B. WETLAND DELINEATION REPORT

AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC.

July 6, 2016

Gayle M. McKee, C.M.
Senior Project Planner
C&S Engineers, Inc.
141 Elm Street, Suite 100
Buffalo, NY 14203

Re: Vernal Habitat Assessment Survey Results
Trenton-Mercer Airport
Portion of Block 373, Lot 6
Ewing Township, Mercer County, New Jersey
ASGECI Project #3200

Dear Ms. McKee,

Amy S. Greene Environmental Consultants, Inc. (ASGECI) conducted a Vernal Habitat Assessment of an area mapped by NJDEP as "Potential Vernal Habitat" ("study area") on April 29, May 19, and June 17, 2015. The study area is located within Block 373, Lot 6 in Ewing Township, Mercer County, New Jersey and is part of Trenton-Mercer Airport. The study area is situated east of Sam Weinroth Road and west of the Merck Corporate Hangar located along Taxiway G (see Attachment A, Figures 1 and 2). A thorough investigation of this area determined that it does not contain habitat characteristics consistent with vernal pool classification. This letter report outlines the habitat assessment methodology and results.

Introduction

Vernal pools are ephemeral wetlands that contain standing water for a portion of the year (usually the spring season) and are generally free of standing water for a portion of the year, and as a result, do not support fish populations. Vernal pools are biologically important due to the variety of species that are dependent upon the unique conditions for their survival, particularly several species of frogs and salamanders. Vernal pools provide habitat that is essential for breeding success of the species that are adapted to them. The surrounding uplands provide critical habitat for the adult life cycle of many of the vernal pool dependent species. Vernal habitats are often isolated wetland features, but they also occur as basins within floodplains and within larger wetland complexes that are not isolated.

According to the New Jersey Freshwater Protection Act Rules (N.J.A.C. 7:7A) and the NJDEP Division of Land Use Regulation Freshwater Wetlands Vernal Habitat Protocol, wetlands and/or State-open waters meeting the following criteria may be potential vernal habitats:

1. Occurs in a confined basin depression without a permanently flowing outlet;

2. Provides evidence of breeding habitat for *obligate* or *facultative* vernal habitat species;
3. Maintains ponded water for at least two continuous months between March and September of a normal rainfall year; and/or
4. Is free of fish populations throughout the year or dries up at some time during a normal rainfall year.

For *obligate* vernal habitat species, the following will constitute evidence of breeding by a species listed as an obligate species at N.J.A.C. 7:7A, Appendix 1 (see Attachment D):

A. The following types of evidence of breeding adults:
    i. Frog breeding chorus;
    ii. Mated pairs of frogs;
    iii. Salamander courting individuals; and/or
    iv. Salamander spermatophores;
B. Two or more egg masses of any obligate species;
C. Frog tadpoles;
D. Mole salamander larvae; and/or
E. The following types of evidence of transforming juveniles:
    i. Wood frogs with tail stubs evident; and/or
    ii. Salamanders with gill remnants evident.

For *facultative* vernal habitat species, the presence of one or more members of the species within the area of the habitat listed as facultative species at N.J.A.C. 7:7A, Appendix 1 (see Attachment D) shall constitute evidence of breeding or foraging by that species.

Using the above protocol, an onsite assessment for vernal pool habitats was performed.

Habitat Assessment Methodology

According to NJDEP GeoWeb, potential vernal habitat is present between Sam Weinroth Road and the Merck Corporate Hangar near Taxiway G (see Attachment A, Figure 3). A field investigation was performed in accordance with the NJDEP's Division of Land Use Regulation Freshwater Wetlands Vernal Habitat Protocol to document existing conditions and to determine if the area meets the definition of vernal habitat.

The potential onsite vernal habitat was surveyed using both visual and aural identification techniques. Visual inspection techniques included wading into the ponded area and searching for potential vernal species, including egg masses and larvae. Leaf mats, emergent vegetation, rocks, and branches that had fallen into the water, were visually inspected for egg masses and/or spermatophors. Aural techniques included listening for the calls of frogs and toads associated with vernal habitat.

Vernal Habitat Assessment Survey Results

Habitat assessments conducted on April 29, May 19 and June 17, 2015 determined that the study area does not contain habitat consistent with a vernal pool. The area mapped as potential vernal

habitat is confined to a small, isolated depression along an exposed rock shelf. On April 29, 2015, the wetland contained an average of 1 to 3 inches of standing water with few pockets containing a maximum of 4 inches. Hydrology appeared to be influenced primarily by surface water runoff and the presence of impervious substrate. No obvious evidence of groundwater seepage or influence was identified. No standing water was present in subsequent site visits conducted on May 19 and June 17, 2015. Vegetation identified in the wetland included swamp candles (*Lysimachia terrestris*), sedges (*Carex* spp.), spike rush (*Eleocharis* sp.), fox sedge (*Carex vulpinoidea*), various grasses, soft rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), and aster (*Aster* sp.). Surrounding secondary growth forest and late successional upland field areas contained Eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), Eastern red cedar (*Juniperus virginiana*), and privet (*Ligustrum* sp.).

No vernal habitat species, obligate or facultative, were observed within the wetlands during the surveys. Additionally, there was no evidence of egg masses and/or spermatophors of vernal habitat species observed in the wetland. An abundance of mosquito larvae was noted during the first site visit on April 29, 2015; however, no other vernal pool invertebrates were identified.

Based on the above findings and observations, the onsite wetland does not contain habitat characteristics consistent with vernal pool classification.

Regulatory Implications and Discussion

A wetlands delineation of the entire airport was completed in May-June 2015. The area identified by NJDEP as potential vernal habitat was demarcated by Wetland Flags JJ1 through JJ17. No runway protection zone obstruction removal activities are proposed in the immediate vicinity of this wetland or any associated transition area (see Attachment A, Figure 4); therefore, no NJDEP approvals will be required and no further study of this feature is recommended at this time.

If you have any questions, please feel free to contact me at 908-788-9676, *extension 38,* or Bill Romaine of our office at *extension 35*.

Sincerely,
AMY S. GREENE ENVIRONMENTAL
CONSULTANTS, INC.

Jennifer LaStella, *Project Manager*

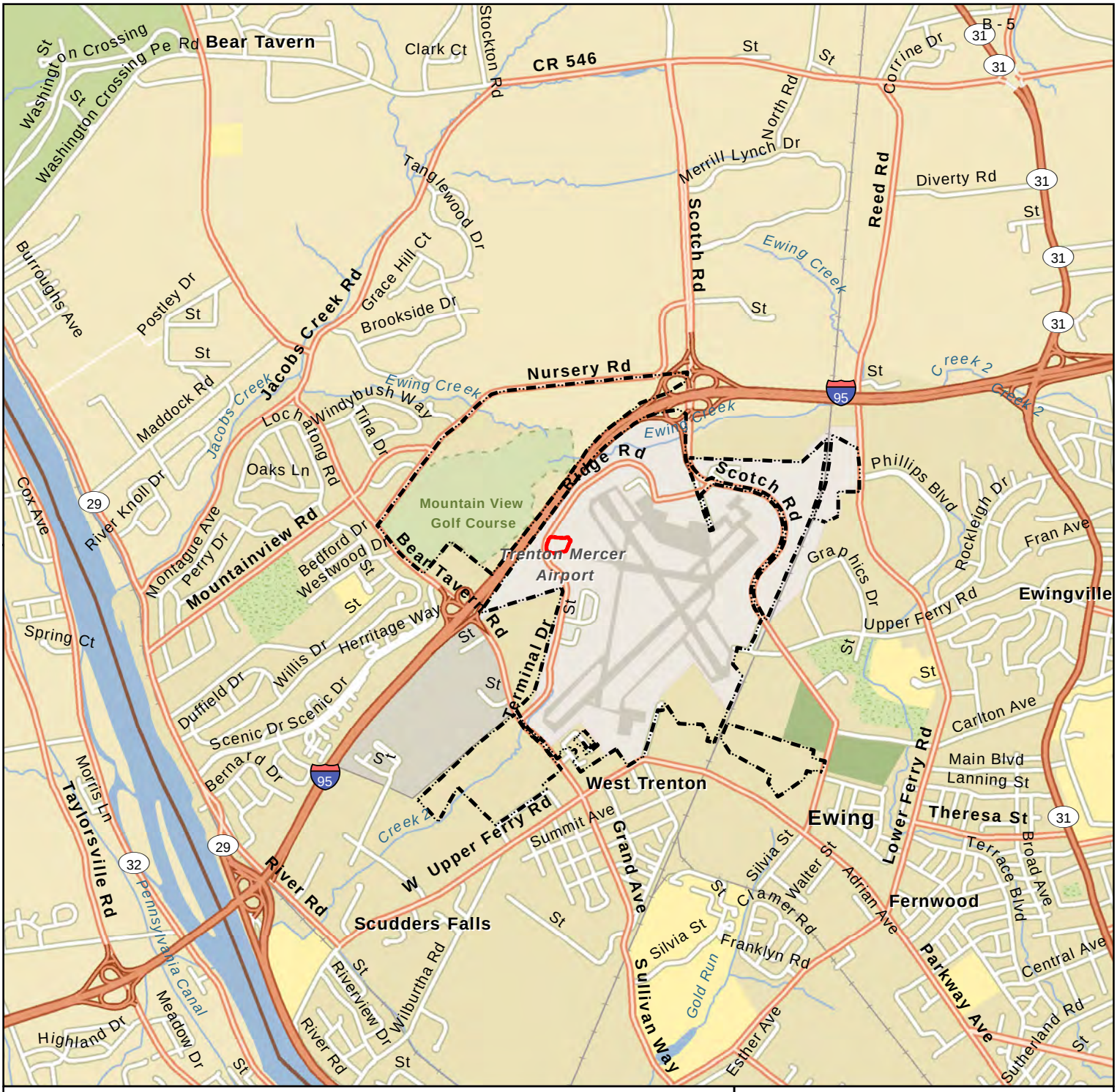
Attachments

cc: ASGECI – Bill Romaine, Tom Brodde, File #3200

ATTACHMENT A
Vernal Habitat Assessment Survey Results
Trenton-Mercer Airport
Portion of Block 373, Lot 6
Ewing Township, Mercer County, New Jersey
ASGECI Project #3200

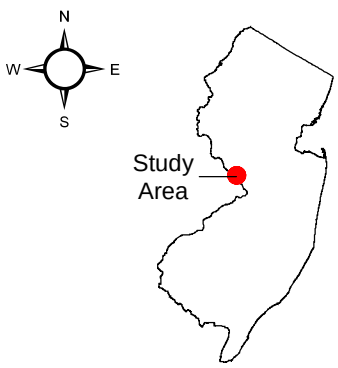
FIGURE MAPS

Figure 1 – County Road Map
Figure 2 – USGS Topographic Map
Figure 3 – NJDEP Vernal Habitat Map
Figure 4 – Obstructions Map



Legend

- Study Area
- Airport Property Line



Source:
ESRI Street Map North America, Tele Atlas North America, Inc., published by ESRI® Data & Maps, Redlands, California, 2010.

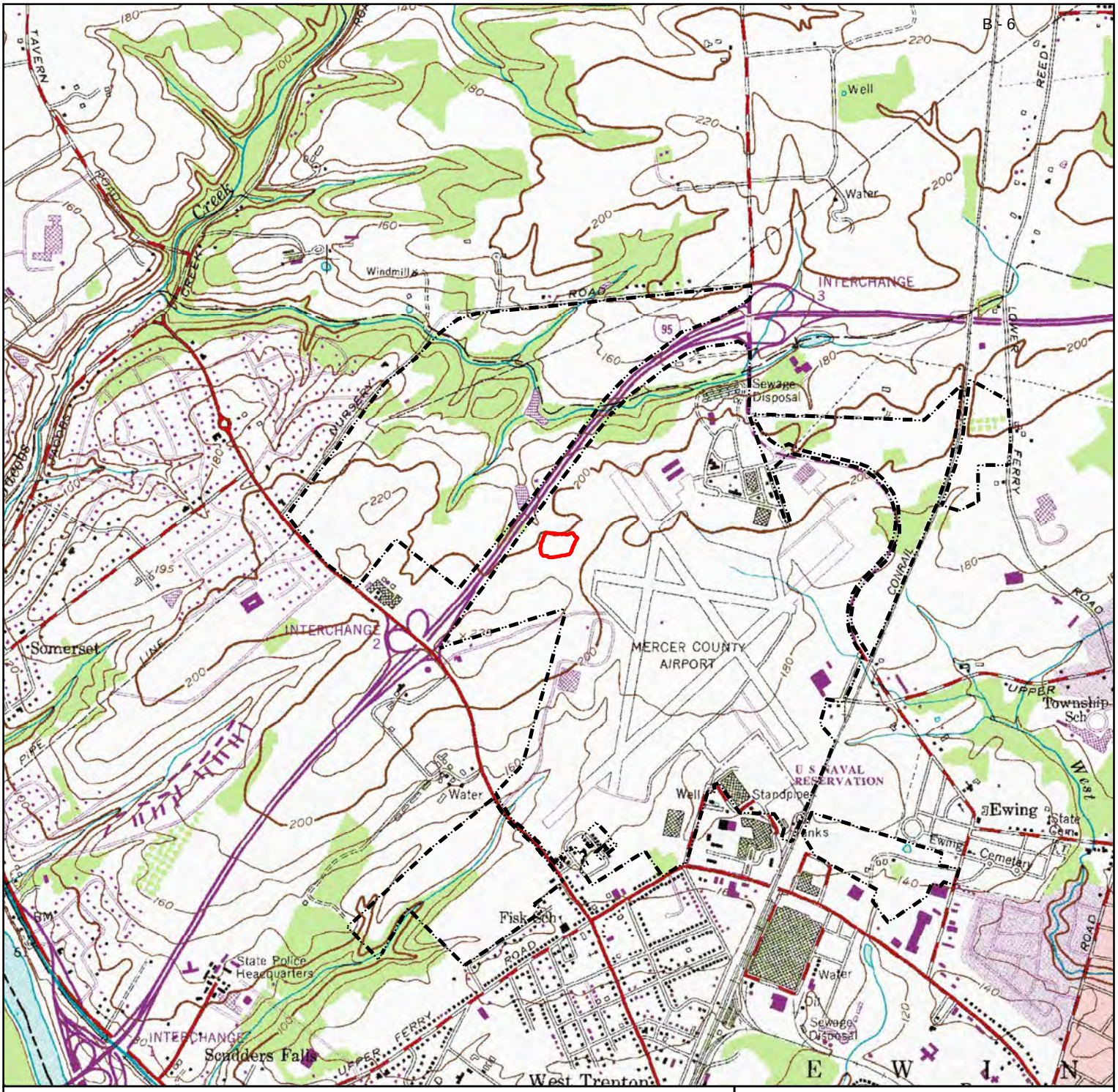
Figure 1
County Road Map

Vernal Habitat Assessment
Trenton - Mercer Airport
Block 373; Lot 6
Ewing Township
Mercer County, New Jersey

ASGECI Project # 3200

3,000
Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS



Legend

- Study Area
- Airport Property Line

New Jersey State Plane Coordinates in NAD83 for approximate center of study area - North: 527,296' // East: 402,528'

Latitude and Longitude Coordinates in NAD83 for approximate center of study area - N: 40° 16‘ 50.24“ / W: 74° 49‘ 16.15“

Source:
Bit-Mapped 7.5 Minute Color Topographic Images of New Jersey, United States Geological Survey (USGS), Digital Raster Graphic (DRG) Topographic Series Map, Pennington NJ/PA Quadrangle, USGS, Reston, Va., January 9, 1996.

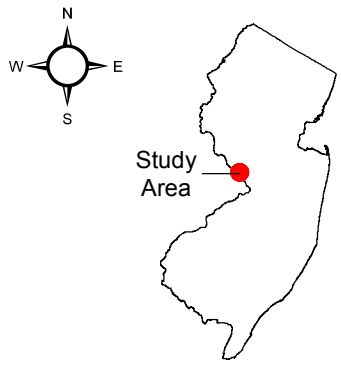


Figure 2
USGS Topographic Map

Vernal Habitat Assessment
Trenton - Mercer Airport
Block 373; Lot 6
Ewing Township
Mercer County, New Jersey

ASGECI Project # 3200

2,000
Feet

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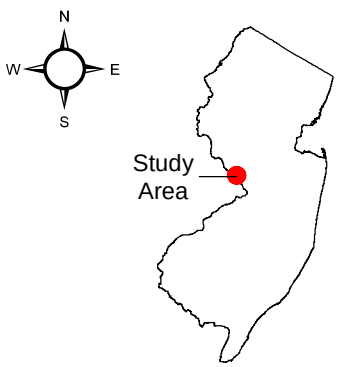
Legend

- Study Area
- Airport Property Line
- Potential vernal habitat area



Source:
NJDEP Species Based Habitat, Vernal Habitat (Version 3.1), New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Endangered Non-Game Species Program, NJ Division of Fish and Wildlife, Trenton, NJ, February 2012. New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles, State of New Jersey - Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, March 2013. This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Figure 3
NJDEP Vernal Habitat Map

Vernal Habitat Assessment
Trenton - Mercer Airport
Block 373; Lot 6
Ewing Township
Mercer County, New Jersey

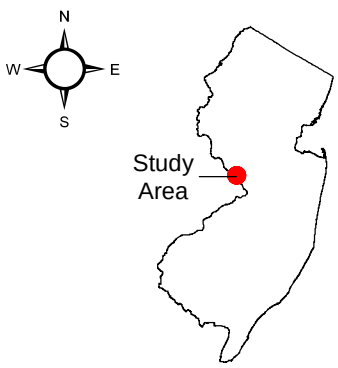
ASGECI Project # 3200

1,500
Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS

Legend

- Study Area
- Airport Property Line
- Tree Canopy Obstruction



Source:
Airport Property Line and Tree Canopy Obstruction Areas provided by C&S Engineers, Inc., Syracuse, NY, Runway Protection Zone & Obstruction Removal Environmental Assessment Plan, March 2015.
New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles, State of New Jersey - Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, March 2013.

Figure 4
Obstructions Map

Vernal Habitat Assessment
Trenton - Mercer Airport
Block 373; Lot 6
Ewing Township
Mercer County, New Jersey

ASGECI Project # 3200

600
Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS

ATTACHMENT B
Vernal Habitat Assessment Survey Results
Trenton-Mercer Airport
Portion of Block 373, Lot 6
Ewing Township, Mercer County, New Jersey
ASGECI Project #3200

PHOTOGRAPHS WITH DESCRIPTIONS

Photo A – View, facing northwest, of the area mapped as potential vernal habitat on April 29, 2015. The area contained an average of 1-3 inches of standing water.

Photo B – View, facing north-northwest, of the area mapped as potential vernal habitat on April 29, 2015.

Photo C – View, facing southwest, of the northwestern portion of the mapped potential vernal pool area, which contained no standing water on April 29, 2015.

Photo D – View, facing southwest, showing an isolated pocket of standing water in the western portion of the mapped potential vernal pool on April 29, 2015. The exposed rock shelf is especially visible in the upper right portion of the photograph..

Photo E – View, facing south, of the area mapped as potential vernal pool on May 19, 2015. No standing water was present and vegetation cover increased since the previous site visit.

Photo F – View, facing north, of the area mapped as potential vernal pool on May 19, 2015.

Photo G – View of the area mapped as potential vernal habitat on June 17, 2015. No standing water was present.

Photo H – View of the area mapped as potential vernal habitat on June 17, 2015.

Photo I – View of the area mapped as potential vernal habitat on June 17, 2015.

ATTACHMENT C
Vernal Habitat Assessment Survey Results
Trenton-Mercer Airport
Portion of Block 373, Lot 6
Ewing Township, Mercer County, New Jersey
ASGECI Project #3200

VERNAL POOL DATA SHEETS

VERNAL POOL DATA SHEET

New Jersey Division of Fish and Wildlife

Endangered and Nongame Species Program

GENERAL INFO

SITE NAME: _Trenton-Mercer Airport_____ OBSERVER:__Bill Romaine / Jen LaStella_____

ORGANIZATION: _Amy S. Greene Env. Consultants, Inc._ DATE:_April 29, 2015___ COUNTY:_Mercer___

MUNICIPALITY: _Ewing Township_____ TOPO QUAD: _Newtown East and Newtown West, NJ_____

DIRECTIONS TO SITE: _From Trenton: Route 29 North, right onto Route 579, Right onto Sam Weintroth Rd._ _Site on right after Airport Terminal. Escort required to access study area._____ _____

POOL CHARACTERISTICS

POOL TYPE (check): _X_natural swale/depression ___excavated pit/ditch __impoundment

WATER LEVEL (check): __full _X_>50%full __<50%full __dry

POOL DIMENSIONS (at max capacity): _30_m x _20_m

WATER QUALITY (check): __clear _X_ tea-colored __algae-green

STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):

__5%__trees _5%_scrub/shrub ___floating vegetation _90%_emergent vegetation / bare ground

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional): _Swamp candles (*Lysimachia terrestris*), sedges (*Carex* spp.), spike rush (*Eleocharis* sp.), fox sedge (*Carex vulpinoidea*), various grasses, soft rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), and aster (*Aster* sp.). Surrounding secondary growth forest and late successional upland field areas contained Eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), Eastern red cedar (*Juniperus virginiana*), and privet (*Ligustrum* sp.).

LANDSCAPE CONTEXT (check all that apply): _X_upland forest __forested wetlands

__emergent/scrub-shrub wetland __agricultural field/grassland _X_suburban / commercial and airport

STRUCTURE OF HABITAT WITHIN 100m OF POOL: _Secondary growth upland forest and late successional field._____

GENERAL NOTES/COMMENTS: _Area mapped as potential vernal habitat is confined to a small, isolated depression along an exposed rock shelf with an average of 1-3 inches of standing water (max. 4 inches). Hydrology appeared to be influenced primarily with surface water runoff and the presence of impervious substrate. No obvious evidence of groundwater seepage or influence was identified. April precipitation totals (Ewing, NJ): 2.5 inches._____

	Please check appropriate box				
	STATUS	**ADULT**	**JUVENILE/LARVA**	**VOCALIZATION**	**EGG MASS**
OBLIGATE VERNAL POOL HERPETOFAUNA					
1) spotted salamander (*Ambystoma maculatum*)	stable				
2) eastern tiger salamander (*Ambystoma t. tigrinum*)	**endangered**				
3) marbled salamander (*Ambystoma opacum*)	special concern				
4) Jefferson salamander (*Ambystoma jeffersonianum)*	special concern				
5) blue-spotted salamander (*Ambystoma laterale*)	**endangered**				
6) Jefferson x blue-spotted salamander (Ambystoma jeffersonianum x laterale)	*no status*				
7) wood frog (*Rana sylvatica*)	stable				
8) eastern spadefoot toad (*Scaphiopus holbrookii*)	unknown				
FACULTATIVE VERNAL POOL HERPETOFAUNA					
1) long-tailed salamander (*Eurycea l. longicauda*)	**threatened**				
2) red-spotted newt (*Notophalmus v. viridescens*)	stable				
3) four-toed salamander (*Hemidactylium scutatum*)	unknown				
4) northern spring peeper (*Pseudacris crucifer*)	stable				
5) New Jersey chorus frog (*Pseudacris triseriata kalmii*)	unknown				
6) upland chorus frog (*Pseudacris triseriata ferarium*)	unknown				
7) northern cricket frog (*Acris c. crepitans*)	stable				
8) northern gray treefrog (*Hyla versicolor*)	stable				
9) southern gray treefrog (*Hyla chrysoscelis*)	**endangered**				
10) pine barrens treefrog (*Hyla andersonii*)	**threatened**				
11) american toad (*Bufo americanus*)	stable				
12) fowlers toad (*Bufo woodhousii fowleri*)	special concern				
13) green frog (*Rana clamitans melanota*)	stable				
14) bullfrog (*Rana catesbeiana*)	stable				
15) carpenter frog (*Rana virgatipes*)	special concern				
16) pickerel frog (*Rana palustris*)	stable				
17) southern leopard frog (*Rana utricularia*)	stable				
18) spotted turtle (*Clemmys guttata*)	special concern				
19) wood turtle (*Clemmys insculpta*)	**threatened**				
20) eastern painted turtle (*Chrysemys p. picta*)	stable				
21) eastern mud turtle (*Kinosternon subrubrum*)	stable				
22) common snapping turtle (*Chelydra serpentina*)	stable				

VERNAL POOL INVERTEBRATES (Please check appropriate line)

mosquito X fairy shrimp __ caddisfly __ predaceous diving beetle __ crawling water beetle __ water scavenger beetle __
whirligig beetle __ damselfly __ dragonfly __ backswimmer __ water boatman __ water scorpion __ giant water bug __ water strider __
fishfly __ mayfly __ chironomid midge __ phantom midge __ springtail __ water mites __ amphipod __ isopod __
clam shrimp __ ostracod __ daphnia __ copepod __ snail __ fingernail clam __ horsehair worm __ planaria __ leech __
aquatic oligochaete worms __

Last Revised: 11/14/01

VERNAL POOL DATA SHEET

New Jersey Division of Fish and Wildlife

Endangered and Nongame Species Program

GENERAL INFO

SITE NAME: _Trenton-Mercer Airport_____ OBSERVER:_Doug Chabrak / Robert Piel_____

ORGANIZATION: _Amy S. Greene Env. Consultants, Inc._ DATE:_May 19, 2015___ COUNTY:_Mercer___

MUNICIPALITY: _Ewing Township_____ TOPO QUAD: _Newtown East and Newtown West, NJ_____

DIRECTIONS TO SITE: _From Trenton: Route 29 North, right onto Route 579, Right onto Sam Weintroth Rd._ _Site on right after Airport Terminal. Escort required to access study area._____ _____

POOL CHARACTERISTICS

POOL TYPE (check): _X_natural swale/depression ___excavated pit/ditch __impoundment

WATER LEVEL (check): __full ___>50%full __<50%full _X_>dry

POOL DIMENSIONS (at max capacity): _30_m x _20_m

WATER QUALITY (check): __clear ___ tea-colored __algae-green

STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):

__5%__trees _5%_scrub/shrub ___floating vegetation _90%_emergent vegetation / bare ground

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional): _Swamp candles (*Lysimachia terrestris*), sedges (*Carex* spp.), spike rush (*Eleocharis* sp.), fox sedge (*Carex vulpinoidea*), various grasses, soft rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), and aster (*Aster* sp.). Surrounding secondary growth forest and late successional upland field areas contained Eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), Eastern red cedar (*Juniperus virginiana*), and privet (*Ligustrum* sp.).

LANDSCAPE CONTEXT (check all that apply): _X_upland forest __forested wetlands

__emergent/scrub-shrub wetland __agricultural field/grassland _X_suburban / commercial and airport

STRUCTURE OF HABITAT WITHIN 100m OF POOL: _Secondary growth upland forest and late successional field._____

GENERAL NOTES/COMMENTS: _Area mapped as potential vernal habitat is confined to a small, isolated depression along an exposed rock shelf. Previously contained an average of 1-3 inches of standing water (max. 4 inches) on April 29, 2015. Area is now dry. April precipitation totals (Ewing, NJ): 2.5 inches; May precipitation totals to date (Ewing, NJ): 0.5 inches. Hydrology appears to be influenced primarily with surface water runoff and the presence of impervious substrate. No obvious evidence of groundwater seepage or influence was identified._____

	Please check appropriate box				
	STATUS	**ADULT**	**JUVENILE/LARVA**	**VOCALIZATION**	**EGG MASS**
OBLIGATE VERNAL POOL HERPETOFAUNA					
1) spotted salamander (*Ambystoma maculatum*)	stable				
2) eastern tiger salamander (*Ambystoma t. tigrinum*)	**endangered**				
3) marbled salamander (*Ambystoma opacum*)	special concern				
4) Jefferson salamander (*Ambystoma jeffersonianum)*	special concern				
5) blue-spotted salamander (*Ambystoma laterale*)	**endangered**				
6) Jefferson x blue-spotted salamander (Ambystoma jeffersonianum x laterale)	*no status*				
7) wood frog (*Rana sylvatica*)	stable				
8) eastern spadefoot toad (*Scaphiopus holbrookii*)	unknown				
FACULTATIVE VERNAL POOL HERPETOFAUNA					
1) long-tailed salamander (*Eurycea l. longicauda*)	**threatened**				
2) red-spotted newt (*Notophalmus v. viridescens*)	stable				
3) four-toed salamander (*Hemidactylium scutatum*)	unknown				
4) northern spring peeper (*Pseudacris crucifer*)	stable				
5) New Jersey chorus frog (*Pseudacris triseriata kalmii*)	unknown				
6) upland chorus frog (*Pseudacris triseriata ferarium*)	unknown				
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VERNAL POOL INVERTEBRATES (Please check appropriate line)

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whirligig beetle __ damselfly __ dragonfly __ backswimmer __ water boatman __ water scorpion __ giant water bug __ water strider __
fishfly __ mayfly __ chironomid midge __ phantom midge __ springtail __ water mites __ amphipod __ isopod __
clam shrimp __ ostracod __ daphnia __ copepod __ snail __ fingernail clam __ horsehair worm __ planaria __ leech __
aquatic oligochaete worms __

Last Revised: 11/14/01

VERNAL POOL DATA SHEET

New Jersey Division of Fish and Wildlife

Endangered and Nongame Species Program

GENERAL INFO

SITE NAME: _Trenton-Mercer Airport_____ OBSERVER: _Jen LaStella / Bill Romaine_____

ORGANIZATION: _Amy S. Greene Env. Consultants, Inc._ DATE: _June 17, 2015___ COUNTY: _Mercer___

MUNICIPALITY: _Ewing Township_____ TOPO QUAD: _Newtown East and Newtown West, NJ_____

DIRECTIONS TO SITE: _From Trenton: Route 29 North, right onto Route 579, Right onto Sam Weintroth Rd._ _Site on right after Airport Terminal. Escort required to access study area._____ _____

POOL CHARACTERISTICS

POOL TYPE (check): _X_natural swale/depression ___excavated pit/ditch __impoundment

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POOL DIMENSIONS (at max capacity): _30_m x _20_m

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STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):

__5%__trees _5%_scrub/shrub ___floating vegetation _90%_emergent vegetation / bare ground

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional): _Swamp candles (*Lysimachia terrestris*), sedges (*Carex* spp.), spike rush (*Eleocharis* sp.), fox sedge (*Carex vulpinoidea*), various grasses, soft rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), and aster (*Aster* sp.). Surrounding secondary growth forest and late successional upland field areas contained Eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), Eastern red cedar (*Juniperus virginiana*), and privet (*Ligustrum* sp.).

LANDSCAPE CONTEXT (check all that apply): _X_upland forest __forested wetlands

__emergent/scrub-shrub wetland __agricultural field/grassland _X_suburban / commercial and airport

STRUCTURE OF HABITAT WITHIN 100m OF POOL: _Secondary growth upland forest and late successional field._____

GENERAL NOTES/COMMENTS: _Area mapped as potential vernal habitat is confined to a small, isolated depression along an exposed rock shelf. Previously contained an average of 1-3 inches of standing water (max. 4 inches) on April 29, 2015. Area is now dry. April precipitation totals (Ewing, NJ): 2.5 inches; May precipitation totals (Ewing, NJ): 0.67 inches; June precipitation totals to date (Ewing, NJ): 3.5. Hydrology appears to be influenced primarily with surface water runoff and the presence of impervious substrate. No obvious evidence of groundwater seepage or influence was identified._____

	Please check appropriate box				
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5) New Jersey chorus frog (*Pseudacris triseriata kalmii*)	unknown				
6) upland chorus frog (*Pseudacris triseriata ferarium*)	unknown				
7) northern cricket frog (*Acris c. crepitans*)	stable				
8) northern gray treefrog (*Hyla versicolor*)	stable				
9) southern gray treefrog (*Hyla chrysoscelis*)	**endangered**				
10) pine barrens treefrog (*Hyla andersonii*)	**threatened**				
11) american toad (*Bufo americanus*)	stable				
12) fowlers toad (*Bufo woodhousii fowleri*)	special concern				
13) green frog (*Rana clamitans melanota*)	stable				
14) bullfrog (*Rana catesbeiana*)	stable				
15) carpenter frog (*Rana virgatipes*)	special concern				
16) pickerel frog (*Rana palustris*)	stable				
17) southern leopard frog (*Rana utricularia*)	stable				
18) spotted turtle (*Clemmys guttata*)	special concern				
19) wood turtle (*Clemmys insculpta*)	**threatened**				
20) eastern painted turtle (*Chrysemys p. picta*)	stable				
21) eastern mud turtle (*Kinosternon subrubrum*)	stable				
22) common snapping turtle (*Chelydra serpentina*)	stable				

VERNAL POOL INVERTEBRATES (Please check appropriate line)

mosquito _ fairy shrimp __ caddisfly __ predaceous diving beetle __ crawling water beetle __ water scavenger beetle __
whirligig beetle __ damselfly __ dragonfly __ backswimmer __ water boatman __ water scorpion __ giant water bug __ water strider __
fishfly __ mayfly __ chironomid midge __ phantom midge __ springtail __ water mites __ amphipod __ isopod __
clam shrimp __ ostracod __ daphnia __ copepod __ snail __ fingernail clam __ horsehair worm __ planaria __ leech __
aquatic oligochaete worms __

Last Revised: 11/14/01

ATTACHMENT D
Vernal Habitat Assessment Survey Results
Trenton-Mercer Airport
Portion of Block 373, Lot 6
Ewing Township, Mercer County, New Jersey
ASGECI Project #3200

OBLIGATE AND FACULTATIVE FAUNA SPECIES FOUND IN VERNAL HABITATS

OBLIGATE FAUNA SPECIES FOUND IN VERNAL HABITATS

Marbled Salamander
Blue-spotted Salamander (State Endangered)
Jefferson Salamander
Eastern Tiger Salamander (State Endangered)
Wood Frog
Spotted Salamander
Eastern Spadefoot Toad
Jefferson x Blue-spotted Salamander (State Endangered)
Fairy shrimp (order Anostraca)

FACULTATIVE FAUNA SPECIES FOUND IN VERNAL HABITATS

Snapping Turtle
Eastern Mud Turtle
Spotted Turtle
Eastern Painted Turtle
Red-spotted Newt
American Toad
Fowler's Toad
Pine Barrens Treefrog (State Threatened)
Northern Gray Treefrog
Southern Gray Treefrog (State Endangered)
Green Frog
Southern Leopard Frog
Four-toed Salamander
Northern Spring Peeper
Long-tailed Salamander (State Threatened)
Wood Turtle (State Threatened)

Sources: N.J.A.C. 7:7A, Appendix 1 (http://www.nj.gov/dep/rules/rules/njac7_7a.pdf)
NJ Division of Fish and Wildlife (http://www.state.nj.us/dep/fgw/tandespp.htm)

AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC.

WETLAND DELINEATION REPORT

TRENTON-MERCER AIRPORT

Ewing and Hopewell Townships
Mercer County, New Jersey

August 3, 2016

PREPARED FOR:

C&S Companies
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Buffalo, NY 14203
Attn.: Gayle McKee, *Project Manager*

PREPARED BY:

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ASGECI #3200

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Wetland Delineation Report
Trenton-Mercer Airport
Ewing and Hopewell Townships, Mercer County, New Jersey
ASGECI #3200

WETLAND DELINEATION SUMMARY

In 2015, AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC. (ASGECI) performed a delineation of wetlands and State Open Waters (SOW) on the entire Trenton-Mercer Airport property, excluding areas that were previously delineated and for which New Jersey Department of Environmental Protection (NJDEP) Letters of Interpretation, Regulatory Line Verifications (LOI-RLV) were previously obtained.

Trenton-Mercer Airport encompasses approximately 781 acres in the Townships of Ewing and Hopewell, Mercer County, New Jersey. ASGECI obtained LOI-RLVs from the NJDEP for a 34.22-acre portion of this property in 2011 (NJDEP File #1102-11-0001) and for a 58.7-acre portion in 2014 (NJDEP File #1102-12-0002.2). The remaining 688 acres were investigated and delineated by ASGECI in 2015 to identify all wetlands and SOWs located on airport property. The wetland delineation was performed on various dates in May and June, 2015 by ASGECI staff, including Jennifer LaStella, Bill Macholdt, Douglas Chabrak, Bill Romaine, Lynn Brass-Smith, and Robert Piel. The Wetland Delineation Map as provided with this document (see Section #6) reflects all wetlands and SOWs on the airport properties as identified and delineated in the 2011, 2014, and 2015 delineations.

I. SITE DESCRIPTION

Trenton-Mercer Airport encompasses approximately 781 acres in the Townships of Ewing and Hopewell, Mercer County, New Jersey. The airport is located south of Interstate Route 95 and includes lands that are bound and/or adjacent to local roadways including Bear Tavern Road to the west, Parkway Avenue and Sunset Avenue to the south, and Scotch Road and Lower Ferry Road to the east (see Figure 1, Site Location Map in Section 2). The airport consists of runways, taxiways, and service roads; terminal, administrative, hangars, and other airport structures; expansive areas of regularly maintained fields; secondary growth forest; woody old fields; and wetlands. Additionally, the subject property also includes Mountain View Golf Course, which is located northwest of Route 95 and is approximately bound by Bear Tavern Road to the west, Nursery Road to the north, and Scotch Road to the east.

The topography of the properties that comprise the study area is variable from relatively flat (areas within the airport proper) to moderate to steeply sloping in undeveloped areas located north and west of the airport property (see Figure 2, USGS Topographic Map in Section 2).

Various wetland and upland communities have been identified within the lands that are the subject of this delineation report. The delineated wetland communities include areas of palustrine forested, scrub-shrub, and emergent wetlands; areas of State open water have also been identified and delineated. Identified upland communities include areas of successional

forest, woody old field, early and late successional field, and maintained lawn and field areas especially within the confines of the airport proper.

Lands in the northern portions of the subject property are tributary to Ewing Creek, which crosses through this area and is classified as Freshwater, Non-Trout (FW2-NT) waters by the NJ Surface Water Quality Standards. Lands in the eastern portions of the subject property are tributary to the West Branch Shabakunk Creek which is also classified as FW2-NT waters. Lands in the western portions of the subject property are tributary to an unnamed tributary to the Delaware River which is also classified as FW2-NT waters. Each of the aforementioned tributaries ultimately drain to the Delaware River, which is located to the west of the subject properties.

II. WETLANDS DEFINITION AND METHODOLOGY

A wetland is defined by the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-3) as:

> "An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation."

Wetlands generally include swamps, marshes, bogs, and similar areas. The NJDEP regulates the filling of SOW and disturbance of wetlands under the NJ Freshwater Wetlands Protection Act. The NJDEP has adopted the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (January, 1989) as the technical basis for delineating wetlands in New Jersey. This manual was prepared by the Federal Interagency Committee for Wetland Delineation (FICWD) consisting of representatives from the US Army Corps of Engineers, US Environmental Protection Agency, the US Fish and Wildlife Service (USFWS), and the USDA Soil Conservation Service (SCS). In accordance with this methodology, the following three parameters are diagnostic of wetlands: 1) the land is dominated by hydrophytes; 2) the substrate is undrained hydric soil; and 3) the substrate is saturated with groundwater or flooded for a significant part (1 week or more) of the growing season each year. All three parameters must be present in order for an area to be identified as wetland, unless abnormal circumstances are determined to be present.

A hydrophyte is any plant "growing in water, soil, or on a substrate that is at least periodically deficient of oxygen as a result of excessive water content" (FICWD, 1989). Since most plant species tolerate a range of growing conditions, individual species are not restricted to either wetland or upland communities. The USFWS (USFWS, 1996) has developed a classification scheme that assigns species to wetland indicator classes according to the following rule:

Plant Affinity for Wetland Conditions

Classification	% Occurrence in Wetlands
Obligate (OBL)	> 99
Facultative Wet (FACW)	67 - 99
Facultative (FAC)	34 - 66
Facultative Upland (FACU)	1 - 33
Upland (UPL)	< 1

Hydrophytic vegetation is present if greater than 50% of the dominant plant species from all strata are OBL, FACW, and/or FAC. When greater than or equal to 50% of the dominant species are FACU and/or UPL and hydric soils and wetland hydrology are present, the area is also considered to have hydrophytic vegetation. If hydric soils and wetland hydrology are lacking, and normal circumstances exist, than an area is considered to be upland. In order to determine the dominance of each plant species, the cover class (based on percent aerial cover) is recorded within a 1/100-acre circular (11.78 ft radius) plot. Plot size may vary depending on the size of the community. Relative basal area is determined for each canopy species using a plotless method.

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in a major part of the root zone. Soils are considered hydric when they are 1) somewhat poorly drained and have a seasonal high water table less than 0.5 ft from the surface or 2) poorly drained or very poorly drained and have a seasonal high water table less than 1.0 or 1.5 ft from the surface. This high water table must be present for a week or more during the growing season (FICWD, 1989). Soils that are ponded or flooded for long or very long duration during the growing season are also classified as hydric. All organic soils (histosols) or mineral soils with a histic epipedon are hydric soils.

In the field, a hand-held auger is used for sampling the soil to examine indicators of hydric soils such as low chroma colors, mottling, organic accumulation, and high water table. Soils are generally examined to a depth of 18 - 24 inches. Hydric conditions for mineral soils with low to moderate organic content are most commonly demonstrated by gleying and mottling. Mineral soils are examined with a Munsell Soil Color Chart (Kollmorgan Corp, 1985). These soils are considered hydric when they are gleyed or when the top of the B horizon has chroma of 2 or less if mottling is present, or chroma of 1 or less if no mottling is present. Low chroma numbers are an index of the degree of soil reduction as a result of anaerobic soil conditions. These criteria allow most soils to be classified as either hydric or nonhydric. Hydric soils that have been effectively drained may, however, still show low chroma colors, but are no longer considered to be hydric because they lack the hydrology. Low chroma colors may also not be used as an indicator of hydric soils in those soils that are sandy, are deeply colored as a result of their parent materials, or have recently been formed (i.e., alluvial). These soils must be evaluated more carefully under the procedures for problem area wetlands outlined by the Federal Manual (FICWD, 1989).

Wetland hydrology encompasses the hydrologic characteristics of areas that are inundated or have saturated soils for sufficient duration to support hydrophytic vegetation. Hydrologic indicators are generally used to determine the presence or absence of a wetland. Of the three technical criteria, wetland hydrology is generally the least exact and most difficult to establish in the field due to annual, seasonal, and daily fluctuations (FICWD, 1989). An area has wetland hydrology if the soil is saturated to the surface by groundwater or ponded or flooded with surface water for one week or more during the growing season. Saturation to the surface can occur when the water table is 0.5 to 1.5 ft below the surface depending on soil permeability.

Indicators of wetland hydrology are divided into recorded data and field data. Recorded data may be obtained from aerial photographs, soil surveys, historical data, floodplain delineations, or tide/stream gauges. In the field, wetland hydrology may be evidenced by visual observation of saturation, inundation, or depth to standing water; however, it is not necessary to directly demonstrate the hydrology. Other field indicators of wetland hydrology include morphological plant adaptations, oxidized root channels, water marks, surface scouring, water-stained leaves, sediment deposits, drift lines, and moss lines. Unless an area has been hydrologically modified, the hydrologic parameter may also be inferred from the soil profile.

III. 2015 WETLAND DELINEATION

Existing published information was studied to determine the approximate extent of wetlands in the study area. Vegetation, soils, and hydrology were examined for evidence of wetland characteristics according to the aforementioned methodology outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee on Wetland Delineation, 1989). Use of this methodology is required by the NJDEP Division of Land Use Regulation in accordance with the New Jersey Freshwater Wetlands Protection Act Rules.

With exception of areas previously delineated in 2011 and 2014 (approximately 93 acres total), a field investigation was performed on various dates in May and June 2015 to demarcate the boundary of wetlands and SOWs located on the remainder of the airport property (688 acres). The ASGECI field delineated wetlands generally concur with the NJDEP wetlands mapping for the site (see Section #2, Figure 5).

A total of 41 wetland and SOW complexes were identified during the 2015 delineation, as follows:

- Wetland AA, designated as Flags AA1-AA13, delineates a manmade, emergent wetland basin situated between Taxiway G and Departure End of Runway 6;
- Wetland BB/CC, designated as Flags BB1-BB13 and CC1-CC8, consists of a manmade, emergent wetland swale located along Taxiway A and Tower Road, beginning at an outfall along the taxiway;
- Wetland DD, designated as DD1-DD8, demarcates an isolated emergent wetland located west-southwest of Taxiway G;
- Wetland EE, designated as Flags EE1-EE6, delineates an isolated emergent wetland located west-southwest of Taxiway G;
- Wetland FF, designated as Flags FF1-FF6, consists of an isolated emergent wetland located west-southwest of Taxiway G;

- Wetland GG, designated as Flags OWGG1-GG12 and including Flag OWGG3/GG3, delineates SOWs and forested wetlands along a stream channel, located southwest of Scotch Road and northwest of the railroad;
- Wetland HH, designated as Flags HH1-HH26 and including SOWs between Flags OWHH9/HH9 and OWHH21/HH21, delineates forested/scrub-shrub wetland fringe and SOWs associated with a stream channel, located southwest of Scotch Road and northwest of the railroad;
- Wetland II, designated as Flags II1 through II59, demarcates a forested/emergent wetland complex located between the railroad and Scotch Road;
- Wetland JJ, designated as Flags JJ1 through JJ17, delineates an isolated emergent/scrub-shrub wetland located east of Sam Weinroth Road and north of the terminal;
- Wetland KK, designated as Flags KK1 through KK3, delineates an isolated emergent wetland located east of Sam Weinroth Road and north of the terminal;
- Wetland LL, designated as Flags LL1 through LL12, demarcates a manmade, emergent wetland swale located east of Sam Weinroth Road and north of the terminal;
- Wetland MM, designated as Flags OWMM1 through OWMM80 and including emergent/scrub-shrub wetlands between Flags OWMM3/MM3 and MM78/OWMM78, delineates a SOW and wetland complex associated with an unnamed tributary to the Delaware River, located southwest of Bear Tavern Road;
- Wetland NN/OO, designated as Flags OWNN1 through NN50 (including Flag OWNN3/NN3) and Flags OO1 through OO33/OWO33, delineates a SOW and forested/emergent wetland complex associated with an unnamed tributary to the Delaware River, located southwest of Bear Tavern Road;
- Wetland PP, designated as Flags PP1 through PP6, demarcates an emergent wetland located along a farm access road and northwest of Sunset Avenue;
- Wetland QQ/RR, designated as Flags QQ1 through OWQQ45 (including Flag QQ40/OWQQ40) and Flags RR1 through RR12, delineates a forested/emergent wetland and SOW complex located west-northwest of Sunset Avenue;
- Wetland SS, designated as Flags SS1 through SS13 and including SOWs between Flags SS6/OWSS6 and OWSS11/SS11, demarcates a forested wetland and SOW complex associated with an unnamed tributary to the Delaware River, located southeast of Sam Weinroth Road and northwest of Taxiway J;
- Wetland TT, designated as Flags TT1 through TT137 and including numerous SOW line segments, delineates a forested/emergent wetland and SOW complex located southeast of Sam Weinroth Road, northwest of Taxiway J, and south of the Terminal Parking Lot;
- Wetland UU, designated as Flags UU1 through UU4, delineates an emergent wetland located southwest of Bear Tavern Road;
- Wetland VV, designated as Flags VV1 through VV16, demarcates a forested wetland located adjacent to a soccer field and northeast of Parkway Avenue.
- Wetland WW, designated as Flags WW1 through WW22, delineates an emergent wetland located west-northwest of the Ewing Branch Library on Scotch Road;
- Wetland XX, designated as Flags XX1 through XX47, delineates a forested wetland located west of Ewing Branch Library on Scotch Road;
- Wetland YY, designated as Flags YY1 through YY29, consists of a forested wetland located north-northeast of Parkway Avenue and southeast of the railroad.

- Wetland ZZ, designated as Flags ZZ1 through ZZ34, delineates a forested wetland located near the intersection of Jack Stephan Way and Parkway Avenue;
- Wetland BA/CA, designated as Flags BA55 through BA68 (including Flags BA15/OWBA15 and OWBA17/BA17) and Flags CA1 through CA27, delineates a SOW and forested wetland complex located northwest of Jake Garzio Drive and west of Lower Ferry Road [Please note that a portion of this line (Flags BA1 through BA55) was demarcated on non-airport, County-owned land];
- Wetland DA, designated as Flags DA1 through DA6, delineates an isolated scrub-shrub/emergent wetland located west of Lower Ferry Road;
- Wetland EA, designated as Flags EA1 through EA4, delineates an isolated emergent wetland located west of Lower Ferry Road;
- Wetland FA, designated as Flags FA1 through FA181 and including numerous SOW line segments, delineates a forested wetland and SOW complex located north of Sam Weinroth Road, southeast of Route 95, and west of Scotch Road;
- Wetland GA, designated as Flags GA1 through GA11, delineates an isolated, manmade emergent swale located west of Scotch Road;
- Wetland HA, designated as Flags HA1 through HA11, delineates an emergent wetland located southeast of Route 95;
- Wetland IA, designated as Flags IA1 through IA67, demarcates a highly disturbed, scrub-shrub/emergent wetland located west of Sam Weinroth Road and southeast of Route 95;
- Wetland JA, designated as Flags JA1 through JA25, delineates an isolated emergent wetland located west of Sam Weinroth Road and east of the maintenance yard;
- Wetland KA, designated as Flags KA1 through KA5, delineates an isolated emergent wetland located west of Sam Weinroth Road near the eastern side of the maintenance yard;
- Wetland LA, designated as Flags LA1 through LA8, consists of a manmade, emergent wetland swale located along the west side of Sam Weinroth Road, just north of the maintenance yard access road;
- Wetland MA, designated as Flags MA1 through MA28 and including Flags OWMA28A through OWMA28J, delineates a manmade, emergent wetland ditch/swale and SOW ditch situated parallel to Sam Weinroth Road;
- Wetland NA, designated as Flags NA1 through NA7, delineates a manmade, emergent wetland ditch located at the intersection of Bear Tavern Road and Sam Weinroth Road.
- Wetland OA, designated as Flags OA1 through OA24, delineates an isolated forested wetland located west of Lower Ferry Road;
- Wetland PA, designated as Flags PA1 through OWPA296 and including numerous SOW line segments, delineates a forested wetland and SOW complex located south of Nursery Road and north of the Mountain View Golf Course;
- Wetland QA, designated as Flags QA1 through QA82 and including several SOW line segments, delineates an emergent wetland and SOW complex within the Mountain View Golf Course and located northwest of Route 95;
- Wetland RA, including Flags RA1 through RA97 and including several SOW line segments, delineates a forested/emergent wetland and SOW complex within the Mountain View Golf Course and located northwest of Route 95;

- Wetland SA, designated as Flags SA1 through SA68, delineates a series of wetland ditches and an scrub-shrub/emergent wetland area located along the northern perimeter of the Mountain View Golf Course and southeast of Nursery Road; and
- Wetland OWTA, designated as Flags OWTA1 through OWTA13, delineates a SOW ditch located parallel to the northwest side of Sam Weinroth Road.

During the field investigation, wetlands and SOWs were identified that were associated with one of three subwatersheds:

- Jacobs Creek (below/including Woolsey Brook)
- Mercer (Calhoun Street to Jacobs Creek)
- Shabakunk Creek West Branch (WB)

A. Vegetation

Wetland Communities

Vegetation within the study area was documented at 40 Sampling Stations (see Section #3 for datasheets and Section #4 for representative photographs of wetland and upland areas onsite).

Vegetation within forested wetlands (Wetlands GG, HH, II, NN/OO, QQ/RR, SS, TT, VV, XX, ZZ, BA/CA, FA, OA, PA, and RA) generally consisted of silver maple (*Acer saccharinum,* FACW), black willow (*Salix nigra,* OBL), green ash (*Fraxinus pennsylvanica,* FACW), red maple (*Acer rubrum,* FAC), pin oak (*Quercus palustris,* FACW), slippery elm (*Ulmus rubra,* FAC), tulip poplar (*Liriodendron tulipifera,* FACU), sweetgum (*Liquidiambar styraciflua,* FAC), swamp white oak (*Quercus bicolor,* FACW), black walnut (*Juglans nigra,* FACU), box elder (*Acer negundo,* FAC), American elm (*Ulmus americana,* FACW), and black gum (*Nyssa sylvatica,* FAC) in the canopy layer; red maple, silver maple, green ash, black gum, pin oak, and black willow saplings; Northern spicebush (*Lindera benzoin,* FAC), Southern arrowwood (*Viburnum dentatum,* FAC), silky dogwood (*Cornus amomum,* FACW), common winterberry (*Ilex verticillata,* FACW), and multiflora rose (*Rosa multiflora,* FACU) in the shrub layer; poison ivy (*Toxicodendron radicans,* FAC) and Japanese honeysuckle (*Lonicera japonica,* FAC) in the woody vine layer; and green ash seedlings, pin oak seedlings, Japanese stiltgrass (*Microstegium vimineum,* FAC), tussock sedge (*Carex stricta,* OBL), spotted jewelweed (*Impatiens capensis,* FACW), manna grass (*Glyceria* sp.), arrow-leaf tearthumb (*Persicaria sagittata,* OBL), blueflag (*Iris versicolor,* OBL), bayonet rush (*Juncus militaris,* OBL), reed canary grass (*Phalaris arundinacea,* FACW), mild water pepper (*Persicaria hydropiper,* OBL), jack-in-the-pulpit (*Arisaema triphyllum,* FACW), sedges (*Carex* spp.), lady's thumb (*Persicaria maculosa,* FACW), fringed sedge (*Carex crinite,* OBL), sweetflag (*Acorus calamus,* OBL), sensitive fern (*Onoclea sensibilis,* FACW), skunk cabbage (*Symplocarpus foetidus,* OBL), greater bladder sedge (*Carex intumescens,* FACW), horsetail spike rush (*Eleocharis equisetoides,* OBL), cinnamon fern (*Osmundastrum cinnamomeum,* FACW), soft rush (*Juncus effusus,* FACW), rice cut grass (*Leersia oryzoides,* OBL), beggarticks (*Bidens* sp.), sallow sedge (*Carex lurida,* OBL), common reed (*Phragmites australis,* FACW), spikerush (*Eleocharis* sp.), netted chain fern (*Woodwardia areolata,* FACW), marsh fern (*Thelypteris palustris,* FACW), moneywort (*Lysimachia nummularia,* FACW), goldenrod (*Solidago* sp.), purple loosestrife

(*Lythrum salicaria*, FACW), cinquefoil (*Potentilla* sp.), and water purslane (*Didiplis diandra*, OBL) in the herbaceous layer.

Vegetation within scrub-shrub/emergent wetlands (Wetlands JJ, MM, DA, EA, IA, and a portion of SA) generally contained green ash, eastern cottonwood (*Populus deltoides,* FACW), black willow, and box elder saplings; silky dogwood, multiflora rose, Northern spicebush, and autumn olive (*Elaeagnus umbellate*, UPL) in the shrub layer; poison ivy in the woody vine layer; and blunt broomsedge (*Carex tribuloides,* FACW), various sedges, fringed sedge, sensitive fern, moneywort, spotted jewelweed, black willow seedlings, tussock sedge, purple loosestrife, soft rush, smartweed (*Persicaria* sp.), boneset (*Lysimachia nummularia*, FACW), sweetgum seedlings, manna grass, Pennsylvania smartweed (*Persicaria pensylvanica,* FACW), broadleaf cattail (*Typha latifolia*, OBL), blunt broom sedge (*Carex tribuloides*, FACW), Canadian clearweed (*Pilea pumila,* FACW), path rush (*Juncus tenuis,* FAC), dogbane (*Thyrsanthella difformis*, FACW), fox sedge (*Carex triangularis,* FACW), Japanese stiltgrass, water horehound (*Lycopus amplectens*, OBL), and reed canary grass in the herbaceous layer.

Vegetation within emergent wetlands (Wetlands DD, EE, FF, KK, LL, MM, WW, HA, JA, KA, QA, and a portion of RA) generally consisted of spikerush, sedges, curly dock (*Rumex crispus,* FAC), broadleaf cattail, soft rush, blunt broomsedge, sedges, Japanese stiltgrass, common reed, sweetflag, sensitive fern, jewelweed, tussock sedge, manna grass, reed canary grass, river bulrush (*Schoenoplectus fluviatilis,* OBL), spatter dock (*Nuphar advena*, OBL), greater bladder sedge, mild water pepper, beggarticks, false nettle (*Boehmeria cylindrical,* FACW), fox sedge, sweetflag, moneywort, purple loosestrife, lady's thumb, blueflag, and goldenrod in the herbaceous layer.

Vegetation within manmade emergent wetland basins (Wetland AA), emergent wetland swales (Wetland BB/CC, LL, GA, and LA), and emergent wetland ditches (Wetland MA, NA, a portion of PA, and SA), contained spikerush, reed canary grass, Kentucky bluegrass (*Poa pratensis,* FACU), soft rush, broadleaf cattail, swamp loosestrife (*Decodon verticillatus,* OBL), curly dock, various grasses, arrow-leaf tearthumb, sensitive fern, manna grass, Japanese stiltgrass, lady's thumb, purple loosestrife, beggarticks, jack-in-the-pulpit, jewelweed, rice cut grass, marsh fern, dark green bulrush (*Scirpus atrovirens*, OBL), fox sedge, duckweed (*Lemna minor,* OBL), and moneywort in the herbaceous layer.

Vegetation that dominated the onsite wetlands is classified as hydrophytic.

Upland Communities

Vegetation within the secondary growth upland forests consisted primarily of tulip poplar, black oak (*Quercus veluntina*, UPL), Northern white oak (*Quercus alba,* FACU), Eastern red cedar (*Juniperus virginiana,* FACU), Northern red oak (*Quercus rubra*, FACU), pignut hickory (*Carya glabra*, FACU), black walnut, Eastern white pine (*Pinus strobus,* FACU), box elder, American beech (*Fagus grandifolia*, FACU), Eastern cottonwood, Norway maple (*Acer platanoides,* UPL), Norway spruce (*Picea abies*, UPL), common hackberry (*Celtis occidentalis*, FACU), Southern catalpa (*Catalpa bignonioides,* FACU), sugar maple (*Acer saccharum,* FACU), black locust (*Robinia pseudoacacia*, FACU), black cherry (*Prunus serotina,* FACU), red maple, osage orange (*Maclura pomifera,* UPL), shagbark hickory (*Carya ovata,* FACU), sassafras (*Sassafras albidum,*

FACU), Japanese maple (*Acer palmatum*), and tree-of-heaven (*Ailanthus artissima,* FACU) in the canopy; blue beech (*Carpinus caroliniana*, FAC), staghorn sumac (*Rhus typhina,* UPL), black cherry and crab apple (*Malus* sp.) saplings; Northern spicebush, Tartarian honeysuckle (*Lonicera tatarica,* FACU), Japanese barberry (*Berberis thunbergii,* FACU), autumn olive, black raspberry (*Rubus occidentalis*, UPL), greenbrier (*Smilax rotundifolia,* FAC), multiflora rose, wineberry (*Rubus phoenicolasius*, FACU), and black haw (*Viburnum prunifolium,* FACU) in the shrub layer; raspberry (*Rubus* sp.), grape (*Vitis* sp.), Oriental bittersweet (*Maclura pomifera,* FACU), and poison ivy in the woody vine layer; and Japanese stiltgrass, Japanese honeysuckle (*Lonicera japonica,* FAC), common milkweed (*Asclepias syriaca,* FACU), pachysandra (*Pachysandra* sp.), American pokeweed (*Phytolacca americana,* FACU), white snakeroot (*Ageratina altissima*, FACU), common mugwort (*Artemisia vulgaris*, UPL), multiflora rose, spotted jewelweed, reed canary grass, Japanese stiltgrass, garlic mustard (*Alliaria petiolate,* FACU), may apple (*Podophyllum peltatum,* FACU), Virginia creeper (*Parthenocissus quinquefolia,* FACU), and poison ivy in the herbaceous layer.

Vegetation within late successional and woody old fields contained Eastern red cedar, crab apple, black cherry, and black locust in the sapling layer; autumn olive, Tartarian honeysuckle, privet (*Ligustrum* sp.), and multiflora rose in the shrub layer; poison ivy in the woody vine layer; and common mugwort, white snakeroot, various grasses, Virginia creeper, dogbane, Japanese knotweed (*Reynoutria japonica,* FACU), goldenrod, poison ivy, and Japanese honeysuckle in the herbaceous layer.

Vegetation within regularly and periodically maintained lawn, fields, and roadsides consisted of various grasses, white clover (*Trifolium repens,* FACU), Japanese stiltgrass, crown vetch (*Coronilla varia,* UPL), field garlic (*Allium vineale,* FACU), common dandelion (*Taraxacum officinale,* FACU), English plantain (*Plantago lanceolate,* UPL),

Vegetation that dominated the onsite uplands is classified as non-hydrophytic.

B. Soils

Hydric soils characterized by low chroma matrix and mottling were identified in the wetland areas of the study area. Data sheets from Sampling Stations 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19 (see Section #3) note the hydric soil characteristics observed in the field by ASGECI staff. The upland soils exhibited high chroma matrix colors (see Section #3, Sampling Stations 2, 4, 6, 8, 10, 12, 14, 16, 18, and 20).

The New Jersey Soil Survey Geographic (SSURGO) Database for Mercer County, maps twenty-six (26) soil types as being on the subject property (Section #2, Figure 4). The mapped soil units include the following:

- Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded (BoyAt)
- Bucks silt loam, 2 to 6 percent slopes (BucB)
- Bucks silt loam, 2 to 6 percent slopes, eroded (BucB2)
- Bucks silt loam, 6 to 12 percent slopes (BucC)
- Bucks silt loam, 6 to 12 percent slopes, eroded (BucC2)

- Chalfont silt loam, 0 to 2 percent slopes (ChcA)
- Chalfont silt loam, 2 to 6 percent slopes (ChcB)
- Doylestown and Reaville variant silt loams, 0 to 2 percent slopes (DOZA)
- Matapeake loam, 2 to 5 percent slopes (MbpB)
- Penn channery silt loam, 2 to 6 percent slopes (PeoB)
- Penn channery silt loam, 6 to 12 percent slopes (PeoC)
- Penn channery silt loam, 12 to 18 percent slopes (PeoD)
- Quakertown silt loam, 2 to 6 percent slopes (QukB)
- Quakertown silt loam, 2 to 6 percent slopes, eroded (QukB2)
- Quakertown silt loam, 6 to 12 percent slopes (QukC)
- Quakertown silt loam, 6 to 12 percent slopes, eroded (QukC2)
- Quakertown channery silt loam, 12 to 18 percent slopes, eroded (QumD2)
- Readington and Abbottstown silt loams, 0 to 2 percent slopes (REFA)
- Readington and Abbottstown silt loams, 2 to 6 percent slopes (REFB)
- Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded (REFB2)
- Reaville silt loam, 0 to 2 percent slopes (RehA)
- Reaville silt loam, 2 to 6 percent slopes (RehB)
- Rowland silt loam, 0 to 2 percent slopes, frequently flooded (RorAt)
- Sassafras sandy loam, 2 to 5 percent slopes (SacB)
- Udorthents, bedrock substratum, 0 to 8 percent slopes (UdbB)
- Udorthents, stratified substratum, 0 to 8 percent slopes (UdstB)

Of these 26 soil units 2 are mapped as hydric soils and 11 are mapped as containing hydric inclusions by the USDA County-based Hydric Soils list (version date 1/2/2014). The mapped hydric soils include the Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded (BoyAt) and the Doylestown and Reaville variant silt loams, 0 to 2 percent slopes (DOZA) units. The mapped soil units with hydric inclusions include the Chalfont silt loam, 0 to 2 percent slopes (ChcA), Chalfont silt loam, 2 to 6 percent slopes (ChcB), Quakertown silt loam, 6 to 12 percent slopes (QukC), Readington and Abbottstown silt loams, 0 to 2 percent slopes (REFA), Readington and Abbottstown silt loams, 2 to 6 percent slopes (REFB), Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded (REFB2), Reaville silt loam, 0 to 2 percent slopes (RehA), Reaville silt loam, 2 to 6 percent slopes (RehB), Rowland silt loam, 0 to 2 percent slopes, frequently flooded (RorAt), Sassafras sandy loam, 2 to 5 percent slopes (SacB), and Udorthents, bedrock substratum, 0 to 8 percent slopes (UdbB).

Hydric soils were mapped and identified within areas delineated as wetlands within the project study area. The field delineation within the project area revealed soil profiles that exhibited hydric soil characteristics within areas identified as wetlands. These soils were characterized by low chroma matrix colors with mottling and other redoximorphic characteristics associated with hydric soils. Non-hydric soils were identified throughout the upland portions of the site. These soils were characterized by higher chroma matrix colors and a lack of hydric soil indicators.

C. Hydrology

Direct evidence of wetland hydrology observed during the field investigation included soils saturated to the ground surface, high water table, water marks, drift deposits, drainage patterns, and ponding. Indirect evidence of wetland hydrology was also observed in the form of water-stained leaves, shallow root systems, surface soil cracks, oxidized rhizospheres, and depressional areas with visual hydrological evidence of periodic ponding. These characteristics were not observed in upland areas of the study area.

IV. WETLANDS RESOURCE VALUE CLASSIFICATION

Wetlands are classified according to their resource value as designated by the NJ Freshwater Wetlands Protection Act (FWPA). The width of the adjacent wetland transition areas is based upon this classification. Wetlands of exceptional resource value are defined by the State of New Jersey as freshwater wetlands which discharge into FW1 waters and FW2-TP (trout production) waters or which are documented habitats for endangered or threatened species (N.J.A.C. 7:7A-2.5). Wetlands of ordinary resource value include ditches, swales, detention facilities, and certain isolated wetlands. In order to be classified as ordinary resource value, an isolated wetland must be smaller than 5,000 square feet and more than 50 percent of the area within 50 feet of the wetland boundary must consist of maintained lawn or landscaping, impervious surfaces, active railroad right-of-ways, or gravel parking/storage areas or roads [N.J.A.C. 7:7A-2.4(d)]. Wetlands that do not fit either of the above classifications are defined as intermediate resource value. Exceptional resource value wetlands are subject to a 150-foot standard transition area. Wetlands of intermediate resource value are subject to a 50-foot standard transition area. No transition area is required for ordinary resource value wetlands.

According to the NJDEP Landscape Mapping Project, some of the identified forested wetland and other nearby habitats are listed as Rank 2 due to one or more occurrences of at least one State Priority species. NJDEP Landscape Mapping has records of great blue heron [*Ardea herodias*, Special Concern (breeding)] for this forested wetland patch. The study area also contains is Rank 1 habitat since it meets the habitat-specific requirements, such as minimum size criteria for endangered, threatened or priority wildlife species; however, these habitat patches do not intersect with any confirmed occurrences of such species. Non-isolated wetlands within the subject properties drain to mapped tributaries that are classified by the NJ Surface Water Quality Standards as FW2-NT waters. Since the wetlands do not discharge into a trout production waterway and are not documented endangered or threatened species habitat, the onsite wetlands within the study areas should not be classified as exceptional resource value, subject to 150-ft transition areas. Wetlands within the subject property that meet the definition of ordinary resource value will not be subject to any wetland transition areas. All other wetland areas should be classified as intermediate resource value and should be subject to 50-ft wetland transition areas. The results and findings of this wetland delineation are subject to review and verification by the NJDEP.

V. EPA PRIORITY WETLANDS

Wetlands located within certain geographic regions throughout the State of New Jersey are classified as EPA Priority Wetlands. The USEPA has developed a listing of Priority Wetlands for the State of New Jersey (USEPA, 1994). In general, this list recognizes those areas identified by various Federal, State, and private contributors, which are considered to be the most important and vulnerable wetlands in the state. Classification as an EPA Priority Wetland can limit the applicability of certain NJDEP Freshwater Wetlands General Permits. The airport property is not located within an area mapped as containing EPA Priority Wetlands.

VII. SUMMARY

Wetlands identified on the subject property were delineated in the field by ASGECI staff. A dominance of hydrophytic vegetation, the presence of hydric soils, and direct evidence of wetland hydrology characterized wetlands. Upland areas lacked these characteristics. The locations of wetlands delineated in the field generally coincide with the location of wetlands mapped by the NJDEP. The location of the wetlands delineated in the field also generally corresponds with the SSURGO soils mapping of the study area. The locations of the delineated wetlands were surveyed by Woolpert, Inc. Refer to the Wetland Delineation Map, prepared by ASGECI, in Section #6.

Non-isolated wetlands within the subject properties drain to mapped tributaries that are classified by the NJ Surface Water Quality Standards as FW2-NT waters. Since the wetlands do not discharge into a trout production waterway and are not documented endangered or threatened species habitat, the onsite wetlands within the study areas should not be classified as exceptional resource value, subject to 150-ft transition areas. Wetlands within the subject property that meet the definition of ordinary resource value will not be subject to any wetland transition areas. All other wetland areas should be classified as intermediate resource value and should be subject to 50-ft wetland transition areas. The results and findings of this wetland delineation are subject to review and verification by the NJDEP.

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SECTION #2
Wetland Delineation Report
Trenton-Mercer Airport
Ewing Township, Mercer County, New Jersey
ASGECI #3200

SITE MAPS

Figure 1 – Site Location Map
Figure 2 – USGS Topographic Map
Figure 3 – SSURGO Soils Map
Figure 4 – NJDEP Wetlands & Streams Map

Legend

Airport Boundary

Source:
ESRI Street Map North America, Tele Atlas North America, Inc., published by ESRI® Data & Maps, Redlands, California, 2010.

Figure 1
Site Location Map

Trenton-Mercer Airport
Townships of Ewing and Hopewell
Mercer County, New Jersey

ASGECI Project # 3200

N
W E
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3,000
Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC.

Legend

Airport Boundary

New Jersey State Plane Coordinates in NAD83 for the approximate center of site -
North: 527,085' // East: 403,652'

Latitude and Longitude Coordinates in NAD83 for the approximate center of site -
N: 40° 16' 48.18" / W: 74° 49' 01.64"

Source:
Bit-Mapped 7.5 Minute Color Topographic Images of New Jersey, United States Geological Survey (USGS), Digital Raster Graphic (DRG) Topographic Series Map, Pennington NJ/PA and Trenton West PA/NJ Quadrangles, USGS, Reston, Va., January 9, 1996.

Figure 2
USGS Topographic Map

Trenton-Mercer Airport
Townships of Ewing and Hopewell
Mercer County, New Jersey

ASGECI Project # 3200

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Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS

Legend

Airport Boundary

SOILS LIST:

BoyAt - Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded
BucB - Bucks silt loam, 2 to 6 percent slopes
BucB2 - Bucks silt loam, 2 to 6 percent slopes, eroded
BucC - Bucks silt loam, 6 to 12 percent slopes
BucC2 - Bucks silt loam, 6 to 12 percent slopes, eroded
ChcA - Chalfont silt loam, 0 to 2 percent slopes
ChcB - Chalfont silt loam, 2 to 6 percent slopes
DOZA - Doylestown and Reaville variant silt loams, 0 to 2 percent slopes
MbpB - Matapeake loam, 2 to 5 percent slopes
PeoB - Penn channery silt loam, 2 to 6 percent slopes
PeoC - Penn channery silt loam, 6 to 12 percent slopes
PeoD - Penn channery silt loam, 12 to 18 percent slopes
QukB - Quakertown silt loam, 2 to 6 percent slopes
QukB2 - Quakertown silt loam, 2 to 6 percent slopes, eroded
QukC - Quakertown silt loam, 6 to 12 percent slopes
QukC2 - Quakertown silt loam, 6 to 12 percent slopes, eroded
QumD2 - Quakertown channery silt loam, 12 to 18 percent slopes, eroded
REFA - Readington and Abbottstown silt loams, 0 to 2 percent slopes
REFB - Readington and Abbottstown silt loams, 2 to 6 percent slopes
REFB2 - Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded
RehA - Reaville silt loam, 0 to 2 percent slopes
RehB - Reaville silt loam, 2 to 6 percent slopes
RorAt - Rowland silt loam, 0 to 2 percent slopes, frequently flooded
SacB - Sassafras sandy loam, 2 to 5 percent slopes
UdbB - Udorthents, bedrock substratum, 0 to 8 percent slopes
UdstB - Udorthents, stratified substratum, 0 to 8 percent slopes

Sources:
Soil Survey Geographic (SSURGO) Database for Mercer County, New Jersey, U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, Texas, January 2014.
New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles, State of New Jersey - Office of Information Technology, Office of Geographic Information Systems (OGIS), Trenton, NJ, March 2013.
This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Figure 3
SSURGO Soils Map

Trenton-Mercer Airport
Townships of Ewing and Hopewell
Mercer County, New Jersey

ASGECI Project # 3200

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AMY S. GREENE ENVIRONMENTAL CONSULTANTS

Legend

- Airport Boundary
- Streams and Water Quality
- NJDEP Freshwater Wetlands
- NJDEP Linear Wetlands

WETLAND CLASSIFICATIONS:

MODAg - Agricultural Lands / Turf Farms
MODL - Lawns / Stormwater Management Areas (areas not normally inundated)
PEM1B - Palustrine, Emergent, Persistent, Saturated
PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1F - Palustrine, Emergent, Persistent, Semipermanently Flooded
PFO1A - Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded
PFO1B - Palustrine, Forested, Broad-Leaved Deciduous, Saturated
PFO1C - Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded
PSS1A - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded
PSS1B - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Saturated
R2OW - Riverine, Lower Perennial, Open Water, Unknown Bottom

Sources:
NJDEP Surface Water Quality Standards of New Jersey, NJ Department of Environmental Protection (NJDEP), Water Monitoring & Standards, Bureau of Freshwater and Biological Monitoring, Trenton, NJ, December 2010.
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New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles, State of New Jersey - Office of Information Technology, Office of Geographic Information Systems (OGIS), Trenton, NJ, March 2013.
This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

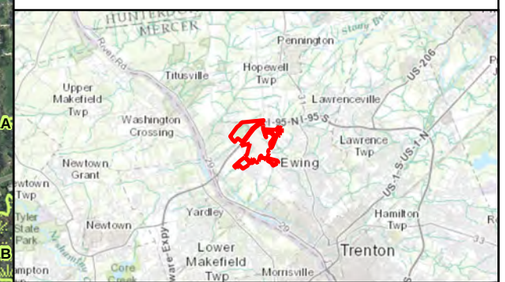

Figure 4
NJDEP Wetlands and Streams Map

Trenton-Mercer Airport
Townships of Ewing and Hopewell
Mercer County, New Jersey

ASGECI Project # 3200

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AMY S. GREENE ENVIRONMENTAL CONSULTANTS

SECTION #3
Wetland Delineation Report
Trenton-Mercer Airport
Ewing Township, Mercer County, New Jersey
ASGECI #3200

SAMPLING STATION DATA SHEETS

Table 1: Sampling Data and Determinations for Trenton-Mercer Airport, Ewing and Hopewell Townships, Mercer County, New Jersey, conducted in May and June 2015.

Station: 1 Flag: AA5 Date: May 13, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Common Spike-Rush	OBL	3	*
Reed Canarygrass	FACW	3	*
Kentucky Bluegrass	FACU	2	*

Community Type: Palustrine Emergent Wetland / Manmade Detention Basin
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 3/2	25% 10GY 4/1	CL (with gravel)
6-12	10YR 3/2	15% 2.5Y 5/4	SiCL (with gravel)
		10% 10GY 4/1	
12+	Refusal		Refusal

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At surface
Depth to Standing Water (10): None
Ponding: No Flooded: No Other (11): Ox. rhizospheres
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: A
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

NOTES:

1. Common names according to Reed (1988).
2. Wetland Indicator Status according to Lichvar (2016) for Eastern Mountain and Piedmont (EMP) Region
   NIS = not identified sufficiently to determine status. NL = not listed.
3. Value equals either basal area (canopy) or cover class (all other layers).
   Braun-Blanquet Cover Scale (with midpoints):
   T.....present, less than 1% (0)
   1.....1 to 5 % (3.0) 5.....51 to 75% (63.0)
   2.....6 to 15% (10.5) 6.....76 to 95% (85.5)
   3.....16 to 25% (20.5) 7.....96 to 100% (98.0)
   4.....26 to 50% (38.0)
   * - denotes a dominant species at this station.
4. HYDROPHYTIC = dominated by >50% FAC, FACW, or OBL plant species.
   NON-HYDROPHYTIC = dominated by >50% FACU or UPL plant species.
5. Munsell Soil Color Chart - hue value/chroma (Kollmorgan Corp., 1975).
6. USDA Soil Textures:

C....CLAY	ch....CHANNERY	O....ORGANIC MATERIALS
L....LOAM	co....COBBLY	
S....SAND	gr....GRAVELLY	
Si....SILT	sh....SHALY	

7. Soil mapping unit and drainage class as described in USDA SCS Soil Conservation Service soil surveys.
8. Classification of mapped soil unit according to USDA Hydric Soils List for New Jersey, latest revision January 1993.
9. Soil classification assigned using criteria set forth in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (FICWD, 1989).
10. ND = no water observed to depth of sample.
11. I = hydrology inferred from soil profile.
    D = drift lines, debris, water stained leaves.
    M = morphological evidence (butressing, hummocks, exposed roots, etc.).
    O = organic surface accumulations.

Table 1: Continued

Station: 2 Flag: AA5 Date: May 13, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Kentucky Bluegrass	FACU	5	*
White Clover	FACU	2	*
Common Dandelion	FACU	2	*
English Plantain	UPL	1	

Community Type: Maintained Lawn / Upland Berm
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-4	10YR 5/3		SiL
4-14	10YR 5/4		SiL
14+	Refusal		Refusal

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: B
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 3 Flag: CC6 Date: May 14, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
Willow sp.	NIS	4	*
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Grass sp.	NIS	4	*
Soft Rush	FACW	2	
Curly Dock	FAC	2	
Common Spike-Rush	OBL	2	
Swamp Loosestrife	OBL	2	
Broadleaf Cattail	OBL	1	

Community Type: Palustrine Emergent Wetland Swale (Manmade)
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/2	20% 10YR 3/6	SiL
12+	Refusal		Refusal (rip-rap)

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): Tire ruts
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: C
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 4 Flag: CC6 Date: May 14, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Grass sp.	NIS	6	*
White Clover	FACU	2	*
Common Dandelion	FACU	1	
English Plantain	UPL	1	

Community Type: Maintained Upland Lawn
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/4		SiL
12+	Refusal		Refusal

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: D
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 5 Flag: EE1 Date: May 14, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Common Spike-Rush	OBL	3	*
Sedge Sp.	NIS	3	*

Community Type: Isolated Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-12	10YR 4/2	10%	10YR 5/8	SiL
12+	Refusal			

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): Surface soil cracks
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: E
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 6 Flag: EE2 Date: May 14, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Grass sp.	NIS	5	*
Common Dandelion	FACU	3	*
Red Clover	FACU	3	*
English Plantain	UPL	2	

Community Type: Maintained Upland Field
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/4		SiL
12+	Refusal		Refusal

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: E
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 7 Flag: HH3 Date: May 15, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Black Willow	OBL	60	*
Red Maple	FAC	20	*
American Elm	FACW	10	
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
Silky Dogwood	FACW	2	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
None			

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-4	10YR 3/1		SiL
4-12	10YR 5/1	20% 10YR 4/6	GrSiL

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: Yes Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic Photograph: F
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 8 Flag: HH3 Date: May 15, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Black Walnut	FACU	10	*
American Elm	FACW	10	*
2. SUBCANOPY/ SAPLINGS			
Black Walnut	FACU	1	*
Silver Maple	FACW	1	*
3. SHRUBS			
None			
4. WOODY VINES			
Blackberry	FACU	2	*
5. HERBACEOUS/TREE SEEDLINGS			
Bedstraw	NIS	2	*
Vetch sp.	NIS	2	*
Virginia Creeper	FACU	2	*
Wood Sorrel	FACU	2	*

Community Type: Mixed Hardwood Upland
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/4		SiL
12+	Refusal		Refusal

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic Photograph: G
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 9 Flag: MM6 Date: May 20, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Reed Canarygrass	FACW	6	*
Goldenrod sp.	NIS	2	
Jewelweed	FACW	2	
Carex sp.	NIS	1	

Community Type: Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-10	2.5Y 3/2	3% 10YR 4/6	SiCL
10-20	10YR 3/2	15% 7.5YR 3/4	SiCL (with gravel)
20+	Refusal		Refusal

Soil Unit as Mapped (7): Bucks silt loam, 2-6% slopes, eroded (BucB2)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: No Flooded: Yes Other (11): Adjacent stream
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH:H
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 10 Flag: MM7 Date: May 20, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
Autumn olive	UPL	1	*
Allegheny Blackberry	FACU	1	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Reed Canarygrass	FACW	6	*
Kentucky Bluegrass	FACU	3	
Goldenrod sp.	NIS	2	
Jewelweed	FACW	2	
Garlic Mustard	FACU	2	
Common Dandelion	FACU	1	

Community Type: Early Successional Upland Field
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-10	10YR 4/3		SiL
10-22	10YR 4/4		SiL
22+	Refusal		

Soil Unit as Mapped (7): Bucks silt loam, 6-12% slopes, eroded (BucC2)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH:I
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 11 Flag: QQ23 Date: May 26, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Green Ash	FACW	10	*
American Elm	FACW	10	*
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
Northern Spicebush	FAC	2	*
Japanese Barberry	FACU	2	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	6	*
Jewelweed	FACW	2	
Skunk Cabbage	OBL	2	
Polygonum sp.	NIS	2	
Blueflag	OBL	1	
Fringed Sedge	OBL	1	

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-10	10YR 4/1	20%	10YR 5/8	CL
10-24	10YR 6/1	30%	10YR 5/6	CL

Soil Unit as Mapped (7): Rowland silt loam, 0-2% slopes, freq. flooded (RorAt)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: 10"
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): D
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic Photograph: J
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 12 Flag: QQ22 Date: May 26, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
American Beech	FACU	50	*
Northern Red Oak	FACU	10	
Sugar Maple	FACU	10	
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
American Beech	FACU	2	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	4	*
White Snakeroot	FACU	2	*
Garlic Mustard	FACU	2	*
American Beech (seedling	FACU	2	*

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-14	10YR 4/4		SiL
14+	Refusal		Refusal (Rock)

Soil Unit as Mapped (7): Bucks silt loam, 6-12% slopes, eroded (BucC2)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: K
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 13 Flag: TT100 Date: May 28, 2015 Project: 3200

VEGETATION				SOIL			
Species (1)	Indicator Status (2) EMP	Cover Class (3)		DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
				0-10	10YR 4/2	20% 10YR 3/6	SiL
1. CANOPY				10-24	10YR 6/1	20% 10YR 5/8	CL
Red Maple	FAC	20	*				
Silver Maple	FACW	20	*				
2. SUBCANOPY/ SAPLINGS							
Silver Maple	FACW	2	*				
Red Maple	FAC	2	*				
3. SHRUBS							
Northern Spicebush	FAC	1	*				
4. WOODY VINES							
None							
5. HERBACEOUS/TREE SEEDLINGS							
Moneywort	OBL	3	*				
Sedge spp.	NIS	3	*				
Glyceria sp.	NIS	3	*				
Sensitive Fern	FACW	2					
Poison Ivy	FAC	2					

Soil Unit as Mapped (7): Quakertown silt loam, 6-12% slopes, eroded (QukC2)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): D
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: L
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

Table 1: Continued

Station: 14 Flag: TT100 Date: May 28, 2015 Project: 3200

VEGETATION				SOIL			
Species (1)	Indicator Status (2) EMP	Cover Class (3)		DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
				0-12	10YR 4/4		SiL
1. CANOPY				12+	Refusal		Refusal (Rock/Fill)
Red Maple	FAC	40	*				
Osage Orange	UPL	20	*				
2. SUBCANOPY/ SAPLINGS							
Red Maple	FAC	3	*				
3. SHRUBS							
Blackhaw	FACU	3	*				
Multiflora Rose	FACU	2	*				
4. WOODY VINES							
None							
5. HERBACEOUS/TREE SEEDLINGS							
Japanese Honeysuckle	FAC	5	*				
Japanese Stiltgrass	FAC	4	*				
Poison Ivy	FAC	2					
Wild Strawberry	FACU	1					

Soil Unit as Mapped (7): Quakertown silt loam, 6-12% slopes, eroded (QukC2)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: M
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

Table 1: Continued

Station: 15 Flag: XX15 Date: June 25, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Red Maple	FAC	60	*
Sugar-Berry	FACW	10	
2. SUBCANOPY/ SAPLINGS			
Sugar Maple	FACU	2	*
Sugar-Berry	FACW	1	*
3. SHRUBS			
None			
4. WOODY VINES			
Poison Ivy	FACU	2	*
5. HERBACEOUS/TREE SEEDLINGS			
Jewelweed	FACW	3	*
Glyceria sp.	NIS	3	*
Sedge sp.	NIS	2	
Lady's Thumb	NIS	1	
Red Maple (seedlings)	FAC	1	
Bidens sp.	NIS	1	
Moneywort	OBL	1	

Community Type: Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-12	10YR 4/1	10%	10YR 4/6	SiL
12-24	10YR 4/2	20%	10YR 5/8	SiL

Soil Unit as Mapped (7): Sassafras sandy loam, 2 to 5 percent slopes (SacB)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: 10"
Depth to Standing Water (10): 12"
Ponding: No Flooded: No Other (11): Mudflat, algal mat
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: N
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 16 Flag: XX15 Date: June 25, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Black Walnut	FACU	30	*
Sugar-Berry	FACW	10	*
Black Cherry	FACU	10	*
2. SUBCANOPY/ SAPLINGS			
Sugar Maple	FACU	2	*
3. SHRUBS			
Black Raspberry	NL	4	*
4. WOODY VINES			
Grape sp.	NIS	3	*
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	3	*
Japanese Knotweed	NL	2	*
Garlic Mustard	FACU	1	
English Ivy	FACU	1	
Multiflora Rose	FACU	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-8	10YR 4/4			SiL
8-24	10YR 4/6			SiL

Soil Unit as Mapped (7): Sassafras sandy loam, 2 to 5 percent slopes (SacB)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: O
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 17 Flag: YY17 Date: June 25, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Red Maple	FAC	60	*
Black Gum	FAC	30	*
2. SUBCANOPY/ SAPLINGS			
Black Gum	FAC	3	*
Red Maple	FAC	2	*
3. SHRUBS			
Arrow-wood	FAC	3	*
4. WOODY VINES			
Virginia Creeper	FACU	1	*
5. HERBACEOUS/TREE SEEDLINGS			
Arrow-wood (Seedlings)	FAC	1	*
Green Ash (Seedlings)	FACW	1	*
Poison Ivy	FAC	1	*

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 2/2		OL
6-12	10YR 2/1	Ox. Rhizospheres	SiL
12-24	10YR 5/1	20% 10YR 5/8	SiL
		10% 10YR 3/6	

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: 12"
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): O, M
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: P
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 18 Flag: YY17 Date: June 25, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Red Maple	FAC	30	*
Black Cherry	FACU	20	*
Sugar-Berry	FACW	10	
2. SUBCANOPY/ SAPLINGS			
Black Cherry	FACU	2	*
Sugar-Berry	FACW	2	*
3. SHRUBS			
Multiflora Rose	FACU	2	*
4. WOODY VINES			
Poison Ivy	FAC	1	*
Oriental Bittersweet	FACU	1	*
5. HERBACEOUS/TREE SEEDLINGS			
Poison Ivy	FAC	4	*
Japanese Honeysuckle	FAC	4	*
Virginia Creeper	FACU	3	*
Garlic Mustard	FACU	1	
White Snakeroot	FACU	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 3/3		SiL
12+	Refusal		Refusal (Rock)

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: N Flooded: N Other (11):
Wetland Hydrology: absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: Q
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 19 Flag: ZZ10 Date: June 3, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Tulip Poplar	FACU	40	*
Red Maple	FAC	10	*
2. SUBCANOPY/ SAPLINGS			
Green Ash	FACW	3	*
3. SHRUBS			
Northern Spicebush	FAC	4	*
Northern Arrow-wood	FAC	1	
Multiflora Rose	FACU	1	
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Honeysuckle	FAC	2	*
Japanese Stiltgrass	FAC	2	*
May-Apple	FACU	1	*

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-8	10YR 3/2	15% 7.5YR 3/3 10% 10YR 4/6	SiL
8-16	10YR 2/2	20% 10YR 6/6	SiL
16+	Refusal		Refusal

* Soil very disturbed and variable

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: Yes Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: R
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 20 Flag: ZZ10 Date: June 3, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Shagbark Hickory	FACU	20	*
Red Maple	FAC	20	*
Tulip Poplar	FACU	10	*
2. SUBCANOPY/ SAPLINGS			
Black Cherry	FACU	3	*
Black Oak	FAC	1	*
3. SHRUBS			
Northern Spicebush	FAC	2	*
Multiflora Rose	FACU	1	*
Northern Arrow-wood	FAC	1	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Honeysuckle	FAC	3	*
May-Apple	FACU	2	*
Virginia Creeper	FACU	1	
Poison Ivy	FAC	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-8	10YR 3/3			Si
8-22	10YR 4/4			SiL
22-24	10YR 5/6			Si

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: S
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 21 Flag: CA25 Date: May 4, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Pin Oak	FACW	40	*
Red Maple	FAC	10	*
2. SUBCANOPY/ SAPLINGS			
Red Maple	FAC	3	*
Pin Oak	FACW	3	*
Crab Apple	NL	1	
3. SHRUBS			
Northern Spicebush	FAC	1	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Jewelweed	FACW	3	*
False Nettle	FACW	3	*
Japanese Stiltgrass	FAC	3	*
Netted Chain Fern	FACW	2	
Sensitive Fern	FACW	2	
Boneset	FACW	1	
Poison Ivy	FAC	1	
Joe Pyeweed	FACW	1	

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-2	10YR 2/1		OL
2-6	10YR 5/1	10% 10YR 4/6	GrSiL
6-16	10YR 4/1	20% 10YR 5/8	SiC
16+	Refusal		Refusal

Soil Unit as Mapped (7): Doylestown and Reaville variant silt loams
0-2% slopes (DOZA)
Drainage Class as Mapped:
Soil Classification as Mapped (8): Hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): D, M
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: T
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 22 Flag: CA25 Date: June 4, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Black Cherry	FACU	20	*
2. SUBCANOPY/ SAPLINGS			
Sassafras	FACU	2	*
3. SHRUBS			
Blackhaw	FACU	4	*
4. WOODY VINES			
Poison Ivy	FAC	2	*
Wild Grape	NIS	1	*
5. HERBACEOUS/TREE SEEDLINGS			
Jspanese Stiltgrass	FAC	4	*
Japanese Honeysuckle	FAC	4	*
White Snakeroot	FACU	2	
Poison Ivy	FAC	2	
Garlic Mustard	FACU	1	
Virginia Creeper	FACU	1	

Community Type: Secondary Growth Upland Forest on Berm
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-4	10YR 2/2		SiL
4-12	10YR 4/4		SiL
12+	Refusal		Refusal

Soil Unit as Mapped (7): Readington and Abbottstown silt loams
0-2% slopes (REFA)
Drainage Class as Mapped: Somewhat poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: U
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 23 Flag: EA1 Date: June 4, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	3	*
Purple Loosestrife	FACW	3	*
Sensitive Fern	FACW	3	*
Soft Rush	FACW	2	
Sedge sp.	NIS	2	
Black Willow (seedling)	OBL	1	
Sweetgum (seedling)	FAC	1	
Dogbane	NIS	1	
Blunt Broomsedge	FACW	1	

Community Type: Isolated Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-8	10YR 4/1	5% 10YR 3/6	SiL
8-14	10YR 5/1	20% 10YR 3/6	SiL
14-24	10YR 6/1	40% 10YR 5/6	SiC

Soil Unit as Mapped (7): Bucks silt loam, 2 to 6 percent slopes (BucB)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11): D
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: V
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 24 Flag: EA2 Date: June 4, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Lady's Thumb	NIS	6	*
Path Rush	FAC	2	
Field Garlic	FACU	1	
Wood Sorrel	FACU	1	
Goldenrod sp.	NIS	1	
White Clover	FACU	1	
Bedstraw sp	NIS	1	

Community Type: Early Successional Upland Field (Recently Cleared)
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-14	10YR 4/4		SiL
14-24	10YR 5/6		SiL

Soil Unit as Mapped (7): Bucks silt loam, 2 to 6 percent slopes (BucB)
Drainage Class as Mapped: Well drained
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: W
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 25 Flag: FA84 Date: June 5, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Sensitive Fern	FACW	3	*
Glyceria sp.	NIS	3	*
Jewelweed	FACW	2	*
Lurid Sedge	OBL	1	
Arrow-leaved Tearthumb	OBL	1	

Community Type: Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 3/1	10% 10YR 5/6	CL
6-18	10YR 4/1	15%10YR 2/1	CL
18+	Refusal		Refusal

Soil Unit as Mapped (7): Bowmansville silt loam, 0-2% slopes, frequently flooded (BoyAt)
Drainage Class as Mapped: Poorly and somewhat poorly drained
Soil Classification as Mapped (8): Hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): At Surface
Ponding: Yes Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: X
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 26 Flag: FA84 Date: June 4, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Red Oak	FACU	20	*
Sugar Maple	FACU	10	*
Red Maple	FAC	10	*
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
Multiflora Rose	FACU	2	*
4. WOODY VINES			
Fox Grape	FACU	2	*
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Honeysuckle	FAC	3	*
May Apple	FACU	2	*
Virginia Creeper	FACU	2	*
Garlic Mustard	FACU	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 3/3		SiL
6-12	10YR 4/4		SiL
12-18	10YR 5/6		SiL
18+	Refusal		Refusal

Soil Unit as Mapped (7): Quakertown silt loam, 6-12% slopes, eroded (QukC2)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: Y
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 27 Flag: IA61 Date: May 10, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
Crabapple	NL	3	*
Green Ash	FACW	2	*
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Sedge sp.	NIS	4	*
Purple loosestrife	FACW	3	*
Bidens sp.	NIS	2	
Water purslane	OBL	2	
Blunt Broomsedge	FACW	1	
Water Dock	OBL	1	

Community Type: Palustrine Emergent / Scrub-Shrub Wetland Ditch
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-8	10YR 2/1	5% 10YR 3/6	GrL
8+	Refusal		Refusal (Shale/Bedrock)

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Non-hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): At Surface
Ponding: Yes Flooded: No Other (11): D
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: Z
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 28 Flag: IA67 Date: June 11, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
Eastern Red Cedar	FACU	3	*
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Grass spp.	NIS	4	*
Dogbane	NIS	3	*
Wood Sorrel	FACU	2	
Yellow Sweet Clover	FACU	1	
Mugwort	UPL	1	
Yarrow	FACU	1	
Field Garlic	FACU	1	
Red Clover	FACU	1	

Community Type: Late Successional Upland Field
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 3/3		GrL
6+	Refusal		Refusal (Shale/Bedrock)

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: AA
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 29 Flag: JA3 Date: June 10, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
Black Willow	FACW	1	*
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Purple Loosestrife	FACW	4	*
Spatterdock	OBL	3	*
Reed Canarygrass	FACW	3	*
River Bulrush	OBL	2	
Spikerush sp.	NIS	2	
Bladder sedge sp.	NIS	1	

Community Type: Isolated Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/2	10% 10YR 4/6	SiL
12+	Refusal		(Refusal (Shale/Bedrock)

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): At Surface
Ponding: Yes Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: BB
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 30 Flag: JA3 Date: June 10, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Eastern Cottonwood	FAC	20	*
2. SUBCANOPY/ SAPLINGS			
Crabapple	NL	2	*
Black Cherry	FACU	1	*
3. SHRUBS			
Multiflora Rose	FACU	3	*
4. WOODY VINES			
Grape sp.	NIS	4	*
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Honeysuckle	FAC	2	*
Virginia Creeper	FACU	1	
Mugwort	UPL	1	
Poison Ivy	FAC	1	

Community Type: Woody Old Field
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0+			Fill (Asphalt and Shale)

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes (QukB)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: CC
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 31 Flag: MA25 Date: June 11, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Reed canarygrass	FACW	4	*
Watercress	OBL	1	

Community Type: Palustrine Emergent Wetland Ditch
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-10	10YR 3/1		SiL
10+	Refusal		Refusal (Shale/Bedrock)

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes, eroded (QukB2)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At surface
Depth to Standing Water (10): At surface
Ponding: Yes Flooded: No Other (11): Algal growth
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: DD
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 32 Flag: MA25 Date: June 11, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Grass spp.	NIS	6	*
White Clover	FACU	2	
Kentucky Bluegrass	FACU	2	
Crabgrass sp.	NIS	2	
English Plantain	UPL	1	
Common Dandelion	FACU	1	

Community Type: Maintained Upland Lawn
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-6	10YR 4/4		SiL
6+	Refusal		Refusal

Soil Unit as Mapped (7): Quakertown silt loam, 2-6% slopes, eroded (QukB2)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Nonhydric
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: DD
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 33 Flag: PA148 Date: June 18, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
American Elm	FACW	10	*
2. SUBCANOPY/ SAPLINGS			
Green Ash	FACW	1	*
3. SHRUBS			
Multiflora Rose	FACU	2	*
Winterberry	FACW	2	*
Tartarian Honeysuckle	FACU	1	
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	4	*
Skunk Cabbage	OBL	2	
Arrow-leaved Tearthumb	OBL	2	
Reed Canarygrass	FACW	2	
Jewelweed	FACW	1	
False Nettle	FACW	1	
Jack in the Pulpit	FACW	1	

Community Type: Palustrine Forested / Emergent Wetland Complex
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING %	MOTTLING COLOR	TEXTURE (6)
0-14	10YR 4/1	10%	10YR 3/6	SiL
		10%	10YR 4/6	
14-24	10YR 6/2	20%	10YR 6/6	SiL

Soil Unit as Mapped (7): Bowmansville silt loam, 0-2% slopes, frequently flooded (BoyAt)
Drainage Class as Mapped: Poorly and somewhat poorly drained
Soil Classification as Mapped (8): Hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At surface
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: EE
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 34 Flag: PA148 Date: June 19, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
Black Raspberry	NL	3	*
Multiflora Rose	FACU	2	*
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Goldenrod spp.	NIS	4	*
Japanese Stiltgrass	FAC	4	*
Reed Canarygrass	FACW	3	*
Dogbane	NIS	2	
Poison Ivy	FAC	1	
Multiflora Rose	FACU	1	

Community Type: Late Successional Upland Field
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	5YR 3/3		SiL
12+	Refusal		Refusal

Soil Unit as Mapped (7): Chalfont silt loam, 2-6% slopes (ChcB)
Drainage Class as Mapped: Somewhat poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: EE
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 35 Flag: PA179 Date: June 24, 2015 Project: 3200

VEGETATION				SOIL			
Species (1)	Indicator Status (2) EMP	Cover Class (3)		DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
				0-8	5YR 3/2		SiL
1. CANOPY				8-24	5YR 3/2	20% 5YR 4/6	CL
Black Walnut	FACU	10	*				
2. SUBCANOPY/ SAPLINGS							
None							
3. SHRUBS							
Northern Spicebush	FAC	3	*				
Multiflora Rose	FACU	2	*				
4. WOODY VINES							
None							
5. HERBACEOUS/TREE SEEDLINGS							
Skunk Cabbage	OBL	3	*				
Rice Cutgrass	OBL	3	*				
Halberd-leaved Tearthuml	OBL	2					
Lady's Thumb	NIS	2					
Jewelweed	FACW	2					
Clearweed	FACW	2					
Bidens sp.	NIS	1					
Arrow-leaved Tearthumb	OBL	1					

Soil Unit as Mapped (7): Bowmansville silt loam, 0-2% slopes, frequently flooded (BoyAt)
Drainage Class as Mapped: Poorly and somewhat poorly drained
Soil Classification as Mapped (8): Hydric
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: FF
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Community Type: Palustrine Forested Wetland
Classification (4): Hydrophytic

Table 1: Continued

Station: 36 Flag: PA179 Date: June 24, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Red Maple	FAC	40	*
Ash sp.	NIS	20	*
Blue Beech	FAC	10	
Sugar Maple	FACU	10	
Shagbark Hickory	FACU	10	
2. SUBCANOPY/ SAPLINGS			
Flowering Dogwood	FACU	2	*
Black Cherry	FACU	2	*
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Honeysuckle	FAC	4	*
Virginia Creeper	FACU	2	
Poison Ivy	FAC	2	
Shagbark Hickory (seedlir	FACU	1	
May Apple	FACU	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-8	7.5YR 3/4		
8+	Refusal		Refusal (Rock)

Soil Unit as Mapped (7): Readington and Abbottstown silt loams 2-6% slopes (REFB)
Drainage Class as Mapped: Somewhat poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: GG
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 37 Flag: RA96 Date: June 24, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Sweet Flag	OBL	4	*
Japanese Stiltgrass	FAC	3	*
Phragmites australis	FACW	2	
Goldenrod sp.	NIS	2	
New York Ironweed	FACW	1	
Soft Rush	FACW	1	
Bidens sp.	NIS	1	

Community Type: Palustrine Emergent Wetland
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-10	10YR 3/2		SiL
10-16	10YR 4/2	30% 10YR 5/8	SiL
16-24	10YR 4/2	10% 10YR 4/6	CL

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): 3"
Ponding: Yes Flooded: No Other (11): D
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: HH
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 38 Flag: RA97 Date: June 24, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
Black Locust	FACU	20	*
2. SUBCANOPY/ SAPLINGS			
Black Locust	FACU	3	*
3. SHRUBS			
Multiflora Rose	FACU	3	*
4. WOODY VINES			
Oriental Bittersweet	FACU	2	*
5. HERBACEOUS/TREE SEEDLINGS			
Japanese Stiltgrass	FAC	3	*
Japanese Honeysuckle	FAC	2	*
Mugwort	UPL	1	
Pokeweed	FACU	1	
Field Garlic	FACU	1	

Community Type: Secondary Growth Upland Forest
Classification (4): Nonhydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	10YR 4/4		SiL
12+	Refusal		Refusal (Rock)

Soil Unit as Mapped (7): Udorthents, bedrock sustratum, 0-8% slopes (UdbB)
Drainage Class as Mapped: Moderately well to poorly drained
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: II
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

Table 1: Continued

Station: 39 Flag: SA2 Date: June 24, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Rice Cutgrass	OBL	4	*
Japanese Stiltgrass	FAC	3	
Duckweed	OBL	3	
Arrow-leaved Tearthumb	OBL	2	
Water Pepper	OBL	2	
Sallow Sedge	OBL	1	
Soft Rush	FACW	1	
Polygonum sp.	NIS	1	

Community Type: Palustrine Emergent Wetland Ditch
Classification (4): Hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-12	7.5YR 3/1	20% 7.5YR 4/6	GrSL
12+	Refusal		Refusal (Rock)

Soil Unit as Mapped (7): Quakertown silt loam, 6-12% slopes (QukC)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Hydric

HYDROLOGY

Depth to Soil Saturation: At Surface
Depth to Standing Water (10): 2"
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Present

SUMMARY

VEGETATION: Hydrophytic PHOTOGRAPH: JJ
SOILS: Hydric
HYDROLOGY: Present

DETERMINATION: Wetland

Table 1: Continued

Station: 40 Flag: SA2 Date: June 24, 2015 Project: 3200

VEGETATION

Species (1)	Indicator Status (2) EMP	Cover Class (3)	
1. CANOPY			
None			
2. SUBCANOPY/ SAPLINGS			
None			
3. SHRUBS			
None			
4. WOODY VINES			
None			
5. HERBACEOUS/TREE SEEDLINGS			
Kentucky Bluegrass	FACU	6	*
Fescue sp.	NIS	2	
Mugwort	UPL	1	

Community Type: Maintained Upland Lawn
Classification (4): Non-hydrophytic

SOIL

DEPTH (inches)	MATRIX COLOR (5)	MOTTLING % COLOR	TEXTURE (6)
0-24	5YR 3/3		SiL

Soil Unit as Mapped (7): Quakertown silt loam, 6-12% slopes (QukC)
Drainage Class as Mapped: Not listed
Soil Classification as Mapped (8): Hydric inclusions
Soil Classification of Sample (9): Nonhydric

HYDROLOGY

Depth to Soil Saturation: ND
Depth to Standing Water (10): ND
Ponding: No Flooded: No Other (11):
Wetland Hydrology: Absent

SUMMARY

VEGETATION: Nonhydrophytic PHOTOGRAPH: KK
SOILS: Nonhydric
HYDROLOGY: Absent

DETERMINATION: Upland

SECTION #4
Wetland Delineation Report
Trenton-Mercer Airport
Ewing Township, Mercer County, New Jersey
ASGECI #3200

PHOTOGRAPHS WITH DESCRIPTIONS

Photo A – View, facing southeast at Flag AA5, of a Palustrine emergent wetland basin located between Taxiway G and Runway 16-34.

Photo B – Typical view, facing north-northwest near Flag AA5, of a maintained upland field located along Taxiway G.

Photo C – View, facing east toward Flag CC6, of a manmade Palustrine emergent wetland swale located west of Taxiway A.

Photo D – View, facing west near Flag CC6, of maintained upland lawn in the vicinity of Taxiway A.

Photo E – View, facing northeast toward Flag EE1, of an isolated Palustrine emergent wetland located southwest of Taxiway G.

Photo F – View, facing northeast at Flag HH3, showing Palustrine forested wetland and ponded area located west-southwest of Scotch Road. Wetland contained black willow, red maple, American elm and silky dogwood.

Photo G – View, facing northwest near Flag HH3, of mixed hardwood edge and maintained upland field.

Photo H – View, facing west near Flag MM8, of a Palustrine emergent wetland complex dominated by reed canary grass and located southwest of Bear Tavern Road.

Photo I – View, facing north near Flag MM7 (facing MM6), of an early successional upland field located southwest of Bear Tavern Road.

Photo J – View, facing south-southwest near Flag QQ23, of Palustrine forested wetland adjacent to an unnamed tributary to the Delaware River.

Photo K – View, facing northeast near Flag QQ22, of a secondary growth upland forest containing American beech, Northern red oak, sugar maple, garlic mustard, and Japanese stiltgrass.

Photo L – View, facing southwest at Flag TT100, of a Palustrine forested wetland complex located east-southeast of Sam Weinroth Road. Wetland contained red maple, silver maple, Northern spicebush, sedges, *Glyceria,* moneywort, and sensitive fern.

Photo M – View, facing northeast near Flag TT100, of a secondary growth upland forest located east-southeast of Sam Weinroth Road.

Photo N – View, facing northwest from Flag XX15, of a Palustrine forested wetland dominated by red maple, spotted jewelweed, *Glyceria*, and sedges. Wetland is located west of the Ewing Township Library along Scotch Road.

Photo O – View, facing southwest from XX15, of a secondary growth upland forest containing sugarberry, black cherry, black walnut, black raspberry, Japanese stiltgrass.

Photo P – View, facing west near Flag YY17, of a Palustrine forested wetland containing red maple, black gum, arrowwood, poison ivy, and Virginia creeper.

Photo Q – View, facing east-southeast near Flag YY17, of secondary growth upland forest containing black cherry, red maple, multiflora rose, poison ivy, Japanese honeysuckle, garlic mustard, and Virginia creeper.

Photo R – View, facing east at Flag ZZ10, of a Palustrine forested wetland containing tulip poplar, red maple, green ash, Northern spice bush, Northern arrowwood, and Japanese stiltgrass. Wetland is situated north of Parkway Avenue and west of Jack Stephan Way.

Photo S – View, facing west from Flag ZZ10, of secondary growth upland forest dominated by shagbark hickory, red maple, black cherry, Northern spicebush, Japanese honeysuckle, and may apple.

Photo T – View, facing south near Flag CA25, of a forested wetland dominated by pin oak, red maple, Northern spicebush, Japanese stiltgrass, jewelweed, and false nettle. Wetland is located west of Lower Ferry Road.

Photo U – View, facing north near Flag CA25, of a secondary growth upland forest containing black cherry, sassafras, blackhaw, Japanese stiltgrass, Japanese honeysuckle, white snakeroot, and poison ivy.

Photo V – View, facing east from Flag EA1, of an isolated emergent wetland located west of Lower Ferry Road. The wetland contained soft rush, sensitive fern, purple loosestrife, Japanese stiltgrass, black willow and sweet gum seedlings, various sedges, and dogbane.

Photo W – View, facing east near EA2, showing an early successional upland field that was recently cleared as part of runway protection zone obstruction removal. The area was dominated by lady's thumb with lesser amounts of field garlic, woodsorrel, goldenrod, white clover, path rush, and bedstraw.

Photo X – View, facing northwest from Flag FA84, of an emergent wetland containing sensitive fern, *Glyceria,* jewelweed, lurid sedge, and arrow-leaved tearthumb. Wetland FA is situated between Route 95 and Sam Weinroth Road.

Photo Y – View, facing northwest near Flag FA84, of a secondary growth upland forest containing Northern red oak, red maple, sugar maple, fox grape, multiflora rose, Japanese stiltgrass, may apple, Virginia creeper, and garlic mustard.

Photo Z – View, facing west at Flag IA1 (facing IA67), of an emergent/scrub-shrub wetland ditch located west of Sam Weinroth Road. Wetland IA was dominated by crab apple and green ash saplings, various sedges, purple loosestrife, beggarticks, and water purslane.

Photo AA – View, facing west near Flag IA67, of a late successional upland field dominated by Eastern red cedar saplings, various grasses, dogbane, wood sorrel, and common mugwort.

Photo BB – View, facing north at Flag JA3, of an isolated Palustrine emergent wetland located near the County maintenance yard. Wetland JA contained purple loosestrife, spatterdock, river bulrush, reed canary grass, spikerush, and bladder sedge.

Photo CC – View, facing northeast at Flag JA3, of a woody old field containing Eastern cottonwood, crab apple and black cherry saplings, multiflora rose, grape, Japanese honeysuckle, Virginia creeper, common mugwort, and poison ivy.

Photo DD – View, facing south toward Flag MA25, of a Palustrine emergent wetland ditch located parallel to Sam Weinroth Road, west of the Terminal Parking Lots. Wetland MA contained reed canary grass, watercress, and grasses. Maintained upland lawn (right) contained various grasses, white clover, Kentucky blue grass, crabgrass, English plantain, and common dandelion.

Photo EE – View, facing west near Flag PA148, of a Palustrine forested/emergent wetland complex associated with Ewing Creek and containing American elm, green ash, winterberry, multiflora rose, Japanese stiltgrass, skunk cabbage, reed canary grass, and arrow-leaved tearthumb.

Photo FF – View, facing northeast near Flag PA179, of a Palustrine forested wetland associated with Ewing Creek, which contains black walnut, Northern spicebush, multiflora rose, skunk cabbage, rice cutgrass, clearweed, lady's thumb, and halberd-leaved tearthumb.

Photo GG – View, facing west-northwest from Flag PA179, of secondary growth upland forest containing red maple, ash, blue beech, shagbark hickory, sugar maple, Japanese honeysuckle, Virginia creeper, and poison ivy.

Photo HH – View, facing southeast at Flag RA96, of a Palustrine emergent wetland fringe located along a pond and containing New York ironweed, soft rush, common reed, sweetflag, beggarticks, and Japanese stiltgrass. Wetland RA is situated within the southern portion of Mountain View Golf Course, north of Route 95.

Photo II – View, facing east at Flag RA97, of secondary growth upland forest containing black locust, multiflora rose, oriental bittersweet, Japanese stiltgrass, Japanese honeysuckle, common mugwort, American pokeweed, and field garlic.

Photo JJ – View, facing west from Flag SA2, of a Palustrine emergent wetland ditch located along the northern perimeter of Mountain View Golf Course. Wetland SA was dominated by mild water pepper, duckweed, arrow-leaved tearthumb, rice cutgrass, and Japanese stiltgrass.

Photo KK – View, facing west near Flag SA2, of maintained turf associated with Mountain View Golf Course. Regularly and periodically maintained upland turf contained Kentucky bluegrass, fescue, and common mugwort.

SECTION #5
Wetland Delineation Report
Trenton-Mercer Airport
Ewing Township, Mercer County, New Jersey
ASGECI #3200

RESUME OF PREPARER

AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC.

Jennifer LaStella
Project Manager

Years Of Experience: 10.5

Education
- B.S. Animal Biotechnology and Conservation, Delaware Valley College, Doylestown, PA, 2005

Training
- USEPA Hazardous Materials Incident Response Operations Training Course, 40 hrs, July 2005;
- Confined Space Entry, 8 hrs, November 2005;
- OSHA Site Safety Officer, 8 hrs, March 2006;
- OSHA 8 Hour HAZWOPER refresher: 2006, 2007, 2008, 2009; 2010, 2011, 2012, 2013, 2014.
- NJ Boating Safety Certificate 2010
- Cook College Continuing Education, Rutgers Univ: Introduction to Wetland Identification, October 2005; Groundwater in Fractured Bedrock, Cook College Continuing Professional Education, March 2006; Endangered & Threatened Species of Northern NJ, March 2007;
- NJ Transit Safety Training and Roadway Worker Safety, 12/06, 4/11, 6/12, 8/13;
- AMTRAK Contractor Safety Training, May 2007, October 2010, and July 2013;
- Cook College Continuing Education, Rutgers Univ Vegetation ID for Wetland Delineation – North, July 2007;
- Cook College Continuing Education, Rutgers Univ Methodologies for Delineating Wetlands, October 2007;
- Certified Wetland Delineator, October 2007, Rutgers State University, Cook College;
- Coastal Project Review, April 2008;
- NJ Wetlands Manual Training Workshop, August 2008, Rutgers – New Jersey Agricultural Experiment Station, Office of Continuing Professional Education.
- Ecological Risk Assessment: Practices and Protocols, Rutgers, The New Jersey Agricultural Experiment Station, Office of Continuing Education, March

KEY QUALIFICATIONS

Ms. LaStella has experience in performing environmental and ecological investigations and preparing environmental documentation and permit applications. She has performed wetland delineations; prepared applications for wetlands and other environmental permits; conducted surveys for endangered and threatened species; provided oversight of wetland mitigation plantings; and conducted post construction monitoring of wetland mitigation sites. She has prepared environmental screening reports and Categorical Exclusion Documentation for State and Federally funded projects in accordance with FHWA NEPA requirements. She has inventoried environmentally sensitive resources to identify potential receptors of contamination as part of Baseline Ecological Evaluations. She has performed Phase I environmental site assessments for transportation projects and residential, agricultural, commercial and industrial properties and prepared environmental site assessment reports, which included records reconnaissance and review of historical aerials, topographic and Sanborn maps. She has also provided oversight of remedial investigation and remedial action projects, which included preparation of NJDEP technical reports such as Site Investigation, Preliminary Assessment, Remedial Action, and Remedial Investigation Reports. She has performed underground storage tank investigation, decommissioning and compliance, and designed, assisted and performed oversight of soil boring and test pitting studies. Ms. LaStella has performed the duties of Site Safety Officer of contaminated construction sites, including preparation, instruction and enforcement of a Health and Safety Plan. She also prepared a Health & Safety Program Manual, Drug and Alcohol Policy, and Hazard Communication Program for ASGECI.

Ms. LaStella has volunteered her time to assist with early and late season bog turtle investigations of calcareous fens in Sussex County, New Jersey. She has also volunteered with the Wildlife Conservation Corps and the Endangered and Non-Game Species Program to assist with Great Blue Heron Surveys in Hunterdon County, New Jersey. Ms. LaStella received an award (April 2008) for contributing over 500 hours of volunteer service to Great Swamp National Wildlife Refuge in Basking Ridge, New Jersey.

RELEVANT EXPERIENCE

NJDOT / Jacobs Civil Inc. / Route 7, Section 2, Wittpenn Bridge over the Hackensack River / Township of Kearny and City of Jersey City, Hudson County, New Jersey – Environmental Scientist assisting with the preparation of an NJDEP Individual Freshwater Wetlands/Open Water Fill Permit and Waterfront Development Permit for the replacement of the Route 7, Wittpenn Bridge over the Hackensack River. Services were performed in accordance with the NJDOT Procedures Manual and Capital Projects Delivery Process. Senior Environmental Scientist also responsible for the preparation for an Essential Fish Habitat Assessment to comply with NJDEP Coastal Zone Management Rules.

Golder Associates, Inc. / Caldwell Trucking Company Superfund Site / Fairfield Township, Essex County, New Jersey – Senior Environmental Scientist responsible for assisting with the delineation of freshwater wetlands and State open waters on a superfund site. Senior Environmental Scientist also assisted with the preparation of an NJDEP General Permit #4 Equivalency Permit Application to authorize remedial investigation activities within freshwater wetlands. Senior Environmental Scientist also responsible for coordinating with Golder Associates on the development of a Planting Plan.

Training Cont.

- Refuge Comprehensive Conservation Planning WLD2126, National Conservation Training Center, USFWS, 2010
- Waste Site Evaluation Refresher Training, PennDOT, March 2011
- Wind Energy and Wildlife Forum, Maine Chapter for the Wildlife Society, May 2011.
- First Aid and CPR, September 2012.
- Wetland Sedges, Grasses and Rushes, The Swamp School, June 26, 2013
- Northeast Bat Working Group, 2014 Annual Meeting, Jan. 2014.
- Grassland Bird Conservation in Northeast Haylands and Pasturelands, USDA Natural Resources Conservation Service, Jan. 2014

Installation of Variable Message Signs at New and Existing Locations on the Garden State Parkway, Various Municipalities, Various Counties, NJ. NJ Turnpike Authority/Arora & Associates, P.C. Senior Environmental Scientist responsible for the field investigation and wetland delineation of State open waters and wetlands at numerous locations along the Garden State Parkway between Mileposts (MP) 5 to 172. Also responsible for GPS data collection of wetland flags and top of bank points for identification of riparian zones at select locations utilizing a Trimble GPS unit. Responsible for determining permitting requirements for the construction of Variable Message Signs, underground conduit, and attendant features under the NJDEP Freshwater Wetlands Protection Act Rules, Coastal Zone Management Rules, and Flood Hazard Area Control Act (FHACA) Rules. Responsible for the preparation of NJDEP Freshwater Wetlands General Permit, NJDEP FHACA Permit-by-Rule Notifications and a Phase B Environmental Report in accordance with the New Jersey Turnpike Authority Procedures Manual. Field investigations and permit preparations were performed under a strict time constraints.

Monmouth County Engineering Department and French & Parrello Associates, P.A. / Reconstruction of Monmouth County Bridge S-17 (Hubbard Bridge) County Route 10 (West Front Street) over Swimming River / Middletown Township & Red Bank Borough, Monmouth County, New Jersey – Senior Environmental Scientist responsible for the preparation of applications for USACE Preconstruction Notification and Section 404/10 Nationwide Wetlands Permit #23 and a NJDEP Waterfront Development Permit and Coastal Wetlands (1970) Permit for the Monmouth County Bridge S-17 reconstruction project. Also responsible for the preparation of an Essential Fish Habitat Evaluation pursuant to USACE and National Marine Fisheries Service requirements.

NJDOT and Arora & Associates, P.C. / Route 35 Matawan Creek Laurence Harbor Parkway / Aberdeen Township, Monmouth County and Old Bridge Township, Middlesex County, New Jersey – Senior Environmental Scientist responsible for the preparation of applications for a NJDEP Coastal Areas Facility Review Act (CAFRA) Permit, Waterfront Development Permit, and Coastal Wetland General Permit for the Route 35 roadway and drainage improvement project.

EnviroGroup Limited and Diamond Chemical Company, Inc. / Diamond Chemical Company / East Rutherford Borough, Bergen County, New Jersey – Senior Environmental Scientist assisting with the delineation of wetlands along onsite tidal ditches. Environmental Scientist responsible for the preparation of an NJDEP Freshwater Wetlands General Permit #4 and Waterfront Development Permit and an USACE Section 404/10 Nationwide Permit #38 for the remediation and capping of the onsite tidal ditches. Environmental Scientist also responsible for conducting a tree survey, where trees greater than 5" Diameter at Breast Height (DBH) were inventoried and located with a Trimble GPS.

Kinnelon Borough Board of Education / Kinnelon High School Expansion/ Kinnelon Borough, Morris County, New Jersey – Environmental Scientist responsible for preparation of a Highlands Applicability and Water Quality Management Plan Consistency Determination Application for submission to NJDEP Division of Watershed Management for the construction of a high school addition and associated parking lot. Also prepared an application for a NJDEP Freshwater Wetlands General Permit #10A for access road construction. The project has been constructed.

Medina Consultants / Route 206 – Peapack Brook, MP 80.55 / Peapack & Gladstone Borough, Somerset County, New Jersey – Environmental Scientist assisting with wetlands delineation and the preparation of an NJDEP Emergency General Permit #20A for slope stabilization of Route 206 and Peapack Brook. Work was performed as part of an open-end contract with NJDOT for emergency services.

New York State Department of Environmental Protection / PB Americas, Inc. / NY 27 Operational Performance Study / Township of Brookhaven, Suffolk County, Long Island, New York - Senior Environmental Scientist responsible for conducting environmental resource screening of an approximate 11.5-mile long by an approximate 5-mile wide study area for improvements to the Sunrise Highway (NY 27). Resources include wetlands, floodplains, forests, parklands, streams/waterbodies, and other cultural resources. Also responsible for the preparation of an Inventory of Natural Resources Report.

AMY S. GREENE ENVIRONMENTAL CONSULTANTS INC.

William F. Macholdt, *PWS*
Senior Project Manager
ASCE Grade PIII

Years Of Experience: 26

Education
- M.F.A. Visual Art, Bennington College, 2002
- B.S.Environmental Science, East Stroudsburg University, Stroudsburg, PA, 1984

Professional Affiliations
- Society of Wetland Scientists, Certified Professional Wetland Scientist - 2012
- Rutgers University Certified Wetland Delineator

Training
- American Red Cross, Adult First Aid/CPR: September, 2012
- Wetland Training Institute, Wetland Delineation Certification, 1990;
- Rutgers University, NJDEP Endangered and Nongame Species Program Landscape Project Training, 2005;
- Cook College, College of Continuing Professional Education Seminars, Rutgers – New Jersey Agricultural Experiment Station, Office of Continuing Professional Education:
  - Vegetation Identification for Wetland Delineation – South September 2011;
  - NJ Wetland Mitigation Planning Hydrologic Budget Manual Training, NJ Coastal Permit Seminar, 1993;
  - Hydric Soils of NJ, 1991;
  - Wetland Identification, 1990;
  - Geology and Hydrogeology of NJ Coastal Plains, 1989;
  - NJ Freshwater Wetlands Permit Seminar, 1989;
  - Geology and Hydrogeology of Northern New Jersey, 1988;
  - New Flood Hazard Area Control Act Rules, November 2008;
  - Vegetation Identification for Wetland Delineation – South, September 2011
- NJ Wetlands Manual Training Workshop, August 2008,
- NJ Transit Operators / Contractors Safety Orientation, 2005;

KEY QUALIFICATIONS

Mr. Macholdt is a Society of Wetland Scientists Certified Professional Wetland Scientist and has extensive experience in management and performance of environmental studies including wetland delineation, wetland permitting, wetland mitigation design, endangered and threatened species surveys, hydrologic and soils investigations, wildlife studies, environmentally sensitive areas mapping, habitat restoration and environmental impact assessment. Mr. Macholdt has been a member of teams performing phase I bog turtle surveys and phase II bog turtle surveys and surveys for listed vegetative endangered and threatened species in New Jersey and New York. He has extensive experience in preparation of State and Federal environmental permit applications including NJDEP Freshwater and Coastal Wetlands Permits; Wetland Transition Area Waivers; Flood Hazard Area Permits; Waterfront Development Permits; NJ Pinelands Public Development Approval; USACE Section 10/404 wetland permits; and PADEP Section 105 Wetlands Permits. Mr. Macholdt is experienced in interaction and consultation with regulatory and resource protection agencies including NJDEP, PADEP, USACE, USFWS, NMFS, NPS, and others.

RELEVANT EXPERIENCE

Route 206 Over Assiscunk Creek Bridge Replacement, Mansfield & Springfield Townships, Burlington County, NJ. New Jersey Department of Transportation/ Vollmer Associates, LLP. Project Manager responsible for wetland delineation and documentation and preparation of Wetland Delineation Report for the project site. Project also includes Section 7 Consultation with US Fish and Wildlife Service due to the potential presence of bog turtle within the project limits. Project also includes consultation with Burlington County for use of restricted farmlands within the project limits.

Newburgh Road Bridge #140-196 over Musconetcong River, Washington Township, Morris County and Mansfield Township, Warren County, NJ. Morris County Engineers/Cherry, Weber & Associates. Project Manager for bridge replacement and improvements to the approaching roadways. ASGECI performed a detailed wetland delineation, environmental review of project alternatives and preparation of the Ecology and Permits sections of the *National Environmental Policy Act* (NEPA) Categorical Exclusion Documentation (CED) with input from the Cherry, Weber and Associates team. A Phase I Bog Turtle Habitat Survey was performed. Prepared successful permit applications for NJDEP Freshwater Wetlands General Permits No. 10A, for minor roadway crossings and a Flood Hazard Area Individual Permit.

GSP Interchange Improvements/Interchange 141 to 157; Multiple Cities, Townships, and Boroughs; Bergen, Essex, Passaic, and Union Counties, NJ New Jersey Turnpike Authority/Greenman Pedersen, Inc. Project Manager responsible for field investigations, wetland/open water delineations, evaluation of endangered and threatened species habitat, and environmental permitting for the project. Prepared applications for NJDEP Freshwater Wetlands General Permits and Flood Hazard Area Permits to authorize for Interchange Improvements. Obtained verification from NJDEP regarding the applicability of NJ EO 215. It was determined that several of the projects were exempt from

Training (cont.)
- NJ Turnpike Authority Traffic Safety Training Class, 2012;
- MTA Metro-North Railroad Roadway Worker Procedures for Conductor Flags/Contract Employees, 2004

preparation of an EA or EIS under Executive Order 215. Prepared an Environmental Assessment under EO 215 for Interchange 154-155P. Also responsible for coordination of environmental project team performance of Phase 1 Site Assessments for Hazardous Waste, Air Quality and Noise Analyses, Cultural Resources Surveys and public outreach under EO 172. A Phase I Bog Turtle Habitat Survey and report was prepared for Interchange 141.

Reconstruction of County Route 530, Manchester Township, Ocean County, NJ Ocean County Engineering Department. Project Manager responsible for the performance of a wetland delineation, rare plant species habitat assessments, and preparation of NJ Pinelands Commission Public Development Approval (PDA) for which habitat assessments were performed to determine the presence/absence of threatened and/or endangered plant species within the project area. Habitat assessment and a plant survey for the pinelands listed endangered plant, sickle-leaved golden aster was performed and concluded that sickle-leaved golden aster was not located within proposed project activity areas. Pinelands PDA received in March 2010.

Statewide Park and Ride Studies - South, Washington Township, Gloucester County, NJ as part of an On-call services agreement. New Jersey Department of Transportation/Orth-Rodgers & Associates, Inc. Project Manager responsible for the performance of preliminary environmental assessments of proposed park and ride sites including field investigations for the presence of wetlands, identification of floodplains, and the identification of the potential for the presence of threatened and/or endangered species. The assessments also included evaluation of site feasibility with regard to compliance with NJDEP wetlands permitting requirements and potential impacts on endangered and threatened species habitat.

Long Valley Bypass, Washington Township, Morris County, NJ. Morris County Engineering Department/ Orth-Rodgers & Associates. Project Manager responsible for the preparation of an Environmental Feasibility Study for bypass construction including construction of roadway and bridge over South Branch Raritan River. The study included impact analysis on wetlands, endangered and threatened species, vegetation and wildlife, floodplains, surface water resources, aquifer recharge areas, and identification of permitting requirements.

Proposed Department of Public Works/Police Site, **Delaware Township, Hunterdon County, NJ. Delaware Township Committee.** Project Manager responsible for performing a preliminary environmental screening of the study area including a preliminary wetland investigation of the property. Resources identified in the screening include wetlands, wetland transition areas, streams, floodplains, riparian zones, and endangered and threatened species habitat. Prepared a letter report of our findings including an assessment of environmental permitting feasibility for the proposed modular police station and storage facilities.

Pine Brook Greenway Study, Borough of Tinton Falls, Monmouth County, NJ. Borough of Tinton Falls/Viridian Incorporated. The project involved a screening study of a portion of the Pine Brook stream corridor in Tinton Falls Borough. Project Manager responsible for evaluation of the presence of wetlands, open waters, and endangered and threatened (E&T) species within the Pine Brook stream corridor. As part of the study, a report was prepared that discussed vegetation, wetlands, and open waters observed along the stream corridor. No E&T species were identified in the areas investigated along the stream corridor.

Municipal Area Residential Bus Shuttle Park & Ride; South Brunswick Township, Middlesex County, NJ. New Jersey Transit/South Brunswick. Project Manager responsible for performance of field investigations to identify the extent of wetlands and wetland transition areas and to evaluate the project area for Indiana bat habitat. The project included preparation of sections of a Categorical Exclusion Document in accordance with NEPA requirements.

SECTION #6
Wetland Delineation Report
Trenton-Mercer Airport
Ewing Township, Mercer County, New Jersey
ASGECI #3200

WETLANDS DELINEATION MAP

Map Entitled:
Wetland Delineation Map – NW, SW, NE, & SE Quadrants (4 Sheets)
Townships of Ewing and Hopewell
Mercer County, New Jersey
ASGECI Project #3200

Wetland and State Open Water Flags Located By:
Woolpert, Inc.
4454 Idea Center Blvd.
Dayton, Ohio 45430

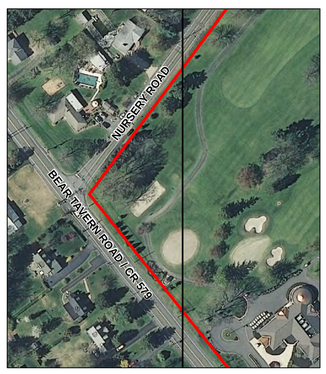
Map Prepared By:
Amy S. Greene Environmental Consultants, Inc.
4 Walter E. Foran Boulevard, Suite 209
Flemington, New Jersey 08822

NOTE: If submitted to the NJDEP as part of an LOI or Permit request, wetland and State open waters must be shown on a formal survey with topography.

Legend

- Airport Property Boundary
- Delineated Wetland
- Wetland Flag
- Sample Location
- Photograph Location with Direction

Sources:
Wetland Flags and Areas delineated by Amy S. Greene Environmental Consultants Inc., May and June 2015.
Previously Delineated Wetlands by Amy S. Greene Environmental Consultants Inc., August 2011 & September 2014.
Photograph Locations and Sample Locations provided by Amy S. Greene Environmental Consultants Inc., 2016.
New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, State of New Jersey - Office of Information Technology, Office of Geographic Information Systems, Trenton, NJ, March 2013.



INSET MAP

NW Quadrant
Wetland Delineation Map

Trenton-Mercer Airport
Townships of Ewing and Hopewell
Mercer County, New Jersey

ASGECI Project # 3200

N
W E
S
0 125 250
Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC.

NURSERY ROAD
MERCER COUNTY 647
AREA SOW
AREA PA
AREA QA
AREA SA
AREA FA
AREA RA
ANN MARIE LANE
MOUNTAIN VIEW ROAD
NURSERY ROAD
BARBARA LANE
INTERSTATE 95
Wetlands Previously Delineated by ASGECI and verified by NJDEP LOI File # 1102-12-0001.1 Dated 8/1/2011
Wetlands Previously Delineated by ASGECI and verified by NJDEP LOI File # 1102-12-0002.2 Dated 9/3/2014
RIDGE ROAD / MERCER COUNTY 600
TAXIWAY H
TAXIWAY G
TAXIWAY A
AREA EE
AREA DD
AREA FF
AREA JJ
AREA IA
AREA KK
AREA LL
AREA LA
AREA CC
AREA BB
AREA HA
AREA JA
BEAR TAVERN ROAD / CR 579