

*Atlantic Sunrise Project – PA DEP Chapter 105 Joint Permit Application  
Transcontinental Gas Pipe Line Company, LLC  
Luzerne County*

**ATTACHMENT Q -1**  
**LUZERNE COUNTY MITIGATION MASTER PLAN**  
***(UNDER SEPARATE COVER)***

*Revised April 2017*

# Permittee-Responsible Mitigation Master Plan for the Atlantic Sunrise Project

Luzerne County, Pennsylvania  
Transcontinental Gas Pipe Line Company, LLC.



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## 1.0 Introduction

First Pennsylvania Resource, LLC. (FPR), a wholly-owned subsidiary of Resource Environmental Solutions (“RES”), has prepared this Permittee-Responsible Mitigation (PRM) Master Plan for the Atlantic Sunrise Project (Project) on behalf of Transcontinental Gas Pipe Line Company, LLC. (Permittee or Transco). The purpose of this plan is to compensate for unavoidable impacts to waters of the United States (U.S.) associated with Project activities in Luzerne County, Pennsylvania (PA). ***This PRM Master Plan includes one site-specific PRM Plan as Appendix C: Briar Creek PRM Plan***, which provides additional detail regarding where mitigation will occur to offset the proposed wetland impacts within Luzerne County. Appendix A, Figure 1: Project Location Map provides an overview of the proposed Project and associated PRM Sites.

## 2.0 Objectives

The objectives of the PRM Plan are to restore, enhance, and preserve wetland and riparian resources to replace the functions and values lost in association with unavoidable temporary (construction) and permanent (operational) impacts to exceptional value (EV) and non-EV Palustrine Scrub Shrub (PSS) and Palustrine Forested (PFO) wetlands associated with the Project. As described in this PRM Master Plan for Luzerne County, and in the individual PRM Plan prepared for the PRM Site (Appendix C: Briar Creek PRM Plan), the proposed mitigation approach employs a functional based, watershed scale approach to provide optimal replacement of PSS and PFO functions and values lost as a result of the Project. This PRM Master Plan for Luzerne County also uses ratio based replacement requirements to ensure that the functional replacement being provided adequately replaces the physical acreage of the functional areas being impacted in Luzerne County. Additionally, while each of the PRM Sites will mitigate for impacts that occur across multiple counties as a result of the Project, the PRM Plan (Appendix C: Briar Creek PRM Plan) addresses impacts that occur only in Luzerne County.

### *Overarching Approach and Mitigation Site*

Developing multiple smaller mitigation projects along the entire length of the Project closer to the individual impact locations would result in a piecemeal mitigation approach and diminished overall functional uplift and watershed benefit, while also having a lower probability of long-term success for each individual PRM location. Therefore, the proposed approach concentrates on a smaller number of sites strategically located in the headwaters and floodplains of watersheds that will benefit from the mitigation efforts while ensuring optimal replacement of functions and values lost as a result of the Project.

Mitigation for Project impacts in Luzerne County will be offset ***by one PRM Site*** as shown in Table 1: Proposed PRM Site for the Atlantic Sunrise Project (Luzerne County).

<b>PRM Site</b>	<b>Watershed</b>	<b>County</b>	<b>PRM Plan Appendix</b>
Briar Creek	4 and 5	Columbia	D

The PRM Site contains exceptional value (EV) wetlands which will be restored and permanently protected. Mitigation of these resources will optimize ecological uplift to replace the functions and values that will be lost as a result of the Project.

The mitigation efforts proposed at the ***Briar Creek PRM Site*** will replace the primary functions and values impacted at the impact site, which include wildlife habitat, flood flow alteration,

nutrient removal and retention, and sediment/toxicant reduction. Additional information on the evaluated functions and values at the impact locations as well as the proposed mitigation site is provided in Section 6.0: Determination of Mitigation Needs.

### 3.0 Site Selection

The General Compensatory Mitigation Requirements of the Compensatory Mitigation Final Rule [“Final Rule,” (33 CFR 332.3(b)(2))] establish mitigation credits as the preferred method of compensatory mitigation for impacts to aquatic resources of the U.S., followed by In-Lieu Fee credits (ILF), and finally on-site or off-site mitigation. Transco investigated each of these options through the site selection process, as described below.

#### *Mitigation Banking*

Transco first sought to purchase approved mitigation credits from the Upper Susquehanna River Mitigation Bank – Phase I (USRMB I) within the Upper Susquehanna River Subbasin (State Water Plan Watershed 4) for impacts to PSS and PFO wetlands resulting from the Project. There were not enough available credits from USRMB I to compensate for the proposed impacts to PSS and PFO wetlands, and credits are needed to offset Project impacts in other Watersheds. There are no other available banks from which to purchase credits in other impact watersheds, and therefore mitigation banking was not a viable option.

#### *In-Lieu Fee*

ILF crediting is not an option for the Project because no active ILF programs are available.

#### *On-Site Mitigation*

In order to minimize impacts to aquatic features and habitat areas, the Permittee limited the width of the proposed construction limits of disturbance (LOD) and permanent easements to the greatest extent practicable. Narrowing of the easement did not allow room for on-site restoration, and not all homeowners are interested in providing larger easements which will provide space for on-site restoration. Lastly, even with larger easements which could allow for on-site restoration, not all of the sites exhibited land suitable for restoration. Restoration could be done outside of an area with a permanent easement, however this would not be acceptable mitigation as there is no guarantee this area would be preserved into perpetuity. The avoidance measure of using a narrow LOD thereby limited the potential area available for resource restoration. Even if possible, small on-site restorations may only provide minimal benefit to the local watersheds relative to the impacts proposed within the LOD.

Completing on-site mitigation will create multiple, small, spatially separate PRM projects. These smaller isolated projects have been shown to be less ecologically beneficial, have a lower likelihood for long-term success, are more susceptible to invasive species due to increased edge effect. They also create an increased number of maintenance plans to be reviewed, increasing the long-term regulatory burden on the state by requiring reviews and field visits to multiple small restoration sites.

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.

### *Off-Site Permittee-Responsible Mitigation*

Due to the ecological demands of the PRM, Transco concluded that using a restoration approach which combines construction and operational impacts from multiple locations into a few, larger restoration sites, will provide the best ecological uplift, long-term sustainability, and functional replacement of the impacted wetland resources. In making that determination, Transco decided that entrusting the legal, logistical, and environmental aspects of compensatory mitigation to FPR will ensure the greatest chance of success for this Project and most effectively address watershed needs. The proposed PRM Site 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. The likelihood of success is the most important factor that the Permittee considered while evaluating the following mitigation options. By selecting primarily exceptional value riparian and headwaters mitigation sites, the restoration approach will provide watershed-scale benefits and functional uplift well suited to replace functions and values lost as a result of the Project.

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.

## **4.0 Site Protection Instrument(s)**

*The PRM Site* will be permanently protected by a declaration of restrictive covenant in advance of the proposed activities outlined in the mitigation plan, ensuring the long-term protection of the PRM Site. The site protection instrument will be recorded in the county courthouse within 60 days following the U.S. Army Corps of Engineers (USACE) and PA Department of Environmental Protection (PADEP) (“Agencies”) approvals. A copy of the site protection instrument to be filed upon permit approval is included in the PRM Plan (*Appendix C: Briar Creek PRM Plan*). The site protection instrument restricts activities that are incompatible with the objectives of the PRM Plan.

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 Site in perpetuity, they will have the option to switch the declaration of restrictive covenant to a conservation easement. Entrusting the PRM Site to a third-party conservation easement holder may commence only when FPR, the Permittee, and the Agencies have mutually concluded that the PRM Site has achieved all of its objectives and sufficiently satisfied performance standards.

## **5.0 Baseline Data**

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

- Waters of the U.S. delineation and Global Positioning System (GPS) location of the boundary;
- USACE Jurisdictional Determination of wetland boundaries and nexuses;
- Surface soil borings;
- Flora community composition data;
- Informal terrestrial and aquatic fauna community composition data;
- Topographic survey (up to 6-inch accuracy) throughout the proposed conservation area;
- Land steward interviews relative to historical and present site conditions including land use practices;
- Extensive photo and field note documentation;
- Cultural Resources Geographic Information System (CRGIS) searches,
- Pennsylvania Natural Diversity Inventory (PNDI) searches,
- General documentation of site conditions including constraints, access, potential staging areas, and a resulting plan for probable construction sequencing.

Specific baseline data collected for the PRM Site is provided in Section 5.0: Baseline Data of the PRM Plan (Appendix C: Briar Creek PRM Plan). Table 2: Summary of Existing PRM Site Resources, provides a summary of the existing resources at the PRM Site. The PRM Plan contains further details regarding the existing PRM Site resources based upon the wetland delineations and other environmental surveys conducted for the PRM Site.

Resource Type		Briar Creek PRM Site Pre-Mitigation Resources
Total Acres		33.47
Uplands		16.51
Wetlands (Acres)	PEM <sup>1</sup>	7.28
	PEM/PSS <sup>1</sup>	0.28
	PEM/PSS/PFO <sup>1</sup>	0.12
	PSS	9.27
	PFO	-
	PUB <sup>1</sup>	0.01
	<b>TOTAL</b>	<b>16.96</b>
Streams (Linear Feet)	Perennial	5,412.56
	Intermittent	-
	Ephemeral	-
	<b>TOTAL</b>	<b>5,412.56</b>

Notes:

1. PEM – Palustrine Emergent; PSS – Palustrine Scrub Shrub; PFO – Palustrine Forested; PUB – Palustrine Unconsolidated Bottom

The following table provides a summary of clearances and approvals received for the PRM Site. Further detail regarding the status and history of these clearances, including copies of individual approvals, are provided within the PRM Plan (Appendix C: Briar Creek PRM Plan).



Table 3: Summary of PRM Site Clearances and Approvals		
PRM Site	Approval Type	Approval Status
Briar Creek	USACE Section 404/401 WQC	Under Review
	PHMC	Clearance received 5/8/2015
	<i>Rare, Threatened, and Endangered Species</i>	<i>Clearance renewed 3/21/17</i>
	E&S Control (PADEP Chapter 102)	N/A – no earth disturbances proposed

## 6.0 Determination of Mitigation Needs

### Project Impacts

The Project will result in **3.76 acres** of impacts to EV PSS and EV and non-EV PFO wetlands in Luzerne County (excluding temporary impacts to PSS wetlands). Of the **3.76** wetland impact acres, 0.14 are EV PSS, **1.20** are non-EV PFO, and **2.42** are EV PFO impacts. Impact totals in Luzerne County were aggregated and rounded to two significant digits to determine mitigation needs. Therefore while 0.0048 acre of permanent non-EV PSS impact is proposed, this impact amount rounds to 0.00 and is not reflected in the mitigation totals.

The PADEP defines EV wetlands under PA Code Title 25 § 105.17, and has requested separate mitigation ratios for EV and non-EV PSS and PFO wetlands. Project impacts in Luzerne County are proposed within PA State Water Plan Watersheds 4 and 5 (Upper Susquehanna River Subbasin and Upper Central Susquehanna River Subbasin, respectively). Appendix A, Figure 2: Mitigation Site/Impact Reference Location Map depicts the locations of the proposed mitigation in relation to the Project. No permanent fill of any wetland resources will occur as a result of the Project. All long-term impacts are expected to be a result of conversion from PSS to PEM or from PFO to PEM or PSS wetlands. The temporary (construction) impacts will occur in the areas where construction will take place and existing wetlands will be allowed to revert to their previous state following construction in these areas. The permanent (operational) impacts will occur within the maintained ROW, where annual operational maintenance is 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, but will involve annual mowing of PSS wetlands.

All PFO impacts resulting from the Project in Luzerne County are proposed to be mitigated for at the PRM Site. The PFO construction impacts will however be seeded following construction, under the site restoration requirements of the Erosion and Sediment Control Plan. Replanting of woody vegetation or wetland replacement species in the construction right-of-ways (ROWS) is not proposed because these areas are not protected under any easement and could be impacted by future landowner activities. Accounting for these areas at the PRM Site will provide greater functional replacement, and ensure the long-term success of mitigation for these temporary impacts.



For the PRM Site, the following wetland mitigation ratios apply: 2.5:1 for EV PFO wetlands, 2:1 for non-EV PFO wetlands, 1.75:1 for EV PSS wetlands, and 1.5:1 for non-EV PSS wetlands. Impact ratios were discussed with both the PADEP and USACE during multiple meetings prior to and during permit submittal, and are based on previous ratios used for similar projects. Impact locations and proposed mitigation site locations are depicted by watershed in Appendix A, Figure 2: Mitigation Site/Impact Location Reference Map. As discussed in Section 2.0: Objectives, the PRM Site will provide a total of **8.94** acres of mitigation which will be used to offset Project impacts in Luzerne county. Of the **8.94** mitigation acres provided by the PRM Site, **8.70** acres are required for impacts occurring in Luzerne County. Table 4: Summary of Impacts In Luzerne County and Required Mitigation provides a summary of mitigation needs and physical impacts.

Table 4: Summary of Impacts in Luzerne County and Required Mitigation				
Wetland Type	Wetland Impacts (Acres)	Proposed Mitigation Ratio (X:1)	Mitigation Needed	Total Mitigation Available (Acres)
<i>EV PFO</i>	<b>2.42</b>	2.5	<b>6.05</b>	<b>8.94</b>
<i>Non-EV PFO</i>	<b>1.20</b>	2.0	<b>2.40</b>	
<i>EV PSS</i>	0.14	1.75	0.25	
<i>Non-EV PSS</i>	0.00 <sup>1</sup>	1.5	0.00	
<b>Total</b>	<b>3.76</b>	-	<b>8.70<sup>1</sup></b>	

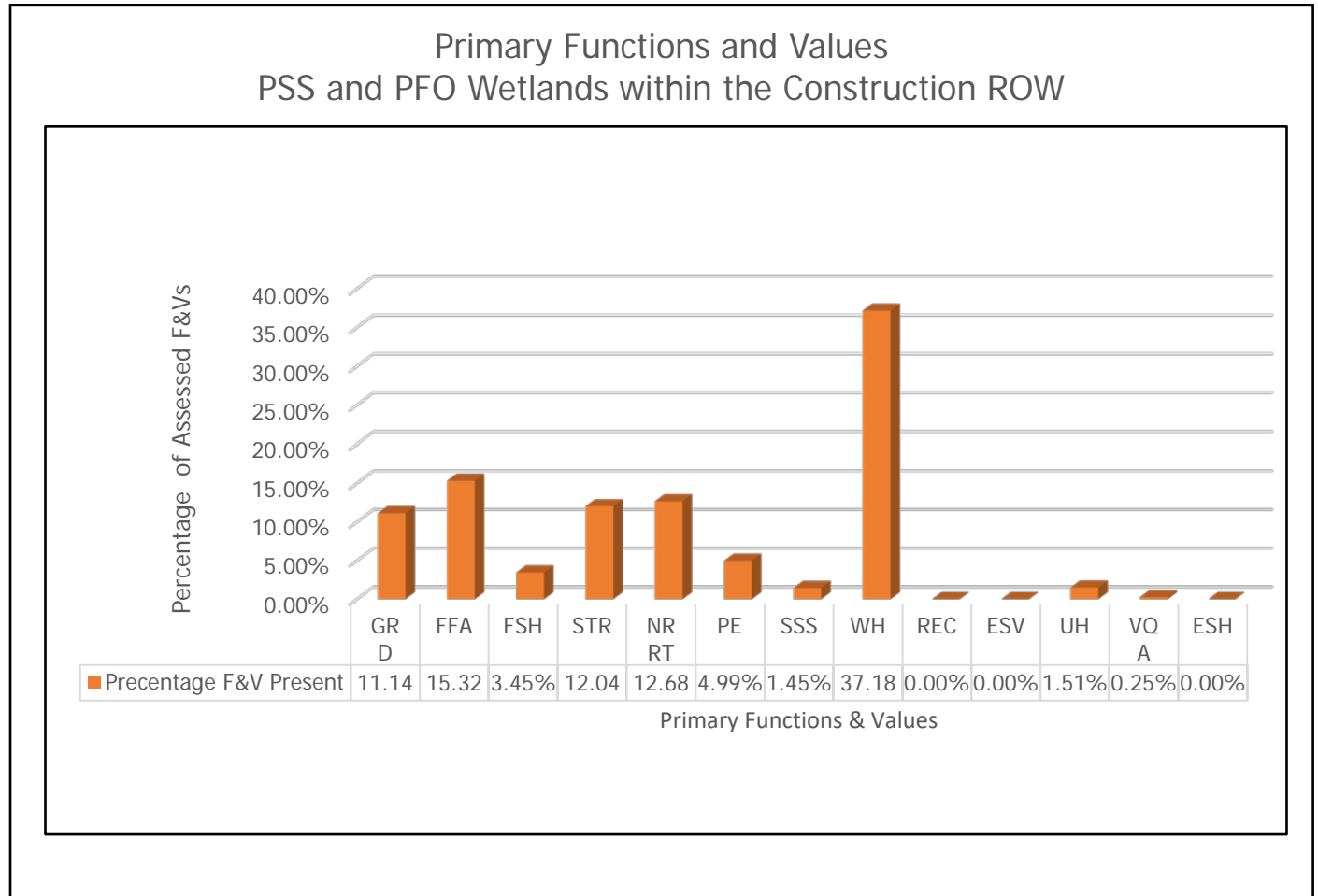
*Notes*

<sup>1</sup> *Impact totals in Luzerne County were aggregated and rounded to two significant digits to determine mitigation needs. Therefore while 0.0048 acre of permanent non-EV PSS impact is proposed, this impact amount rounds to 0.00 and is not reflected in the mitigation totals.*

*Functional Impacts*

The USACE *Highway Methodology Workbook Supplement: Wetland Functions and Values* (Supplement, 1993) was used to evaluate the functions and values of the wetlands at the impact site and at the PRM Site. The 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 PADEP, USACE, and Transco during a pre-application meeting on March 17, 2015. A bar graph showing the primary functional impacts associated with the Project is provided below.

**Bar Graph 1. Summary of Impacted Wetland Functions and Values for All Wetlands within the Construction and Operational ROW in Luzerne County**



**Key:**

- **GRD** - Groundwater Recharge/Discharge
- **FFA** - Floodflow Alteration
- **FSH** - Fish and Shellfish Habitat
- **STR** - Sediment/Toxicant Retention
- **NRRT** - Nutrient Removal and Retention
- **PE** - Production Export
- **SSS** - Sediment/Shoreline Stabilization
- **WH** - Wildlife Habitat
- **REC** - Recreation
- **ESV** - Educational/Scientific Value
- **UH** - Uniqueness/Heritage
- **VQA** - Visual Quality and Aesthetics
- **ESH** - Endangered Species Habitat

Based on an assessment of any potential impacts to the functions and values of PEM wetlands in association with construction and operational of the Project, it was deemed no mitigation would be required. Impacts to PEM wetlands will be temporary, and all areas will be returned to grade, and reseeded following construction.

Permanent conversion impacts to PSS wetlands are anticipated in the operation footprints as a result of the Project, and mitigation will be provided at the PRM Site to offset these impacts.

Construction (temporary) impacts to PSS wetlands are temporary; these areas outside of the 10-foot wide operational ROW will be seeded with a native seed mix, and will naturally revert to PSS. The 10-foot-wide operational ROW will be maintained in PSS wetlands no more frequently than on an annual basis and in accordance with FERC Wetland and Waterbody Construction and Mitigation Procedures and the Transco plan.

### Proposed Functional Uplift

The *Wetland Function-Value Evaluation Form* from the Supplement was used to document the existing functions and values that will be impacted as part of the Project. It was also used to determine the baseline and anticipated ecological lift the PRM Site will experience as a result of the proposed mitigation. The baseline field forms are included within the PRM Plan (Appendix C: Briar Creek Mitigation Plan). These improvements to the wetland functions and values after restoration combined with the additional upland acreages restored as part of the PRM Site will more than offset the overall functions and values lost as a result of the Project. Table 5: Summary of Functional Uplift summarizes proposed functional uplift for the PRM Site.

Site Location	Functions and Values	Pre-Project Principal Function	Post-Project Principal Function
Project Impact Locations (Luzerne County)	Flood Flow Alteration	Yes	No
	Nutrient Removal	Yes	No
	Wildlife Habitat	Yes	No
Briar Creek	Flood flow alteration	No	Yes
	Nutrient Removal	No	Yes
	Sediment/Toxicant Retention	No	Yes
	Wildlife Habitat	Yes	Yes
	Uniqueness/Heritage	No	Yes
	Endangered Species Habitat	Yes	Yes
	Sediment Stabilization	No	Yes
Production Export	No	Yes	

### Proposed Mitigation Acreage

The mitigation ratios used to allocate mitigation acreage for each restoration activity at the PRM Site is based on previously used mitigation ratios. The mitigation ratios, in combination with the previous discussed impact ratios ensures that the functions and values being replaced at the mitigation sites provide an adequate physical replacement of those functions and values impacted as a result of the Project, while also taking into account temporal losses. The proposed mitigation for the Project will include wetland enhancement and upland restoration in the amounts indicated in Table 6: Wetland Mitigation Summary, which includes the mitigation approach, wetland resources, applicable mitigation ratios and mitigation acreage provided by each PRM site. Appendix A, Figures 3 and 4 present the resource development maps for the proposed restoration activities at the PRM Site as summarized below.

Table 6: Wetland Mitigation Summary					
PRM Site	Mitigation Approach	Wetland Type	Site Acreage	Mitigation Ratio	Mitigation Acreage
Briar Creek	Enhancement	PEM/PSS/PFO	16.96	2:1	8.48
	Re-establishment	PFO	0.46	1:1	0.46
<b>Briar Creek Subtotal</b>			<b>17.42</b>	<b>-</b>	<b>8.94</b>

In addition to providing sufficient acreage to compensate for impacts to PSS and PFO resources as a result of the Project, mitigation at the PRM Site will additionally include upland restoration and preservation, providing additional ecological benefits beyond the required mitigation. Construction of the Project will not result in any permanent impacts to streams or other waterbodies. As such, none of the proposed stream restoration or enhancement work is being used for mitigation on this Project.

## 7.0 Mitigation Work Plan

A Mitigation Work Plan is included within the Mitigation Work Plan section of the PRM Plan (Appendix C: Briar Creek PRM Plan). This work plan discusses how the specific physical characteristics of each site (e.g. topography, hydrology, soils, past land use) factored into the mitigation design, and the proposed actions that will be undertaken to attain ecological uplift.

## 8.0 Maintenance Plan

The PRM Site will be monitored and maintained by FPR, as described in the Monitoring Requirements section of the PRM Plan. 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 Plan.

Yearly maintenance will be documented in the annual monitoring report 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 plans 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 4<sup>th</sup> and 5<sup>th</sup> 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.

## 9.0 Performance Standards

The Permittee will monitor the PRM Site to demonstrate compliance with the Performance Standards detailed in Section 9: Performance Standards within the PRM Plan.

## 10.0 Monitoring Requirements

In accordance with the provisions detailed in Section 10.0: Monitoring Plan of the PRM Plan (Appendix C: Briar Creek PRM Plan), an as-built report will be submitted to the PADEP and USACE within 60 days following completion of all work outlined in the PRM Plan. The Permittee will monitor the PRM Site for 5 years to demonstrate compliance with the Performance Standards. A 5-year baseline monitoring time period is appropriate because the mitigation provided by the PRM Site will not be used to offset permanent fill impacts, and the majority of the restoration is enhancement, rehabilitation, and re-establishment of existing wetlands. The monitoring provisions are detailed in the Monitoring Plan for the PRM Plan (Appendix C: Briar Creek PRM Plan). FPR will submit a monitoring report to the PADEP and USACE by December 31<sup>st</sup> of the year monitoring occurs. The monitoring reports will include data sufficient for comparison to the Performance Standards described in the PRM Plan (Appendix C). FPR will also include a discussion of all activities that took place at the PRM Site. At a minimum, the monitoring report will include the monitoring program components detailed in Monitoring Plan of the Briar Creek PRM Plan (Appendix C).

## 11.0 Long-Term Management Plan

The following long-term management plan will apply to the PRM Site. Site-specific details are provided within the long-term management plan included in the PRM Plan (Appendix C: Briar Creek PRM 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. 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. The USACE and PADEP will be notified if any remedial action is necessary to ensure compliance with the original performance standards detailed in the PRM Plan. 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, structure failure, 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 will 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 performance standards as described in the PRM Plan are attained. FPR may appoint a third-party Long-term Steward in accordance with 33 CFR 332.7(d)(1) to take over as the long-term easement holder for the PRM Site into perpetuity. At that time the new easement holder may if they wish transfer the Deed of Restrictive Covenant into a Conservation Easement. The long-term stewardship funding will transfer to the appointed long-term easement holder upon transfer of legal responsibility, to provide funding for the long-term maintenance and monitoring of the property. 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 Success Criteria 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 and will outline specific practices and measures that will guide decisions for revising the compensatory mitigation plan if needed. An individual adaptive management plan based on project-specific performance standards is provided within the PRM Plan.

## **13.0 Financial Assurances**

FPR will establish a performance bond to ensure that PRM Site construction is completed and all success criteria are met. A sample performance bond is provided in the PRM Plan (Appendix C: Briar Creek PRM Plan). The financial assurance mechanism will be a surety bond for the PRM Site that will cover construction, maintenance and monitoring costs associated with the PRM Site, proof that the surety bond has been executed will be provided to the agencies 60 days after approval of the joint permit. The performance bond utilized by FPR is underwritten by a Surety with a rating of A+ (A.M. Best Ratings, 2010).

Once the restoration activities (planting) at the PRM Site are completed and the as-built plans are approved by the PADEP and USACE, as a proportionately larger percentage of the projects costs is long term maintenance and monitoring. 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.

### *Long-term Stewardship Funding*

Prior to construction of the Project, the Permittee will deposit funds into an escrow account to cover long-term stewardship for the PRM Site. These funds are anticipated to be sufficient to cover the full cost of long-term stewardship activities for the PRM Site. The total sum for the PRM Site escrow amount includes all expenses for long-term management and allocates funds for invasive species management contingency funds, and is provided in the PRM Plan (Appendix C: Briar Creek PRM Plan).

## 14.0 References

- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1. 207 p.
- Federal Register (2008) Compensatory Mitigation for Losses of Aquatic Resources; Final Rule. 33 CFR Parts 325 and 332. (Volume 73, Number 70). Rules and Regulations. Accessed 8/20/13.  
[http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008\\_04\\_10\\_wetlands\\_wetlands\\_mitigation\\_final\\_rule\\_4\\_10\\_08.pdf](http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)
- United States Department of Agriculture Natural Resources Conservation Service. The PLANTS Database. National Plant Data Center. Accessed 8/20/14. <http://plants.usda.gov>.
- U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast 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.
- United States Army Corps of Engineers, New England District. 1993. Highway Methodology Workbook Supplement: Wetland Functions and Values – A Descriptive Approach. <http://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement.pdf>.

# **APPENDIX A**

## **Figures**

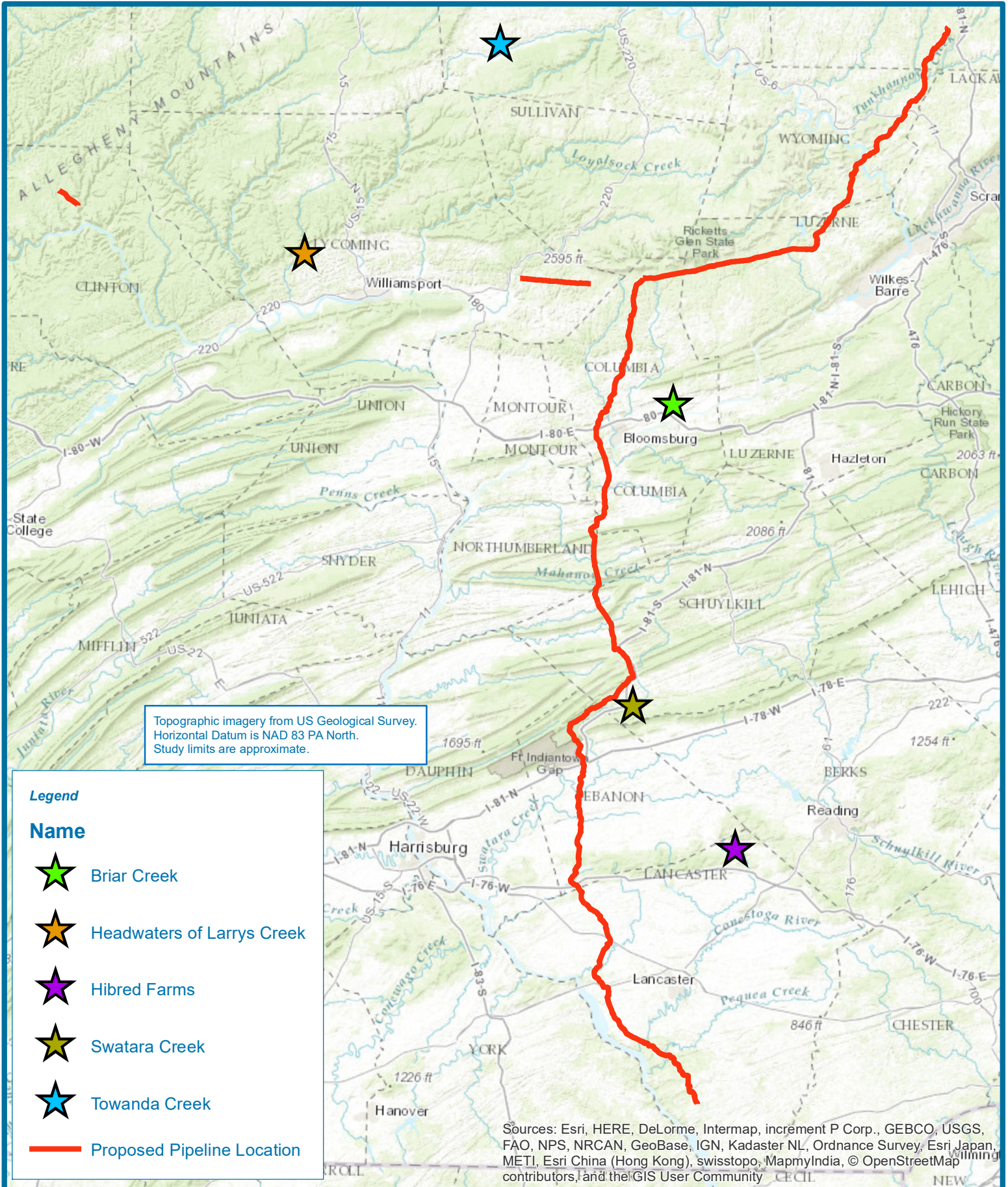
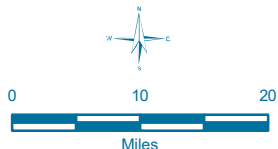


FIGURE 1

ATLANTIC SUNRISE PROJECT  
PROJECT LOCATION MAP

PENNSYLVANIA



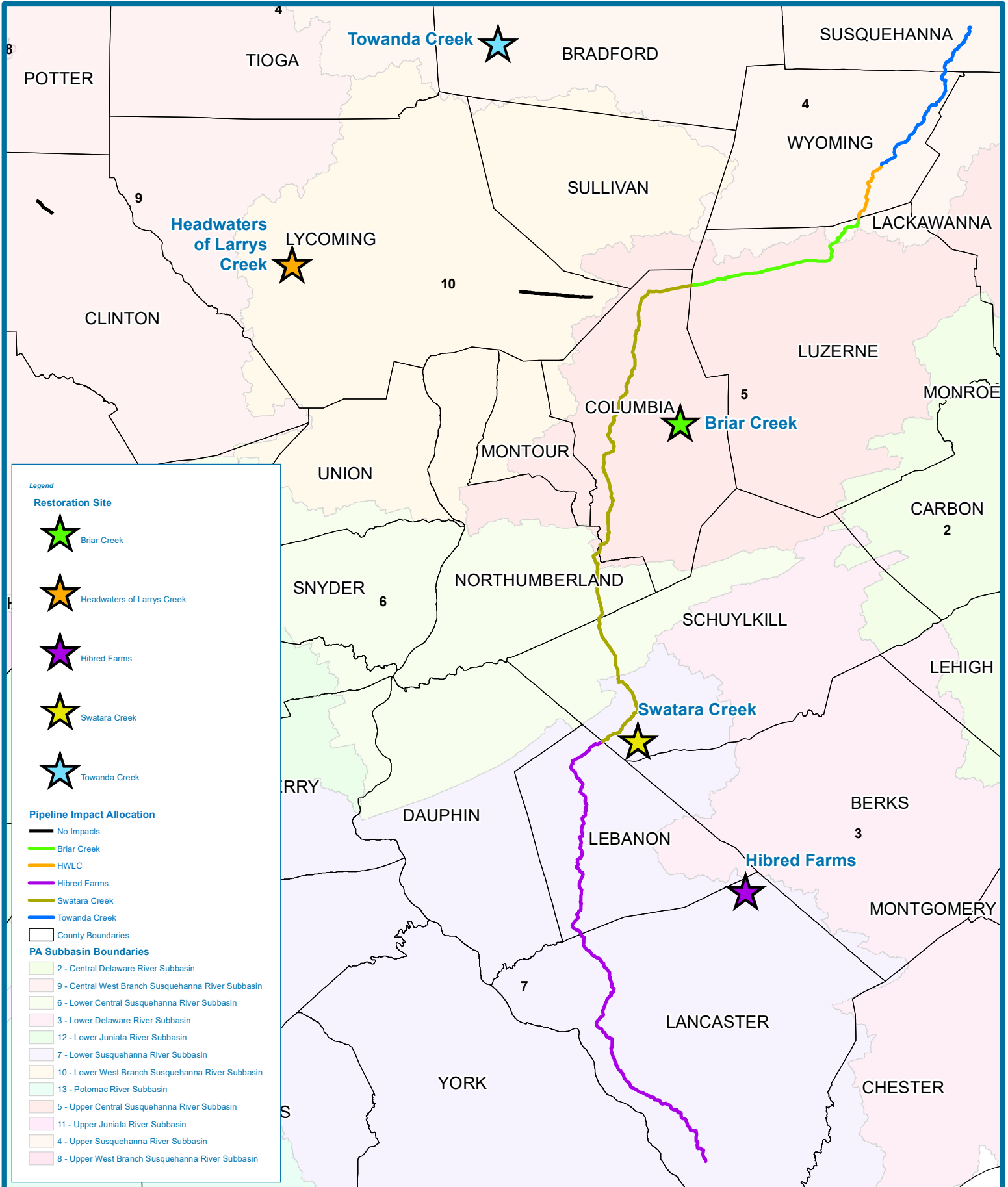
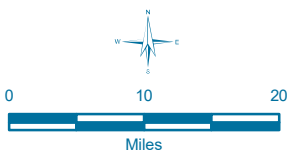
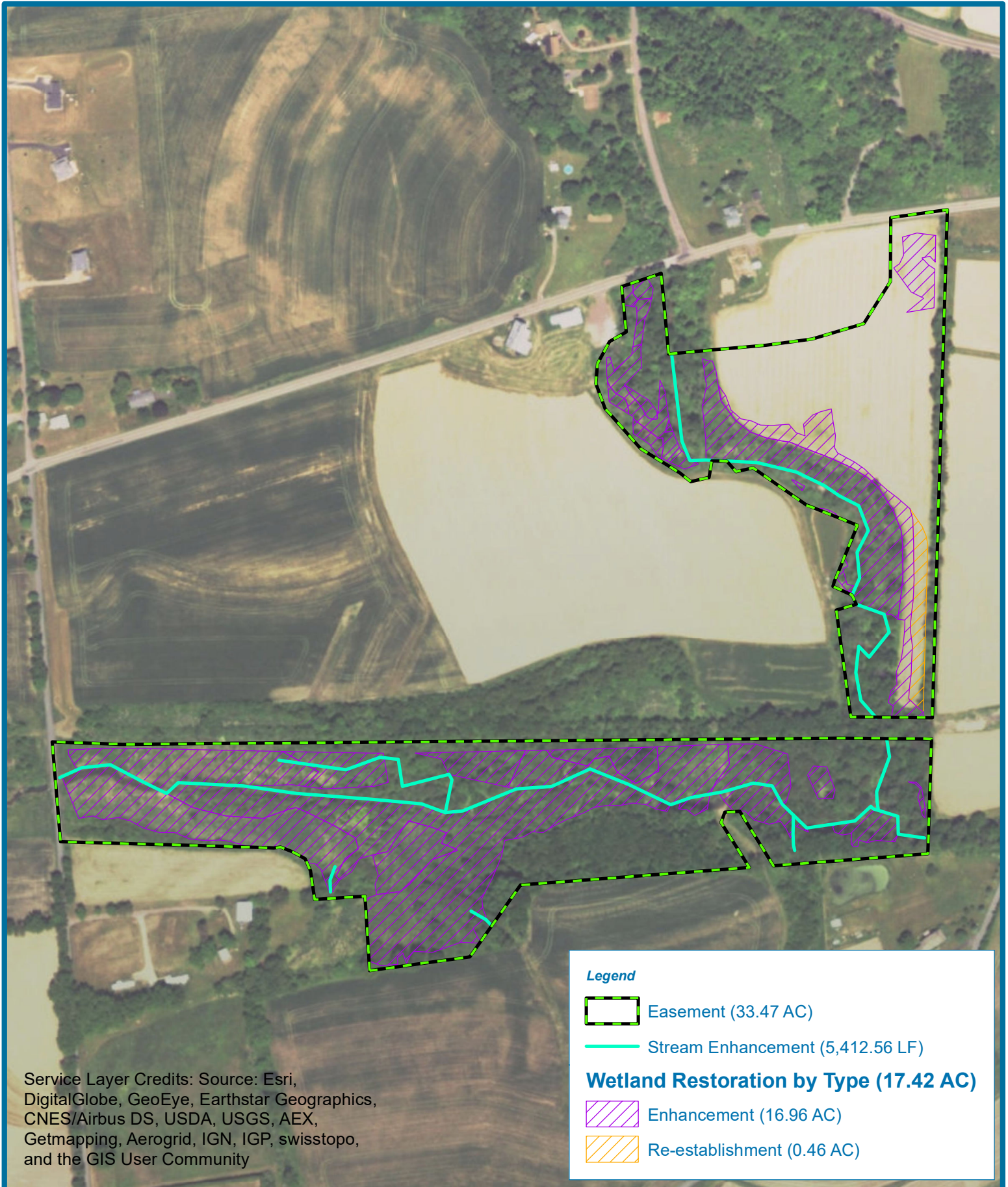


FIGURE 2

ATLANTIC SUNRISE PROJECT  
MITIGATION SITE/IMPACT LOCATION  
REFERENCE MAP



PENNSYLVANIA







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

**Legend**

-  Easement (33.47 AC)
-  Stream Enhancement (5,412.56 LF)

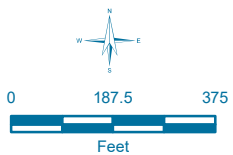
**Wetland Restoration by Type (17.42 AC)**

-  Enhancement (16.96 AC)
-  Re-establishment (0.46 AC)

**FIGURE 3**

**ATLANTIC SUNRISE PROJECT  
BRIAR CREEK MITIGATION SITE  
RESOURCE DEVELOPMENT MAP**

**COLUMBIA COUNTY, PENNSYLVANIA**



# **APPENDIX B**

## **Impact Site Wetland Function-Value Evaluation Forms**

# Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? \_\_\_\_\_ Is wetland part of a wildlife corridor? \_\_\_\_\_ or a "habitat island"? \_\_\_\_\_

Adjacent land use forest Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present P&M 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? \_\_\_\_\_

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

Wetland I.D. W-130-2107  
 Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Prepared by: KP Date 10/23/2004  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field X  
 Corps manual wetland delineation completed? Y X N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		6, 7, 13, 14	7	
Floodflow Alteration	<input checked="" type="checkbox"/>		5, 9, 10, 13,		
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		7, <del>8</del> , <sup>8</sup> 7, 8, 9, 11, 14, 15, 16, 17		
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		7, 5, 10, 12,		
Nutrient Removal	<input checked="" type="checkbox"/>		3, 7, 12,		
Production Export		<input checked="" type="checkbox"/>	—		
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	—		
Wildlife Habitat		<input checked="" type="checkbox"/>	3, 4, 5, <del>7</del> <sup>8</sup>		
Recreation		<input checked="" type="checkbox"/>	—		
Educational/Scientific Value		<input checked="" type="checkbox"/>	—		
Uniqueness/Heritage		<input checked="" type="checkbox"/>	—		
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>	—		
ES Endangered Species Habitat		<input checked="" type="checkbox"/>	—		
Other		<input checked="" type="checkbox"/>			

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? \_\_\_\_\_ Is wetland part of a wildlife corridor? \_\_\_\_\_ or a "habitat island"? \_\_\_\_\_

Adjacent land use forest and ag lands Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-130-21000

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

Prepared by: RP Date 10/23/2014

Wetland Impact:  
Type \_\_\_\_\_ Area \_\_\_\_\_

Evaluation based on:

Office \_\_\_\_\_ Field

Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge		<input checked="" type="checkbox"/>	-		
Floodflow Alteration		<input checked="" type="checkbox"/>	3, 18		
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>	-		
Sediment/Toxicant Retention		<input checked="" type="checkbox"/>	4		
Nutrient Removal	<input checked="" type="checkbox"/>		7, 8, 9, 10	<input checked="" type="checkbox"/>	
Production Export		<input checked="" type="checkbox"/>	1, 7		
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>	-		
Wildlife Habitat		<input checked="" type="checkbox"/>	-		
Recreation		<input checked="" type="checkbox"/>	-		
Educational/Scientific Value		<input checked="" type="checkbox"/>	-		
Uniqueness/Heritage		<input checked="" type="checkbox"/>	-		
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>	-		
<b>ES</b> Endangered Species Habitat		<input checked="" type="checkbox"/>	-		
Other					

Notes:

\* Refer to backup list of numbered considerations.

### Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ 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 \_\_\_\_\_  
 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? Upper  
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21004  
 Latitude 43°47'32.26 Longitude 96°12'15.71  
 Prepared by: E.V.ATS Date 6/23/14  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	6, 7, 9, 13	7, 13	Wetland discharges to intermittent stream via constructed outlet
Floodflow Alteration	<input checked="" type="checkbox"/>		5	Wetland contains hydric soils capable of retaining water
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	4, 9, 10, 13	9	Drainage ditches have not been constructed
Nutrient Removal	<input checked="" type="checkbox"/>	7, 9	9	Emergent vegetation is dominant; cattle pasture
Production Export	<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>	3, 7	3	Wetland is not fragmented by development
Recreation	<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>	13	13	No known safety hazards are present.
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>	7, 10, 12	7	No trash present in wetland
Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

\* Refer to backup list of numbered considerations.

## Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ 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 \_\_\_\_\_  
 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? Upper  
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21003  
 Latitude 43°59'33.24 Longitude 76°12'13.62  
 Prepared by: F. Virts Date 6/23/14  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		6,7,9,13	7, 13	Wetland Discharges to intermittent stream via constructed outlet
Floodflow Alteration	<input checked="" type="checkbox"/>		2,5,7,13,15	5	wetland contains hydric soils capable of retaining water
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4,9,10,13	9	Drainage ditches have not been constructed
Nutrient Removal	<input checked="" type="checkbox"/>		7,9	9	Emergent vegetation in island wetland; cattle pasture
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		3,7	3	wetland is not fragmented by development
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>		2, 13	13	No known safety hazards present
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		7,10,12	7	No trash present in wetland
Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

## Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? No Is wetland part of a wildlife corridor? No <sup>Yes</sup> or a "habitat island"? No  
 Adjacent land use Mtce forest and agriculture Distance to nearest roadway or other development 0.4 miles  
 Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes  
 Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? \_\_\_\_\_  
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21002  
 Latitude 41.126288 Longitude 96.12176-27  
 Prepared by: E.V. Itz Date 6/25/14  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		6,8,13	13	Spring fed wetland that quickly sinks in Rock fractures
Floodflow Alteration	<input checked="" type="checkbox"/>		5,9	9	Depression receives & retains runoff from uplands.
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>	9 <sup>EV</sup>	9	<del>There are no drainage ditches present</del> <sup>EV</sup>
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		9	9	There are no drainage ditches present
Nutrient Removal			5	5	wetland is saturated due to presence of spring
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		1,3,4,5,19,20	20	Diverse Amphibian population likely present
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>		2,5,13,	5	Valuable habitat   waterhole for <del>water</del> <sup>EV</sup> wildlife
Uniqueness/Heritage	<input checked="" type="checkbox"/>		16	16	Wetland appears unpolluted
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		5,8,10,12	8	Valuable water hole for wildlife
Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

## Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No  
 Adjacent land use Agriculture - Existing <sup>Utility</sup> segment 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? \_\_\_\_\_  
 How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-T12-21001  
 Latitude 43.47492 Longitude 46.1247974  
 Prepared by: E. V. ITS Date 6/23/14  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	2, 6, 7, 9, 13,	6	Wetland is underlain by shallow bedrock.
Floodflow Alteration	<input checked="" type="checkbox"/>	3, 5, 9, 13, 18	18	Vegetation (Herbaceous) is very dense in this wetland.
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	4, 7, 9, 10, 13, 16	9	Hillside wetland that does not contain drainage ditches
Nutrient Removal	<input checked="" type="checkbox"/>	5, 7, 8, 9, 10, 12, 14	9	Vegetation (Emergent) is dense; therefore potential for attenuation
Production Export	<input checked="" type="checkbox"/>	7	7	Dense Emergent vegetation is present
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>			
Wildlife Habitat	<input type="checkbox"/>	4, 13,	4	Area surrounding on one side is open hay field.
Recreation	<input checked="" type="checkbox"/>			
Educational/Scientific Value	<input checked="" type="checkbox"/>			
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>	7, 10, 12	12 7	Easily viewable wetland with no trash present
ES Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

\* Refer to backup list of numbered considerations.

## Wetland Function-Value Evaluation Form

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

Adjacent land use \_\_\_\_\_ Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-T12-21001A  
 Latitude 43144664 Longitude 46128015  
 Prepared by: D. HERRICK Date 6/28  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2, 6, 7, 9, 13	6	Wetland is underlain by shallow bedrock
Floodflow Alteration	<input checked="" type="checkbox"/>		3, 5, 9, 13, 14	13	Hill slope above wetland contains little flood storage
Fish and Shellfish Habitat		<input checked="" type="checkbox"/>			
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4, 7, 9, 10, 13,	9	No drainage ditches constructed through wetland
Nutrient Removal	<input checked="" type="checkbox"/>		4,	4	Ag fields exist above wetland on hillside
Production Export	<input checked="" type="checkbox"/>		1, 4	21	Deer tracks noted in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2, 3	2	wetland located on Hill/slope
Wildlife Habitat	<input checked="" type="checkbox"/>		5, 7, 8, 17, 19, 21	17	Deer tracks observed in wetland
Recreation		<input checked="" type="checkbox"/>			
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		1	1	PFO and PEM wetlands visible.
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

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

Adjacent land use \_\_\_\_\_ Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-TD-21007

Latitude 45°36.47 Longitude 46°51'44.60

Prepared by: D. Moore Date 6/88

Wetland Impact:  
Type \_\_\_\_\_ Area \_\_\_\_\_

Evaluation based on:  
Office \_\_\_\_\_ Field

Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2,6,7	7	wetland follows stream downhill
Floodflow Alteration	<input checked="" type="checkbox"/>		3,5,8,9,10,13,14	10	wetland follows stream course downhill
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		14,17	17	stream course has defined channel.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		1,2,4,9,10,14	10	wetland follows stream downhill
Nutrient Removal	<input checked="" type="checkbox"/>		3,4,7,12	3	farm land and mowed fields above wetland
Production Export	<input checked="" type="checkbox"/>		4	4	animal tracks present in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2,3,4,9	9	streams contain defined channel
Wildlife Habitat	<input checked="" type="checkbox"/>		5,7,8,17,19,20,21	17	various animal tracks and sign present
Recreation	<input checked="" type="checkbox"/>		3,4	3	hunting permitted on private property
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>		11	11	No unpleasant odors present
<b>ES</b> Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? NA Is wetland part of a wildlife corridor? \_\_\_\_\_ or a "habitat island"? \_\_\_\_\_

Adjacent land use \_\_\_\_\_ Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PBM Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-TN-210074

Latitude 41.92.01 Longitude 46.50.55.10

Prepared by: D. Harris Date 6/28

Wetland Impact:  
Type \_\_\_\_\_ Area \_\_\_\_\_

Evaluation based on:  
Office \_\_\_\_\_ Field

Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2, 6, 7	7	wetland follows stream course
Floodflow Alteration	<input checked="" type="checkbox"/>		5, 8, 9, 10, 13, 14	5	wetland contains hydric soils because its a wetland
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		1, 4, 14, 17	1	watershed above wetland is forested.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4, 9, 10	10	wetland follows stream course
Nutrient Removal	<input checked="" type="checkbox"/>		3, 12	3	potential to trap sediment exists
Production Export	<input checked="" type="checkbox"/>		4, 12	4	Animal signs present in wetland
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>		2	2	wetland on slope following stream
Wildlife Habitat	<input checked="" type="checkbox"/>		4, 5, 7, 8, 14, 20, 21	19	wetland area contained numerous insects
Recreation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	3	hunting permitted on private land
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>			
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? LO Is wetland part of a wildlife corridor? \_\_\_\_\_ or a "habitat island"? \_\_\_\_\_

Adjacent land use \_\_\_\_\_ Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-TD-21008

Latitude 410021 N Longitude 4615716 W

Prepared by: D. Moore Date 6/28

Wetland Impact:  
Type \_\_\_\_\_ Area \_\_\_\_\_

Evaluation based on:  
Office \_\_\_\_\_ Field

Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>		2,6,7	7	wetland drains to stream down slight slope
Floodflow Alteration	<input checked="" type="checkbox"/>		5,6,8,9,10,	5	the wetland contains hydric soils
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>		1,8	1	Forest exists above wetland on hill slope.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>		4,9,10,14	10	Wetland drains to stream.
Nutrient Removal	<input checked="" type="checkbox"/>		12, <del>11</del>	<del>12</del> 11	water flow is diffuse in wetland.
Production Export		<input checked="" type="checkbox"/>			
Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
Wildlife Habitat	<input checked="" type="checkbox"/>		1,3,4,5,7,19,20,21	3	wetland not fragmented by development
Recreation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	3	hunting permitted on private property
Educational/Scientific Value		<input checked="" type="checkbox"/>			
Uniqueness/Heritage		<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics		<input checked="" type="checkbox"/>			
ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

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

Adjacent land use \_\_\_\_\_ Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-T12-21009A  
 Latitude 44221.50 Longitude 9616157.02  
 Prepared by: D. Herrera Date 6/28  
 Wetland Impact:  
 Type \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field   
 Corps manual wetland delineation completed? Y  N \_\_\_\_\_

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	2, 7	7	wetland flows into stream
Floodflow Alteration	<input checked="" type="checkbox"/>	5, 6, 8, 9, 10,		In a large storm wetland may contain more water
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>	1, 2, 7, 8, 9, 10, 11, 14, 16, 17	1	Area above watercourse forested
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	1, 2, 3, 4, 10, 14,	10	wetland associated with stream course
Nutrient Removal	<input checked="" type="checkbox"/>	3, 4, 7, 12,	3	overall potential for sediment trapping in wetland
Production Export	<input checked="" type="checkbox"/>	1, 4, <del>14</del>	1	wildlife food sources exist in wetland.
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	2, 3, 4, 9,	2	wetland in sloped area along stream
Wildlife Habitat	<input checked="" type="checkbox"/>	1, 3, 5, 6, 7, 8, 17, 19, 20, 21	6	wetland is contiguous with other wetlands along watercourse
Recreation	<input checked="" type="checkbox"/>	2, 3, 4, 5,	3	hunting permitted on private land
Educational/Scientific Value	<input checked="" type="checkbox"/>			
Uniqueness/Heritage	<input checked="" type="checkbox"/>			
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>			
<b>ES</b> Endangered Species Habitat	<input checked="" type="checkbox"/>			
Other				

Notes:

\* Refer to backup list of numbered considerations.

# Wetland Function-Value Evaluation Form

Total area of wetland \_\_\_\_\_ Human made? \_\_\_\_\_ Is wetland part of a wildlife corridor? \_\_\_\_\_ or a "habitat island"? \_\_\_\_\_

Adjacent land use Forest and Pipeline R.O.W. Distance to nearest roadway or other development \_\_\_\_\_

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present \_\_\_\_\_

Is the wetland a separate hydraulic system? \_\_\_\_\_ If not, where does the wetland lie in the drainage basin? \_\_\_\_\_

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

Wetland I.D. W-T17-21001

Latitude 41.019.50 Longitude 4618022.8

Prepared by: B. Virens Date 7/1/14

Wetland Impact:  
Type \_\_\_\_\_ Area \_\_\_\_\_

Evaluation based on:  
Office \_\_\_\_\_ Field X

Corps manual wetland delineation completed? Y X N \_\_\_\_\_

Function/Value	Suitability		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4, 12	<input checked="" type="checkbox"/>	
Floodflow Alteration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 5, 9, 18		
Fish and Shellfish Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>			not associated with a watercourse
Sediment/Toxicant Retention	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4		not associated with a watercourse
Nutrient Removal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 8, 9, 10, 11		
Production Export	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 12		
Sediment/Shoreline Stabilization	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2		
Wildlife Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 7, 8, 13	<input checked="" type="checkbox"/>	
Recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5, 7		
Educational/Scientific Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 5, 13, 14		
Uniqueness/Heritage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	19		
Visual Quality/Aesthetics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7, 8, 12		
<b>ES</b> Endangered Species Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Other	<input type="checkbox"/>	<input type="checkbox"/>			

Notes:

\* Refer to backup list of numbered considerations.

**APPENDIX C**

**Briar Creek Permittee-Responsible  
Mitigation Plan**