions of Fester Hollow (Appendix A, Figure 4A: 1939 Historic Aerial Map, Figure 4B: 1959 Historic Aerial Map, and Figure 4C: 1969 Historic Aerial Map). Land surrounding the stream and wetland has been and continues to be used as active agricultural land. While a large portion of the PRM Site and surrounding landscape has been intensely farmed, the riparian zone has been actively grazed, clear cut, or selectively timbered, and modified through the adjacent land use activities. These activities have resulted in an early successional vegetative community largely dominated by non-native and invasive species such as reed canarygrass (*Phalaris arundinacea*) and multiflora rose (*Rosa multiflora*). Land use downstream consists of residential homes and large tracts of agricultural land.

5.2 Soils

The U.S. Department of Agriculture Natural Resource Conservation Service (USDA-NRCS) soils database for Lancaster County, PA identified both hydric and non-hydric soils on-site. The NRCS soils map identifies 10 distinct soil series/complexes within the PRM Site. Of the 10 soils types identified, six soil types are categorized as being hydric or partially-hydric. The identified soils and summary attributes are included below. The mapped locations of the hydric and partially hydric soils are shown in Appendix A, Figure 5: Hydric Soils Map.

- Allis silt loam (AnB2): neutral substratum, 3 to 8 percent slopes (Bo): not prime farmland, located in depressions on till plains along the toeslope, 20 to 40 inches to paralithic bedrock, poorly drained, 0 to 12 inches depth to water table;
- Belmont silt loam (BeB2): 3 to 12 percent slopes, moderately eroded, farmland of statewide importance, found on valley sides along backslope or shoulder, 40 to 60 inches to lithic bedrock, well drained, more than 80 inches to water table;
- Litz silt loam (LpC2): 12 to 20 percent slopes, moderately eroded, not prime farmland, found on rides along backslope or shoulder, 20 to 40 inches to paralithic bedrock, well drained, more than 81 inches to water table,
- Litz and weikert shaly silt loams (LrC3): 12 to 20 percent slopes, severely eroded, not prime farmland, found on rides along backslope or shoulder, 20 to 40 inches to paralithic bedrock, more than 80 inches to water table;
- Litz and weikert shaly silt loams (LrD3): 20 to 35 percent slopes, severely eroded, found on ridges along the backslope or shoulder, not prime farmland, 20 to 40 inches to paralithic bedrock, well drained, more than 80 inches to water table;
- Middlebury fine sandy loam (Mb): all areas are prime farmland, found on floodplains along footslope, more than 80 inches to restrictive feature, 12 to 36 inches to water table, moderately well drained;
- Middlebury silt loam (Md): all areas are prime farmland, fond on floodplains along footslope, more than 80 inches to restrictive feature, moderately well drained, 12 to 36 inches to water table;
- Papakating silty clay loam (Pa): not prime farmland, located on floodplains along the toeslope, more than 80 inches to restrictive feature, very poorly drained, 0 inches to water table;
- Tioga silt loam (Ts): all areas are prime farmland, found on floodplains, more than 80 inches to restrictive features, well drained, 36 to 72 inches to water table;
- Washington silt loam (WaB2), 3 to 12 percent slopes, moderately eroded: all areas are prime farmland, located in valleys along shoulder or backslope, more than 80 inches to restrictive feature, well drained, more than 80 inches to water table;
- Wiltshire silt loam, 30 to 8 percent slopes, moderately eroded (WnB2): all areas are prime farmland, located in depressions along footslope, 40 to 80 inches to lithic bedrock, moderately well drained, 18 to 36 inches to water

table.

Field analysis indicated that hydric or partially hydric soils are dominant within the limits of the PRM Site and are found exclusively within the wetland areas identified onsite. Soils across the site are hydric as indicated by the passing of the following hydric soil indicators: depleted matrix and/or red parent material. Some soils on-site were also found to be problematic due to historic tilling and intense cultivation. Primary indicators of hydrology include surface water, high water table and/or saturation to the surface. Secondary indicators of hydrology include drainage patterns, visible saturation on aerial imagery, geomorphic position and passing of the FAC-neutral test.

5.3 Wetlands & Waterways

Appendix A, Figure 6: Topographic Map shows the topographic contours and elevations across the PRM Site. Appendix A, Figure 7: Drainage Area Map, shows the contributing and cumulative drainage areas that contribute to the hydrology of the PRM Site. Appendix D: Preliminary Waters of the U.S. Delineation Package provides the wetland report and discusses baseline site condition with respect to wetland and stream resources. A summary of site resources is provided below in Table 2: Summary of the PRM Site Existing Resources.

Table 2: Summary of the PRM Site Existing Resources

Resource Type		Baseline Resources
Total Acres		33.47
Uplands		16.51
Wetlands (Acres)	PEM	7.28
	PEM/PSS	0.28
	PEM/PSS/PFO	0.12
	PSS	9.27
	PFO	-
	PUB	0.01
	TOTAL	**16.96**
Streams (Linear Feet)	Perennial	5,412.56
	Intermittent	-
	Ephemeral	-
	TOTAL	**5,412.56**

5.3.1 Wetlands

A wetland delineation performed by RETTEW Associates, Inc. (RETTEW) in March of 2015, identified the presence of approximately 16.96 acres of wetlands within the 32.99 acre conservation easement, respectively (Appendix A, Figure 8: Existing Conditions Map). Table 2: Summary of the PRM Site Existing Resources provides a breakdown of the different wetland types identified on-site.

The majority of the PRM Site's hydrology originates from shallow groundwater, upland runoff, and the stream channel interactions. West Branch Briar Creek is characterized as a low gradient perennial stream significantly degraded due to

siltation likely caused by sediment-laden agricultural runoff. Indications of recent beaver activity was noted along West Branch Briar Creek, however no active beavers were observed within the PRM Site.

Other sources of hydrology within the PRM Site include the PEM wetland that surrounds to the stream channel within the riparian corridor. Hydrology within the PEM wetlands is derived from both groundwater and seeps/springs along the hillslope, which may provide base flow during drought conditions.

The wetlands on-site are found within the floodplains or riparian zones of the existing stream channels (Appendix A, Figure 8: Existing Conditions Map). Dominant vegetation within the PRM Site include reed canarygrass, cattail (*Typha latifolia*), Japanese stiltgrass, (*Microstegium viminieum*), sensitive fern (*Onoclea sensibilis*), silky dogwood (*Cornus amomum*) black willow (*Salix nigra*), black walnut (*Juglans nigra)* and red maple (*Acer rubrum*), among few others. As a result of the continued intense agricultural uses surrounding the wetland, the PRM Site remains in a degraded state.

Assessment of Wetland Functions and Values

The United States Army Corps of Engineers (USACE) *Highway Methodology Workbook Supplement: Wetland Functions and Values* (USACE, 1993) (USACE Highway Supplement) was used to evaluate the functions and values of the wetlands at the PRM Site. The USACE Highway Supplement is a qualitative approach to describing the physical characteristics of and identifying the functions and values exhibited by a wetland. The approach to applying functions and values to the impacted wetlands and the mitigation wetlands was agreed upon between the USACE, PADEP, Transco and FPR during the Clean Water Act Section 404 and 401 and Chapter 105 PreApplication Meeting held on March 17, 2015.

The Wetland Function-Value Evaluation Form from the USACE Highway Supplement was used to document the existing functions and values of PRM Site in order to capture the anticipated ecological lift the site will experience as a result of the mitigation project. These forms are included as Appendix F: Wetland Functions and Values Assessment Forms. The proposed improvements to baseline wetland functions and values and replacement of lost functions and values is further discussed in Section 6: Determination of Mitigation Needs.

5.3.2 Waterways

Stream delineation by RETTEW identified stream channels totaling 5,412.56 lf on-site. As previously stated, the channel flowing in an easterly direction is known as West Branch Briar Creek. Fester Hollow originates as a small headwater flowing in a southerly direction. Due to anthropogenic activities, the majority of the streams exist in a degraded condition, with a combination of vertical and horizontal instability. The immediately adjacent upland areas are a combination of degraded wetlands, and mid-successional upland areas. Outside of the immediate riparian corridor, the uplands are in active agricultural row cropping.

5.4 Uplands

The upland conservation areas within the PRM Site will be fully enhanced and restored. Currently, these upland areas are a mixed of degraded mid-successional riparian areas, and outside of that are actively used for row crops and pasture. Restoration of the upland areas will involve seeding of native meadow mix and planting of trees and shrubs.

5.5 Jurisdictional Agency Consultation

5.5.1 Rare, Threatened and/or Endangered Species

A PA Natural Diversity Index Environmental Review (PNDI) was completed on March 26, 2015. PNDI records indicate that there are no known impacts to threatened and endangered and/or special concern species and resources under jurisdiction of the PA Game Commission (PGC) and the PA Department of Conservation and Natural Resources (PADCNR), the PA Fish and Boat Commission (PFBC), and the United States Fish and Wildlife Service (USFWS) within the PRM Site. Therefore, no further coordination with these agencies is required. A copy of the PNDI Receipt is provided in Appendix E: Jurisdictional Agency Coordination.

Effective May 4, 2015, the USFWS listed the Northern Long-eared Bat as a threatened species under the ESA, rendering PNDI results prior to the effective date invalid. RES completed an updated PNDI search on May 11, 2015. Updated PNDI records did not indicate any changes from the previous results from January 14, 2015. According to the PNDI receipt, no further consultations with jurisdictional agencies are required. The updated PNDI Receipt is provided in Appendix E: Jurisdictional Agency Coordination.

5.5.2 Cultural Resources

Circa-Cultural Resources Management, LLC. completed a desktop analysis and field assessment to determine if any potential cultural, historical, or archaeological resources may be located within the PRM Site. The results of these assessments were compiled into a summary report that was submitted with a cultural resource notice (CRN) form to the PA Historical Museum Commission (PHMC) Bureau of Historic Preservation (BHP) on Friday April 3, 2015. A copy of this correspondence is provided in Appendix E. Jurisdictional Agency Coordination. In a letter dated May 8, 2015, the PHMC indicated that although there may be above ground historic properties within the Project area, no effects on these resources are anticipated as a result of the PRM Project activities. A copy of this correspondence is provided in Appendix E. Jurisdictional Agency Coordination.

6.0 Determination of Mitigation Needs

6.1 Functional Impacts and Proposed Functional Uplift

The wetland functions and values assessments performed at the Project impact locations and the PRM Site indicate that the mitigation site, once restored, will compensate and replace the functions and values impacted as a result of the Project by providing improved wildlife habitat, flood flow alteration, and nutrient removal/retention at comparatively high levels. The function and values evaluation forms completed for the impact locations and the PRM Site are provided in Appendix F: Wetland Functions and Values Assessment Forms. Table 3: Functional Assessment Summary, below lists the functions and values that were assessed State Plan Watersheds 4 and 5, as well as pre-restoration and post-restoration functions and values for the PRM Site.

Table 3: Functional Assessment Summary

Site Location	Functions and Values	Pre-Project Principal Functions	Post-Project Principal Functions
Project Impact Locations (Wyoming County)	Flood flow alteration	Yes	No
	Nutrient Removal	Yes	No
	Wildlife Habitat	Yes	No
Briar Creek	Flood flow alteration	Yes	Yes
	Fish and Shellfish Habitat	Yes	Yes
	Sediment/Toxicant Retention	Yes	Yes
	Nutrient Removal	No	Yes
	Production Export	No	Yes
	Sediment Stabilization	Yes	Yes
	Wildlife Habitat	Yes	Yes
	Uniqueness/Heritage	No	Yes

6.2 Project Impacts

Construction of the Project will result in 2.09 acres of wetland impacts in Wyoming County (Table 4: Wyoming County – Required Mitigation Summary). Of the 2.09 acres of wetland impacts, 0.17 acre is non-EV PSS, 0.79 acre is non-EV PFO, and 1.13 acres are EV PFO impact. A breakdown of the impact calculations and required mitigation summary is provided below in Table 4: Required Mitigation Summary.

Once the functions and values of the impacted wetlands were evaluated and compared to the pre- and post-restoration functions and values of the PRM Site, FPR applied a ratio-based method to ensure that the PRM Site will provide sufficient acreages of mitigation to meet the functional replacement needs of the Project. See Table 4: Wyoming County - Required Mitigation Summary for the mitigation acreage calculations based on replacement ratios for ***EV and non EV PSS and PFO*** wetland impacts discussed with

the PADEP and USACE during multiple pre-application meetings. The PRM Site will sufficiently offset the three primary functions and values that will be impacted as a result of the Project (wildlife habitat, flood flow alteration, and nutrient removal/retention) While also enhancing the existing suitable functions at the PRM Site to principal functions.

Table 4: Wyoming County – Required Mitigation Summary				
Wetland Type	**Impact Acreage (Wyoming County)**	**Mitigation Ratio (X:1)**	**Total Mitigation Needed**	**Total Mitigation Available**
EV PFO	***1.13***	***2.5***	***2.83***	***8.94***
Non-EV PFO	***0.79***	***2.0***	***1.58***	
EV PSS	***0.00***	***1.75***	***0.00***	
Non-EV PSS	***0.17***	***1.5***	***0.26***	
Total	***2.09***	***-***	***4.67[1]***	

Notes
1. Impact totals in Wyoming County were aggregated and rounded to two significant digits to determine mitigation needs. Therefore, while 0.002 acre of permanent EV PSS impact is proposed, this impact amount rounds to 0.00 and is not reflected in the mitigation totals.

6.3 Proposed Mitigation

Proposed mitigation at the PRM Site will involve invasive species removal, native seeding and planting, and permanent protection of the site. Mitigation ratios for enhancement approaches will utilize a 2:1 ratio, and ratios for re-establishment will use a 1:1 mitigation ratio. Therefore, 17.42 acres of wetland restoration proposed at the entire PRM Site will generate 8.94 acres of wetland mitigation, which will be used to offset the proposed wetland losses as a result of the impact Project. Of the 8.94 total mitigation acres at the PRM Site, ***1.02*** mitigation acres from the PRM Site will be used to compensate for impacts within Wyoming County. ***The additional 3.65 mitigation acres required for compensation will come from a different PRM site (Towanda Creek Mitigation Site). The remaining mitigation acreage at Briar Creek (7.92 acres) will be used to offset Project impacts in adjacent Luzerne County.*** Appendix A, Figure 9: Resource Development Map, shows the proposed restoration activities for the PRM Site. The PRM Project will establish the following resource types in the amounts presented in Table 5: Wetland Mitigation Summary By Approach Type, below.

Table 5: Wetland Mitigation Summary By Approach Type					
Mitigation Approach	**Wetland Type**	**Site (Acres)**	**Mitigation Ratio**	**Mitigation (Acres)**	**Mitigation Needed in Wyoming County (Acres)**
Enhancement	PEM	7.28	2:1	3.64	**4.67**
Enhancement	PEM/PSS	0.28	2:1	0.14	
Enhancement	PEM/PSS/PFO	0.12	2:1	0.06	
Enhancement	PSS	9.27	2:1	4.635	
Enhancement	PUB	0.01	2:1	0.005	
Re-establishment	PFO	0.46	1:1	0.46	
TOTALS	**-**	**17.42**	**-**	**8.94**	

7.0 Mitigation Work Plan

Table 6: Pre- and Post-Restoration Resources, provides a summary of the pre- and post-restoration resources for the PRM Site. A discussion of the proposed restoration approach follows. The restoration approach will noticeably improve the functions and values of restoration site. By following the USACE Highway Supplement for identifying wetland functions and values, it was determined that the wetlands identified within the PRM Site are currently collectively suitable for eight functions and values (Appendix F: Wetland Function and Values Assessment Forms). Individually, many of the wetlands are only suitable for two or three functions and values. However, given the current degraded state of the wetland and its immediate surroundings, only six of the collective functions and values are considered principal functions. Again, individually, many of the wetlands are characterized as having two or three functions.

Post restoration, it is anticipated that the wetlands within PRM Site will be collectively suitable for eleven functions and values, of which seven of those will be performing at principal levels. A vast majority of the wetlands will experience an increase in the level of suitability and principality for the given functions and values (Table 3: Functional Assessment Summary, Appendix F: Wetland Function and Values Assessment Forms). ***Comments and rationale for determining the functions and values are included in the forms, provided as Appendix F: Wetland Function and Values Assessment Forms.***

Table 6: Pre- and Post-Restoration Resources			
Resource Type		**Pre-Restoration Resources**	**Post-Restoration Resources**
Total Acres		33.47	33.47
Uplands		16.51	16.05
Wetlands (Acres)	PEM	7.28	7.28
	PEM/PSS	0.28	0.28
	PEM/PSS/PFO	0.12	0.12
	PSS	9.27	9.27
	PFO	-	0.46
	PUB	0.01	0.01
	Totals	**16.96**	**17.42**
Streams (Linear Feet)	Perennial	5,412.56	5,412.56
	Intermittent	-	-
	Ephemeral	-	-
	Totals	**5,412.56**	**5,412.56**

7.1 Wetland Restoration Approach

Restoration activities at the PRM Site will result in the re-establishment of 0.46 acres of PFO wetland and enhancement of 16.96 acres existing wetland (Refer to Table 6: Pre- and Post-Restoration Resources, Pre-Restoration Resources, column for a breakdown of the wetland types to be enhanced). Of the 8.94 total mitigation acres at the PRM Site, ***1.02*** mitigation acres from the PRM Site will be used to compensate for impacts within Wyoming County. The additional ***3.65*** mitigation acres required for compensation will come from a different PRM site ***(Towanda Creek Mitigation Site)***. The remaining mitigation acreage ***(7.92 acres) available at the PRM Site*** will be used to offset Project impacts in ***Luzerne county***. Upland areas will also be enhanced as part of the proposed PRM Project. The planting plan within Appendix G: Design Plan, lists the species of plants, and quantities and densities that will be used in all wetland and upland restoration areas.

Where wetland re-establishment is proposed (east of Fester Hollow), restoration activities will include fine grading erosional drainage features within the upland area of the agricultural field to the existing surrounding wetland elevations. This is based upon the observation of runoff from upslope wetland seeps running through the field adjacent to the re-establishment area, causing erosion and channelization (Appendix C: Site Representative Photos, Photo 3). ***The proposed surficial grading work, along with the re-establishment of permanent native vegetation in the area,*** will allow the water to spread more evenly throughout the area ***thereby eliminating the water from draining along the drainage patterns that currently exist. Due to the change in micro-topography and existing favorable soils, the PRM Site will develop saturation for long enough such that the proposed re-establishment area is anticipated to function as a wetland. This is also supported by the fact that the adjacent non-farmed area which exists at a similar elevation, is delineated as a wetland.*** Since this area has been actively

farmed for a long period of time, the soils are significantly disturbed, making it difficult to determine where historic wetland boundaries would have been, however best professional judgment was used to determine the areas where wetland re-establishment would most likely be successful.

Wetland enhancement activities will focus on the removal of non-native and invasive species within the PRM Site, which will be replaced with native wetland shrubs and trees as detailed in Appendix G: Design Plan. The primary species that will be targeted are multiflora rose, reed canarygrass, tree of heaven (*Ailanthus altissima*), and Japanese knotweed (*Fallopia japonica)*. Japanese knotweed is growing in several small patches along the riparian areas at the site, but has not yet spread into the large stands characteristically found along many streams in northeast PA. In wetland areas south of West Branch Briar Creek, several hawthorn trees (*Crataegus spp*.) are present; approximately half of these will be girdled and left standing to create standing dead snags for wildlife habitat. Clearing the understory of invasive woody herbaceous and material will open up the understory for the installation of the native seed mix; which in the enhancement areas will be a mixed facultative-obligate seed mix to include species which will more adequately respond to the micro-topographic variations and associated hydrology noted onsite.

The PRM Site will be planted with trees and shrubs at a rate of 550 stems per acre with native wetland vegetation, and the planting plan has been updated to show this area as being planted with a wetland tree and shrub mix. The PRM Site will also be seeded with a native wetland mix. These activities will restore hydrology and support the re-establishment wetland acreage proposed as shown in Figure 9: Resource Development Map (Appendix A: Figures of the Briar Creek Mitigation Site Plan). Additional planting details are provided herein, and as part of the planting plans provided as part of Appendix G: Design Plans.

7.2 Wetland Restoration Sequence

The wetland enhancement process will involve diligent invasive species management and replanting efforts. Vegetative management at the PRM Site will initially focus on removal of non-native woody species. For multiflora rose, the shrubs will be cut and a foliar application will be conducted after the cut stumps re-sprout. The cut shrub branches will be piled into brush piles on-site to provide additional wildlife habitat within the restoration areas. Follow-up control will be applied in a foliar manner with an aquatic approved dicot specific chemical herbicide. Larger tree species such as tree-of-heaven will either be cut, with the woody material left in the wetland as additional wildlife habitat, or they will be controlled using "hack-and-squirt" applications. Cut trees will be left as if they had fallen and will provide additional wildlife habitat. The species re-sprouts readily, therefore foliar application will be used on re-sprouts and around the cut stumps on an as-needed basis. Trees that are treated with the hack-and-squirt method will create standing dead snags for additional wildlife habitat, and re-sprouts will be retreated as needed.

After the initial woody weed control is conducted, the entire PRM Site will be controlled either early or late in the growing season, while native species are dormant, with chemical herbicide to control reed canarygrass. Upon initial weed control completion, and depending on the time of year and season, the initial seeding and planting will be conducted. If the time of year is late summer or fall, planting will be postponed until the appropriate planting window. The material installed will be a mix of bare-root plant material, in addition to larger trees approximately 5 to 6-feet in height, and at an approximate 80 percent/20 percent ratio, respectively. Within the wetland areas, trees and shrubs may be installed in a clustered pattern to provide additional habitat diversity and heterogeneity. Deer deterrents including natural sprays with scents which elicit a fear response in deer, will be the primary method used for protecting trees and shrubs from herbivory, tree tubes will not be used. Late fall and early spring weed control events will be needed for the first 2 to 3 years to continue to control reed canarygrass re-sprouts.

Japanese knotweed control efforts will be primarily mechanical during the spring and early summer to stop flowering, seeding, and continued growth through the spread of rhizomes. During the fall season, a dicot specific herbicide will be applied; herbicide applications are more successful in the fall when the plants are trans-locating sugars back to the root systems. FPR anticipates several years of continued management to eradicate the pockets of Japanese knotweed. As part of this effort, a native monocot seed mix will be installed in the areas where the knotweed control is ongoing. These native species will establish to provide competition and to stop any other invasives from re-seeding into the area during the control period. The use of a monocot specific seed mix in these areas will allow for continued chemical control using a dicot specific herbicide that will not harm the native plants germinating in the area. If the knotweed is growing in wetland areas, an aquatic approved herbicide will be used.

7.3 Upland Restoration Sequence

The upland agricultural areas will be seeded with a native upland grass and wildflower mix. All areas will be seeded during the first appropriate weather window, based upon the timing of permit approval, and then planted with the native trees and shrubs. Where possible, a native Truax Drill Seeder will be used to install the native grasses, as they result in better seed and soil contact and can produce better results with native seeding of grass species. As with the wetland areas, 80 percent of the planted woody material will be bare root material, and 20 percent will be larger 5 to 6-feet tall bare-root material.

It is important to conduct the initial woody planting in a manner that will allow for continued mechanical weed control of the newly seeded restoration areas during the first 3 years of establishment, and as such all woody upland material will be planted in rows to allow for continual mowing. This is to prevent weedy species from becoming established within the PRM Site while the native seeds germinate and grow, and to ensure enough light gets through to the establishing seeds, trees, and shrubs. Selective trimming may be used as needed to ensure enough light is getting through to developing tree seedlings.

It is anticipated that a number of the smaller sized tree material will be lost to herbivory from local deer and other natural causes. This will be documented during the annual monitoring periods. After the 1st year, the mortality from smaller trees and shrubs that have been installed will be used to determine replanting needs for the 2nd or 3rd year of the project. If the herbaceous layer is establishing well, and mowing with a tractor is no longer needed in the upland areas, the replanting will occur in a random pattern within the original gridded matrix to eliminate the appearance of planted "rows" and return the site to its natural condition (Appendix G: Design Plan). Should the PRM Site require an additional year of mowing, replanting may be postponed until large acreage mowing is no longer needed, and any mechanical weed control needs can be conducted with weed trimmers. Deer deterrents including natural sprays with scents which elicit a fear response in deer and systemic capsaicin tablets will be the primary method used for protecting trees and shrubs from herbivory; tree tubes will not be used.

During the infant period following restoration activities, the upland restoration area will represent an early successional habitat, dominated by native prairie vegetation. Over time as the woody vegetation establishes and matures, the area will transition into a woodland-meadow mix, and then finally reach its climax community as a fully forested riparian buffer. This transition will reduce both sediment and nutrient loads entering the wetlands for the active upland agricultural areas. The forested upland area will also reduce stormwater peak rates by increasing infiltration, ultimately providing support for the long-term functions of the restored wetland areas.

8.0 Maintenance Plan

The PRM Site will be monitored and maintained by FPR, as described in Section 10: Monitoring Requirements. FPR will act as the willing agent to perform all duties associated with satisfying compensatory mitigation requirements. Through contractual agreement with the Permittee, FPR will commit to restoring, enhancing, and preserving wetland functions and maintain wetland habitats in accordance with the provisions in the PRM.

Yearly maintenance will be documented in the annual monitoring reports along with a discussion of any anticipated maintenance events that will be needed the following year. In general, two to three site visits will be conducted annually during the first 3 years to monitor the sites for invasive species and adapt the yearly maintenance plan as needed based upon these observations.

In general, maintenance will be heaviest during the first 3 years of establishment, and will usually entail mechanical weed control events, along with two to three chemical control events, all targeting invasive species. Maintenance will focus on controlling any pockets of invasive species that might still be present on-site and monitoring for the establishment of any new stands of invasive species. Control methods will be targeted to deal with the individual species as they are found and will include both mechanical and chemical control. The Agent projects that by the 4th and 5th years, the intensity of management efforts required will drop off significantly as the native plant community will be relatively well established and resilient against the establishment and encroachment of invasive species.

In the upland areas the primary maintenance technique used will be mowing. Mowing between the planted tree rows ensures enough light is reaching the newly germinated native seeds, controls annual weedy species and stops them from re-seeding into the site, helps prevent the rapid spread of any perennial weedy species that may be present, and ensures enough light is reaching the newly planted tree and shrub material. Mowing is usually conducted twice a year during the first 2 years, and then once a year in year 3. By the 4th year, the herbaceous layer is usually well established, and no longer needs large scale mowing; spot mechanical and chemical weed control can be used to address any invasive species needs.

The wetland areas are usually to wet to allow mechanical access, and as such tend to need manual chemical and mechanical weed control. These areas also tend to have less problems with annual weedy species, but can have more issues with persistent perennial invasive species, specifically reed canarygrass. Target weed control applied through spot application, coupled with mechanical weed control to stop any re-seeding will be the primary weed control techniques used in the wetland areas.

9.0 Performance Standards

The PADEP and USACE will use the best professional judgment, visual observations, and monitoring reports to evaluate attainment of performance standards and to determine whether part or the entire PRM Site has successfully met the conditions of the permit. The following criteria will be used to assess project success:

1. In the vegetated wetland re-establishment and enhancement areas, success will be evaluated by:
    a. Wetland hydrology, defined as saturation of the major part of the root zone (in the upper 12 inches of the soil profile) or ponding upon the soil surface (with a maximum ponding depth of 18 inches) for at least 12.5 percent of the growing season measured in days, must be achieved. For the purpose of this determination, the growing season is defined as the period in which temperatures are expected to be above 28°F in 5 out of 10 years or the period during which the soil temperature in a wetland is greater than biological zero (5°C) at a depth of 50 cm (19.7 inches) if such data are available. Groundwater hydrology will only be monitored in re-established wetland areas, since all enhancement areas are already jurisdictionally identified wetland resources with confirmed wetland hydrology.
    b. Tree and shrub plant density in forested and scrub-shrub wetland areas of at least 400 living woody stems per acre will be maintained until canopy coverage of woody species is greater than 30 percent. Stem counts will include all established stems (both planted and volunteer individuals). The minimum specification of 400 woody stems per acre may be adjusted when appropriate to achieve the project goals based on a reference condition for wetland areas. If warranted, any density specification adjustments would require USACE and PADEP approval prior to implementation.

c. Once canopy cover exceeds 30 percent, woody species counts in those areas may cease.

d. Invasive herbaceous plant coverage will not exceed 30% during Year 1 monitoring, 20 percent during Year 2 monitoring, and 10 percent each year thereafter. The allowable invasive species percentages indicated above are slightly increased for years 1 and 2 due to the high prevalence of reed canarygrass within the PRM Site. Any seeds used for plant establishment should and will be free of tall fescue, Bermuda grass, and other allelopathic turf grass species, as well as plant species on the PA Department of Conservation and Natural Resources (DCNR) Invasive Plant list (PADCNR, 2014).

e. Native herbaceous plant coverage will be at least 60 percent by the end of the first growing season, and at least 85 percent each monitoring year thereafter. Any seeds used for plant establishment should and will be free of tall fescue, Bermuda grass, and other allelopathic turf grass species, as well as plant species on the PADCNR Invasive Plant List.

f. Until canopy coverage exceeds 30 percent, the average height of all woody stems of tree species, including volunteers, must increase by not less than an average of 10 percent per year by the 7th (Year 7 following construction) monitoring year. As an alternative standard, the 7th year monitoring report (Year 7) will contain documentation that all vegetation is healthy and thriving and the average tree height of all established and surviving trees is at least 8 feet in height.

2. In the vegetated upland restoration area, success will be evaluated by:

   a. No individual areas larger than 1/8 acre in size beyond that identified in the baseline evaluation may be made up by invasive species such as identified on the PADCNR Invasive Plant List. Any deviation from this standard must be agreed upon by the regulating agencies.

10.0 Monitoring Requirements

FPR will monitor the PRM Site to demonstrate compliance with the Performance Standards detailed in Section 9: Performance Standards. Monitoring will follow the guidelines established below:

1. Visual Description. Visual descriptions will be provided with each monitoring report by the collection of ground level photographs, taken facing north, south, east and west, from stations located adjacent to each vegetation plot. Permanent markers will be established to ensure that the same locations are monitored in each monitoring period. Additionally, photographs will be taken at all permanent photo location points, to allow for comparative pictures, pre and post restoration.

2. Hydrology. Wetland hydrology will be monitored in wetland re-establishment areas using one Onset HOBO U20 water level data logger in each wetland monitoring

plot. These water level data loggers continually record sub-surface water elevations within the wetland areas. For each monitoring report, a minimum of either 60 days of continuous automated monitoring, or eight consecutive weekly measurements will be provided during the growing season to demonstrate achievement of the hydrology performance criterion (actual monitoring may be of longer duration, as needed, to obtain proof of wetland hydrology).

3. Vegetation. Immediately following initial planting, FPR will establish permanent monitoring stations for wetlands within the mitigation area. Two plots per acre will be installed in re-establishment areas (1 total), and one plot per acre will be established in enhancement areas (16 total). Stations will be marked using 8-foot PVC pipe anchored with a metal T-post at plot center and GPS coordinates will be recorded. A map depicting monitoring station locations is provided as Figure 10 (Appendix A: Figures). Per each monitoring station, woody vegetation will be monitored in a 30-foot-by-30-foot plot, while herbaceous vegetation will be monitored in a 5-foot-by-5-foot plot, per USACE delineation methodology. Permanent monitoring stations will provide data to evaluate the survival rate of planted vegetation including number, species and growth rates (average heights and diameter). In addition to planted seedlings, reports will include the number by species of volunteering trees, shrubs, and woody vines. Reports will also reflect information regarding herbaceous plant species (collected in sub-plots using Daubenmire frames) the wetland plant status (scaled from obligate (OBL) to upland (UPL)) of each and the number by species of exotic/noxious species. Upland areas will be visually evaluated for invasive species presence, and invasive species area estimated and recorded in the yearly monitoring report.

Monitoring activities will occur during the growing season, and at least once during the 1st, 2nd, 3rd, 4th, 5th, 6th and 7th growing seasons following the completion of planting activities. Monitoring will adhere to the following schedules:

(a) For any year in which planting was conducted, monitoring of vegetation will take place no earlier than September or at least 6 months following panting.
(b) The monitoring of vegetation (herbaceous and woody species) will be conducted during the growing season.
(c) If all Performance Standards (Section 9: Performance Standards) have not been met in the 7th year, then a monitoring report will be required for each consecutive year until two sequential annual reports indicate that all standards have been successfully satisfied.
(d) Submittal of a final monitoring report (typically prepared the 7th growing season following completion of restoration activities, including planting) will be required.

As-Built Survey and Report

Following construction, FPR will complete an as-built planting plan to show the general locations and quantities of all vegetative material that was planted. The Permittee agrees

to submit the as-built planting report to the regulating agencies within 60 days following completion of the planting for the PRM Site.

Annual Monitoring Reports.

FPR will submit a monitoring report to the PADEP and USACE by December 31st of the year monitoring occurs. The monitoring report will include all data collected from the year's monitoring events, which will be used for comparison to the PRM Site's progress towards the performance standards found in Section 9: Performance Standards. If the PRM Site achieves all of its performance standards prior to year 7, an early release may be requested from the USACE and PADEP. Additionally, reports should include a detailed discussion of maintenance and management activities conducted during that year, along with a proposed maintenance schedule for the following year based upon the results of the yearly monitoring. The report should also include discussion of all activities that took place at the site. At a minimum, monitoring reports also include the following:

- Photos taken from ground level at each monitoring station and cross section, and from elevated positions throughout the site to document overall conditions,
- A description of the general condition of the seedlings, including the number and species of surviving seedlings in each monitoring station, and a discussion of likely causes for mortality,
- A description of vegetative communities developing at each monitoring station,
- A description of the generalized degree and distribution of exotic/invasive species and whether they are seed bearing trees or seedlings,
- Identification of measures to eradicate exotic/invasive species and document results of these efforts,
- A general discussion of hydrologic conditions at monitoring stations,
- A corrective action plan or explanation to address any Performance Standards that have not been achieved if applicable.

11.0 Long-Term Management Plan

To ensure the long-term sustainability of the restoration project, FPR will initially perform maintenance and long-term management. The Permittee anticipates that these activities will be minimal as the project is designed to be self-sustaining with limited management activities. Maintenance will be heaviest during the first 3 years of establishment, and will usually entail mechanical weed control events, along with two to three chemical control events, all targeting invasive species. Maintenance will focus on controlling any pockets of invasive species that might still be present on-site and monitoring for the establishment of any new stands of invasive species. Control methods will be targeted to deal with the individual species as they are found and will include both mechanical and chemical control. The Agent projects that by the 4th and 5th years, the intensity of management efforts required will drop off significantly as the native plant community will be relatively well established and resilient against the establishment and encroachment of invasive species.

After performance standards have been successfully attained, annual visual inspections will be conducted after each growing season to identify any need for invasive species control, additional signage, or boundary maintenance. Specific items required as part of a Long-Term Management Plan are listed below.

Annual Patrols

Walk-through surveys will be conducted annually to qualitatively monitor the general condition of the habitats on the site. Notes to be made may include observations of species encountered, water quality, general extent of wetlands and streams, and any occurrences of erosion, or invasive or non-native species establishment. If there are any noted items that require maintenance, this should be recorded and submitted in a report to the Agencies.

Invasive Species Monitoring

The walk-through survey will include a qualitative assessment (e.g. visual estimate of cover) of invasive species. If there is a continuous area exceeding 1/8 of an acre containing invasive species, the Long-Term steward should note this in a report to the agencies and conduct invasive species control to remove the noted species. Follow up monitoring should be conducted the following year, with follow up maintenance if needed.

Forestry Management Practices

Any practices to reduce diseased or dead vegetation will be allowed if the vegetation compromises the long-term viability of the PRM Site.

Trash and Trespass

If needed, trash should be removed and any necessary measures to prevent or repair damage from vandalism and trespass impacts should be taken.

Enforcement

The Long-term Steward will be responsible for the enforcement of the conservation easement. FPR will be the initial designated Long-term Steward charged with long-term management and maintenance responsibility once long-term success criteria as described in each site-specific PRM Report are attained. FPR may appoint a different Long-term Steward in accordance with 33 CFR 332.7(d)(1). The appointment of such an entity will be approved by the PADEP and/or USACE.

12.0 Adaptive Management Plan

An adaptive management plan including contingency, and remedial responsibilities will be implemented in the event monitoring reveals that certain performance standards have not been met. In the event of a deficiency, FPR will provide notice to the PADEP and USACE. The notice will include an explanation for the deficiency, potential remedial actions that could be undertaken, an assessment of risks, and an assessment of any adjustments that must be made to the maintenance and monitoring regime.

Ecological restoration is in its essence the practice of adaptive management. Due to the multitude of factors that affect a restoration project in a given year, the practitioner needs to be constantly assessing the site, and reacting to changing conditions as the site develops and matures. Usually, yearly variations are relatively minor and within the parameters of a given project's performance standards. These normal variations are noted through regular site visits, yearly monitoring reports, and yearly maintenance activities. Occasionally, rare instances arise which bring a project far outside of the defined range of its performance standards and more intensive remedial action is required. This adaptive management plan forecasts a few potential situations that could cause the proposed PRM Site to be well outside the range of its defined performance standards and how those instances would be addressed.

Hydrology

Based on the proposed design conditions, the hydrology in the wetland re-establishment areas should support wetland community. If a wetland area does not appear to be meeting the hydrologic requirements, the weather will be evaluated to see if it was a drier than normal year. If it appears that the weather patterns have been normal, or sufficient enough to provide adequate hydrology and the area was still not meeting its performance standards, the grading in the area will be re-surveyed. The survey will be evaluated to see if the area had aggraded, or if the initial grading elevation was too high. Additionally, wetland conditions in adjacent wetland areas will be evaluated, to see if there are notable differences between the areas meeting the performance standards and the area not meeting the performance standards. Based upon the findings of the survey work, and comparative conditions up valley and down slope, any remedial grading activities will be conducted as needed.

Wetland Vegetation

In the wetland enhancement areas, all wetland areas have been delineated in accordance with the *1987 USACE Wetlands Delineation Manual (Environmental Laboratory, 1987)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont (Version 2.0) (USACE, 2012).* Restoration activities at the PRM Site are not anticipated to result in changes to the site which would negatively affect the sites hydrology, therefore risk of site hydrology changing is not expected. As such, risk of the seeding or planting failing due to hydrology is not anticipated, unless there is an unexpected and extreme drought. In that instance any failure would be noted in the monitoring report, and replanting or reseeding done based on the results of the monitoring report.

In the wetland re-establishment areas, the seed mix being installed is facultative-wet, and as such if facultative or upland plants are dominating the areas, it would be assumed the problem would be with the hydrology in the area, and the measures as described above would be initiated. There are some species which are more aggressive than others, so if the issue is with an aggressive facultative or upland species outcompeting facultative-wet or obligate species, control methods may be used to reduce the prevalence of the aggressive species.

The other risk to wetland areas is a large scale break out of invasive species. This risk is usually highest if grading is conducted in a restoration, as the exposed soil and lack of vegetative competition allows for easy succession by fast growing and aggressive invasive species such as reed canarygrass. Since this PRM Project is using an enhancement approach, there is little to no risk of this happening. The existing native vegetation will be largely undisturbed and will be enhanced by supplemental plantings and seeding. Invasive species will be controlled on a yearly basis.

Tree and Shrub Establishment and Growth

Yearly planting densities and annual growth will be monitored as part of the annual monitoring for the PRM Site. Some mortality is expected in any restoration project. If there were a massive mortality in any given year, it would most likely be driven by one of two scenarios, drought conditions or herbivory.

Plantings are conducted either early in the spring or late in fall to allow the trees to establish with adequate rainfall and start developing their root systems prior to regular summer drought periods. There is little to no threat of plantings in the wetland areas being affected by drought based upon the expected hydrology within the restored floodplain systems. Secondly, because bare root species are being planted, the root systems are also more proportionate to the above ground biomass, allowing for better establishment. With larger material (#7 container material for example), the above ground biomass is proportionately larger than it should be for the size root system the tree has at the time of planting, which can make it more susceptible to drought or require regular watering through establishment.

To prevent mortality from deer browse, all plantings are sprayed with an all-natural anti-browse agent, which has shown to drastically reduce browse rates on other FPR projects. This will reduce the chance of large-scale damage from herbivores.

Maintenance mowing during the first 3 years will be used in the upland areas to ensure adequate tree and shrub establishment. The maintenance mowing aids in the establishment of the herbaceous understory in the uplands, prevents the establishment of weeds, and reduces competition for the trees during the first 2 to 3 years while they establish.

Lastly, if for some unforeseen reason there is a large-scale impact to the planted tree and shrub species, and the densities per acre are below the required amount, replanting will be conducted.

Upland Tree and Shrub Establishment and Growth

To prevent mortality from deer browse, all plantings are sprayed with an all-natural anti-browse agent, which has shown to drastically reduce browse rates on other FPR projects. This will reduce the chance of large-scale damage from herbivores.

Maintenance mowing during the first 3 years will be used in the upland areas to ensure adequate tree and shrub establishment. The maintenance mowing aids in the establishment of the herbaceous understory in the uplands, prevents the establishment

of weeds, and reduces competition for the trees during the first 2 to 3 years while they establish.

Invasive Species and Native Dominance

If at any point there is an intensive colonization of upland or wetland invasive species, which brings the total percent of invasive species well above the allowed performance standards, remedial action will be needed. The management technique used will be dependent on the type of invasive species colonizing the site (i.e. annual, or perennial, primary reproduction through vegetative spread or through seed). If the species are annual they can be managed via maintenance mowing and mechanical weed control methods to stop them from re-seeding into the site. After the seed bank is depleted, they drop out of the vegetative matrix. If they are perennial in nature, chemical herbicides need to be used; mechanical weed control is still used to stop further spreading through seed if they are a species that has high germination rates.

Once the invasive species control has begun, additional seeding or planting will need to be conducted to re-introduce a native plant community into the area of concern. Depending on the type of invasive species (i.e. broad leaf or monocot), replanting and reseeding strategies can be used to allow for continued chemical control of the invasive species in the area while still allowing the native species to germinate and develop.

The likelihood of this scenario is low; once established, native plant communities are actually quite resilient to invasion by invasive species as long as they are not disturbed or impacted. Invasive species issues on a restoration site tend to be most problematic during the first 2 years, because there is bare soil immediately available for germination and colonization immediately following construction, and there may be invasive species in the existing seed bank to germinate and establish. As previously stated, the primary restoration technique being used on this site is enhancement and therefore, the risk of this happening is extremely low.

In the event that the site is not meeting its performance standards for native herbaceous cover, additional seeding will be conducted. Again, the most important factor for establishing a healthy stand of upland herbaceous species is proper maintenance during the first 2 to 3 years of establishment, specifically mowing in upland areas. This ensures enough light is reaching the developing seedlings, while also eliminating competition from annual weedy species that may be trying to colonize the site. In the wetland areas, mowing cannot be conducted, but mechanical weed control with weed whips can be used.

13.0 Financial Assurances

Performance Bond

FPR will establish a performance bond to ensure that the PRM Site construction is completed and all success criteria are met. A sample performance bond is provided in Appendix H: Performance Bond. The financial assurance mechanism will be a surety bond for each PRM Site that will cover construction, maintenance and monitoring costs associated with each PRM Site, and will take effect 60 days after approval of the

joint permit. The performance bonding entity has a rating of A+ (A.M. Best Ratings, 2010).

Upon completion of the restoration activities and approval of the as-built plans by the PADEP and USACE, the bond will be reduced by 50 percent. The remaining 50 percent will be left in place for the life the PRM Site to cover the PRM Site's maintenance and monitoring costs. The bond will be closed once all performance standards are met, and final sign-off on the PRM Site has been provided by the USACE and PADEP. The following table presents the performance bond release schedule and target milestones.

Table 7: Performance Bond Release Schedule and Target Milestones

Type of Financial Instrument Used	Project Phase Covered	Specific Items Covered	Amount Reduced (Percent)	Amount Available (Percent)	Explanation
Surety Bond	Construction/ Development	Construction	0%	100%	100% of funds remain in-place until construction is complete
		Approval of As-Built Design Plans	50%	50%	Upon approval of the as-built design plans, 50% of the Bond amount is reduced
	Maintenance and Monitoring	Year 1- 10 Maintenance and Monitoring	50%	0%	The remaining 50% of the Bond will cover Maintenance, Monitoring and Reporting for the remaining active phase of the PRM Site.
		Reporting			

Long-term Stewardship Funding

Prior to construction of the Project, the Permittee will deposit $35,000.00 into an escrow account to cover long-term stewardship of the PRM Site. These funds are sufficient to cover the full cost of long-term stewardship activities for the entire PRM Site. The total sum for this escrow amount includes all expenses for long-term management and allocates funds for invasive species management contingency funds.

14.0 References

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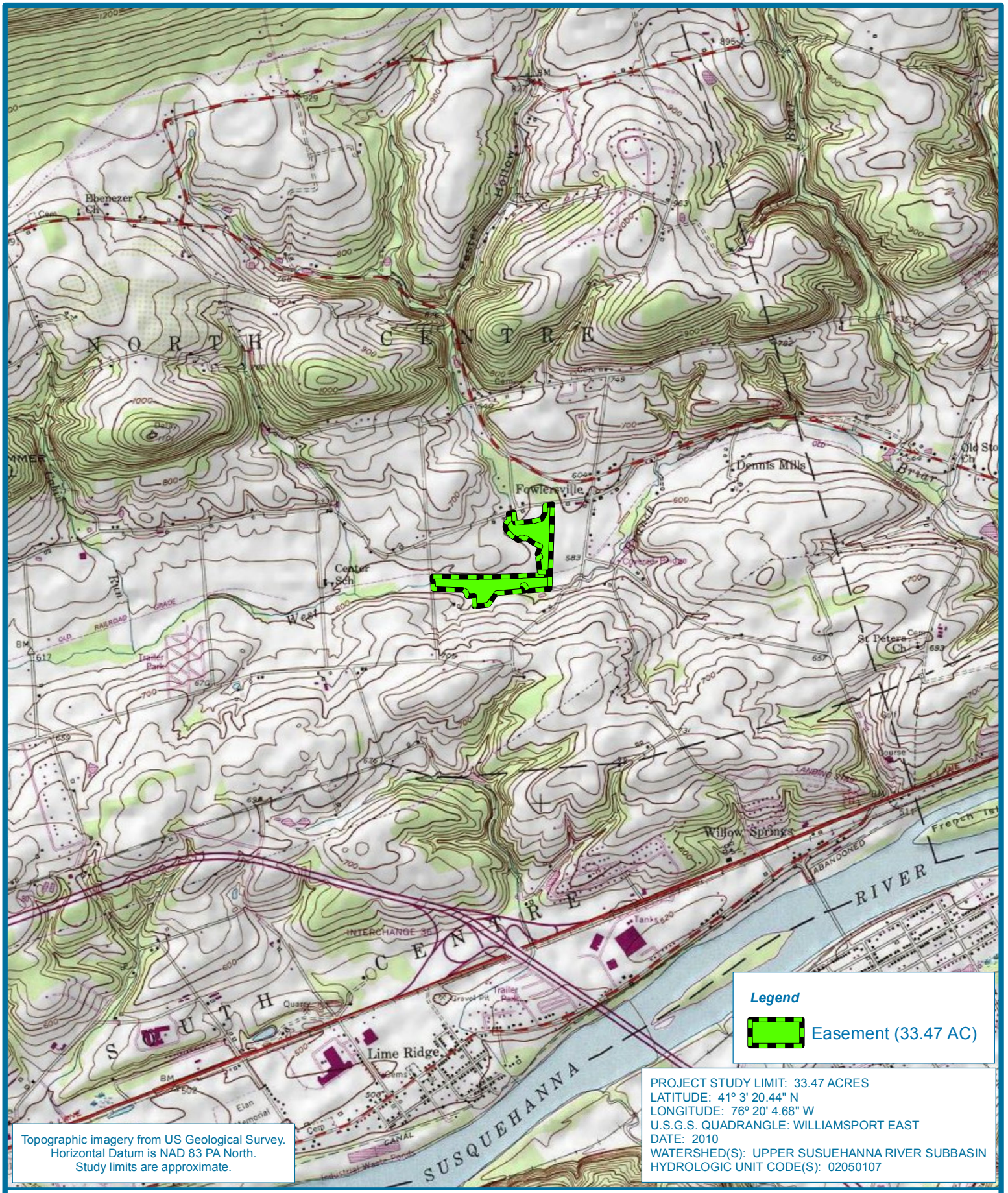
United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, C. V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

APPENDIX A

FIGURES



Topographic imagery from US Geological Survey.
Horizontal Datum is NAD 83 PA North.
Study limits are approximate.

PROJECT STUDY LIMIT: 33.47 ACRES
LATITUDE: 41° 3' 20.44" N
LONGITUDE: 76° 20' 4.68" W
U.S.G.S. QUADRANGLE: WILLIAMSPORT EAST
DATE: 2010
WATERSHED(S): UPPER SUSUEHANNA RIVER SUBBASIN
HYDROLOGIC UNIT CODE(S): 02050107

0 1,375 2,750
Feet

FIGURE 1

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
SITE LOCATION MAP

COLUMBIA COUNTY, PENNSYLVANIA

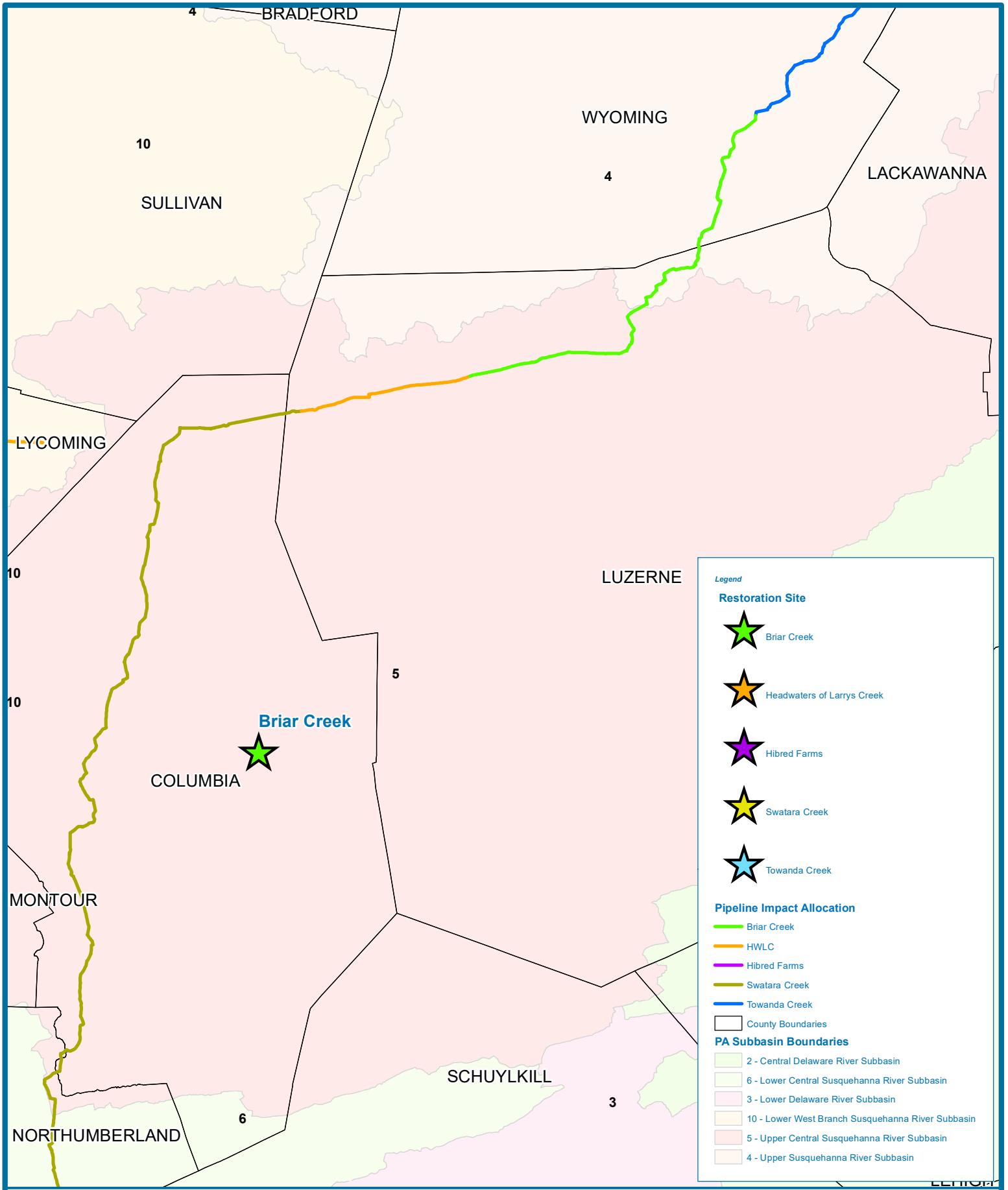


FIGURE 2

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
IMPACT VICINITY MAP

COLUMBIA, LUZERNE, AND WYOMING
COUNTIES, PENNSYLVANIA

FIGURE 3

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
PRM AREA MAP

COLUMBIA COUNTY, PENNSYLVANIA

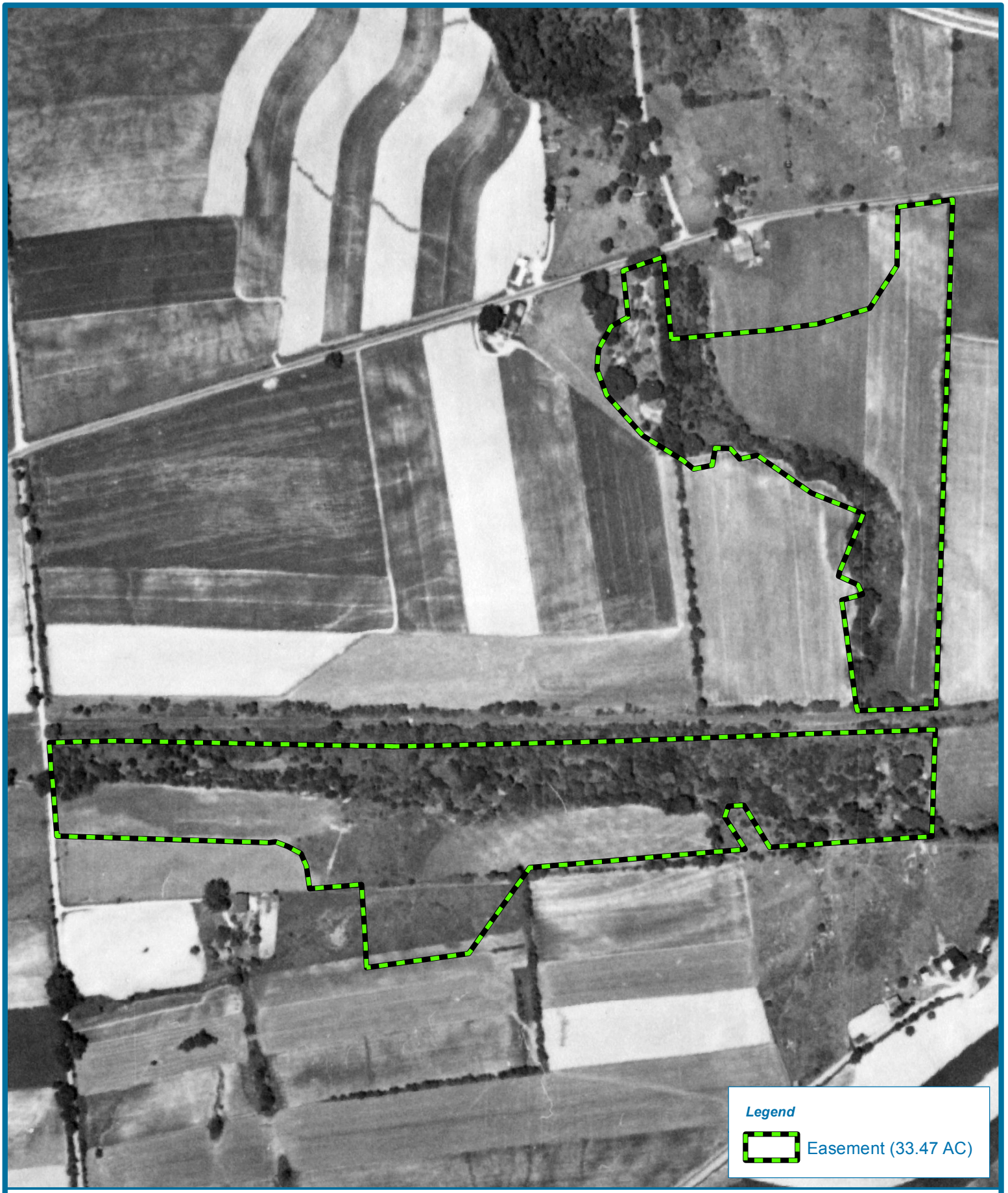
0 187.5 375
Feet

FIGURE 4A

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
1939 HISTORIC AERIAL*

COLUMBIA COUNTY, PENNSYLVANIA

*Historic imagery provided by Penn State University's Penn Pilot website. "Penn Pilot Photo Centers." Penn Pilot Photo Centers. Penn State University, n.d. Web. 27 Mar. 2015.



0 185 370
Feet

FIGURE 4B

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
1959 HISTORIC AERIAL*

COLUMBIA COUNTY, PENNSYLVANIA

*Historic imagery provided by Penn State University's Penn Pilot website. "Penn Pilot Photo Centers." Penn Pilot Photo Centers. Penn State University, n.d. Web. 27 Mar. 2015.

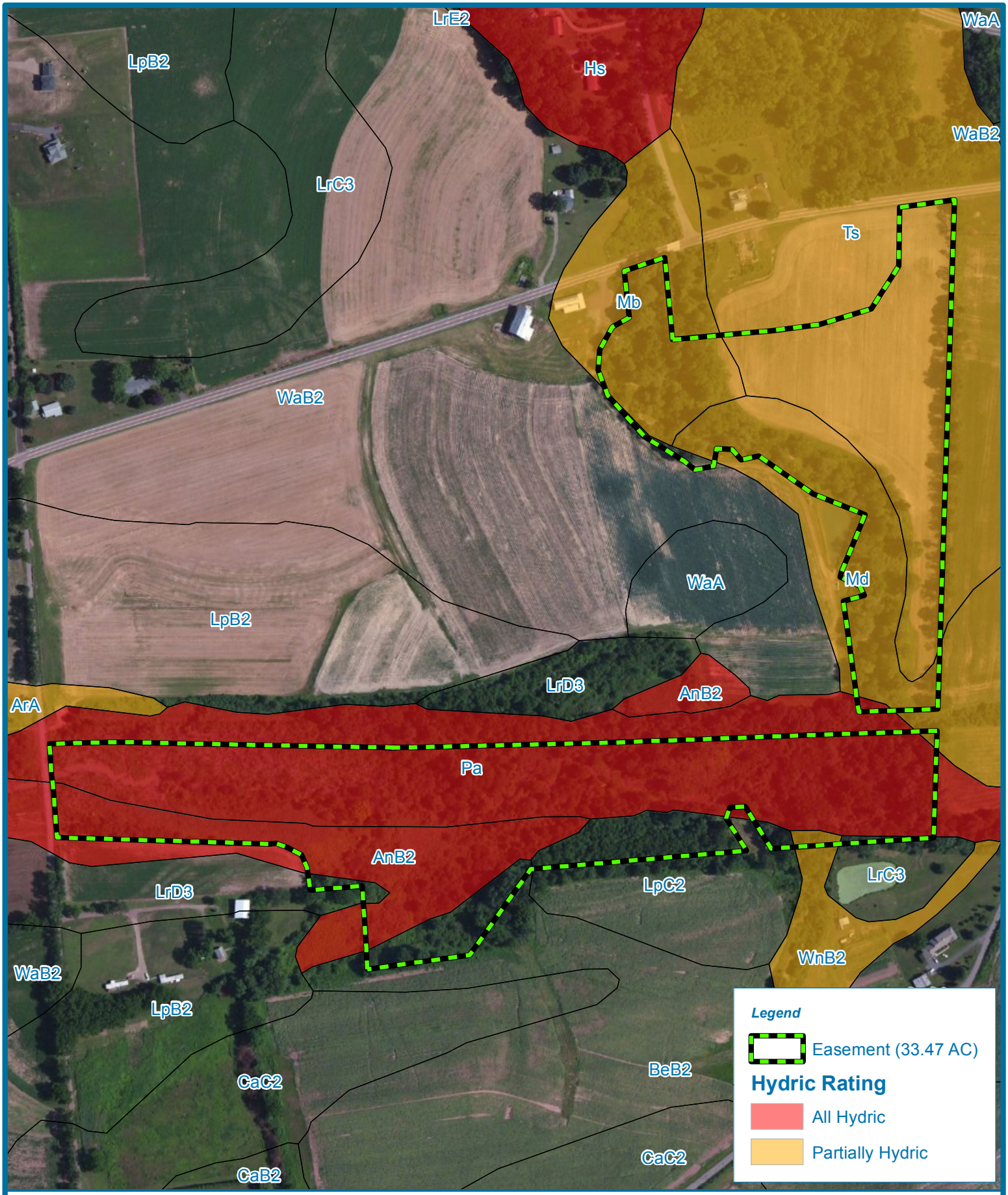
0 187.5 375
Feet

FIGURE 4C

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
1969 HISTORIC AERIAL*

COLUMBIA COUNTY, PENNSYLVANIA

*Historic imagery provided by Penn State University's Penn Pilot website. "Penn Pilot Photo Centers." Penn Pilot Photo Centers. Penn State University, n.d. Web. 27 Mar. 2015.



0 185 370
Feet

FIGURE 5

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
HYDRIC SOILS MAP
COLUMBIA COUNTY, PENNSYLVANIA

res

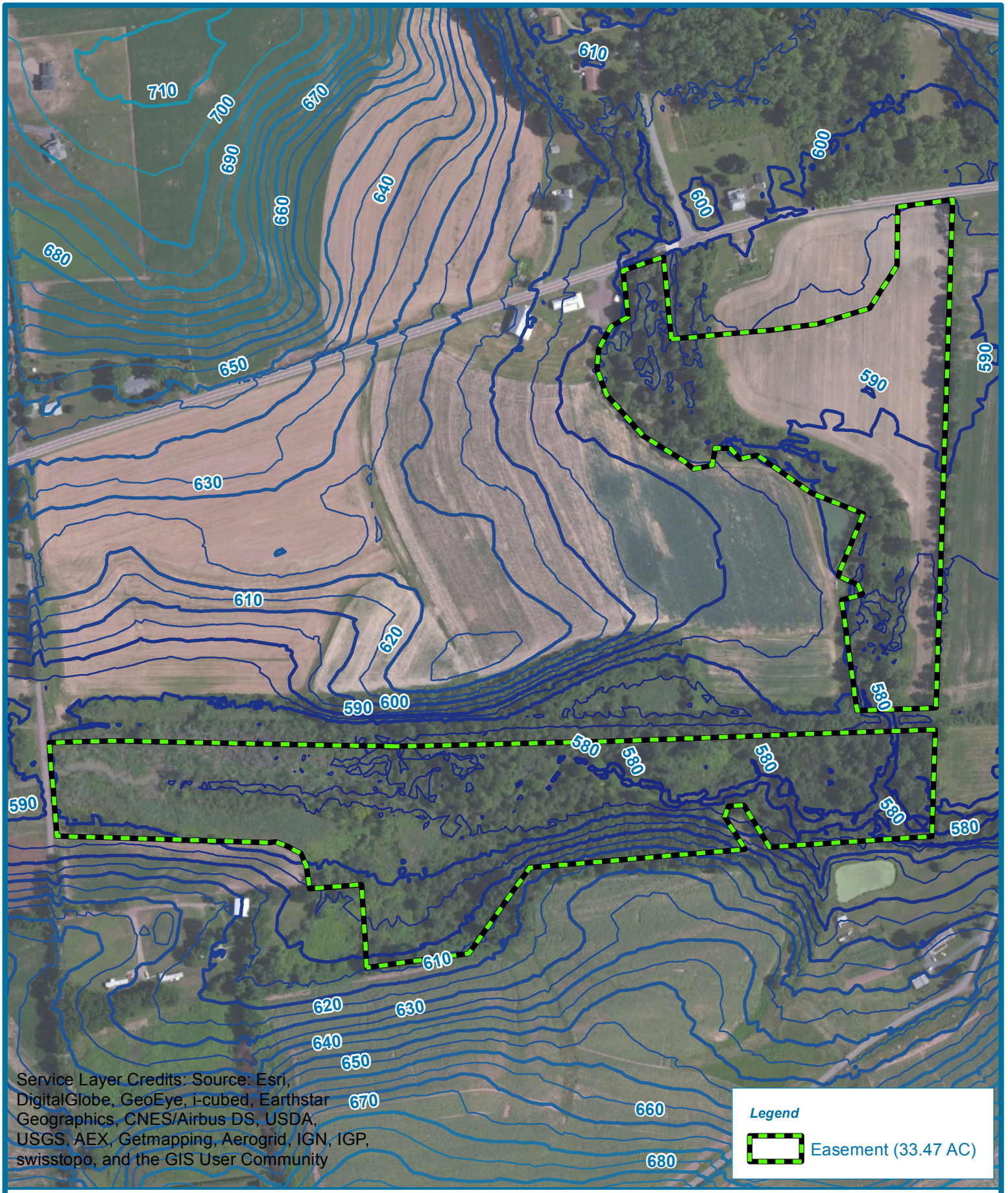


FIGURE 6

ATLANTIC SUNRISE PROJECT
BRIARS CREEK MITIGATION SITE
TOPOGRAPHIC MAP

COLUMBIA COUNTY, PENNSYLVANIA

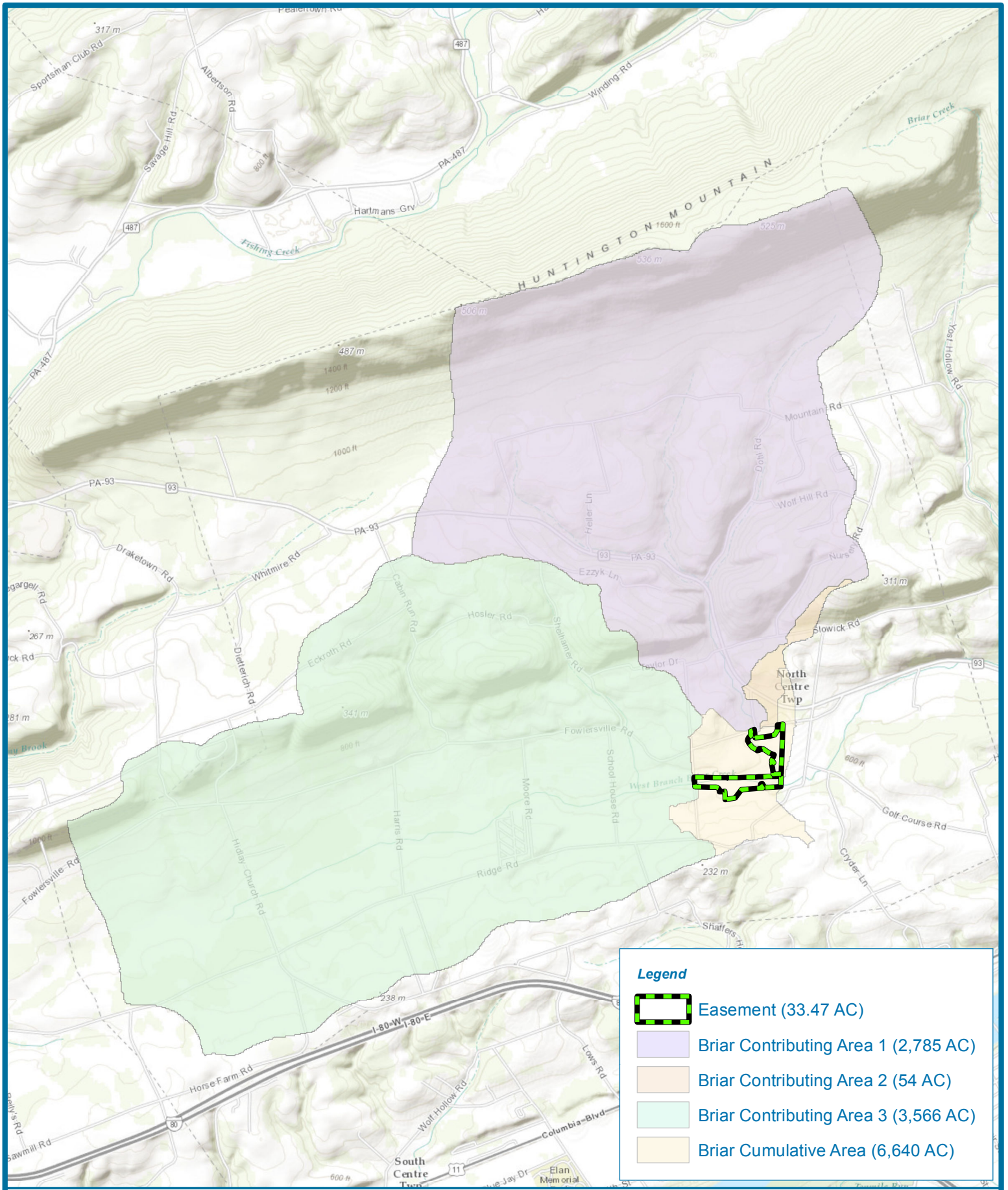


FIGURE 7

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
DRAINAGE AREA MAP

COLUMBIA COUNTY, PENNSYLVANIA

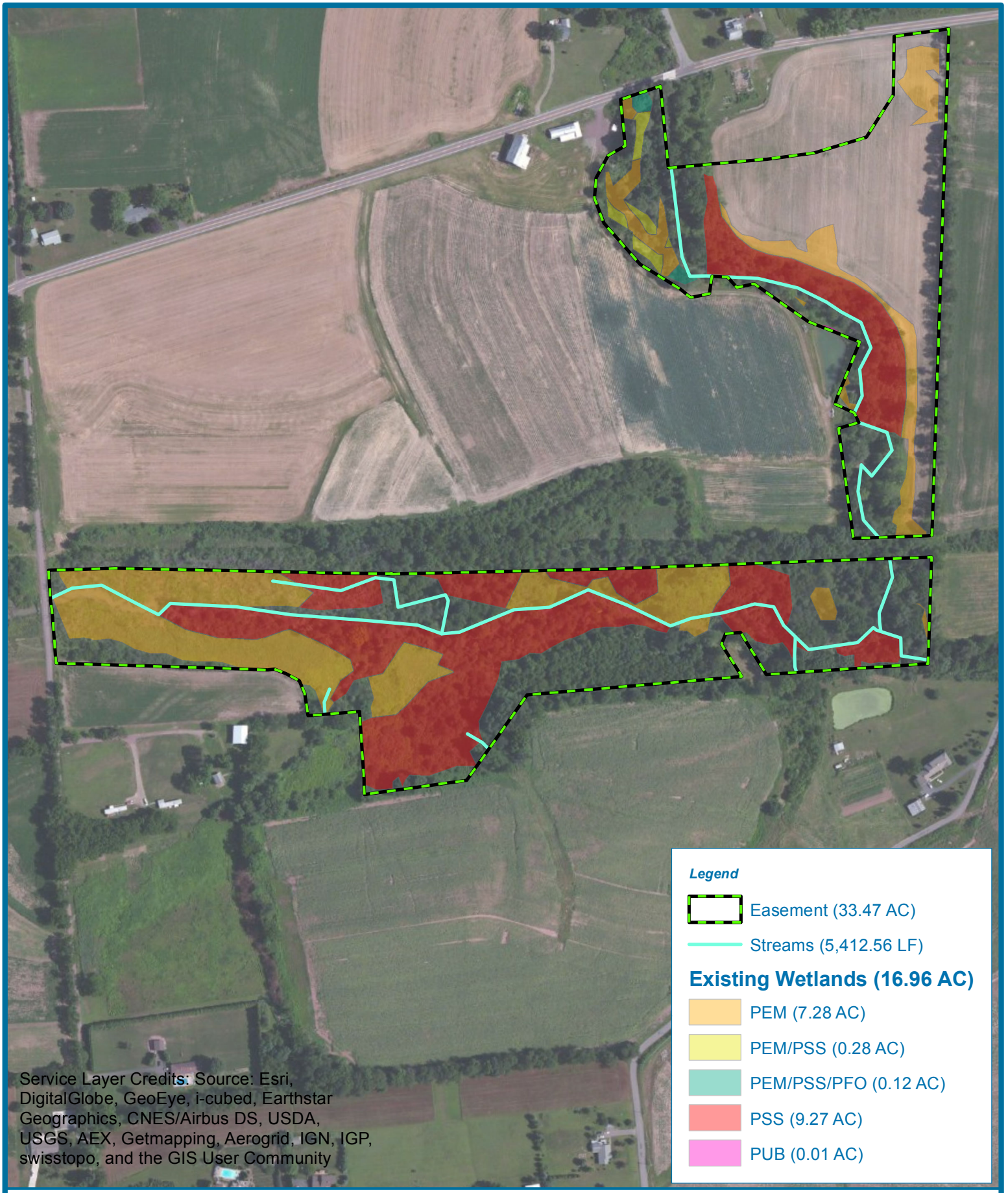


FIGURE 8

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
EXISTING CONDITIONS MAP

COLUMBIA COUNTY, PENNSYLVANIA

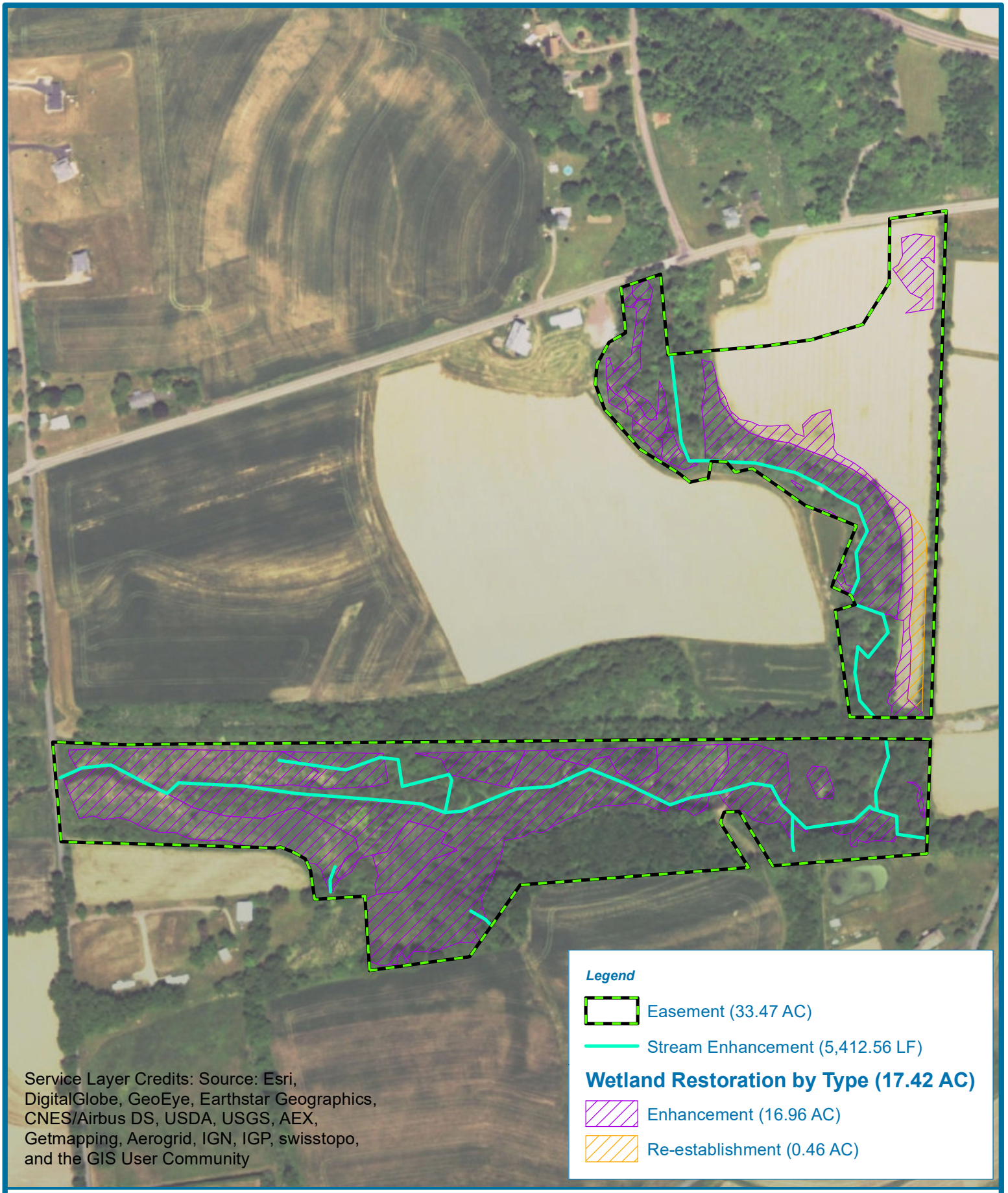


FIGURE 9
ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
RESOURCE DEVELOPMENT MAP

COLUMBIA COUNTY, PENNSYLVANIA

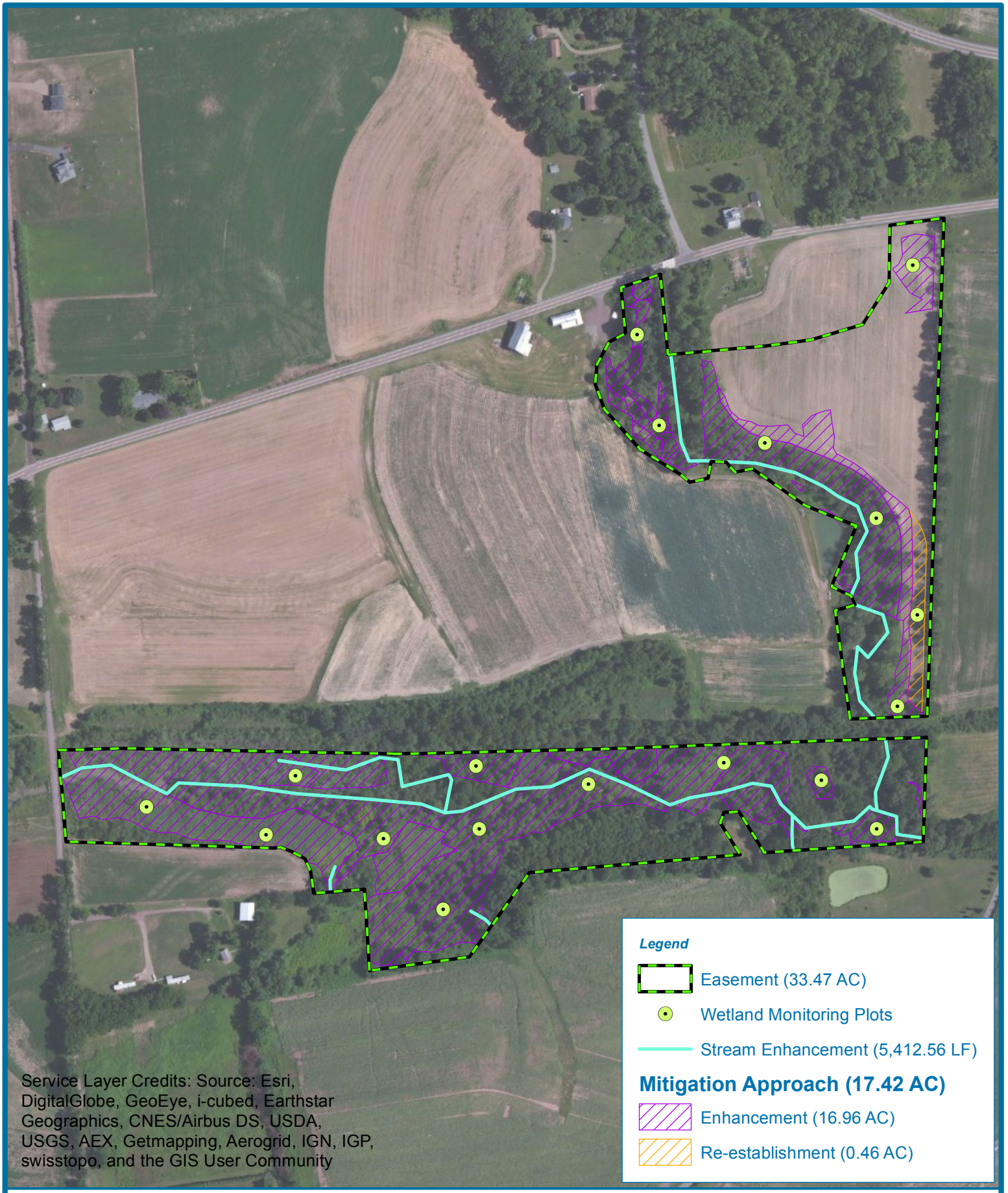


FIGURE 10

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
MONITORING LOCATION MAP

COLUMBIA COUNTY, PENNSYLVANIA

APPENDIX B

SITE PROTECTION INSTRUMENT

UPI: 11 07 00200 & 11 07 00300
Municipality: North Centre Township
Address: 997 Fowlersville Road, Berwick, PA 18603

DECLARATION OF RESTRICTIVE COVENANT FOR CONSERVATION

This DECLARATION OF RESTRICTIVE COVENANTS FOR CONSERVATION relates to an ecological enhancement and restoration project (hereinafter, this "Declaration") is made and entered into as of _____ __, 2015 by ERNEST W. CAMPBELL with a mailing address at _____, PA _____ ("Grantor").

RECITALS

WHEREAS, Grantor owns in fee simple certain real estate located Columbia County liber and folio reference Instr. No. 200603622 consisting of 129.18 acres, more or less, as described more specifically in Exhibit A hereto (the "Property"); and

WHEREAS, the Grantor has agreed to make a 33.47 acre portion of the Property, delineated in Exhibit A attached hereto, where certain aquatic resources exist or may be created and/or enhanced (the "Conservation Area"), subject to this Declaration whose legal description is attached hereto as Exhibit A; and

WHEREAS, First Pennsylvania Resource ("FPR)" is a Pennsylvania company in the business of wetland mitigation banking in the Commonwealth of Pennsylvania; and

WHEREAS, the Grantor agrees to the creation of the Conservation Area described herein and intends that the Conservation Area shall be preserved and maintained in perpetuity in an enhanced and/or natural condition, which condition will include functioning wetlands; and

WHEREAS, under Federal and State law, the Corps has issued Permit No. _____ and the PADEP has issued Permit No._____ (collectively, the "Permits") for impacts to waters of the United States and/or the Commonwealth of Pennsylvania expected to result from the creation of the self-sustaining natural aquatic system located on the Conservation Area; and

WHEREAS, the Grantor agrees and acknowledges that this Declaration, including the rights authorized to Grantor herein, shall be assignable and transferrable to Grantor's subsequent heirs, successors, and assigns.

NOW, THEREFORE, for good and valuable consideration and in consideration of the mutually held interests in enhancement and preservation of the environment, as well as the terms, conditions, and restrictions contained herein, and pursuant to the laws of the Commonwealth of Pennsylvania, Grantor does agree to the following terms and conditions:

A. PURPOSE

The purpose of this Declaration is:

(1) To preserve, protect, and enhance the native flora, fauna, soils, water table, aquifer, drainage patterns, wetland resources and other related environmental functions and values of the Conservation Area;

(2) To maintain the natural view shed of the Conservation Area in its native, enhanced, scenic and open condition;

(3) To assure that the Conservation Area, including its air space, streams and other aquatic resources on or beneath the Conservation Area, and including, but not limited to, subsurface aquifers, springs, and the water table, will be maintained in perpetuity in its natural condition, as that may be enhanced, as provided herein; and

(4) To prevent any use of the Conservation Area that threatens to or will impair, interfere with, or otherwise negatively affect its natural resource functions and values.

Grantor intends and agrees that this Declaration will confine the use of the Conservation Area to such activities as are consistent with the purposes set forth herein.

B. ACCESS

In order to achieve the purposes of this Declaration, the following rights are created in accordance with Pennsylvania law [for government entities, use PA Statutes, Title 32, §§ 5051-5059.]:

(1) The Grantor shall have the right and acknowledges the right of the Sponsor, the Corps, the PADEP and other government agencies to enter upon the Property to inspect the Conservation Area at reasonable times to monitor compliance with this Declaration. Except in cases of a threat of a physical or public safety emergency, such entry shall, when practicable, be upon reasonable prior notice to Grantor or its successors and assigns, and such entry shall not unreasonably interfere with the Grantor's or its successors' and assigns' use and quiet enjoyment of the Property.

(2) The Grantor shall each have the right to enter upon the Property to access the Conservation Area at reasonable times, upon prior notice to the property owner; and upon notice and written approval by the USACE may take appropriate environmental or conservation management measures within the Conservation Area consistent with the terms and purposes of this Declaration, including, but not limited to:

(a) planting of native vegetation (i.e. trees, shrubs, grasses, and forbs); and
(b) restoring, altering or maintaining the topography, hydrology, drainage, structural integrity, streambed(s), streambank(s), water

quantity, water quality, any relevant feature of a stream, wetland, water body, or vegetative buffer within the Conservation Area.

(3) The Grantor, the Sponsor, the Corps and other government agencies with appropriate legal authority shall each have the right to enforce the terms of this Declaration by appropriate legal proceedings [for government entities, use PA Statutes, Title 32, §§ 5051-5059.] in accordance with applicable law so as to prevent any activity on or use of the Property that is inconsistent with the purposes of this Declaration and to require the restoration of such areas or features of the Conservation Area that may be impaired or damaged by an inconsistent activity or use.

C. DURATION

This Declaration shall remain in effect in perpetuity, shall run with the land regardless of ownership or use, and is binding upon and shall inure to the benefit of the Grantor's heirs, executors, administrators, successors, representatives, devisees, and assigns, as the case may be, as long as said party shall have any interest in any portion(s) of the Conservation Area.

D. PERMITTED USES

This Declaration will not prevent the Grantor, or any subsequent owner of the Property and/or portions of the Property, from making use of the area(s) outside of the Conservation Area or from uses that are consistent with the purposes of this Declaration.

E. RESTRICTIONS

Any activity in or use of the Conservation Area that is inconsistent with the purposes of this Declaration by the Grantor; subsequent property owner(s); and the personal representatives, heirs, successors, and assigns of either the Grantor or subsequent property owner(s), is prohibited. Without limiting the generality of the foregoing, and except when an approved purpose under B.(2) above, or as necessary to accomplish mitigation approved under any permit(s) reliant upon this Declaration, the following activities and uses are expressly prohibited in, on, over, or under the Conservation Area, subject to the express terms and conditions below:

(1) **Structures**. The construction of man-made structures including, but not limited to, the construction, removal, placement, preservation, maintenance or alteration of any buildings, roads, utility lines, billboards, or other advertising. This restriction does not include deer stands, bat boxes, bird nesting boxes, bird feeders, duck blinds, and the placement of signs for safety purposes or boundary demarcation.

(2) **Demolition**. The demolition of fencing structures constructed by the Sponsor for the purpose of demarcation of the Conservation Area or for public safety.

(3) **Soils**. The removal, excavation, disturbance, or dredging of soil, sand, peat, gravel, or aggregate material of any kind; or any change in the topography of the land, including

any discharges of dredged or fill material, ditching, extraction, drilling, driving of piles, mining or excavation of any kind.

(4) **Drainage**. The drainage or disturbance of any aquifer, the surface water level or the water table, except for pre-existing or approved project-related stormwater discharges and any maintenance associated with those stormwater discharges. All pre-existing or approved project-related drainage/stormwater discharge features should be shown on the accompanying plat map or approved plan and attached to this Declaration as Exhibit B.

(5) **Waste or Debris**. The storage, dumping, depositing, abandoning, discharging, or releasing of any gaseous, liquid, solid, or hazardous waste substance, materials or debris of whatever nature on, in, over, or underground or into surface or ground water, except for pre-existing or approved project related stormwater discharges, and any maintenance associated with those stormwater discharges.

(6) **Non-Native Species**. The planting or introduction of non-native or invasive species.

(7) **Herbicides, Insecticides, and Pesticides**. The use of herbicides, insecticides, pesticides, or other chemicals, except for as may be necessary to control invasive species that threaten the natural character of the Conservation Area. State-approved municipal application programs necessary to protect public health and welfare are not included in this prohibition.

(8) **Removal of Vegetation**. The mowing, cutting, pruning, removal; disturbance, destruction, or collection of any trees, shrubs, or other vegetation, except for pruning, cutting or removal for:

a) safety; or
b) control in accordance with accepted scientific forestry management practices for diseased or dead vegetation; or
c) control of non-native species and noxious weeds; or
d) scientific nature study.

(9) **Agricultural Activities**. The conversion of, or expansion into, any portion of the Conservation Area for use of agricultural, horticultural, aquacultural, silvicultural, livestock production or grazing activities. This prohibition also includes conversion from one type of these activities to another (e.g. from agricultural to silvicultural).

(10) **Subdivision of Conservation Area**. Subdivision of real property within the Conservation Area into multiple parcels.

(11) **Other**. Other acts, uses, excavation, or discharges, which adversely affect fish or wildlife habitat or the preservation of lands, waterways, or other aquatic resources mentioned herein within the Conservation Area.

F. INSPECTION, ENFORCEMENT AND ACCESS RIGHTS

As set forth in Section B, above, the Grantor, Sponsor, Corps, PADEP, and authorized regulatory entities have the right to enter the Property to observe the Conservation Area and to take actions necessary to verify compliance with and to enforce this Declaration. When practicable, such entry shall be upon prior reasonable notice to the property owner. The Grantor grants to the Corps, the U.S. Department of Justice, and/or the PADEP, a discretionary right to enforce this Declaration in a judicial action against any person(s) or other entity(ies) violating or attempting to violate these restrictive covenants. No violation of this Declaration shall result in a forfeiture or reversion of title. In any enforcement action, an enforcing agency shall be entitled to a complete restoration for any violation, as well as other judicial remedies such as civil penalties. Nothing herein shall be interpreted to limit the right of the Corps or PADEP to modify, suspend, or revoke any permit issued or authorized by the Corps or PADEP.

G. RECORDING AND EXECUTION BY PARTIES

Within thirty (30) calendar days of execution of this Agreement, the Grantor shall record this Declaration in the Tioga and Potter County offices where land records are retained. Further, if anticipated activities in the Conservation Area are agreed upon for future phases of the site, as set forth in Section I (Reserved Rights) herein, the Grantor or Sponsor must submit plans to the Corps and PADEP for review and approval prior to any work in the Conservation Area.

H. NOTICE OF TRANSFER OF PROPERTY INTERESTS

No transfer of the rights set forth in this Declaration, or of any other property interests pertaining to the Conservation Area or the underlying property it occupies, shall occur without sixty (60) calendar days' prior written notice to the Sponsor, Corps and PADEP.

I. RESERVED RIGHTS

(1) The Grantor and any holders of declarations or other property rights for the operation and maintenance of pre-existing or project-related structures or infrastructure such as roads, utilities, drainage ditches, or stormwater facilities that are present on, over, or under the Conservation Area reserve the right, within the terms and conditions of their permits, their agreements, and the law, to continue with such operation and maintenance. All pre-existing or approved project-related structures or infrastructure, if any, shall be shown on the accompanying plat map or approved plan and attached to this Declaration as Exhibit B.

(2) If an authorized project requires any related or unanticipated infrastructure modifications, utility relocation, drainage ditches, or stormwater controls within the identified Conservation Area, or if a situation requires measures to remove threat to life or property within the identified Conservation Area, said activities must be approved in writing by the Corps and PADEP subject to terms and conditions set forth in the written approval. Approval is subject to the Corps and PADEP discretion. If approved, said activities must be identified on an amended Exhibit B and must be recorded and specifically noted as an "amendment" and copies of the recorded Amended Exhibit B must be provided to the Corps and PADEP within sixty (60) days of Corps approval. Approval of said activity by the Corps is in addition to any Clean Water Act,

Section 404 permit, or other authorization, which may be required in order to legally implement said activity. The Grantor and FPR accept the obligation to place any other and/or subsequent responsible party on reasonable prior notice of their need to request such Corps approval.

J. SEVERABILITY

If any portion of this Declaration, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this instrument, or application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

K. MODIFICATIONS

The restrictions contained in this Declaration are required by the Department of the Army Permit and/or Mitigation Banking Instrument and /or Mitigation Plan, a copy of which is attached hereto and incorporated by reference. There shall be no changes or alterations to the provisions in this Declaration without prior written approval from the appropriate District Commander of the Corps and PADEP. The Corps and PADEP shall be provided with a 60-day advance written notice of any legal action concerning this Declaration or of any action to extinguish, void, or modify this Declaration in whole or in part, including transfer of title to, or establishment of any other legal claims over, the Property. This Declaration is intended to survive foreclosure, bankruptcy, condemnation, or judgments affecting the Property.

L. MITIGATION

If the work required by a mitigation plan, including maintenance or remedial work, under the Corps permit for the project, occurs within the Conservation Area, then the Sponsor is allowed to construct and undertake the mitigation work in accordance with an authorized mitigation plan, a copy of which is attached hereto and incorporated by reference.

M. COAL RIGHTS NOTICE

The following notice is given to and accepted by Grantor for the purpose and with the intention of compliance with the requirements of the Pennsylvania Conservation and Preservation Declarations Act. Nothing herein shall imply the presence or absence of workable coal seams or the severance of coal interests from the Property.

NOTICE: This Declaration may impair the development of coal interests including workable coal seams or coal interests which have been severed from the Property.

[THE REMAINDER OF THIS PAGE IS LEFT INTENTIONALLY BLANK]

IN WITNESS WHEREOF, intending to be legally bound, the Parties have executed this Declaration the day and year first above written.

GRANTOR:

_____
Ernest W. Campbell

WITNESS:

_____

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF _____ :

On _____, before me, a Notary Public for the Commonwealth aforesaid, personally appeared Ernest W. Campbell, who acknowledged himself to be the person known to me or satisfactorily proven to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I have set my hand and official seal.

_____
Notary Public
My commission expires:
_____

[SEAL]

EXHIBIT TO THE DECLARATION A

DECLARATION OF RESTRICTIVE COVENANTS FOR CONSERVATION PLAT AND LEGAL DESCRIPTION

Parcel Numbers 11 07 00300 & 11 07 00200, situate in North Centre Township, Columbia County, Pennsylvania,

BEING a portion of the same premises which The First National Bank of Berwick, Executor of the Estate of Mary Nancy Thomas, a/k/a Mary N. Thomas, a/l/a Mary M. Thomas, a/k/a Mary Thomas, deceased, by Deed dated April 6, 2006, and recorded at Columbia County Instrument No. 200603622, granted and conveyed unto Ernest W. Campbell; bounded and described as follows, to-wit:

ALL THOSE certain lots, pieces or parcels of land situate in the Township of North Centre, County of Columbia, and Commonwealth of Pennsylvania, bounded and described as follows, to-wit:

PARCEL NO. 1:

BEGINNING at a stone corner in line of land now or late of Henry Shaffer and John Hutten, Jr., heirs;

THENCE by land now or late of Shaffer and Lafayette Creasy, North 86½ degrees West, 111.9 perches to a stone in a road, the corner between land now or late of said Creasy and George Kelchner's heirs;

THENCE along the center of said road, North 1¾ degrees East, 163.8 perches to the line of land now or late of Aaron Kelchner;

THENCE by the same, North 86 degrees, East, 108.8 perches to a stone in line of land now or late of John Hutten;

THENCE by the same, South ½ degree West, 175.5 perches to the PLACE OF BEGINNING.

CONTAINING 118 acres and 79 perches.

BEING the same property sold and conveyed to Paul J. Thomas and Mary N. Thomas, his wife, by Deed of Lemuel P. Moore and Helen B. Moore, his wife, dated September 4, 1947 and recorded September 8, 1947 at the Columbia County Recorder's Office in Deed Book No. 133, at page 425.

EXCEPTING AND RESERVING, therefrom, the following seven (7) tracts of land:

1. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Drue W. Miller and Dorothy R. Miller, his wife, dated June 24, 1959 and recorded at the Columbia County Recorder's Office in Deed Book No. 195, at page 485, and containing approximately 00.67 acres;

2. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Sheldon C. Kingsbury and Agnes M. Kingsbury, his wife, dated November 19, 1970 and recorded at the Columbia County Recorder's Office in Deed Book No. 249, at page 866, and BEING ALSO the same property for a which a corrective deed was dated December 13, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 254, at page 452, and containing approximately 1.64 acres;

3. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Leonard E. Wentzel and Helen Kibler Wentzel, his wife, dated July 29, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 252, at page 610, and BEING ALSO the same property for which a corrective deed was dated December 13, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 254, at page 430, and containing approximately 1.73 acres;

4. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Donald R. Deitterick and Deborah R. Deitterick, his wife, dated August 17, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 252, at page 1041, and containing approximately 00.75 acres;

5. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Drue W. Miller and Dorothy R. Miller, his wife, dated August 17, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 252, at page 1134, and containing approximately 00.40 acres;

6. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Charles R. Puckett and Frances E. Puckett, his wife, dated September 26, 1972 and recorded at the Columbia County Recorder's Office in Deed Book No. 258, at page 931, and containing approximately 00.91 acres; and,

7. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Robert L. Erdman and Catherine L. Erdman, his wife, dated June 6, 1973 and recorded at the Columbia County Recorder's Office in Deed Book No. 262, at page 111, and containing approximately 1.18 acres.

PARCEL NO. 2:

TRACT NO. 1:

BEGINNING at a stone corner in the public road leading from the river road near Hicks' to Briar Creek;

THENCE along said road, North 15¾ degrees West, 12.4 perches to a stone;

THENCE by land late of John Heiser, South 76½ degrees West, 33.5 perches to a black oak;

THENCE by the same, North 10¾ degrees, West, 50 perches;

THENCE by the same, North 89 degrees, West, 16 perches to a pine knot;

THENCE by the same, North 15¾ degrees West, 16 perches to a corner of land late of John Hutton;

THENCE by land late of John and Stephen Hutton, North 89 degrees West, 105 perches and 9 links to a stone;

THENCE by another tract of land now or late of the said Estate of John E. Shaffer, deceased, South ½ degree West, 59.3 perches to a stone;

THENCE by the same, South 88⅝ degrees East, 13 perches and 14 links to a stone;

THENCE by the same, South ½ degree West, 37 perches to a stone;

THENCE by land late of Samuel H. Hutchison, South 81½ degrees East, 84 perches to a stone;

THENCE by the same, North 61¾ degrees East, 79.5 perches to the PLACE OF BEGINNING.

CONTAINING 80 acres and 7 perches, strict measure.

TRACT NO. 2:

BEGINNING on line between lands now or late of Elisha Ringrose and Aaron Boyd Estate, at the point of intersection of line of right-of-way of the Susquehanna, Bloomsburg and Berwick Railroad Company;

THENCE South 1½ degrees West, 19 rods and 11½ feet to a stone;

THENCE along lands now or late of Henry Shaffer Estate, South 87½ degrees East, 36.92 perches to a stone;

THENCE along lands now or late of C.H. Kelchner, North 8⅜ degrees East, 20½ rods to line of right-of-way of the Susquehanna, Bloomsburg and Berwick Railroad Company;

THENCE along said right-of-way of said railroad company, westwardly to the PLACE OF BEGINNING.

BEING the same property sold and conveyed to Paul J. Thomas and Mary M. Thomas, his wife, by Deed of Arthur Getling, Almedia Getling and Ella Getling, All Unmarried, dated March 26, 1951 and recorded March 29, 1951 at the Columbia County Recorder's Office in Deed Book No. 152, at page 220.

EXCEPTING AND RESERVING, therefrom, the following three (3) tracts of land:

1. Land sold by deed of Paul J. Thomas and Mary M. Thomas, his wife, to Drue W. Miller, Jr. and Debora M. Miller, his wife, dated September 30, 1971 and recorded at the Columbia County Recorder's Office in Deed Book No. 253, at page 406, and containing approximately 1.60 acres;

2. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to D. Joseph Ferro and Kathleen T. Ferro, his wife, dated December 30, 1981 and recorded at the Columbia County Recorder's Office in Deed Book No. 305, at page 16, and containing approximately 4.982 acres; and,

3. Land sold by deed of Paul J. Thomas and Mary N. Thomas, his wife, to Dane Sees and Teresa L. Sees, his wife, dated June 8, 1990 and recorded at the Columbia County Recorder's Office in Deed Book No. 452, at page 485, and containing approximately 0.502 acres.

PARCEL NO. 3:

BEGINNING at a stone in line of land now or late of Aaron Kelchner;

THENCE by the said land and land now or late of Aaron Boyd, South 1½ degrees West, 204.3 perches to a stone in line of land now or late of Henry Shaffer;

THENCE by the same, South 87½ degrees East, 36.92 perches to a stone;

THENCE by land released to Frances U. Musgrave, North 8⅜ degrees East, 212.4 perches to a stone in line of land now or late of D.Z. Remley;

THENCE by the same and lands now or late of Paul Zaner and Samuel Kelchner, South 86¾ degrees West, 62.38 perches to the PLACE OF BEGINNING.

CONTAINING 63 acres, 128 perches of land, strict measure.

EXCEPTING AND RESERVING, therefrom, the following two tracts of land:

1. 96/100 Acre of land sold by deed of Mary J. Ringrose, dated October 25, 1904 and recorded October 28, 1904 at the Columbia County Recorder's Office in Deed Book No. 76, at page 49, for right-of-way, but being an absolute deed;

2. Land sold by deed of Elisha Ringrose to Sarah A. Adams, dated June 2, 1919 and recorded August 7, 1919 at the Columbia County Recorder's Office in Deed Book No. 92, at page 500, and BEING ALSO the same land conveyed or attempted to be conveyed by deed of Graydon W. Ringrose to Emma Verna Ringrose, his wife, dated August 29, 1928 and recorded in the Columbia County Recorder's Office in Deed Book No. 105, at page 245.

BEING the same property sold and conveyed to Paul J. Thomas and Mary Thomas, his wife, by Deed of Mark Lehman, Jr. and Miriam Lehman, his wife, and Mark Lehman, Jr., as Natural Guardian for Thomas G. Lehman and Keith L. Lehman, minor children, dated May 7, 1966 and recorded at the Columbia County Recorder's Office in Deed Book No. 231, at page 924.

PARCEL NO. 4:

BEGINNING at a rebar (set) common corner with lands now or late of Paul J. Thomas and Mary N. Thomas, his wife;

THENCE along lands now or late of said Thomas, South 4 degrees, 40 minutes, 44 seconds West, 990.63 feet to a rebar (set) common corner with lands now or late of Florence Adams Patron;

THENCE along lands now or late of said Patron, North 87 degrees, 26 minutes, 35 seconds West, 240.05 feet to a rebar (found) common corner with lands now or late of Howard W. Paisley and Kathleen A. Paisley;

THENCE along lands now or late of said Paisley, North 86 degrees, 44 minutes, 07 seconds West, 323.42 feet to a rebar (set) common corner with lands now or late of the said Florence Adams Patron;

THENCE along lands now or late of said Patron, North 41 degrees, 45 minutes, 30 seconds West, 187.75 feet to a 12 inch diameter walnut tree;

THENCE along same, North 4 degrees, 53 minutes, 00 seconds West, 651.09 feet to a rebar (set);

THENCE along same, North 88 degrees, 44 minutes, 00 seconds East, 264.75 feet to a rebar (set);

THENCE along same, North 1 degree, 16 minutes, 00 seconds West, 218.47 feet to an apple tree in line of lands now or late of the said Paul J. Thomas and Mary N. Thomas;

THENCE along lands now or late of the said Thomas, South 84 degrees, 26 minutes, 46 seconds East, 566.78 feet to a rebar (set), the PLACE OF BEGINNING.

CONTAINING 16.020 acres of land in all, and being that said description was prepared in accordance to a survey by Frank E. Beishline, P.L.S., dated December 29, 1981.

EXCEPTING AND RESERVING therefrom the following seven (7) tracts of land:
Tract 1

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the centerline of State Route No. 1008 (Fowlersville Road);

THENCE running along the centerline of State Route No. 1008 (Fowlersville Road), South 78 degrees 01 minute 19 seconds West 289.52 feet to a point;

THENCE running along residual land of Ernest W. Campbell, North 21 degrees 20 minutes 15 seconds East, 153.40 feet to a rebar set;

THENCE continuing along land of the same, North 04 degrees 26 minutes 47 seconds East 273.93 feet to a rebar set;

THENCE continuing along land of Ernest W. Campbell, and running along land of Larry A. and Cindy L. Ivey, North 82 degrees 36 minutes 13 seconds East, 192.77 feet to a rebar set in the North Branch of Briar Creek;

THENCE running along residual land of Ernest W. Campbell, South 02 degrees 15 minutes 22 seconds East, 381.02 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Parcel No. 1 on survey subdivision plat entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated July 5, 2006, and last revised July 31, 2006, and filed in Columbia County Map Book 8, Page 995.
UNDER AND SUBJECT to all matters as shown on said subdivision plan.

Tract 2

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the centerline of State Route No. 1008 (Fowlersville Road), said point also being in line of other land of Ernest W. Campbell;

THENCE running along other land of said Campbell, passing through a rebar offset 20.55 feet from the beginning of this course, North 01 degree 26 minutes 55 seconds East, 263.03 feet to a rebar set in or near the westerly right-of-way line of Township Route No. 652 (Thomas Drive);

THENCE crossing Township Route No. 652 (Thomas Drive) and running along Parcel No. 2 of the hereinafter referenced subdivision, North 86 degrees 35 minutes 38 seconds East, 353.84 feet to a rebar set;

THENCE continuing along the same, passing through a rebar offset 20.01 feet from the end of this course, South 03 degrees 24 minutes 22 seconds East , 227.91 feet to a point in the centerline of State Route No. 1008 (Fowlersville Road);

THENCE running along the centerline of State Route No. 1008 (Fowlersville Road), the following seven courses and distances:

1. South 86 degrees 25 minutes 30 seconds West, 25.77 feet to a point;
2. South 85 degrees 59 minutes 24 seconds West, 69.18 feet to a point;
3. South 82 degrees 09 minutes 18 seconds West, 72.94 feet to a point;
4. South 80 degrees 11 minutes 02 seconds West, 99.44 feet to a point;
5. South 77 degrees 54 minutes 59 seconds West, 24.75 feet to a point;
6. South 77 degrees 54 minutes 59 seconds West, 58.52 feet to a point in the centerline of a bridge over the North Branch of Briar Creek;
7. South 78 degrees 07 minutes 31 seconds West, 27.61 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Parcel No. 1 on survey subdivision plat entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated October 31, 2006, last revised January 26, 2007, and filed in Columbia County Map Book 8, Page 1062. **UNDER AND SUBJECT** to all matters as shown on said subdivision plan.

Tract 3

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the centerline of State Route No. 1008 (Fowlersville Road), said point also being in line land now or formerly of The Harvey B. Longenberger Revocable Living Trust;

THENCE running along the centerline of State Route No. 1008 (Fowlersville Road), South 88 degrees 49 minutes 00 seconds West 449.23 feet to a point at the southeasterly corner of Parcel No. 1 of the hereinafter referenced subdivision;

THENCE running along Parcel No. 1, passing through a rebar offset 20.01 feet from the beginning of this course, North 03 degrees 24 minutes 22 seconds West 227.91 feet to a rebar set;

THENCE continuing along the same and crossing Township Route No. 652 (Thomas Drive), South 86 degrees 35 minutes 38 seconds West 353.84 feet to a rebar set near the westerly right-of-way line of Township Route No. 652 (Thomas Drive), said rebar set also being in line of other land of Ernest W. Campbell;

THENCE running through Township Route No. 652 (Thomas Drive), North 01 degree 26 minutes 55 seconds East 864.90 feet to a point in the centerline of State Route No. 93;

THENCE running along the centerline of State Route No. 93 the following six courses and distances:

1. South 52 degrees 09 minutes 15 seconds East 48.28 feet to a point;
2. South 53 degrees 03 minutes 26 seconds East 586.83 feet to a point;
3. South 55 degrees 35 minutes 52 seconds East 215.21 feet to a point;
4. South 61 degrees 31 minutes 21 seconds East 79.11 feet to a point;
5. South 64 degrees 54 minutes 05 seconds East 105.34 feet to a point
6. South 69 degrees 14 minutes 38 seconds East 14.95 feet to a point in line of land now or formerly of The Harvey B. Longenberger Revocable Living Trust;

THENCE leaving the centerline of State Route 93 and running along land now or formerly of The Harvey B. Longenberger Revocable Living Trust, passing through a rebar offset 30.71 feet from the beginning of this course and also passing through a rebar offset 20.27 feet from the end of this course, South 08 degrees 25 minutes 13 seconds West, 475.33 feet to the place of BEGINNING.

CONTAINING 13.028 acres of land and being more fully shown as Parcel No. 2 on survey subdivision plat entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated October 31, 2006, last revised January 26, 2007, and filed in Columbia County Map Book 8, Page 1062. **UNDER AND SUBJECT** to all matters as shown on said subdivision plan.

Tract 4

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the centerline of State Route No. 1008 (Fowlersville Road), said point also being in line of other land of Ernest W. Campbell;

THENCE running along the centerline of State Route No. 1008 and land of Sanford F. and Lisa A. Cunningham the following six courses and distances:

1. North 78 degrees 07 minutes 31 seconds East, 27.61 feet to a point;
2. Thence North 77 degrees 54 minutes 59 seconds East, 58.52 feet to a point;
3. Thence North 77 degrees 54 minutes 59 seconds East, 24.75 feet to a point;
4. Thence North 80 degrees 11 minutes 02 seconds East, 99.44 feet to a point;
5. Thence North 82 degrees 09 minutes 18 seconds East, 72.94 feet to a point;
6. Thence North 85 degrees 59 minutes 24 seconds East, 69.18 feet to a point;

THENCE running along residual land of Ernest W. Campbell, passing through a rebar offset 21.04 feet from the beginning of this course, South 14 degrees 07 minutes 05 seconds West, 317.50 feet to a rebar set;

THENCE continuing along land of the same, North 88 degrees 33 minutes 05 seconds West, 276.55 feet to a rebar set in a tributary to Briar Creek, said rebar set also being in line of other land of Ernest W. Campbell;

THENCE running along other land of Ernest W. Campbell, passing through a rebar offset 20.55 feet from the end of this course, North 01 degrees 26 minutes 55 seconds East, 246.14 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Parcel No. AO-3 on survey subdivision plat entitled: "Preliminary/Final Subdivision/Incorporation Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated May 29, 2007. Said subdivision plan was granted Final Plan Approval by the Columbia County Planning Commission on July 25, 2007, and subsequently recorded in the Recorder of Deeds Office for Columbia County, Pennsylvania, in Map Book 8, Page 1112. **UNDER AND SUBJECT** to all matters as shown on said subdivision plan.

Tract 5

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the approximate centerline of Miller Road, (Township Route No. 650); Thence running along the southerly line of a 50 foot wide private right of way, South 87 degrees 42 minutes 13 seconds East, 17.68 feet to a rebar set;

THENCE continuing along the same following along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 90 degrees 00 minutes 00 seconds, an arc length of 31.42 feet and a long chord course of North 47 degrees 17 minutes 47 seconds East, 28.28 feet to a rebar set;

THENCE continuing along the same, South 87 degrees 42 minutes 13 seconds East, 340.58 feet to a rebar set in line of residual land of Ernest W. Campbell;

THENCE running along residual land of Ernest W. Campbell, South 02 degrees 17 minutes 47 seconds West, 231.52 feet to a rebar set at the northeasterly corner of Lot No. 4 of the hereinafter referenced subdivision;

THENCE running along Lot No. 4, passing through a rebar offset 14.94 feet from the end of this course, North 87 degrees 42 minutes 13 seconds West, 378.26 feet to a point in the approximate centerline of Miller Road, said point being further located as the northwesterly corner of Lot No. 4;

THENCE running along the approximate centerline of Miller Road, North 02 degrees 17 minutes 47 seconds East, 211.52 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Lot No. 3 on survey subdivision plan entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated last revised November 18, 2008. Said subdivision plan was granted "Final Plan Approval" by the Columbia County Planning Commission on November 18, 2008 and was subsequently recorded in the Recorder of Deeds Office for Columbia County, Pennsylvania as Instrument No. 200812065.

Tract 6

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the approximately centerline of Miller road (Township Route No. 650), said point being further located as the southwesterly corner of Lot No. 3 of the hereinafter referenced subdivision;

THENCE running along Lot No. 3, passing through a rebar offset 14.94 feet from the beginning of this course, South 87 degrees 42 minutes 13 seconds East, 378.26 feet to a rebar set in line of residual land of Ernest W. Campbell, said rebar set being further located as the southeasterly corner of Lot No. 3;

THENCE running along residual land of Ernest W. Campbell, South 02 degrees 17 minutes 47 seconds West, 230.32 feet to a rebar set;

THENCE continuing along land of the same, passing through a rebar offset 13.11 feet from the end of this course, North 87 degrees 42 minutes 13 seconds West, 378.26 feet to a point in the approximate centerline of Miller Road;

THENCE running along the approximate centerline of Miller Road, North 02 degrees 17 minutes 47 seconds East, 230.32 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Lot No. 4 on survey subdivision plat entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated last revised November 18, 2008. Said subdivision plan was granted "Final Plan Approval" by the Columbia County Planning Commission on November 18, 2008, and was subsequently recorded as Columbia County Instrument No. 200812065. **UNDER AND SUBJECT** to all matters as shown on said subdivision plan.

Tract 7

ALL THAT CERTAIN piece, parcel or tract of land situate in North Centre Township, Columbia County, Pennsylvania, bounded and described as follows, to-wit:

BEGINNING at a point in the approximate centerline of Miller Road (Township Route No. 650), said point being further located as the southwesterly corner of land of David B. and Kaitlin M. Huber;

THENCE running along land of David B. and Kaitlin M. Huber, passing through a rebar found offset 13.11 feet from the beginning of this course, South 87 degrees 42 minutes 13 seconds East, 378.26 feet to a rebar found in line of residual land of Ernest W. Campbell, said rebar found being further located as the southeasterly corner of land of David B. and Kaitlin M. Huber;

THENCE running along residual land of Ernest W. Campbell, South 02 degrees 17 minutes 47 seconds West, 230.32 feet to a rebar set;

THENCE continuing along land of the same, passing through a rebar offset 13.26 feet from the end of this course, North 87 degrees 42 minutes 13 seconds West, 378.26 feet to a point in the approximately centerline of Miller Road;

THENCE running along the approximate centerline of Miller Road, North 02 degrees 17 minutes 47 seconds East, 230.32 feet to the place of BEGINNING.

CONTAINING 2.000 acres of land and being more fully shown as Lot No. 5 on survey subdivision plat entitled: "Preliminary/Final Subdivision Plan Prepared for Ernest W. Campbell", prepared by Ted L. Oman and Associates, Inc., dated last revised October 2, 2009. Said subdivision plan was granted "Final Plan Approval" by the Columbia County Planning Commission on October 20, 2009, and was subsequently recorded as Columbia County Instrument No. 200910067. **UNDER AND SUBJECT** to all matters as shown on said subdivision plan.

BEING A TOTAL OF 129.18 ACRES.

Plat

[To be attached]

EXHIBIT TO THE DECLARATION B

MITIGATION WORK PLAN

APPENDIX C

REPRESENTATIVE SITE PHOTOGRAPHS AND PHOTOGRAPH LOCATION MAP

Briar Creek Mitigation Site

Photo 1

Facing North: 76° 20’ 3.09” W,
41° 3’ 26.80” N

Photo 2

Facing East: 76° 20’ 2.11” W,
41° 3’ 26.13” N

Photo 3

Facing South: 76° 19’ 55.58” W,
40° 3’ 22.59” N

Photo 4

Facing North: 76° 20’ 6.09” W,
40° 3’ 26.71” N

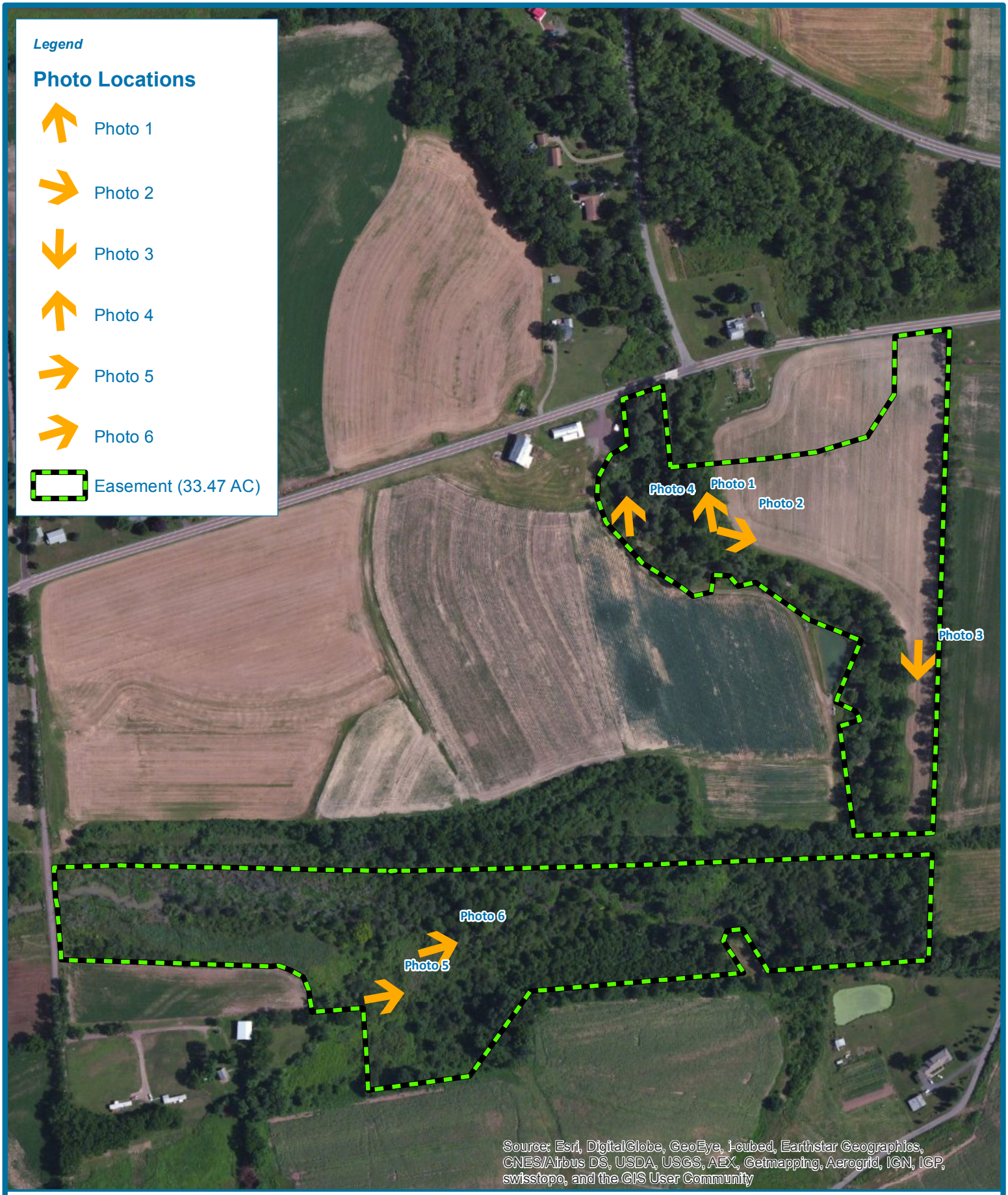
Briar Creek Mitigation Site

Photo 5

Facing East: 76° 20’ 15.30” W,
40° 3’ 13.53” N

Photo 6

Facing East: 76° 20’ 13.30” W,
40° 3’ 14.84” N



0 187.5 375
Feet

APPENDIX C

ATLANTIC SUNRISE PROJECT
BRIAR CREEK MITIGATION SITE
PHOTO LOCATION MAP

LYCOMING COUNTY, PENNSYLVANIA

APPENDIX D

PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE

RETTEW
We answer to you.
130 Court Street, Ste 200, Williamsport, PA 17701 Phone: (570) 320-1708
E-mail: rettew@rettew.com ● Web site: rettew.com

M E M O R A N D U M

TO:	Jon Kasitz, Resource Environmental Solutions, LLC		
FROM:	Peter M. Staudenmeier		
DATE:	March 31, 2015		
PROJECT NAME:	Briar Creek Restoration Site	**PROJECT NO.:**	097302053
SUBJECT:	Wetland Investigation		

Wetland investigations of the proposed Briar Creek Restoration Site were conducted on March 19 and 30, 2015 by qualified wetland biologists from RETTEW Associates, Inc. The project is located in North Centre Township, Columbia County, Pennsylvania and appears on the Mifflinville, PA 7.5-minute United States Geological Survey (USGS) Topographic Quadrangle (**Figure 1**, **Attachment A**). The Area of Investigation (AOI) for the project was a 33-acre site along a stretch of West Branch Briar Creek and one of its tributaries, Fester Hollow (**Figure 2**, **Attachment A**).

METHODS

Wetland delineation procedures followed the protocol described in the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Eastern Mountains and Piedmont Region (Version 2.0)* and the 1987 *Corps of Engineers Wetland Delineation Manual*. Representative sampling points were selected to characterize habitat and plant communities throughout the AOI. Wetland boundaries and streams were flagged and surveyed using Trimble GPS equipment.

RESULTS AND DISCUSSION

The majority of the site was located within the floodplain of West Branch Briar Creek and Fester Hollow. West Branch Briar Creek is a sinuous, ow gradient perennial stream that is highly silted. Beaver activity is present. The floodplain area is characterized by portions of palustrine emergent wetland on the western end of the site, and palustrine scrub shrub (PSS) wetland and upland forest on the eastern end. Forested areas were characterized by a dense undergrowth of shrubs. The majority of the site is heavily colonized by invasive species.

The northern half of the AOI is mostly upland cornfield, but a large portion along Fester Hollow is wetland. Portions of the wetland located within the cornfield are PEM. Wetland portions outside of the cornfield are part of a mosaic of uplands and PSS wetland, with a minor component of palustrine forested wetland in the north west portion of the AOI. Upland habitat is mostly located along eroded portions of the stream bank where the hydrology drops out, and along the cornfield edge where berms have been created to manipulate hydrology.

Wetlands

Wetlands within the search area were primarily PEM or PSS, with a few small patches of PFO. A small irrigation pond along the western edge of the AOI (W-150319-1705) was classified as palustrine unconsolidated bottom (PUB) wetland. With the exception of PEM portions of W-150319-1000 and W-150319-0925, which are located in cornfield, PEM wetlands shared similar characteristics throughout the site. PSS wetlands also shared similar features.

Sampling points recorded in both PEM and PSS areas typically met the geomorphic position, FAC-neutral test, stunted or stressed plants, and drainage patterns secondary indicators of wetland hydrology. Primary indicators included surface water, high water table, or saturation, which were always present in combination with several of the secondary indicators. Despite the dubious reliability of these primary indicators outside of the growing season, the presence of multiple secondary indicators, in conjunction with hydric soils and hydrophytic plant communities, confirmed that these indicators subsist for sustained periods during the growing season.

Either the depleted matrix or red parent material indicators of hydric soil were met at all wetland sampling points. Additionally, all wetland points met the dominance test for hydrophytic vegetation. For dominant vegetation listed at sampling points recorded in PSS wetland areas, please refer to **Table 1**. PEM wetlands located in cornfield areas were dominated by *Panicum dichotomiflorum* (fall panic grass, FACW). Elsewhere, PEM wetlands were dominated by either *Microstegium vimineum* (Japanese stilt grass, FAC) or *Phalaris arundinacea* (reed canary grass, FACW). For further detail, refer to **Attachment B** for the wetland determination data forms specific to each sampling point.

Table 1. Dominant plant species recorded at PSS wetland habitats of the AOI.

Stratum	Species	Common Name	Indicator Status
Tree	*Acer rubrum*	red maple	FAC
	Crataegus phaenopyrum	Washington hawthorn	FAC
	Fraxinus pennsylvanica	green ash	FACW
	Juglans nigra	black walnut	FACU
	Salix nigra	black willow	OBL
Sapling	*Alnus* sp.	alder	FACW
	Crataegus phaenopyrum	Washington hawthorn	FAC
Shrub	*Cornus amomum*	silky dogwood	FACW
	Rosa multiflora	rambler rose	FACU
Herb	*Microstegium vimineum*	Japanese stilt grass	FAC
	Onoclea sensibilis	sensitive fern	FACW
	Phalaris arundinacea	reed canary grass	FACW
	Typha latifolia	broad-leaf cat-tail	OBL
Woody Vine	*Celastrus orbiculatus*	Asian bittersweet	FACU

Uplands

Upland areas consisted of cornfield, dense thickets, and forested areas. With the exception of SP-150319-0955, upland points lacked indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. SP-150319-0955 met the dominance test for hydrophytic vegetation, but lacked hydric soils and wetland hydrology. Dominant plant species at this point included *Setaria pumila* (yellow bristle grass, FAC) and *Dichanthelium clandestinum* (deer-tongue rosette grass, FAC). For a list of the vegetation recorded at sampling points taken in wooded uplands and thickets, see **Table 2**.

Streams

West Branch Briar Creek and its tributaries are located within the Briar Creek Basin, which is listed in Pennsylvania Code, Title 25, Chapter 93, Water Quality Standards as Cold Water Fishes, Migratory Fishes (CWF, MF). Briar Creek is not included on the PADEP's Existing Use List. The Pennsylvania Fish and Boat Commission (PFBC) lists Fester Hollow and West Branch Briar Creek as streams known to support naturally reproducing trout. West Branch Briar Creek is also stocked with trout starting 300-feet upstream of the confluence of Fester Hollow.

Table 2. Dominant plant species recorded at wooded uplands and thickets of the AOI.			
Stratum	Species	Common Name	Indicator Status
Tree	*Catalpa bignonioides*	southern catalpa	FACU
	Crataegus phaenopyrum	Washington hawthorn	FAC
	Juglans nigra	black walnut	FACU
	Liriodendron tulipifera	tulip tree	FACU
	Malus sp.	apple	UPL
Sapling	*Crataegus phaenopyrum*	Washington hawthorn	FAC
	Juglans nigra	black walnut	FACU
Shrub	*Ligustrum obtusifolium*	obtuse-leaved privet	UPL
	Lindera benzoin	northern spicebush	FAC
	Rosa multiflora	rambler rose	FACU
Herb	*Alliaria petiolata*	garlic-mustard	FACU
	Onoclea sensibilis	sensitive fern	FACW
	Phalaris arundinacea	reed canary grass	FACW
	Typha latifolia	broad-leaf cat-tail	OBL
Woody Vine	*Toxicodendron radicans*	eastern poison ivy	FAC

For general photographs of the site, wetlands, and streams, please refer to **Attachment C**. For locations of photos and sampling points please see **Figure 2** of **Attachment A**.

CONCLUSIONS

RETTEW's field investigations determined that several wetlands and streams are present within the AOI. Wetlands were identified on the basis of indicators present at the time of investigation. Wetland boundaries were not verified by the U.S. Army Corps of Engineers (USACE) or the Pennsylvania Department of Environmental Protection (PADEP).

Prepared by: _____ for: _____
Peter M. Staudenmeier, Environmental Scientist

Reviewed by: _____
Martin A. Friday, Sr. Biologist

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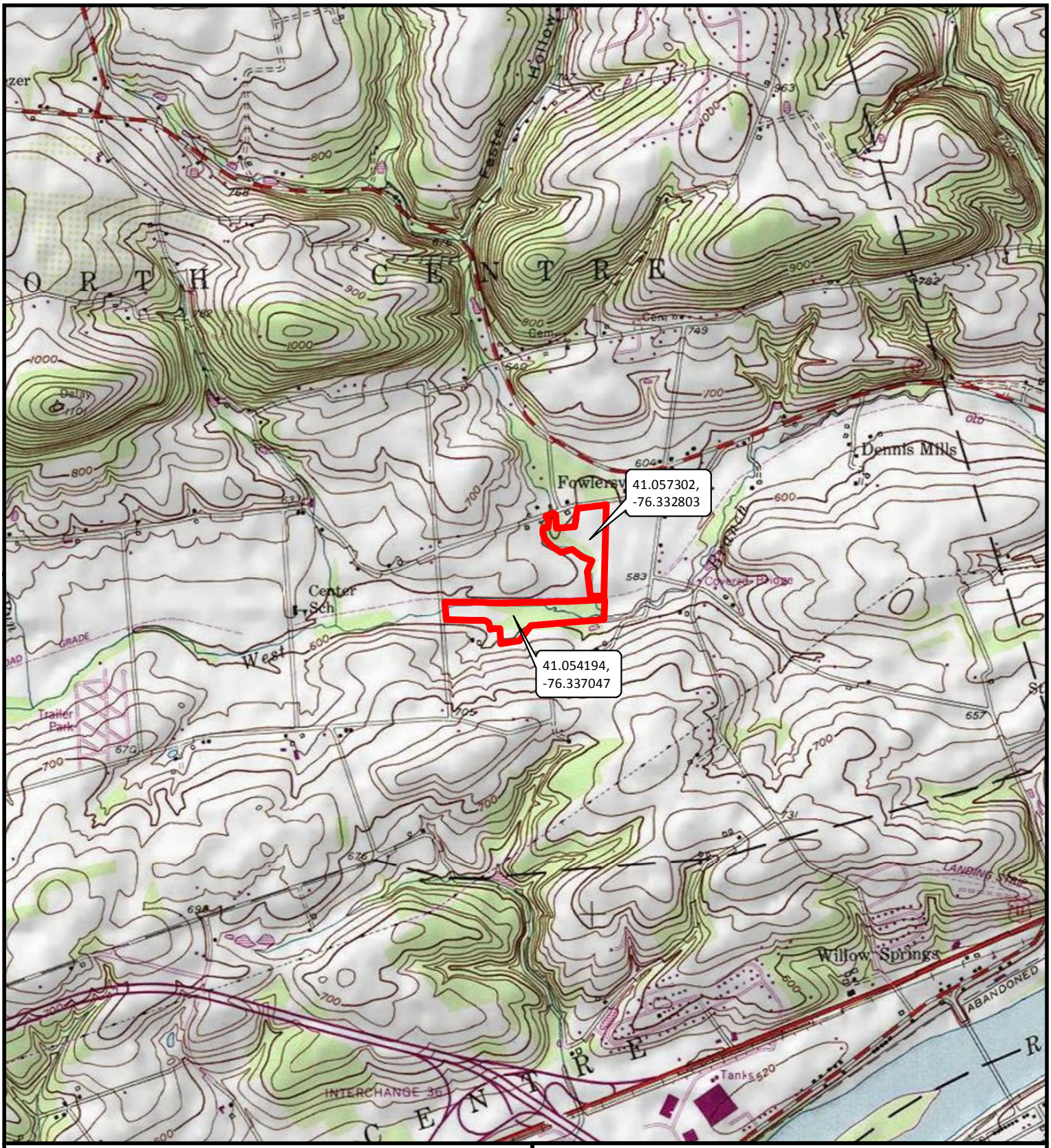
ATTACHMENT A

FIGURES



Restoration Site (35 Acres)

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 1 - Topographic Basemap

Project No: 097302053

N
W E
S

0 1,000 2,000 Feet

1 inch = 2,000 feet

RETTEW

North Centre Township, Columbia County, PA
Mifflinville, PA 7.5' USGS Topographic Quadrangle

3/27/2015

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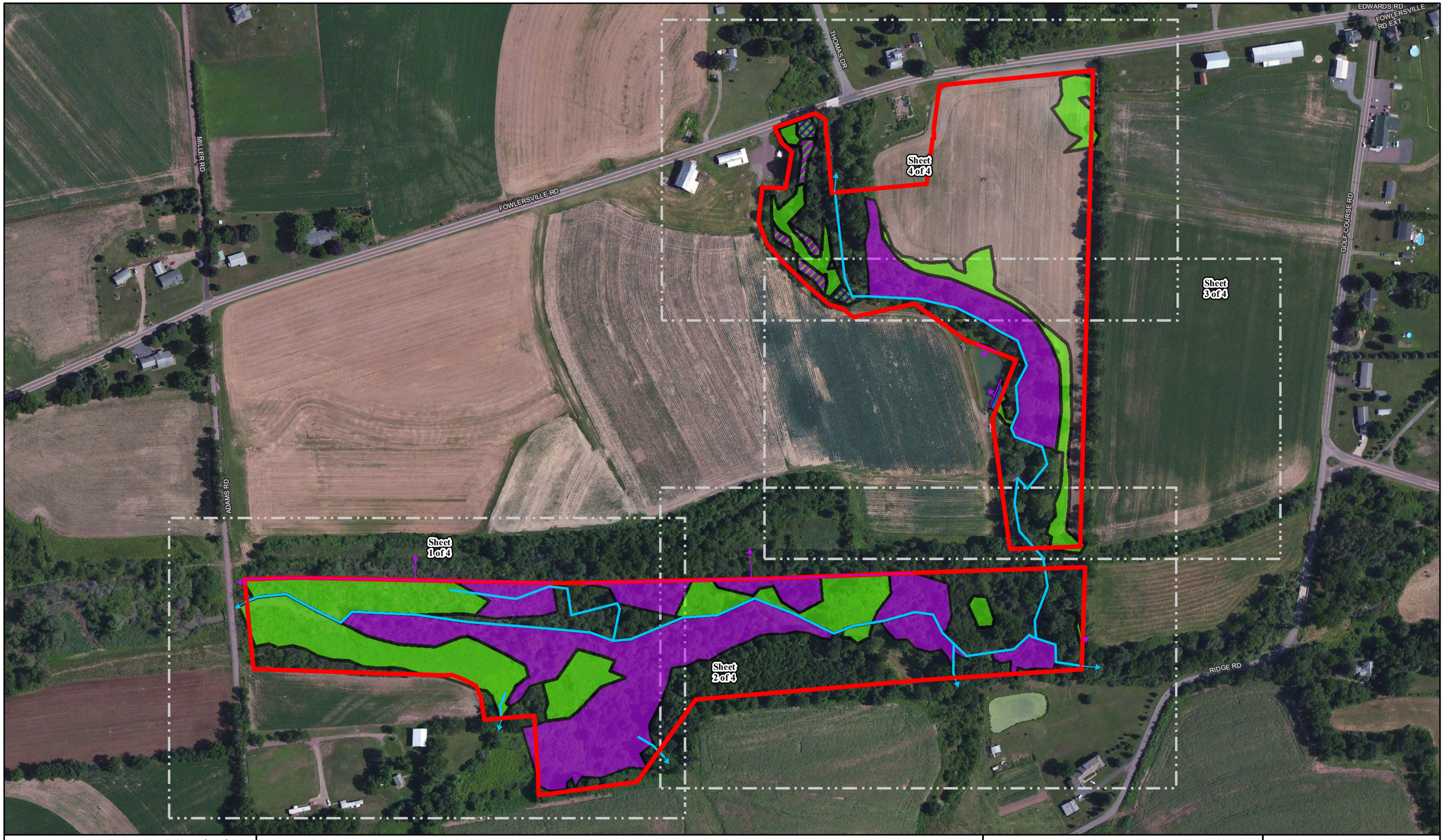

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 2 - Aerial Basemap

Index Sheet

North Centre Township, Columbia County, PA

Project No: 097302053

- Delineated Stream
- Delineated Stream Continuation
- Delineated Wetland Continuation
- Delineated PEM Wetland
- Delineated PEM/PSS Wetland
- Delineated PEM/PSS/PFO Wetland
- Delineated PSS Wetland
- Delineated PUB Wetland
- Restoration Site (35 Acres)
- Grid Sheet

N W E S

0 250 500 Feet

1 Inch = 250 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RETTEW

Drawn By: JPM

3/31/2015

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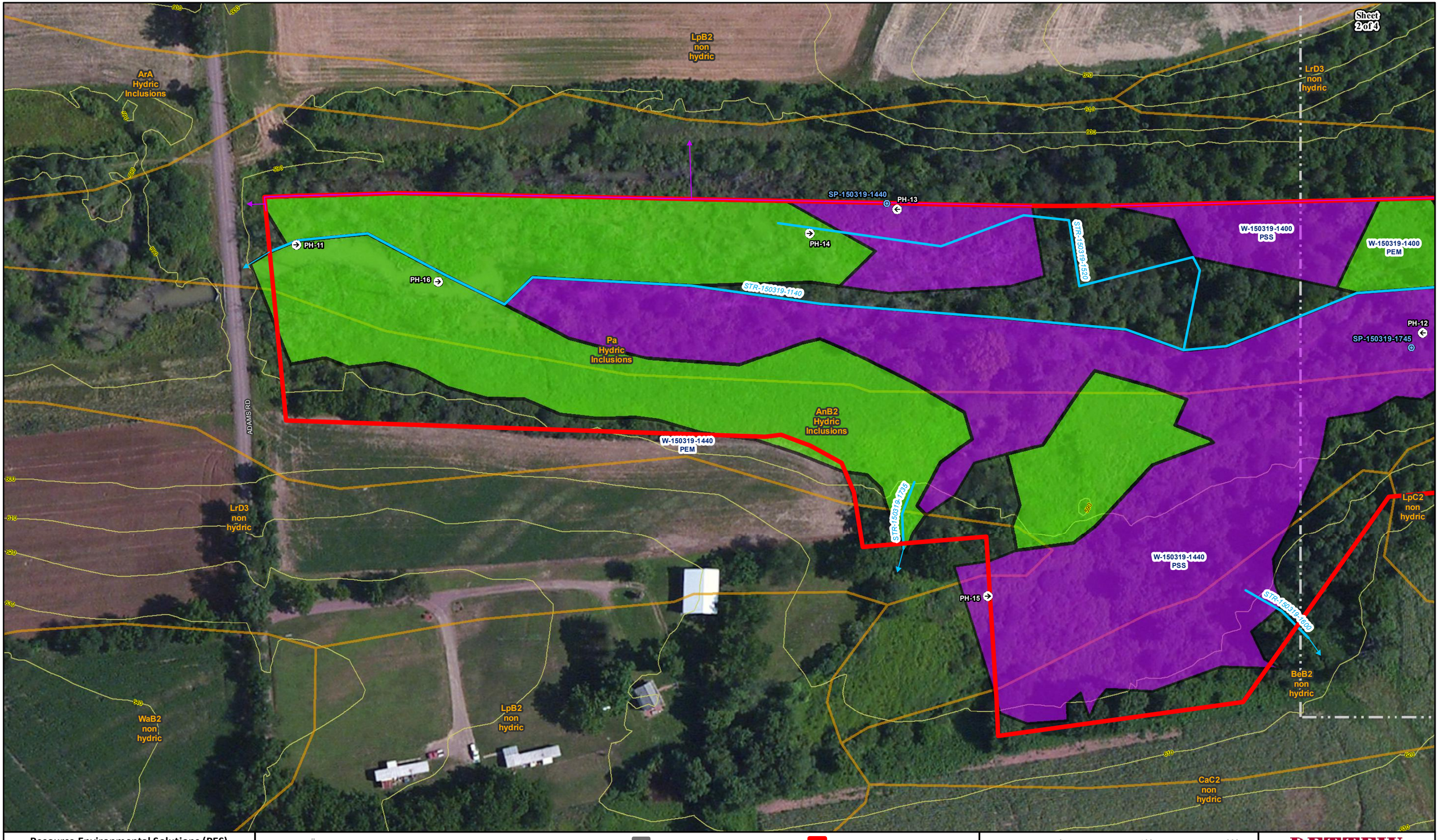

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 2 - Aerial Basemap

Sheet 1 of 4

North Centre Township, Columbia County, PA

Project No: 097302053

- Photo Location & Orientation
- Sample Point
- Contour (10' Interval)
- Delineated Stream
- Delineated Stream Continuation
- Delineated Wetland Continuation
- Delineated PEM Wetland
- Delineated PEM/PSS Wetland
- Delineated PEM/PSS/PFO Wetland
- Delineated PSS Wetland
- Delineated PUB Wetland
- Soil Unit Boundary
- Restoration Site (35 Acres)
- Grid Sheet

N W E S

0 100 200 Feet

1 Inch = 100 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RETTEW

Drawn By: JPM

3/31/2015

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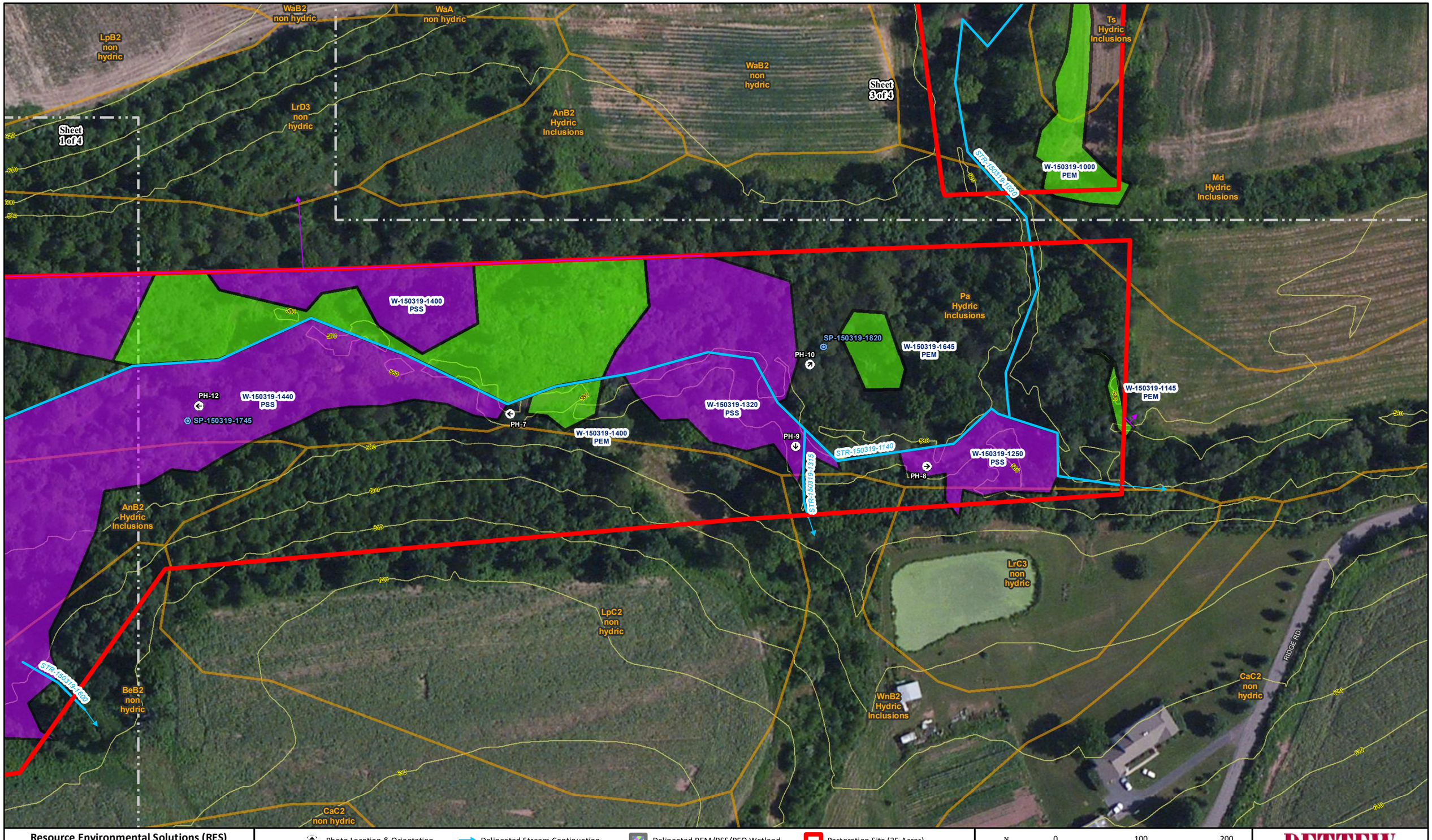

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 2 - Aerial Basemap

Sheet 2 of 4

North Centre Township, Columbia County, PA

Project No: 097302053

- Photo Location & Orientation
- Sample Point
- Contour (10' Interval)
- Delineated Stream
- Delineated Stream Continuation
- Delineated Wetland Continuation
- Delineated PEM Wetland
- Delineated PEM/PSS Wetland
- Delineated PEM/PSS/PFO Wetland
- Delineated PSS Wetland
- Delineated PUB Wetland
- Soil Unit Boundary
- Restoration Site (35 Acres)
- Grid Sheet

N W E S

0 100 200 Feet

1 Inch = 100 Feet

RETTEW

Drawn By: JPM | 3/31/2015

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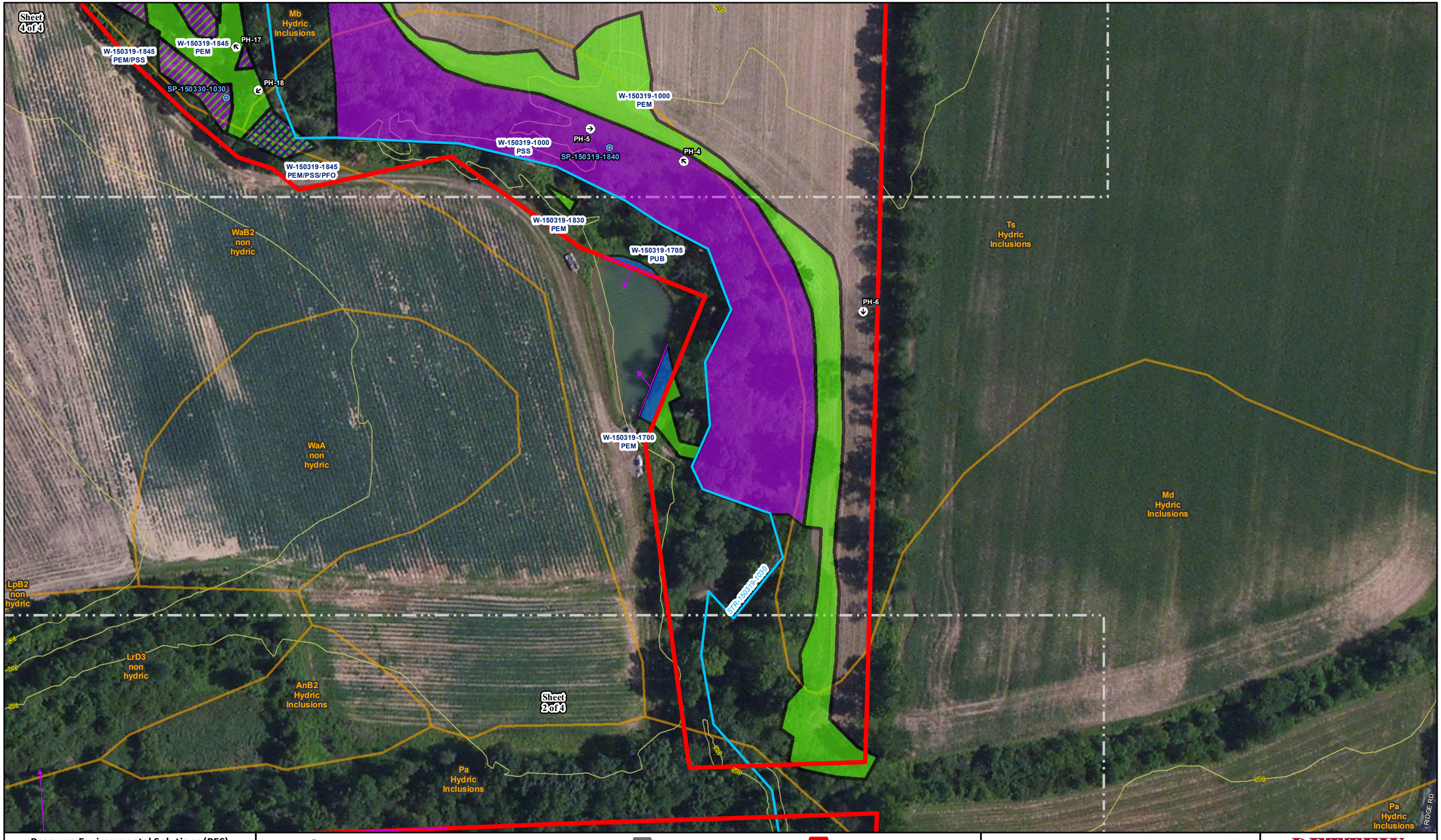

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 2 - Aerial Basemap

Sheet 3 of 4

North Centre Township, Columbia County, PA

Project No: 097302053

- Photo Location & Orientation
- Sample Point
- Contour (10' Interval)
- Delineated Stream
- Delineated Stream Continuation
- Delineated Wetland Continuation
- Delineated PEM Wetland
- Delineated PEM/PSS Wetland
- Delineated PEM/PSS/PFO Wetland
- Delineated PSS Wetland
- Delineated PUB Wetland
- Soil Unit Boundary
- Restoration Site (35 Acres)
- Grid Sheet

N, W, E, S

0 100 200 Feet

1 Inch = 100 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RETTEW

Drawn By: JPM

3/31/2015

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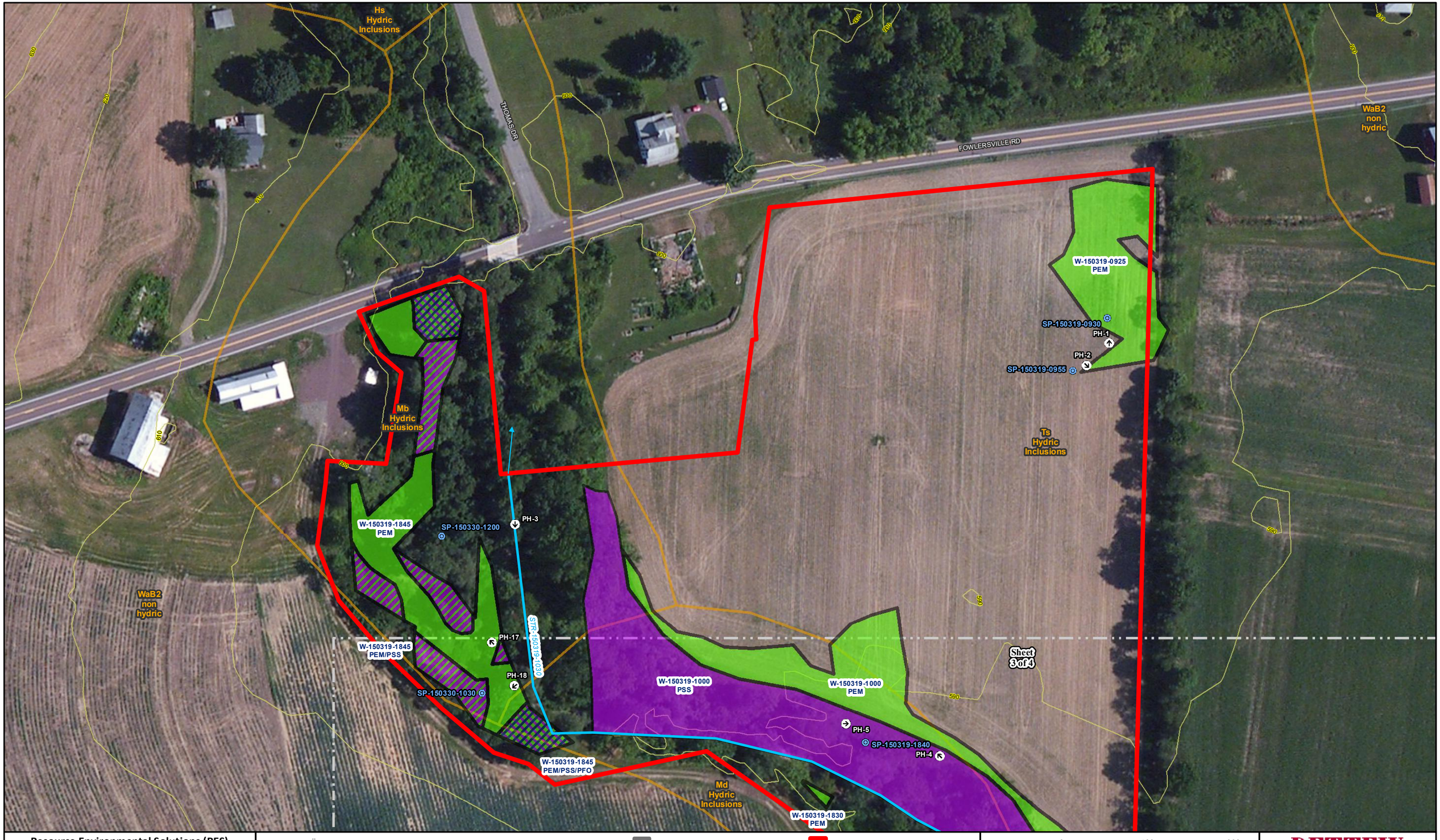

Resource Environmental Solutions (RES)

Briar Creek Restoration Site

Figure 2 - Aerial Basemap

Sheet 4 of 4

North Centre Township, Columbia County, PA

Project No: 097302053

- Photo Location & Orientation
- Sample Point
- Contour (10' Interval)
- Delineated Stream
- Delineated Stream Continuation
- Delineated Wetland Continuation
- Delineated PEM Wetland
- Delineated PEM/PSS Wetland
- Delineated PEM/PSS/PFO Wetland
- Delineated PSS Wetland
- Delineated PUB Wetland
- Soil Unit Boundary
- Restoration Site (35 Acres)
- Grid Sheet

N W E S

0 100 200 Feet

1 Inch = 100 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RETTEW

Drawn By: JPM	3/31/2015

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ATTACHMENT B

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 097302053 Briar Creek City/County: Columbia Co. Sampling Date: 03/18/15
Applicant/Owner: Resource Environmental Solutions State: PA Sampling Point: 150.18-0930-PMS
Investigator(s): PMS, AJAC Section, Township, Range: North centre Twp.
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slightly concave Slope (%): 1
Subregion (LRR or MLRA): LRR-N Lat: 41.05824 Long: -76.33202 Datum: NAD83
Soil Map Unit Name: Ts- Tioga silt loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
SP located in area of cornfield where corn was planted, but is not growing.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1-2
Water Table Present?	Yes ✓	No ____	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Even though the "A" indicators can be unreliable outside of the growing season, the fact that this area is devoid of corn and concentrated with Penicum dichotomiflorum is indicative of sustained hydrology throughout the growing season.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 150319-0930-PMS

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15'R)			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15'R)			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5'R)			
1. Panicum dichotomiflorum	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30'R)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Community a monoculture of P. dichotomiflorum, corn absent and/or stunted.

SOIL Sampling Point: 1503B-0830-PMS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	96	10YR 3/6	4	C	M	SiL	
6-17	10YR 5/2	96	10YR 4/6	4	C	M	SiL	
17-+	2.5Y 6/2	70	7.5YR 5/8	30	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil profile meets criteria of F3.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 97302053 Briar Creek City/County: Columbia Co. Sampling Date: 03/19/2015
Applicant/Owner: Resource Environmental Solutions State: PA Sampling Point: 503P-1745-AJAC
Investigator(s): PMS, AJAC Section, Township, Range: North Centre Twp
Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR or MLRA): LRR-N Lat: 41.05432 Long: -76.33607 Datum: NAD83
Soil Map Unit Name: Pa – Papakating silty clay loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation No, Soil Yes, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
SP located on floodplain terrace adjacent to stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Presence of multiple secondaries indicates that A2 & A3 persist throughout the growing season.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 150319-1745-NJAC

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Crataegus phaenopyrum	25	Yes	FAC
2. Juglans nigra	12	Yes	FACU
3. Fraxinus pensylvanica	10	Yes	FACW
4.			
5.			
6.			
	47	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15'R)			
1. Crataegus phaenopyrum	6	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	6	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15'R)			
1. Cornus amomum	30	Yes	FACW
2. Ligustrum obtusifolium	12	No	UPL
3. Lonicera tatarica	10	No	FACU
4. Rosa multiflora	15	Yes	FACU
5.			
6.			
	67	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5'R)			
1. Microstegium vimineum	100	Yes	FAC
2. Eupatorium granulifolium	18	No	FAC
3. Solidago rugosa	12		FAC
4. Carex spp	3	V	—
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	133	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30'R)			
1. Celastrus orbiculatus	15	Yes	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetative community heavily dominated by invasives. DT met.

SOIL

Sampling Point: 150319-1745-AJAC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	96	7.5YR 4/6	4	C	PL		
5-10	7.5YR 4/3	90	7.5YR 5/6	10	C	M		
10-17+	7.5YR 5/4	85	7.5YR 5/8	10	C	M		
			7.5YR 6/2	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ✓ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil profile meets criteria of F21, and site is located in an area where red-parent material derived soils are present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 097302053 Briar Creek City/County: Columbia Co. Sampling Date: 03/19/2015
Applicant/Owner: Resource Environmental Solutions State: PA Sampling Point: 1503A-1840-PMS
Investigator(s): PMS, AJSAC Section, Township, Range: North Centre Twp.
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR or MLRA): LRR-N Lat: 41.05696 Long: -76.33306 Datum: NAD83
Soil Map Unit Name: MdA - Middlebury silt loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
SP located within floodplain of adjacent stream and just off edge of corn field.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Multiple indicators met, secondaries support "A" indicators and reinforce their presence during the growing season.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 150319-1540-PMS

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	7	Yes	FACW
2. Fraxinus pensylvanica	4	No	FACW
3. Salix nigra	20	Yes	OBL
4.			
5.			
6.			
	31	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15'R)			
1. None			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15'R)			
1. Cornus amomum	15	Yes	FACW
2. Rosa multiflora	6	Yes	FACU
3.			
4.			
5.			
6.			
	21	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5'R)			
1. Scirpus cyperinus	3	No	FACW
2. Phalaris arundinacea	40	Yes	FACW
3. Persicaria pensylvanica	8	No	FACW
4. S. sagittata	20	No	OBL
5. Microstegium vimineum	30	Yes	FAC
6. Epilobium coloratum	2	No	FACW
7. Carex sp.	10	No	–
8.			
9.			
10.			
11.			
	113	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30'R)			
1. Vitis riparia	3	No	FACW
2. Celastrus orbiculatus	1	No	FACU
3.			
4.			
5.			
	4	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Dominance test met.

SOIL

Sampling Point: 150319-1840-PMS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/3	100					SL	
4-18	7.5YR 5/2	95	5YR 5/6	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil profile meets F3.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 09730203 Briar Creek City/County: Columbia Co. Sampling Date: 3/19/2015
Applicant/Owner: Resource Environmental Solutions State: PA Sampling Point: SP-150319-0955
Investigator(s): AJAC, PMS Section, Township, Range: North Centre Twp.
Landform (hillslope, terrace, etc.): NONE Local relief (concave, convex, none): NONE Slope (%): 0
Subregion (LRR or MLRA): LRR-N Lat: 41.05811 Long: -76.33212 Datum: NAD83
Soil Map Unit Name: Ts - Tioga silt loam NWI classification: NONE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: SP conducted in a cut corn field. A well defined ditch along the tree line exists to the east. W-150319-0925 is north/northeast. This sample point is representative of the field throughout.

DSC 04162 - South

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NONE

Remarks: No 1° or 2° indicators observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-150319-0955

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15'R)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5'R)			
1. Seteria pumila	10%	(Y)	FAC
2. Dichanthelium clandestinum	8%	(Y)	FAC
3. Apocynum cannabium	7%	N	FACU
4. Taraxacum officinale	7%	N	FACU
5. Panicum dichotomiflorum	4%	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	36% = Total Cover		

50% of total cover: 18 20% of total cover: 7.2

Woody Vine Stratum (Plot size: 30'R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SP conducted in a corn field, only stalks remain. Corn not used in vegetation determination.

SOIL Sampling Point: SP-150316-0955

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 3/4	100%					Sil	
6-9"	10YR 3/3	100%					Sil	
9-17+"	10YR 4/6	100%					Sil	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric indicators observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 097302053 Briar Creek City/County: Columbia Co. Sampling Date: 3/19/295
Applicant/Owner: Resource Environmental Solutions State: PA Sampling Point: SP-150319-1440
Investigator(s): AEAC, PMS Section, Township, Range: North Centre Twp.
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 4-6%
Subregion (LRR or MLRA): LRR-N Lat: 41.05472 Long: -76.33815 Datum: NAD83
Soil Map Unit Name: Pa-Papakating Silty Clay loam NWI classification: NONE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: SP conducted in a PEM/PSS of a wetland complex. This sample point is representative of PEM/PSS throughout the western portion of the AOI. The wetland transitions from a PEM on the western part of the AOI to a PSS headed East.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): throughout

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NONE

Remarks: 1° and 2° indicators observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-150319-1440

Tree Stratum (Plot size: 30 'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubra	20%	(Y)	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15 'R)			
1. Alnus spp.	40%	(Y)	FACW
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15 'R)			
1. Cornus amomum	15%	(Y)	FACW
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5 'R)			
1. Onoclea sensibilis	45%	(Y)	FACW
2. Typha latifolia	18%	(Y)	OBL
3. Carex sp. *	12%	N	FAC
4. Phalaris arundinacea	18%	(Y)	FACW
5. Skunk cabbage	14%	N	
6.			
7.			
8.			
9.			
10.			
11.			
	107 = Total Cover		

50% of total cover: 53.5 20% of total cover: 21.4

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

DT met.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Carex sp. given FAC considering conditions. Alnus not ID to species given FACW considering like species.

SP-150319-1440

SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9"	10YR 4/2	80%	7.5YR 4/6	20%	C	M	SiL	organic material within layer.
9-18+"	2.5Y 3/1	85%	2.5Y 5/1	15%	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks: F3 observed with soil profile.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 097302053 Briar Creek City/County: Columbia Co. Sampling Date: 3/19/2015
Applicant/Owner: Resource Environmental Solutions. State: PA Sampling Point: SP-150319-1820
Investigator(s): AJAC, PMS Section, Township, Range: North Centre Twp
Landform (hillslope, terrace, etc.): NONE Local relief (concave, convex, none): NONE Slope (%): 0
Subregion (LRR or MLRA): LRR-N Lat: 41.05440 Long: -76.33334 Datum: NAD83
Soil Map Unit Name: Pa - Papakating silty clay loam NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: SP conducted in the scrub shrub area north of str-1400. W-1400 is present to the west. and a pocketed PEM (W-1645) present to the east.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NONE

Remarks: No 1° or 2° indicators. Water table present, but outside growing season and spring melt occurring, therefore not checked as a 1° indicator.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SP-150319-1820

Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Crataegus phaenopyrum	45%	(Y)	FAC
2. Juglans nigra	15%	(Y)	FACU
3. Malus sp.	15%	(Y)	—
4.			
5.			
6.			
	75%	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15'R)			
1. Crataegus phaenopyrum	20%	(Y)	FAC
2. Lindera benzoin	13%	(Y)	FAC
3. Juglans nigra	10%	(Y)	FACU
4.			
5.			
6.			
	43	= Total Cover	

50% of total cover: 21.5 20% of total cover: 8.6

Shrub Stratum (Plot size: 5'R)			
1. Forestiera sp.	15%	(Y)	FAC
2.			
3.			
4.			
5.			
6.			
	15	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5'R)			
1. Alliaria petiolata	16%	(Y)	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	16%	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 15'R)			
1. Toxicodendron radicans	10%	(Y)	FAC
2.			
3.			
4.			
5.			
	6	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 55% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

DT met.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Forestiera couldn't be ID to species given FAC for worst case scenario.

SOIL

Sampling Point: SP-150319-1820

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	100%				S.L		
12-17	7.5YR 5/4	100%				Sil		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: Hydric soils not observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Briar Creek City/County: Columbia Sampling Date: 3-30-15

Applicant/Owner: RES State: PA Sampling Point: 150330-1020-MAF

Investigator(s): MAF Section, Township, Range: North Centre

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR or MLRA): LRR-N Lat: 41.0575916 Long: -76.3349027 Datum: NAD83

Soil Map Unit Name: MbB - Middleburg fine sandy loam NWI classification: PEMA/SS1F0

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes Y No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: This wetland received road drainage or runoff from the adjacent field. Wetland types are diverse.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 8

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present ~ 5' from soil pit

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 150330-1030-MAF

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	8	Y	FACW
2. Acer rubrum	12	Y	FAC
3. Salix nigra	10	Y	OBL
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	35	Y	FACW
2. Rosa multiflora	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	75	Y	FAC
2. Carex sp	5	N	FAC
3. Persicaria sagittata	7	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	87	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. None			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Carex assigned a FAC indicator status, although it isn't a dominant & does not affect determination

SOIL

Sampling Point: 150330-1030 MAF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100						
6-12	7.5YR 4/2	95	7.5YR 4/6	5	C	M	S.L	
12-18	7.5YR 4/3	97	7.5YR 4/6	3	C	M	S.L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Meets F3 indicator

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Briar Creek City/County: Columbia Sampling Date: 3-30-15

Applicant/Owner: RES State: PA Sampling Point: 150330-1200 - MAF

Investigator(s): MAF Section, Township, Range: North Centre

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR-N Lat: 41.0571633 Long: -76.334750 Datum: NAD 83

Soil Map Unit Name: MbB - Middleburg fine sandy loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: This site is fairly representative of the upland habitat between the wetland to the west & stream to the east. Other areas have signs of disturbance (e.g. berms or dikes)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No 1° or 2° hydrology indicators observed

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 15D330-1200-MAE

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 40 x 40)			
1. Liriodendron Tulipifera	50	Y	FACU
2. Catalpa bignonioides	20	Y	FACU
3. Ailanthus altissima	10	N	FACU
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	25	Y	FACU
2. Ligustrum vulgare	8	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	33	= Total Cover	
Herb Stratum (Plot size: 5')			
1. R. multiflora	2	N	FACU
2. Microstegium vimineum	15	Y	FAC
3. Grass spp.	20	Y	FAC
4. Allium canadense	1	N	FACU
5. L. vulgare	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	43	= Total Cover	
Woody Vine Stratum (Plot size: 40 x 40)			
1. None			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Grass assigned a FAC status as a conservative measure. This still did not affect the determination

Invasive species limit value as wildlife habitat.

SOIL

Sampling Point: 150330-1200-MAF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/4	100					S. L	
6-15	7.5 YR 4/4	100					L	Slightly sandy

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No indicators observed.

ATTACHMENT C

SITE PHOTOGRAPHS

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 1

DATE:
March 23, 2015

VIEW DIRECTION:
North

VIEW OF:
SP-150319-0930 in PEM W-150319-0925.

PHOTO 2

DATE:
March 23, 2015

VIEW DIRECTION:
Southeast

VIEW OF:
SP-150319-0955 in upland cornfield.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 3

DATE:
March 23, 2015

VIEW DIRECTION:
South

VIEW OF:
STR-150319-1030.

PHOTO 4

DATE:
March 23, 2015

VIEW DIRECTION:
Northwest

VIEW OF:
PEM portion of W-150319-1000.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 5

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
SP-150319-1840 in PSS portion of W-150319-1000.

PHOTO 6

DATE:
March 23, 2015

VIEW DIRECTION:
South

VIEW OF:
PEM portion of W-150319-1000.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 7

DATE:
March 23, 2015

VIEW DIRECTION:
West

VIEW OF:
STR-150319-1140.

PHOTO 8

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
PSS W-150319-1250.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 9

DATE:
March 23, 2015

VIEW DIRECTION:
South

VIEW OF:
STR-150319-1315.

PHOTO 10

DATE:
March 23, 2015

VIEW DIRECTION:
Northeast

VIEW OF:
SP-150319-1820 in upland thicket.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 11

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
PEM portion of W-150319-1400 and STR-150319-1140.

PHOTO 12

DATE:
March 23, 2015

VIEW DIRECTION:
West

VIEW OF:
SP-150319-1745 in PSS portion of W-150319-1440.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 13

DATE:
March 23, 2015

VIEW DIRECTION:
West

VIEW OF:
SP-150319-1440 in PSS portion of W-150319-1400.

PHOTO 14

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
STR-150319-1520 and transitional zone between PEM and PSS in W-150319-1400.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 15

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
PSS portion of W-150319-1440.

PHOTO 16

DATE:
March 23, 2015

VIEW DIRECTION:
East

VIEW OF:
PEM portion of W-150319-1440 and STR-150319-1140.

RETTEW Associates, Inc.
Photo Documentation

CLIENT:	Resource Environmental Solutions, LLC	**SITE LOCATION:**	North Centre Township, Columbia County, PA
SITE NAME:	Briar Creek Restoration Site	**PROJECT NUMBER:**	097302053

PHOTO 17

DATE:
March 30, 2015

VIEW DIRECTION:
Northwest

VIEW OF:
W-150319-1845 with PEM portion in foreground and PSS/FO portion in background.

PHOTO 18

DATE:
March 30, 2015

VIEW DIRECTION:
Southwest

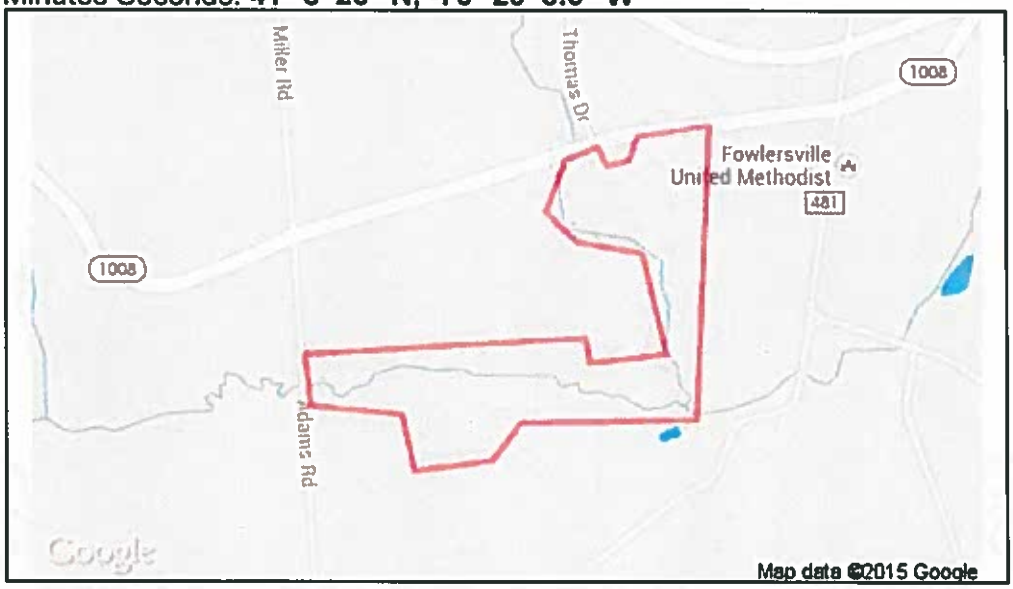
VIEW OF:
PEM portion of W-150319-1845.

APPENDIX E

JURISDICTIONAL AGENCY COORDINATION

1. PROJECT INFORMATION

Project Name: **Briar Creek Restoration Site**
Date of review: **3/6/2015 1:33:40 PM**
Project Category: **Habitat Conservation and Restoration,Wetland Restoration, Wetland Creation, or Wetland Enhancement**
Project Area: **45.8** acres
County: **Columbia** Township/Municipality: **North Centre**
Quadrangle Name: **MIFFLINVILLE** ~ ZIP Code: **17815,18603**
Decimal Degrees: **41.057231 N, -76.334897 W**
Degrees Minutes Seconds: **41° 3' 26" N, -76° 20' 5.6" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101, State College, PA 16801
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Amber Snavley
Company/Business Name: Resource Environmental Solutions, LLC
Address: 380 Southpointe Blvd, Plaza II, Suite 405
City, State, Zip: Canonsburg, PA 15317
Phone: (814) 730-0627 Fax: ( )
Email: asnavley@res.us

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

3/30/15
date

Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

May 8, 2015

Katie Wolff
Resource Environmental Solutions, LLC
380 Southpointe Boulevard, #405
Canonsburg, PA 15317

TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER

Re: File No. ER 2014-0935-042-GG
FERC: Williams/Transcontinental Gas Pipe Line Company, LLC, Briar Creek Permittee-Responsible Mitigation Project, North Centre Twp., Columbia Co.

Dear Ms. Wolff:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Historic Structures

There may be above ground historic properties within the project area of potential effect. However, in our opinion the project as proposed will have no effect on historic properties, should they exist. Should the scope and/or nature of the project change, the Bureau for Historic Preservation should be contacted immediately.

Archaeology

In our opinion no archaeological resources will be affected by this project.

If you need further information in this matter please consult Cheryl Nagle at (717) 772-4519.

Sincerely,

Douglas C. McLearen, Chief
Division of Archaeology & Protection

DCM/tmw

APPENDIX F

WETLAND FUNCTIONS AND VALUES ASSESSMENT FORMS

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 300'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See representative data sheet

Wetland I.D. W-15039-1145

Latitude 41° 3' 15.4 Longitude -71° 19' 55.4

Prepared by: MAF Date 3-30-15

Wetland Impact:
Type None Area

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		6, 2, 10	X	Small wetland adjacent to ag field
Nutrient Removal	X		3, 4, 7, 10	X	
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.12 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Riparian forest Distance to nearest roadway or other development 400'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See representative data sheet

Wetland I.D. W-150319-1645

Latitude 41° 3' 16.2 Longitude -76° 19' 59.5

Prepared by: MAF Date 3-30-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	Y		1, 2, 10	X	
Nutrient Removal	X		3, 4, 9, 10	X	
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

POST-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Wetland I.D. W-150319-1145,1645

Total area of wetland 0.15 Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no

Latitude 41°3'16.2" Longitude 76° 19' 59.3"

Adjacent land use forest/agriculture Distance to nearest roadway or other development ~400'

Prepared by: CDS Date 3/2015

Dominant wetland systems present PSM Contiguous undeveloped buffer zone present yes

Wetland Impact:
Type _____ Area _____

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) see wetland report

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X	2,5,7		
Floodflow Alteration	X		5,6,8,9,17		veg enhancement will support flood water storage & provide protection to land uses downstream
Fish and Shellfish Habitat		X			may be able to act as a sediment retention area from surrounding runoff
Sediment/Toxicant Retention	X		1,2,3,10,12,16	X	↓
Nutrient Removal	X		3,4,8,9,10,11,	X	see comment above
Production Export		X	1,4,7,8		
Sediment/Shoreline Stabilization		X	3,4,15,14		
Wildlife Habitat	X		22,19,14,17,16,15,13,	X	
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat	X				may provide wildlife habitat
Other					

* Refer to backup list of numbered considerations.

Notes:

PRE-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 600'

Dominant wetland systems present PUB Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? Headwater farm field

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-150519-1705

Latitude 41°5'22.1" Longitude -76°19'56.7"

Prepared by: M.A. Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			Irrigation pond. Not a natural system. Filled
Floodflow Alteration		X			by intake from stream
Fish and Shellfish Habitat	X			X	Small, shallow pond. Limited fish production
Sediment/Toxicant Retention		X			Prone to winter kill.
Nutrient Removal		X			
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X			X	Potential waterfowl habitat, but low use/production value.
Recreation		X			Too small for fishing
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

POST-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland .04 Human made? yes Is wetland part of a wildlife corridor? no or a "habitat island"? no

Adjacent land use agriculture Distance to nearest roadway or other development 1000'

Dominant wetland systems present PUB Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin? headwaters bank full

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list) see wetland report

Wetland I.D. W-15039-1705

Latitude 40° 3' 27.9" Longitude 71° 19' 58.7"

Prepared by: ADS Date 3/2015

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X	5,		irrigation pond - not natural, filled via intake from adjacent stream
Floodflow Alteration		X	6, 9, 10, 17		may help protect adjacent wetland/streams by trapping sediments/toxicants from making their way to the natural system ability to store flood waters from runoff - probably undersized with clay shallow pond capable of supporting fish however may be likely to winter death
Fish and Shellfish Habitat	X			X	
Sediment/Toxicant Retention		X	1, 2, 3,		see comment - floodflow alteration
Nutrient Removal		X	3, 4, 5, 6,		
Production Export		X	2, 6,		
Sediment/Shoreline Stabilization		X	3, 4,		
Wildlife Habitat	X		5, 7, 8, 17, 16, 20, 21,	X	potential to provide habitat for waterfowl & other species, good overstory will increase w/veg enhancement in & surrounding wetland
Recreation		X			
Educational/Scientific Value		X	13		
Uniqueness/Heritage		X	10,		
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

* Refer to backup list of numbered considerations.

Notes:

PRE-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 4.35 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 20'

Dominant wetland systems present PEM/ES Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 3 (one primary) Wildlife & vegetation diversity/abundance (see attached list) See representative data sheets

Wetland I.D. W-150319-1400

Latitude 41° 3' 16.5" Longitude 76° 20' 12.4"

Prepared by: MAF Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7		
Floodflow Alteration	X		1,6,9,10,18	X	Wide, level floodplain
Fish and Shellfish Habitat	X		4,7,8,9,10,11,12,14,17	X	Adjacent stream supports wild trout
Sediment/Toxicant Retention	X		1,2,3,10,16	X	
Nutrient Removal	X		1,3,4,8,9,10,12	X	Emergent vegetation dominated by Phalaris
Production Export		X			
Sediment/Shoreline Stabilization	X		3,4,12,14,15		
Wildlife Habitat	X			X	Value limited by invasive plants + large areas of Phalaris
Recreation	X				Fishing + hunting potential
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 7.59 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 20'

Dominant wetland systems present PEM/SS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 3 Wildlife & vegetation diversity/abundance (see attached list) See representative data sheets

Wetland I.D. W-155319-1220

Latitude 41° 3' 15.0" Longitude 76° 20' 14.1"

Prepared by: MAF Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7		
Floodflow Alteration	X		1, 2, 7, 10, 16	X	Wide level floodplain
Fish and Shellfish Habitat	X		4, 7, 8, 9, 10, 11, 12, 14, 17	X	Adjacent stream supports wild trout
Sediment/Toxicant Retention	X		1, 2, 5, 10, 11	X	
Nutrient Removal	X		1, 3, 4, 8, 9, 10, 12	X	Emergent vegetation dominated by Phalaris
Production Export		X			
Sediment/Shoreline Stabilization	X		3, 4, 12, 14, 15		
Wildlife Habitat	X			X	Value limited by invasive plants + large areas of Phalaris
Recreation	X				Fishing + hunting potential
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.37 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agricultural Distance to nearest roadway or other development 250'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list) see presettlement data sheets

Wetland I.D. W-150319-1320

Latitude 41° 3' 15.7" Longitude -71° 20' 1.0"

Prepared by: MAF Date 3-30-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7		
Floodflow Alteration	X		1, 2, 9, 10, 18	X	Part of 100yr floodplain
Fish and Shellfish Habitat	X		4, 5, 6, 9, 10, 11, 13, 15, 17	X	Adjacent stream supports wild trout
Sediment/Toxicant Retention	X		1, 2, 3, 10, 12	X	
Nutrient Removal	X		1, 3, 4, 5, 7, 10, 12	X	
Production Export		X			
Sediment/Shoreline Stabilization	X		3, 4, 12, 13, 15		
Wildlife Habitat	X			X	
Recreation	X				
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.28 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 200'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See representative species checklist

Wetland I.D. W-150319-1256

Latitude 41° 3' 15.0" Longitude -76° 19' 51.7"

Prepared by: MAF Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		1		
Floodflow Alteration	X		1, 6, 9, 10, 14	X	Part of wide floodplain
Fish and Shellfish Habitat	X		4, 7, 8, 9, 11, 12, 14, 17	X	Adjacent stream supports cold water fish
Sediment/Toxicant Retention	X		1, 2, 3, 10, 16	X	
Nutrient Removal	X		3, 4, 8, 9, 10, 12	X	
Production Export		X			
Sediment/Shoreline Stabilization	X		3, 8, 13, 14, 15		
Wildlife Habitat	X			X	
Recreation	X				
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

POST-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

W-150319-1400, 1440

Total area of wetland 2.59 Human made? NO Is wetland part of a wildlife corridor? YES or a "habitat island"? NO

Adjacent land use agricultural Distance to nearest roadway or other development 20'

Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? riparian zone

How many tributaries contribute to the wetland? 3 (1 primary) Wildlife & vegetation diversity/abundance (see attached list) see wetland report

Wetland I.D. 1320, 1250

Latitude 41°03'14.61" Longitude 76°20'12.63"

Prepared by: AAS Date 3/2015

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X	2,5,7,		
Floodflow Alteration	X		3,5,6,8,9,10,13,17,18	X	wide level floodplain that wives enhancement will aid in storage & reduce chance of flood & private prop. release of nutrients
Fish and Shellfish Habitat	X		2,4,7,8,9,10,11,12,14,16,17	X	yes enhancement through native plantings & invasive species will improve habitat - currently planted yes adjacent trout stream, wide floodplain
Sediment/Toxicant Retention	X		1,2,3,9,10,15,16	X	yes enhancements measures will aid in trapping sediments/toxicants & provide overall healthy water
Nutrient Removal	X		1,3,4,8,9,10,12,11,13,	X	see comment above ↑, reed canarygrass will be removed, native trees planted
Production Export	X		1,4,5,6,7,8,9,	X	
Sediment/Shoreline Stabilization	X		3,4,12,14,15,7,15	X	see comments for sediment retention
Wildlife Habitat	X		3,4,5,6,7,8,9,13,14,15,16,17,18,19,20,21,22,23,	X	better & more suitable for wide variety of organisms
Recreation	X		5		some areas may have fishing/hunting potential
Educational/Scientific Value		X	5, 13,		
Uniqueness/Heritage	X		4,7,6,10,17,27	X	
Visual Quality/Aesthetics		X	3,6,8,10,		
ES Endangered Species Habitat	X				may be suitable for some ES
Other					

* Refer to backup list of numbered considerations.

Notes:

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.89 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development

Dominant wetland systems present PEM/SS/FO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See data sheet

Wetland I.D. W-150319-1545

Latitude 41° 3' 26.7" Longitude 76° 20' 5.5"

Prepared by: MAF Date 3-31-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7		
Floodflow Alteration	X		6, 7, 9		Some ponding potential
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 3, 10, 12, 16	X	Receives stormwater from Fowlersville RD
Nutrient Removal	X		2, 3, 4, 5, 9, 10	X	Ponding present
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X		20	X	Removal of invasives + trash removal would ↑ value
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

POST-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland .89 Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no

Adjacent land use agriculture Distance to nearest roadway or other development building

Dominant wetland systems present RM/PSS/PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? Moncan Zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) see wetland report

Wetland I.D. W-15319-1845

Latitude 41° 3' 27.7" Longitude 76° 20' 5.80"

Prepared by: MDS Date 3/15

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,5,7,8,12,		
Floodflow Alteration	X		5,6,7,8,9,10,13,16,17,18	X	veg enhancements will improve functionality for this wetland (density & diversity, removal invasives)
Fish and Shellfish Habitat	X		2,4,7,8,14,15,17		
Sediment/Toxicant Retention	X		1,2,3,5,9,10,12,13,15,16	X	see comment for floodflow alteration, receives runoff from surrounding lands, have capacity & retaining & protections downstream
Nutrient Removal	X		3,2,4,5,8,9,10,11,	X	see comment above
Production Export	X		1,4,7,8,9,10,		
Sediment/Shoreline Stabilization	X		3,4,7,9,13,14,15	X	see comment above
Wildlife Habitat	X		4,5,6,7,8,9,13,14,15,16,17,18,19,20,21,22,23,24	X	increased habitat w/removal of invasives (trash, native plantings)
Recreation		X	5,		
Educational/Scientific Value		X	2,5,13,		
Uniqueness/Heritage	X		4,6,7,10,17,22,27,	X	
Visual Quality/Aesthetics		X	1,8,10		
ES Endangered Species Habitat	X				could provide habitat for ES
Other					

* Refer to backup list of numbered considerations.

Notes:

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.77 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Agriculture. Wetland is farmed Distance to nearest roadway or other development 50'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Along a headwater ditch

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list) See data sheets

Wetland I.D. W-150319-0925

Latitude 41°3'30.6" Longitude 76°19'55.1"

Prepared by: MAF Date 3-26-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			This is a farmed wetland, most
Floodflow Alteration		X			recently planted in corn. It is
Fish and Shellfish Habitat		X			regularly plowed, fertilized and
Sediment/Toxicant Retention		X			treated with herbicide. It is currently
Nutrient Removal		X			impaired. If farming ceased its
Production Export		X			principal functions & values would be
Sediment/Shoreline Stabilization		X			nutrient removal & sediment
Wildlife Habitat		X			retention.
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

POST RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.44 Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? NO

Adjacent land use Agriculture Distance to nearest roadway or other development 50'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? along a roadside/water ditch

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list) See data sheets

Wetland I.D. W-150319-0925

Latitude 41° 3' 36" Longitude 71° 19' 55.1"

Prepared by: ADS Date 3/15

Wetland Impact:
Type None Area

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X	2,5,13,		
Floodflow Alteration		X	3,5,8,9,10,		Vegetative restoration will add stability of ecological system & provide a moderate level of erosion control via water storage & flood control
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention		X	1,2,		Vegetative restoration will increase effectiveness of wetland in trapping sediments/toxicants in runoff & prevent degradation of water quality
Nutrient Removal	X		3,4,8,9,10,11		see note above
Production Export		X	1,4,7,8,		
Sediment/Shoreline Stabilization		X	3,15		
Wildlife Habitat	X		1,4,5,7,8,13,14,16,17,18,19,20,21,22,23	X	historic degradation occured, but permanent protection will be placed in perpetuity
Recreation		X	5,		
Educational/Scientific Value		X	2,5,13,		
Uniqueness/Heritage		X	10,16,18,22,		
Visual Quality/Aesthetics		X	3,8,10,11,		
ES Endangered Species Habitat	X				may provide habitat to ES
Other					

* Refer to backup list of numbered considerations.

Notes:

PRE-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 5.06 Human made? N Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 250'

Dominant wetland systems present PEM/SS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwater riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) see data sheets

Wetland I.D. W-150319-1000

Latitude 41° 3' 25.1" Longitude 76° 17' 58.2"

Prepared by: MJF Date 3-26-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7		
Floodflow Alteration	X		2,9,15		
Fish and Shellfish Habitat	X		4,8,9,14,17		
Sediment/Toxicant Retention	X		1,2,3,10,16	X	
Nutrient Removal	X		3,4,8,9,10	X	
Production Export	X		1		Value limited by farmed PEM & invas yc grass
Sediment/Shoreline Stabilization	X		1,4,14	X	in PSS portion
Wildlife Habitat	X		6,7,8,10,11,17		Value limited by farmed & invasives
Recreation		X			Multiflora rose limits use
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

PRE-RESTORATION- BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 500'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Riparian zone / Headwater

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See representative wetland data sheets

Wetland I.D. W-150319-1830

Latitude 41° 5' 24.6" Longitude 76 A' 59.9

Prepared by: MAF Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			Too small to retain much water
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 10		Retention limited by size
Nutrient Removal	X		3, 4		
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

PRE-RESTORATION - BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Agriculture Distance to nearest roadway or other development 700'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwater riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) See representative wetland data sheets

Wetland I.D. W-150319-1700

Latitude 41° 5' 22.6" Longitude -76° 19' 58.2"

Prepared by: MAF Date 3-27-15

Wetland Impact:
Type None Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat	X		4,7,11		Small wetland system
Sediment/Toxicant Retention	X		1,2,10	X	Limited sediment or nutrient removal potential
Nutrient Removal	X		3,4,9	X	due to small size
Production Export		X			
Sediment/Shoreline Stabilization	X		3,4		
Wildlife Habitat		X			limited extent due to small size
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

POST-RESTORATION BRIAR CREEK

Wetland Function-Value Evaluation Form

Total area of wetland 3.06 Human made? N Is wetland part of a wildlife corridor? YES or a "habitat island"? NO

Adjacent land use agriculture Distance to nearest roadway or other development 250'

Dominant wetland systems present PEM/PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? headwater riparian zone

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) see wetland report

Wetland I.D. W-150329-1000, 1830, 1700

Latitude 41° 5' 25" Longitude 76° 19' 59.6"

Prepared by: AOS Date 3/15

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office X Field _____

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X	2, 5,		
Floodflow Alteration	X		2, 5, 6, 8, 9, 10, 13, 17, 18	X	veg. enhancement strategies in will increase flood storage flow run control
Fish and Shellfish Habitat	X		4, 7, 8, 9, 10, 11, 14, 17	X	enhancement will provide more habitat & better quality for fish/shellfish
Sediment/Toxicant Retention	X		1, 2, 3, 9, 10, 12, 13, 16	X	enhancement activity will support wetlands function in trapping sediments etc & preventing degradation of water quality
Nutrient Removal	X		3, 4, 8, 9, 10, 11,	X	veg. enhancement will significantly increase wetlands ability in performing this function
Production Export	X		1, 4, 5, 7, 8,		
Sediment/Shoreline Stabilization		X	3, 4, 14		
Wildlife Habitat	X		1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24	X	
Recreation		X	5		
Educational/Scientific Value		X	2, 7, 13		
Uniqueness/Heritage		X	10, 16, 17,		
Visual Quality/Aesthetics		X	1, 3, 8		
ES Endangered Species Habitat	X				may provide habitat suitable for some SGSC
Other					

Notes:

* Refer to backup list of numbered considerations.

APPENDIX G

DESIGN PLAN

BRIAR CREEK
DESIGN PLANS

BERWICK, COLUMBIA COUNTY, PENNSYLVANIA

PROJECT DESCRIPTION:
THIS PLAN IS FOR THE PROJECT OF THE BRIAR CREEK PERMITTEE-RESPONSIBLE MITIGATION SITE (PRM SITE). THE 33.47 ACRE PRM SITE, LOCATED IN NORTH CENTRE TOWNSHIP, COLUMBIA COUNTY, PA IS APPROXIMATELY 2.75 MILES NORTHWEST OF BRIAR CREEK. THE PRM SITE IS GENERALLY BOUND BY STATE ROUTE (SR) 1008 TO THE NORTH, ADAMS ROAD TO THE WEST AND RIDGE ROAD TO THE EAST AND SOUTH. THE PRM SITE WILL INCLUDE THE RE-ESTABLISHMENT AND ENHANCEMENT OF WETLANDS WITHIN THE PRM SITE. THE 33.47 ACRE PROPERTY WITHIN THE PRM SITE LIMITS IS BEING ENTERED INTO A CONSERVATION EASEMENT BY THE SPONSOR AND LANDOWNERS.

SITE ADDRESS:
997 FOWLERSVILLE ROAD
BERWICK, PA 18603

SITE COORDINATES:
LONG: 41° 03' 20.44" NORTH
LAT: 76° 20' 04.68" WEST

SPONSOR:
RESOURCE ENVIRONMENTAL SOLUTIONS, LLC.
33 TERMINAL WAY, SUITE 431A
PITTSBURGH, PA 15219
ATTN: CONOR GILLESPIE
EMAIL: CONOR@RES.US
PHONE: (630) 390-8184

LANDOWNERS:
ERNEST W. CAMPBELL
190 NURSERY ROAD
BERWICK, PA 18603

SURVEY INFORMATION:
5 FOOT TOPOGRAPHY PROVIDED BY THE PENNSYLVANIA SPATIAL DATA ACCESS WEB SITE.
HTTP://WWW.PASDA.PSU.EDU/

WETLAND INFORMATION:
A WETLAND DELINEATION SURVEY WAS CONDUCTED BY RETTEW ASSOCIATES IN MARCH 2015

SOILS INFORMATION:
SOIL SURVEY INFORMATION IS FROM THE U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE FOR COLUMBIA COUNTY, PENNSYLVANIA (PA038) DOWNLOADED ON MARCH 23, 2015
HTTP://WEBSOILSURVEY.NRCS.USDA.GOV

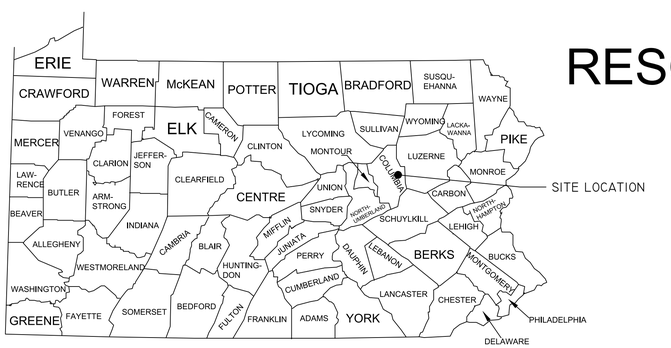
BOUNDARY INFORMATION:
A LIMITED PROPERTY BOUNDARY AND FEATURE SURVEY WAS CONDUCTED BY RETTEW ASSOCIATES IN MARCH 2015

SITE AREA:
TOTAL PROJECT ACREAGE: 33.47
WETLAND ACREAGE: 16.96

0 600 1200 Feet

SCALE: 1" = 300'

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
1	COVER
2	EXISTING CONDITIONS
3	PLANTING PLAN MAP
4	PLANTING PLAN
5	SOIL TYPES MAP
6	PLANTING PLAN DETAILS



RESOURCE ENVIRONMENTAL SOLUTIONS

33 TERMINAL WAY, SUITE 431A - PITTSBURGH, PA 15219
ATTN: CONOR GILLESPIE
EMAIL: CONOR@RES.US
PHONE: (630) 390-8184

0 20000 40000 Feet

SCALE: 1" = 10000'

N

THIS DRAWING WAS PREPARED AT THE PITTSBURGH OFFICE
33 TERMINAL WAY, SUITE 431A
PITTSBURGH, PA 15219
WWW.RES.US

REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

RESTORE. ENHANCE. SUSTAIN.

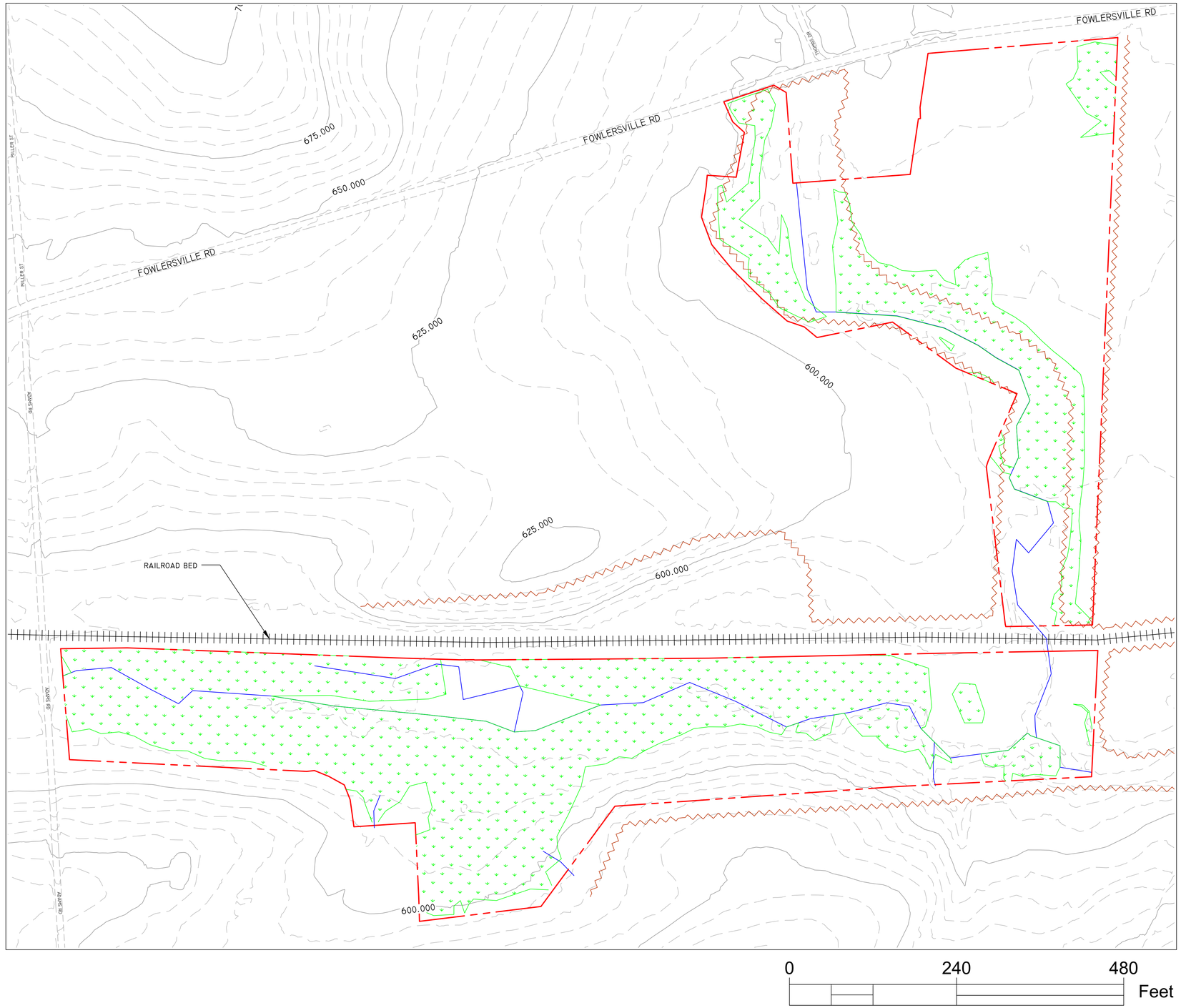
DRAWN BY: NICOLAS H.
CHECKED BY: RYAN G.
APPROVED BY: CONOR G.
DATE: 9/12/16
SCALE: AS NOTED

BRIAR CREEK
DESIGN PLANS
BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

COVER

JOB NO. 0086

SHEET NO. 1 OF 6



MAP KEY

EASEMENT BOUNDARY		TREE LINE		WETLANDS	
RAILROAD TRACK		ROAD		MINOR TOPO	
EXISTING STREAM		MAJOR TOPO			

N

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REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

DRAWN BY:
NICOLAS H.

CHECKED BY:
RYAN G.

APPROVED BY:
CONOR G.

DATE:
9/12/16

SCALE:
1" = 120'

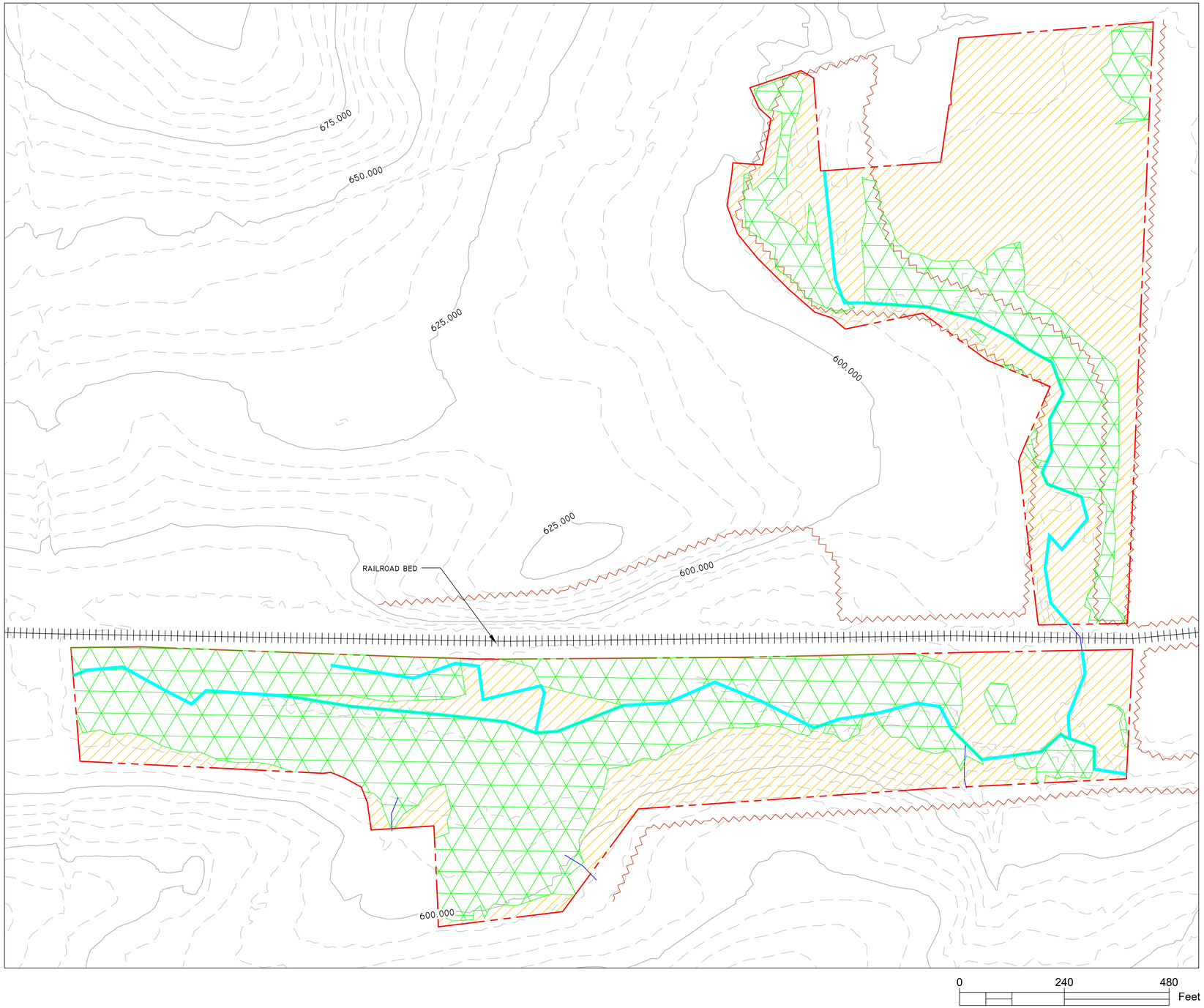
BRIAR CREEK DESIGN PLANS

BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

EXISTING CONDITIONS

JOB NO. 0086

SHEET NO. 2 OF 6



MAP KEY					
UPLAND PLANTING		TREE LINE		EXISTING STREAM	
WETLAND PLANTING		EASEMENT BOUNDARY			
STREAM BED		RAILROAD TRACK			

N

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PITTSBURGH, PA 15219
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RESTORE. ENHANCE. SUSTAIN.

REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

DRAWN BY: NICOLAS H.

CHECKED BY: RYAN G.

APPROVED BY: CONOR G.

DATE: 9/12/16

SCALE: 1" = 120'

BRIAR CREEK DESIGN PLANS

BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

PLANTING MAP

JOB NO. 0086

SHEET NO. 3 OF 6

SEEDING SCHEDULE

	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	MIX DENSITY	SEEDING RATE (lbs/acre)
WETLAND SEED MIX PA NORTHERN ALLEGHENY PLATEAU PROVINCE PACW MIX (ERNMX-211)	*Carex vulpinoidea*	Fox Sedge	OBL	27%	5.4
	Elymus riparius	Riverbank Wildrye	FACW	20%	4.0
	Carex lurida	Lurid (Shallow) Sedge	OBL	10%	2.0
	Carex lupulina	Hop Sedge	OBL	7%	1.4
	Juncus effusus	Soft Rush	FACW+	3%	0.6
	Scirpus atrovirens	Green Bulrush	OBL	3%	0.6
	Verbena hastata	Blue Vervain	FACW+	3%	0.6
	Glyceria grandis	American Mannagrass	OBL	3%	0.6
	Eupatorium perfoliatum	Boneset	FACW+	2%	0.4
	Carex folliculata	Northern Long Sedge	OBL	2%	0.4
	Aster umbrellatus	Flat Topped White Aster	FACW	2%	0.4
	Mimulus ringens	Square Stemmed Monkeyflower	OBL	2%	0.4
	Asclepias incarnata	Swamp Milkweed	OBL	2%	0.4
	Heliopsis helianthoides	Oxeye Sunflower	FACU	2%	0.4
	Onoclea sensibilis	Sensitive Fern	FACW	2%	0.4
	Glyceria canadensis	Rattlesnake Grass	OBL	2%	0.4
	Aster novae-angliae	New England Aster	FACW	1%	0.2
	Eupatorium maculatum	Spotted Joe Pye Weed	OBL	1%	0.2
	Polygonum pensylvanicum	Pennsylvania Smartweed	FACW	1%	0.2
	Eupatorium fistulosum	Joe Pye Weed	FACW	1%	0.2
	Scirpus polyphyllus	Many Leaved Bulrush	OBL	1%	0.2
	Lobelia siphilitica	Great Blue Lobelia	FACW	1%	0.2
	Sisyrinchium angustifolium	Narrowleaf Blue Eyed Grass	FAC	1%	0.2
	Aster puniceus	Purplestem Aster	OBL	1%	0.2
	TOTAL QUANTITY			100%	20

	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	MIX DENSITY	SEEDING RATE (lbs/acre)
UPLAND SEED MIX PA NORTHERN ALLEGHENY PLATEAU PROVINCE UPL MEADOW MIX (ERNMX-210-1)	*Schizachyrium scoparium*	Little Bluestem	FACU	51%	15.3
	Elymus virginicus	Virginia Wildrye	FACW	20%	6
	Andropogon gerardii	Big Bluestem	FAC	10%	3
	Penstemon digitalis	Tall White Beardtongue	FAC	4%	1.2
	Panicum virgatum	Switchgrass	FAC	4%	1.2
	Heliopsis helianthoides	Oxeye Sunflower	NI	2%	0.6
	Aster prenanthoides	Zigzag Aster	FAC	2%	0.6
	Aster novae-angliae	New England Aster	FACW	2%	0.6
	Asclepias syriaca	Common Milkweed	UPL	1%	0.3
	Solidago juncea	Early Goldenrod	UPL	1%	0.3
	Hypericum pyramidatum	Great St. Johnswort	FAC	1%	0.3
	Geum canadense	White Avens	FAC	1%	0.3
	Monarda fistulosa	Wild Bergamot	UPL	1%	0.3
	TOTAL QUANTITY			100%	30

COVER CROP	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	MIX DENSITY	SEEDING RATE (lbs/acre)
	Avena sativa	Seed Oats	NI	83%	30
	Lolium multiflorum	Annual Ryegrass	NI	17%	6
	TOTAL QUANTITY			100%	36

PLANTING SCHEDULE

ZONE	SPECIES: BOTANICAL NAME	SPECIES: COMMON NAME	SPECIES: INDICATOR STATUS	MATURE HEIGHT (FT)	SHADE TOLERANCE	PLANT SPACING (FEET O.C.)	PLANTS PER ACRE
WETLAND PLANTING	*Acer rubrum*	Red maple	FAC	75-100	TOLERANT	6-10.	25
	Betula alleghaniensis	Yellow birch	FAC	75-100	INTERMEDIATE	6-10.	55
	Betula nigra	River birch	FACW	40-70	INTOLERANT	6-10.	65
	Nyssa sylvatica	Black gum	FAC	75-100	TOLERANT	6-10.	55
	Platanus occidentalis	Sycamore	FACW	100-170	INTERMEDIATE	6-10.	65
	Quercus palustris	Pin oak	FACW	50-75	INTOLERANT	6-10.	75
	Cornus amomum	Silky dogwood	FACW	6-12.	INTOLERANT	6-10.	25
	Cornus sericea	Red-osier dogwood	FACW	5-13.	INTOLERANT	6-10.	30
	Lindera benzoin	Spicebush	FACW	6-12.	TOLERANT	6-10.	25
	Salix discolor	Pussy willow	FACW	20-Oct	TOLERANT	6-10.	25
	Sambucus canadensis	Elderberry	FACW	6-12.	INTOLERANT	6-10.	30
	Vaccinium Corymbosum	Highbush blueberry	FACW	6-12.	TOLERANT	6-10.	25
	Viburnum lentago	Nannyberry	FAC	20-30	TOLERANT	6-10.	25
	Viburnum nudum L. var. cassinoides	Withe-rod	FACW			6-10.	25
						Total	550

ZONE	SPECIES: BOTANICAL NAME	SPECIES: COMMON NAME	SPECIES: INDICATOR STATUS	MATURE HEIGHT (FT)	SHADE TOLERANCE	PLANT SPACING (FEET O.C.)	PLANTS PER ACRE
UPLAND PLANTING	*Acer rubrum*	Red Maple	FAC	75-100	TOLERANT	6-10.	15
	Acer saccharum	Sugar Maple	FACU	75-100	VERY TOLERANT	6-10.	15
	Amelanchier leavis	Smooth Serviceberry	FACU	6-12.	TOLERANT	6-10.	20
	Betula alleghaniensis	Yellow Birch	FAC	75-100	INTERMEDIATE	6-10.	25
	Carpinus caroliniana	American Hornbeam	FAC	35-50	VERY TOLERANT	6-10.	20
	Carya cordiformis	Bitternut Hickory	FAC	50-75	INTOLERANT	6-10.	30
	Carya ovata	Shagbark Hickory	FACU	50-75	INTERMEDIATE	6-10.	30
	Fagus grandiflora	American Beech	FACU	75-100	VERY TOLERANT	6-10.	20
	Hamamelis virginiana	Witch hazel	FAC	20-30	TOLERANT	6-10.	25
	Liriodendron tulipifera	Tulip Poplar	FACU	100-120	INTOLERANT	6-10.	25
	Ostrya virginiana	Hop Hornbeam	FACU	35-50	TOLERANT	6-10.	25
	Prunus serotina	Black Cherry	FACU	40-80	INTOLERANT	6-10.	35
	Quercus alba	White Oak	FACU	50-80	TOLERANT	6-10.	50
	Quercus montana	Chestnut Oak	UPL	50-70	INTERMEDIATE	6-10.	50
	Quercus rubra	Red Oak	FACU	40-80	INTERMEDIATE	6-10.	50
	Quercus velutina	Black Oak	FACU	40-80	INTERMEDIATE	6-10.	50
	Tsuga canadensis	American Hemlock	FACU	75-100	TOLERANT	6-10.	15
						Total	500

NOTES:
1. QUANTITIES ARE BASED ON ESTIMATED AREAS OF PLANTING, INCLUDING AREAS OF DISTURBANCE. ADDITIONAL PLANTINGS SHALL CONFORM TO THE MATERIALS AND RATE OF THIS SCHEDULE.2. SUBSTITUTIONS SHALL ONLY BE MADE WITH THE APPROVAL OF THE PROJECT ENGINEER.3. SEEDING SHALL OCCUR PRIOR TO PLANTING.4. LIVE STAKE S QUANTITIES ARE CUMULATIVE FOR ENTIRE LENGTH OF STREAM (BOTH SIDES OF BANKS).5. PLANTING LOCATION SHALL BE SPECIFIED BY THE PROJECT ENGINEER AT THE TIME OF PLANTING.

THIS DRAWING WAS PREPARED AT THE PITTSBURGH OFFICE
33 TERMINAL WAY, SUITE 424A
PITTSBURGH, PA 15219
WWW.RES.US

REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

RESTORE. ENHANCE. SUSTAIN.

DRAWN BY: NICOLAS H.
CHECKED BY: RYAN G.
APPROVED BY: CONOR G.
DATE: 9/12/16
SCALE: NONE

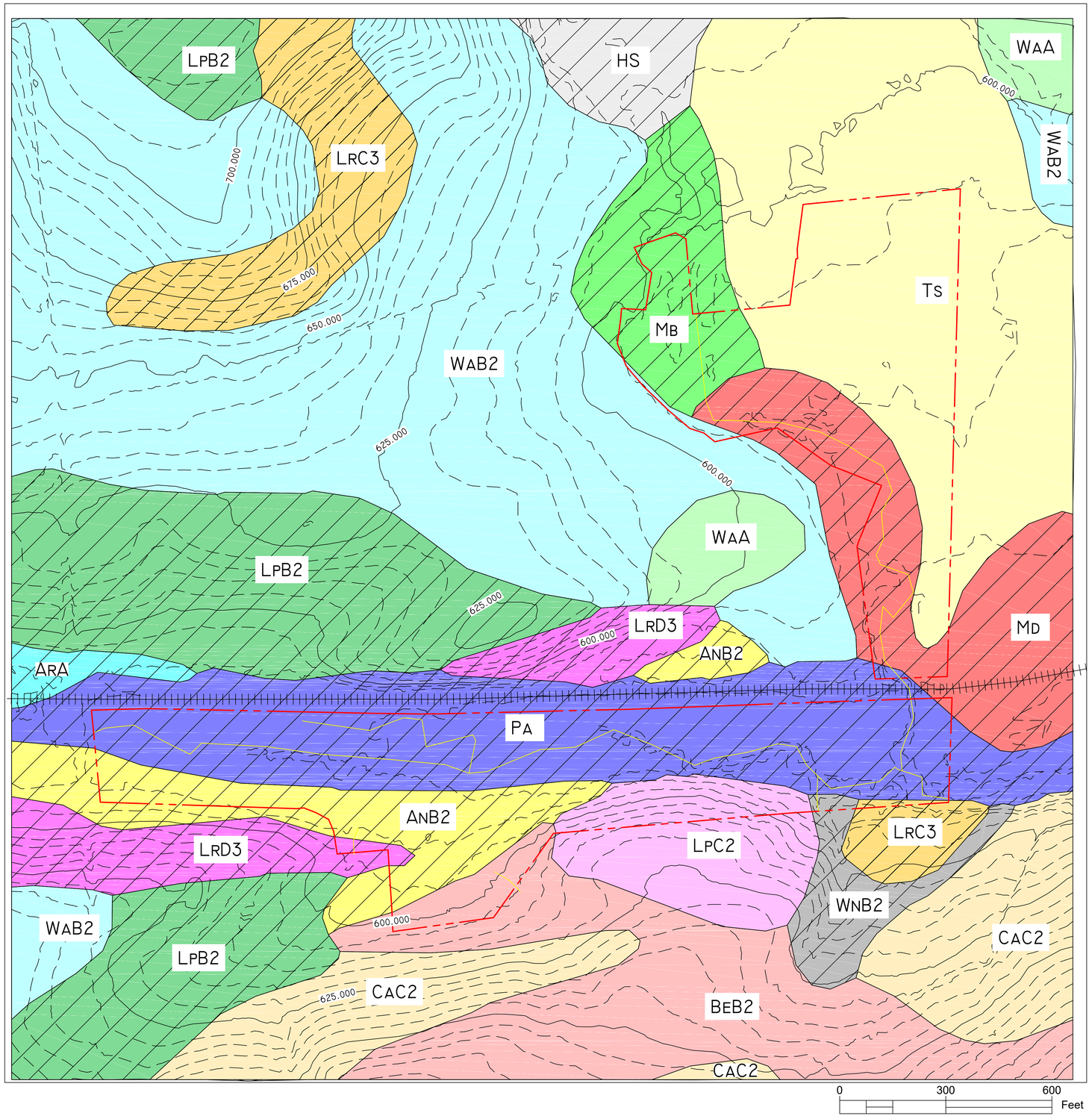
BRIAR CREEK
DESIGN PLANS
BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

PLANTING PLAN

res

JOB NO. 0086

SHEET NO. 4 OF 6



SOILS MAP KEY

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AnB2	Allis silt loam, neutral substratum, 3 to 8 percent slopes, moderately eroded	7.5	3.7%
ArA	Alvira silt loam, 0 to 3 percent slopes	1.1	0.5%
BeB2	Belmont silt loam, 3 to 12 percent slopes, moderately eroded	15.1	7.3%
CaC2	Calvin shaly silt loam, neutral substratum, 12 to 20 percent slopes, moderately eroded	12.5	6.1%
Hs	Holly silt loam	2.9	1.4%
LpB2	Litz silt loam, 3 to 12 percent slopes, moderately eroded	25.0	12.1%
LpC2	Litz silt loam, 12 to 20 percent slopes, moderately eroded	5.7	2.7%
LrC3	Litz and Weikert shaly silt loams, 12 to 20 percent slopes, severely eroded	8.8	4.2%
LrD3	Litz and Weikert shaly silt loams, 20 to 35 percent slopes, severely eroded	6.5	3.1%
Mb	Middlebury fine sandy loam	6.1	2.9%
Md	Middlebury silt loam	10.1	4.9%
Pa	Papakating silty clay loam	19.2	9.3%
Ts	Tioga silt loam	26.9	13.0%
WaA	Washington silt loam, 0 to 3 percent slopes	3.8	1.8%
WaB2	Washington silt loam, 3 to 12 percent slopes, moderately eroded	52.9	25.6%
WnB2	Wiltshire silt loam, 3 to 8 percent slopes, moderately eroded	2.6	1.3%
Totals for Area of Interest		206.6	100.0%

MAP KEY

Mb (HYDRIC)	AnB2 (HYDRIC)	LpB2 (HYDRIC)	WnB2 (HYDRIC)	Ts	LpC2	EASEMENT BOUNDARY
Md (HYDRIC)	ArA (HYDRIC)	LrC3 (HYDRIC)	BeB2	WaA	MAJOR TOPO	RAILROAD TRACK
Pa (HYDRIC)	Hs (HYDRIC)	LrD3 (HYDRIC)	CaC2	WaB2	MINOR TOPO	STREAM

N

REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

THIS DRAWING WAS PREPARED AT THE PITTSBURGH OFFICE
33 TERMINAL WAY, SUITE 434
PITTSBURGH, PA 15219
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RESTORE. ENHANCE. SUSTAIN.

DRAWN BY: NICOLAS H.
CHECKED BY: RYAN G.
APPROVED BY: CONOR G.
DATE: 9/12/16
SCALE: 1" = 150'

BRIAR CREEK
DESIGN PLANS
BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

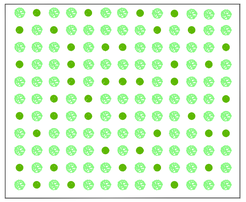
SOIL TYPE MAP

JOB NO. 0086

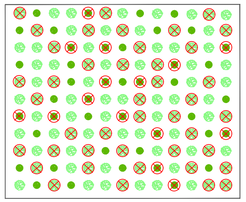
SHEET NO. 5 OF 6

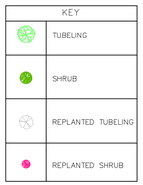
PLANTING SPECIFICATIONS

MATRIX PLANTING PLAN DETAIL

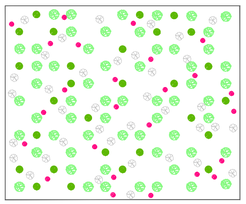


INITIAL PLANTING DENSITY OF 500–550 STEMS PER ACRE; WITH AN APPROXIMATE RATIO OF 70% CANOPY AND 30% SHRUBS SPECIES. PLANTING LOCATIONS ARE APPROXIMATE, THE ACTUAL LOCATION OF PLANTS ON THE SITE WILL BE SUBJECT TO SITE CONDITIONS AT THE TIME OF PLANTING.



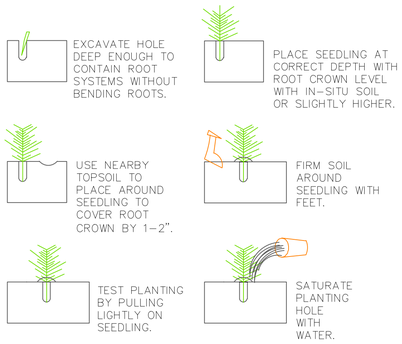


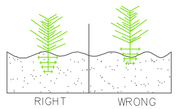
ASSUMED MORTALITY OF 40%, REDUCING STEMS PER ACRE TO 300–330. ACTUAL MORTALITY TO BE VERIFIED DURING MONITORING.



PLANTING OF SUPPLEMENTAL TREE AND SHRUB SPECIES IN A RANDOM PATTERN TO RETURN THE SITE TO THE REQUIRED DENSITIES PER ACRE. ALL REPLANTING TO OCCUR ON A RANDOM BASIS. ANY ADDITIONAL REPLANTING TO BE DONE AS NEEDED.

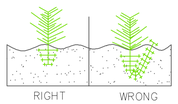
TUBELING TREE PLANTING DETAIL



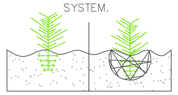


DON'T EXPOSE ROOTS TO AIR DURING FREEZE OF PLANT IN FROZEN GROUND. ROOT COLLAR SHALL BE 1" – 2" BELOW SOIL.

PLANT SEEDLINGS UPRIGHT – NOT AT AN ANGLE.



DO NOT BLEND ROOTS SO THAT THEY GROW UPWARDS OUT OF THE GROUND. TRIM ROOTS IF NECESSARY, SO THEY FIT IN PLANTING HOLE. DO NOT TRIM MORE THAN 25% OF EXISTING ROOT SYSTEM.



ALWAYS PLANT IN SOIL – NEVER LOOSE LEAVES OR DEBRIS. PACK SOIL TIGHTLY.

STORING, CARE, HANDLING

PLANT MATERIAL SHOULD BE INSTALLED IMMEDIATELY UPON DELIVERY. IF MATERIAL NEEDS TO BE STORED, IT WILL BE PROTECTED FROM DESSICATION (DRYING) DURING PLANTING. STOCK WILL BE KEPT IN A COOL ENVIRONMENT OUT OF DIRECT SUNLIGHT AND WIND. ROOTING MEDIUM WILL BE KEPT MOIST DURING STORAGE AND PLANTING.

A. General:

A.1. Plant details are incorporated into this specification by reference.

A.2. Quality Assurance:
- A.A.1. Supplier Certification: the supplier of all seeds and/or vegetation shall certify that origin of the seeds from z.
- A.A.2. Installer Qualifications: engage an experienced installer, who has successfully completed planting projects similar in size and complexity to this project.
- A.A.3. Installer's Field Supervision: Installer to maintain an experienced full–time supervisor on the project site when planting is in progress.

A.3. Plant Materials:
- A.A.1. Provide plant materials of quantity, size, genus and species indicated on the construction drawings.

A.4. All plant materials and work shall comply with recommendations and requirements of ANSI z60.1 2004 American Standard for Nursery Stock. All seeds must meet applicable state and federal regulations and must include labeling indicating supplier, formulation, germination rates and seed date. Labels from all seed installed are to be kept and supplied to owner at completion of project.

A.5. Do not make substitutions unless approved by the Project Engineer. If specified landscape material is not obtainable, submit proof of non–availability to Project Engineer, together with proposal for use of equivalent material.

A.6. Project Engineer may inspect plant materials either at place of growth or on site during planting activities, for compliance with requirements for genus, species, variety, size, and quality. Material found to be unacceptable will be rejected and the contractor will be required to supply replacement material within time frame (i.e., 1 week). Rejected material shall be immediately removed from project site. Unacceptable material is defined as the following:
- A.A.1. Plants with bent trunks or multiple leaders, unless characteristic for the species;
- A.A.2. Plants with diseased trunks, stems, or leaves;
- A.A.3. Plants with pest–infested trunks, stems, or leaves;
- A.A.4. Plants of insufficient size;
- A.A.5. Plants with wrong species/sub–species; and
- A.A.6. Plants having root girdling in the container.

A.7. Delivery, Storage, and Handling:
- A.A.1. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind–tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during delivery. Do not drop plants during delivery.
- A.A.2. Deliver plant materials after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, follow storage instructions as shown in Tubling Tree Planting Detail.
- A.A.3. Do not remove container–grown stock from containers until planting time.

A.8. Project Conditions:
- A.A.1. Examine the sub–grade and topsoil, and verify the elevations prior to installing plant on seed material. All soil amendments and conditioning shall be completed prior to seeding and plant material installation. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- A.A.2. Call Pennsylvania One Call System at 1–800–242–1776, 72 hours prior to any excavation. Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required.

A.9. Planting and Seeding Restrictions:
- A.A.1. Plants shall be planted during unfrozen soil conditions September 15th – May 15th. Plant installation outside of this time period shall not occur unless approved by the Project Engineer and may require additions to the scope of work, such as watering regimes, and additional plant quantities.
- A.A.2. Seeding shall be completed during September 15 – May 15. Dormant winter seeding may not be conducted if there is more than 0.5" of snow on the ground. Grading operations needing stabilization outside of this time period shall be seeded with an alternative cover crop stabilization mix that is approved by the Project Engineer until such time as the specified seeding can occur.
- A.A.3. These limits may not be modified unless approved by the Project Engineer in advance, with the risk of survival borne solely by the contractor.

A.10. Warranty:
- A.A.1. Warranty period is for one (1) year after date of Final Acceptance and covers defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Contractor's control.
- A.A.2. Contractor shall guarantee a minimum survival rate for the warranty period of 85% for balled and burlapped, container grown, and tubelings, and 75% for bare root and live stakes.
- A.A.3. If survival rates are less than the above warranty rates, the contractor shall replace the quantity of defective or dead plants up to the original construction drawing specified plant quantity. Warranty plantings shall occur within the next planting window (September 15th – May 15th, excluding frozen soil conditions) following the end of the applicable warranty period.
- A.A.4. It shall be the Contractor's responsibility during the warranty period to provide written notice of any maintenance practice to the Owner, which in their opinion will affect the guarantee if not remedied promptly. The Project Engineer will render an opinion of any conflict if necessary.

A.11. Maintenance
- A.A.1. The Contractor is responsible for maintaining all plant material until Final Acceptance. The Owner is responsible for maintaining all plant material throughout the warranty period.

B. Products/Material:

B.1. Plant Materials:
- B..1. General: The contractor is to the provide nursery–grown plant materials complying with ANSI z60.1, with healthy root systems developed by transplanting or root pruning. Provide well–shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B..2. Transplants: Transplants may include live stakes, shrubs, small trees, grass plugs, and live mats. When available, the source and location of suitable materials for transplanting will be identified by the Project Engineer. The plant materials to be transplanted will be marked and identified for the Contractor prior to construction.

B.2. Live Stakes:
- B.A.1. Commercially supplied or field harvested live stakes shall be at least one year old, and shall be harvested and transported when plants are dormant.
- B.A.2. The size of stakes shall range from ½ inch to 1 inch in caliper and average 24 inches in length. Side branches shall be removed with the remaining bark intact. The bottom (basal) end shall be cleanly cut at a 45 degree or sharper angle and the top end should be cut square (flat), protruding no more than 4 inches.

B.3. Branch Cutting:
- B.A.1. Commercially supplied or field harvested branch cuttings shall be approximately ½ inch in diameter and shall not exceed 2 inches in diameter. Cuttings shall be 3 to 6 feet in length.
- B.A.2. Live branch cuttings shall consist of a mix of at least two of the approved plants species as specified on the Planting Plan.

B.4. Seed: should be clean and dry. Do not use seed that has become moist during delivery or storage. If seed needs to be temporally stored it should be stored in a cool, dry place.

B.5. Water: Free of substances harmful to plant growth.

B.6. Topsoil:
- B.A.1. Reuse of surface soil stockpiled on–site: Contractor is responsible to submit soil test results, certifying suitability of stockpiled surface soil for topsoil use, to the Project Engineer for approval.
- B.A.2. If stockpiled surface soil is determined to be suitable for reuse as topsoil, then contractor shall clean soil to remove roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth prior to use as topsoil.
- B.A.3. Soil is determined to be unsuitable then contractor shall supplement any imported soil is to be approved by the Project Engineer and soil test results are to be submitted prior to use.
- B.A.4. Amended Surface Soil: If on–site is determined to be unsuitable then contractor shall amend existing in–place surface soil to produce topsoil. Contractor is responsible to submit certified surface soil test results and recommended amendments to the Project Engineer for approval prior to purchasing amendments. Contractor shall clean surface soil to remove roots, plants, sod, stones, lumps, and other extraneous materials harmful to plant growth prior to mixing in approved amendments.

B.7. Organic Soil Amendments:
- B.A.1. If needed organic backfill shall be added as a soil amendment and shall consist of approved recycled organic materials. Prior to delivery, the Contractor shall submit to the Project Engineer for approval a sample of the organic back fill that will be used by the Contractor.
- B.A.2. Organic backfill shall be aged not less than one year and must be free of viable weed seed. The project Engineer reserves the right at any time to test and reject compost material that fails to meet these specifications. Composed waste products shall exclude ewer sludge or bio–solids, plastics or metals.

B.8. Straw Mulch: Cereal grain straw shall be harvested from dry stalks, properly stored, and clean of weed seeds. Straw shall come in baled form to be spread by hand or machine–blown.

B.9. Herbicide Spray Application: Existing areas with substantial coverage of undesirable grass species shall be sprayed with a aquatic approved monocot specific herbicide and surfactant. Cool season grass eradication shall consist of two applications, one in the spring and one in the fall. Grass should be allowed to grow 6 inches, either after mowing or from spring growth, to weaken the plant and provide maximum surface area for application.

C. Execution:

Install plant materials in accordance with the specifications and details of the construction drawings following the addition of soil amendments, seeding, and installation of applicable erosion control fabric.

C.1. Container Growth Material:
- C..1. Planting of container grown material shall occur in accordance with locations and/or patterns specific to the construction drawings.
- C..2. Planting holes shall be twice the diameter and 1 foot deeper than the container in which they are grown. Do not remove plant material from container until immediately before installation. Examine the roots to see if they are pot bound. Carefully separate any pot bound or cramped roots and spread them out when placing the plant within the hole so that the roots can grow without further constriction of the root ball.
- C..3. Set plant materials plumb and centered within hole, ensuring that the top of the root ball is elevated 2 to 3 inches above the surrounding soil elevations. Backfill around root ball with suitable native soil, maintaining plumb, and gently tamping backfill layers to eliminate voids. Water is backfill layers to the point of soil saturation.
- C..4. Following the backfilling, add existing soil to bring the final grade in the planting hole to the surrounding soil surface. Rake the unused existing soil outside the planting house, taking care not to mound the soil or to significantly alter the existing grades.

C.2. Bareroot and Tubeling Material:
- C.A.1. It should be anticipated that the soil may be compacted more than optimal for planting and it shall be the contractor's responsibility to rip soil to assure optimal planting condition. Soil shall be ripped to a depth of 9–12".
- C.A.2. Bareroot material shall be treated with root dip according to the manufacturers recommendation prior to planting. Materials shall be planted immediately or otherwise stored per the manufacturer's recommendations.

C.3. Live Stake Material:
- C.A.1. Live stake material shall be soaked with growth hormone 48 hours prior to installation and shall be kept moist according to manufactures recommendations. Do not allow the live stakes to dry out prior to installation.
- C.A.2. Material shall be planted according to the detail provided. The use of a punch/planting bar, auger, rebar, or water–jet may be used to predrill hole if necessary. Tamp soil around stake following install.

C.4. Seeding:
- C.A.1. Seeding shall occur as shown on the planting plan. Graded areas graded or otherwise denuded of vegetation shall be seeded. in accordance with the current version of the Pennsylvania Department of Environmental Protection Erosion and Sediment Pollution Control Program Manual. Seed shall be applied prior to installation of any erosion control fabric. Areas applied with herbicide may be seeded 7 days after application.
- C.A.2. Sow seed with a spreader or a hydroseed machine with manufacturer recommended binding agent. In areas with dense existing vegetation, install seed with a native no–till drill seeder. Do not broadcast a drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
- C.A.3. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
- C.A.4. Sow seed prior to installation of erosion control fabric where applicable.
- C.A.5. If broadcast, roll seeded areas lightly, and water with a fine spray.
- C.A.6. Protect seeded areas against erosion by spreading straw mulch immediately following completion of seeing operations if other erosion control measures are not otherwise specified. Spread uniformly at a rate of 2 tons per acre (90 lb. per1,000 S.F.) to form a continuous blanket over seeded areas.Spread by hand, blower, or other suitable equipment. Anchor straw mulch by crimping into topsoil by suitable mechanical equipment.

THIS DRAWING WAS PREPARED AT THE PITTSBURGH OFFICE
33 TERMINAL WAY, SUITE 430A
PITTSBURGH, PA 15219
WWW.RES.US

RESTORE. ENHANCE. SUSTAIN.

REVISIONS

REVISION #	DATE	DRAWN BY	CHECKED BY	APPROVED BY	DESCRIPTION

DRAWN BY: NICOLAS H.

CHECKED BY: RYAN G.

APPROVED BY: CONOR G.

DATE: 9/12/16

SCALE: NTS

BRIAR CREEK
DESIGN PLANS
BERWICK TOWNSHIP, COLUMBIA COUNTY, PENNSYLVANIA

PLANTING DETAILS

JOB NO. 0086

SHEET NO. 6 OF 6

APPENDIX H

PERFORMANCE BOND

PERFORMANCE BOND
Bond No. RLB00000000

DATE BOND EXECUTED (Must be same or earlier than date of permit.)
OBLIGEE: Baltimore District, United States Army Corps of Engineers 10 South Howard Street, Baltimore, MD 21201

PRINCIPAL (Legal name and business address) **Resource Environmental Solutions, LLC** **412 N. Fourth Street, Suite 300** **Baton Rouge, LA 70802**		**Surety(ies)** (Legal name(s) and business address(es)) **RLI Insurance Company** **8 Greenway Plaza, Suite 400** **Houston, TX 77046**		
TYPE OF ORGANIZATION ("X"ONE)		PENAL SUM OF BOND, amount determined solely by Obligee		
___Individual ___Joint Venture	___Partnership _~~X~~_Corporation	**Million(s)**	**Thousand(s)** **200**	**Hundred(s)** **000**	**Cent(s)** **00**
STATE OF INCORPORATION **Louisiana**		PERMIT DATE		**PERMIT NO.**	

Know All Men By These Presents,

That we, **Resource Environmental Solutions, LLC of 412 N. Fourth Street, Suite 300 Baton Rouge, LA 70802** (hereinafter called the "Principal"), as Principal, and RLI Insurance Company with an office at **8 Greenway Plaza, Suite 400 Houston, TX 77024** a corporation duly organized under the laws of the State of Illinois (hereinafter called the "Surety"), as Surety, are held and firmly bound unto, as evidenced by the signature below, the **U.S. Army Corps of Engineers, Baltimore District of 10 South Howard Street Baltimore, MD 21201** (hereinafter called the "Obligee"), as Obligee, up to the maximum penal sum of Two Hundred Thousand and No/100 Dollars ($200,000.00) (hereinafter called the "Maximum Penal Sum"), for the payment of which we, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, Resource Environmental Solutions, acting as the mitigation services agent and contractor for Transcontinental Pipe Line Company, LLC ("Transcontinental"), will be responsible for implementation of the Atlantic Sunrise Briar Creek permittee-responsible mitigation plan (the "PRM Plan") to compensate for unavoidable impacts to streams associated with Department of Army Permit # To Be Determined _____ which file and PRM Plan are hereby referred to and made a part hereof as if fully set forth herein.

WHEREAS, Transcontinental has applied for Permits for such activities from Obligee, and the Obligee has granted the necessary permit(s), subject to the posting by Principal of this performance bond to insure full compliance with all the terms and conditions of PRM Plan.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal shall i) complete construction of the wetland restoration specified in the PRM

Plan and ii) demonstrate compliance with the success criteria required in the PRM Plan then this obligation shall be null and void; otherwise shall remain in full force and effect, subject, however, to the following conditions:

1) Upon successful completion of project construction, the Maximum Penal Sum shall be reduced by fifty percent (50%). The Obligee shall have the full and final authority to determine whether the Principal has successfully completed project construction. Upon reduction, the amount of the Maximum Penal Sum remaining will then be the Maximum Penal Sum of this Bond; and

2) The Maximum Penal Sum shall reduce in a stepwise fashion by ten percent (10%) per annum over the remainder of the five (5) monitoring years. Upon reduction, the amount of the Maximum Penal Sum remaining will then be the Maximum Penal Sum of this Bond.

3) Obligee will issue a full and final release of this Bond when i) the final success criteria, as defined in PRM Plan, are met, or ii) other security, in the amount of and covering the same obligations stated herein, is posted with the Obligee. This bond will not be released in whole or in part until the Principal receives written verification from the Obligee that the conditions for release in the PRM Plan have been met. The Obligee shall have the full and final authority to determine that the conditions for release in the PRM Plan have been met.

4) The Surety's obligation under this bond shall arise after the Obligee has notified the Principal in and of their failure to abide by the terms and conditions of the PRM Plan ("default"). Upon notice of the Principal's default under the PRM Plan, the Surety may take one of the following actions:

    a) Remedy the default of the Principal to the full satisfaction of the Obligee by a date certain determined by the Obligee, or

    b) Immediately tender to the Obligee's designee that portion of the Maximum Penal Sum that the Obligee determines is due and owing and necessary to remedy the default. In no circumstance shall such a sum be tendered to the Obligee. Any new party or parties identified by the Obligee under this section shall immediately become a Surety or Sureties to this bond. If the Obligee determines that it is unable to identify such a party or parties, the Surety(ies) shall remedy the default of the Principal under (a) of this section, or

    c) In the event that the Surety(ies) fail(s) to notify Obligee at least 120 days in advance of any termination or revocation, fail(s) to respond within thirty (30) business days to the Obligee's notice of default, or fail(s) to honor commitments to the full satisfaction of the Obligee under a) or b) above of this section, the remaining portion of the Maximum Penal Sum may, at the election of the Obligee, immediately become due and owing and paid to a party or parties (or to a standby trust agreement) identified by the Obligee.

5) Surety shall have no obligation to the Principal, the Obligee or any other person or entity for any loss suffered by the Principal, the Obligee or any other person or entity by reason of acts or omissions which are or could be covered by the Principal's general liability insurance, products liability insurance, completed operations insurance or any other insurance. Under no circumstance shall the USACE be responsible for arbitration of any insurance claims made, declined, or disputed under this bond.

6) The Surety hereby waives notice for any alteration or extension of time made by the U.S. Army Corps of Engineers.

7) In accordance with regulation at 33 C.F.R. § 332.3(n)(5), the Surety(ies) shall provide the Obligee notification at least 120 days in advance of termination, revocation, or modification of this bond.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Obligee named herein, or their heirs, executors, administrators or successors.

(Signature Page to Follow)

PRINCIPAL		
Signature 1	Signature 2	Corporate Seal
Name, Title 1 (typed): Elliott M. Bouillion, President & CEO	Name, Title 2 (typed)	

INDIVIDUAL SURETY(IES)	
Signature 1	Signature 2
Signature 1	Signature 2

CORPORATE SURETY(IES)		
Surety A		
Name & Address: RLI Insurance Company, 8 Greenway Plaza, Suite 400, Houston, TX 77046	State of Incorporation: Illinois	Liability Limit: $200,000.00
Signature 1	Signature 2	
Name, Title 1 (typed): E. Patrick Hennesy III, Attorney-in-Fact	Name, Title 2 (typed): Greg E. Chilson	
Surety B		
Name & Address	State of Incorporation	Liability Limit
Signature 1	Signature 2	
Name, Title 1 (typed)	Name, Title 2 (typed)	
Surety C		
Name & Address	State of Incorporation	Liability Limit

Signature 1	Signature 2	
Name, Title 1 (typed)	Name, Title 2 (typed)	
Surety D		
Name & Address	State of Incorporation	Liability Limit
Signature 1	Signature 2	
Name, Title 1 (typed)	Name, Title 2 (typed)	
Surety E		
Name & Address	State of Incorporation	Liability Limit
Signature 1	Signature 2	
Name, Title 1 (typed)	Name, Title 2 (typed)	
Surety F		
Name & Address	State of Incorporation	Liability Limit
Signature 1	Signature 2	
Name, Title 1 (typed)	Name, Title 2 (typed)	
Surety G		
Name & Address	State of Incorporation	Liability Limit

Signature 1	Signature 2
Name, Title 1 (typed)	Name, Title 2 (typed)
Obligee	
Name & Address: U.S. Army Corp of Engineers, Baltimore District of 10 South Howard Street, Baltimore, MD 21201	
Signature 1	Signature 2
Name, Title 1 (typed)	Name, Title 2 (typed)

Bond Premium	Rate Per Thou. ($)	Total ($)
N/A	N/A	N/A