## **APPENDIX B**

- Endangered and Threatened Species and Present Habitat Communities Report and Agency Coordination
- Phase I Bog Turtle Habitat Assessment Report and Agency
   Coordination





3020 Columbia Avenue, Lancaster, PA 17603 E-mail: rettew@rettew.com ● Web site: rettew.com Phone: (800) 738-8395

## M E M O R A N D U M

TO: Mary Ashburn Pearson, Delta Airport Consultants, LLC

FROM: Mark A. Metzler

DATE: October 5, 2016

PROJECT NAME: Carroll County Regional Airport PROJECT NO. 024552011

**SUBJECT:** Endangered and Threatened Species and Present Habitat Communities

#### INTRODUCTION

RETTEW Associates, Inc. investigated the potential presence of rare, threatened, and endangered species within the proposed Carroll County Regional Airport project area. Additionally, RETTEW identified various habitat communities while performing wetland delineations and Phase 1 bog turtle habitat assessments beginning in April of 2016. Both the Maryland Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (USFWS) were contacted to request their knowledge of any pre-recorded rare, threatened, or endangered species within the project area. Results of these investigations are discussed in this memorandum.

#### SITE DESCRIPTION

Presently, the project area is 834.94 acres in size and is located in the City of Westminster and surrounding areas in Carroll County, Maryland. The project appears on the Littlestown, MD-PA, New Windsor, MD, and Westminster, MD 7.5-minute United States Geological Survey (USGS) topographic quadrangle maps (N 39.612766, W 77.013517) in **Attachment A**. The proposed plans call for the expansion of the airport and may include construction of a new runway, extension of existing runway/taxi way, and supporting infrastructure. Generally, the site lies within a mixed-use area, being bordered by commercial, institutional, industrial, residential, and agricultural properties. Vegetative communities within the site reflect these varied land uses and include mowed lawns, agricultural fields, forests, floodplains, and wetlands. The site lies within two watersheds: the northern part of the site drains to Bear Branch, while the southern/southeastern part of the site drains to North Branch West Branch Patapsco River. All wetlands and streams are non-tidal.

#### **METHODS**

Wetland investigations were performed using delineation methodology outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region (Version 2.0)*. A separate memorandum specific to the performed wetland delineation was completed and is not part of this memorandum.

Potential bog turtle habitat was investigated using the methods outlined in the USFWS Bog Turtle Habitat Evaluation Field Form (Revised June 1, 2006) for the determination of the presence or absence of potential bog turtle habitat. All delineated wetlands within the project area were examined for the three criteria necessary for bog turtle habitat (hydrology, mucky soils, and vegetation). A separate report specific to the performed Phase 1 bog turtle habitat assessment was completed and is not part of this memorandum.

In addition to specifically investigating the federally listed threatened bog turtle, RETTEW conducted an online USFWS "IPaC" search of the project area on July 25, 2016. Coordination letters and project location maps were



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also mailed to both the MDNR and USFWS to further investigate the potential presence of endangered and threatened species and to relay past coordination for the same project that had been completed back in 2008 and 2009. Both agencies were provided copies of their past 2008/2009 clearances.

During wetland delineation and bog turtle habitat investigations, other habitat communities at the project site that could have potential bearing on rare, threatened, and endangered species concerns were defined.

#### **RESULTS AND DISCUSSION**

The USFWS IPaC online search resulted in an official species list that indicated that the Indiana bat (*Myotis sodalis*), a federally listed endangered species, may occur within the boundary of the proposed project (**Attachment B**). The MDNR also lists the bog turtle (*Glyptemys muhlenbergii*) as a federally threatened species in Carroll County. Coordination letters requesting a review of the project area were submitted to both the MDNR (**Attachment C**) and USFWS.

A response letter dated August 25, 2016 was received from the USFWS (**Attachment C**). The project is located within the summer habitat range of the federally endangered Indiana bat, and construction activities could impact this habitat if potential roost trees and maternity habitat are removed. Thus, potential impacts to the Indiana bat should be analyzed as part of the environmental assessment for this project. In addition, the bald eagle is protected by the Bald and Golden Eagle Act and any potential disturbance to the bald eagle should be avoided by following the National Bald Eagle Management Guidelines. No other federally proposed or listed endangered or threatened species under the jurisdiction of the USFWS are known to exist in the area.

A written response from the MDNR has not been received to date; however, coordination with Scott Smith of MDNR is on-going. As part of this coordination, a Jurisdictional Determination (JD) field view was conducted on September 23, 2016 with representatives from RETTEW, USACE, and MDNR. The USACE verbally agreed with RETTEW's wetland delineation results. Of all the wetlands located within the area of investigation, there is only one wetland (Wetland #9) located inside the limits of disturbance (LOD) for the project that contains suitable bog turtle habitat, and the MDNR concurs with this assessment. However, the MDNR has requested another bog turtle trapping effort be conducted due to the length of time since the original trapping effort; the standards for trapping have changed since that time.

At this time, both agencies are only concerned with the Indiana bat and the bog turtle. Potential habitat for these two species within the project area was investigated.

Land use within the project area includes industrial, residential, institutional, commercial, silvicultural, and agricultural. These historic and current anthropogenic activities in naturalized areas have influenced the physiognomy, resulting in largely graminoid-forb wetland communities and variously-aged upland timber stands. Many of the wetlands are adjacent to streams and occur in the floodplains of these streams. If bog turtles are present within the project area, they would be associated with these wetlands, while any present Indiana bats would be associated with forested areas typically comprised of large, rough-barked trees that serve for daily roosting during the spring, summer, and fall months.

#### **Uplands**

Many of the upland areas can be described as wooded hills and slopes, agricultural fields, and maintained lawn areas. In areas having a more mature timber stand, the canopy of the vegetation community was composed of oaks (Quercus rubra, Q. montana), cherries (Prunus pensylvanica, P. serotina), hickories (Carya ovata, C.



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tomentosa), and tuliptree (Liriodendron tulipifera). In the sapling/shrub stratum of these wooded, upland areas, species such as American witch-hazel (Hamamelis virginiana), northern spicebush (Lindera benzoin), and sapling-sized specimens of cherries and hickories were observed. Much of the remainder of the project area experiences more frequent anthropogenic perturbations (e.g. mowing, planting) which is reflected in the species composition of the vegetation community. Please refer to the "Herb" section of **Table 1** below for species commonly encountered in such areas. Data forms representative of sample points completed in upland habitats can be found in **Attachment D**.

Stratum	Species	es Common Name		
	Acer negundo	Ash-leaf maple	FAC	
Tree	Liriodendron tulipifera	Tuliptree	FACU	
	Morus rubra	Red mulberry	FACU	
	Prunus pensylvanica	Fire cherry	FACU	
	Quercus rubra	Northern red oak	FACU	
	Robinia pseudoacacia	Black locust	FACU	
	Carya ovata	Shagbark hickory	FACU	
	Hamamelis virginiana	American witch-hazel	FACU	
0 1: /01 1	Lindera benzoin	Northern spicebush	FAC	
Sapling/Shrub	Lonicera tatarica	Twinsisters	FACU	
	Prunus pensylvanica	Fire cherry	FACU	
	Rubus phoenicolasius	Wineberry	FACU	
	Capsella bursa-pastoris	Shepherd's-purse	FACU	
	Dactylis glomerata	Orchard grass	FACU	
	Erythronium americanum	Yellow trout-lily	NL*	
Herb	Glechoma hederacea	Ground-ivy	NL*	
	Lonicera japonica	Japanese honeysuckle	FACU	
	Phalaris arundinacea	Reed canary grass	FACW	
	Plantago major	Great plantain	FACU	
	Poa trivialis	Rough-stalk blue grass	FACW	
	Podophyllum peltatum	May-apple	FACU	
	Taraxacum officinale	Common dandelion	FACU	
	Parathelypteris noveboracensis	New York fern	FAC	
Woody Vine	Lonicera japonica	Japanese honeysuckle	FACU	
woody ville	Parthenocissus quinquefolia	Virginia creeper	FACU	

<sup>\*</sup>NL: specimens could not be identified to species level or are not listed in the USACE Eastern Mountains and Piedmont 2016 Regional Wetland Plant List.

## **Upland Habitat Communities**

## **Agricultural Mix**

This includes croplands, pasturelands and agricultural buildings. This habitat community likely has little bearing on rare, threatened, and endangered species specific to this particular project.



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## **Developed Mix**

This includes residential homesteads, industrial and commercial enterprises, roadways and parking lots, and maintained lawns and athletic fields. This generalized habitat community likely has little bearing on rare, threatened, and endangered species specific to this particular project.

#### **Forests**

#### Red Oak-Mixed Hardwood Forest

This includes woodlands dominated by red oak. Associated trees often include white oak, chestnut oak, tuliptree, black cherry, fire cherry, and American witch-hazel in the understory. This habitat community could potentially provide adequate habitat for Indiana bats. These bats tend to roost under the bark of rough-barked trees. Throughout this habitat community, there are occasionally shagbark hickory trees which are one species of tree typically used by Indiana bats. White oak can also have rougher bark at times and can serve as roosts.

#### **Early Successional Forest**

This forested community consists mainly of red mulberry, fire cherry, shagbark hickory, and twinsisters in the understory. Most tree species in this habitat community are not typically preferred for Indiana bat roosting except for the occasional, larger shagbark hickory. However, this community appears to be outside the proposed LOD for the project at this time.

#### White Pine Forest

This forest stand is dominated by white pine with multi-flora rose/rambler rose and twinsisters occupying the understory. This habitat community likely has little bearing on rare, threatened, and endangered species specific to this particular project.

In summary, forested areas within the project site containing large, rough-barked trees are of concern when considering conservation of Indiana bats. As project planning and permitting progresses, it may become necessary to identify individual potential roosting trees and avoid their removal or place time restrictions on when such trees can be removed (which is typically during the winter months when the bats are hibernating).

#### Wetlands

Wetland habitats were mostly observed adjacent to various streams and in areas that were topographically lower than adjoining uplands. Locations of many of the wetlands coincide with mapped locations of hydric soil map units: Baile silt loam and Hatboro silt loam. Some of the larger wetlands, such as those associated with Bear Branch and an unnamed tributary (UNT) to West Branch North Branch Patapsco River, did contain some small upland inclusions; however, such inclusions serve to function ecologically within the floodplain context. Dominant herbaceous vegetation recorded at sampling points in wetlands is listed below in **Table 2**. Sampling points completed in these wetlands exhibited various combinations of the three parameters characteristic of wetlands.

Table 2. Dominant plant species recorded at sampling points in wetlands habitats within the AOI (2016).						
Stratum	Latin Name	Common Name	Indicator Status			
Tree	Acer rubrum	Red maple	FAC			
Sapling/Shrub	Lindera benzoin	Northern spicebush	FAC			
	Carex stricta	Upright sedge	OBL			
Herb	Impatiens capensis	Spotted touch-me-not	FACW			
	Phalaris arundinacea	Reed canary grass	FACW			
	Symplocarpus foetidus	Skunk-cabbage	OBL			



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In general, surficial hydrology in the northern portion of the site drains to Bear Branch and/or several UNTs to Bear Branch. The southeastern portion of the site drains to the West Branch North Branch Patapsco River via a UNT to West Branch North Branch Patapsco River while the southern and southwestern portions drain to a UNT to Meadow Branch Big Pipe Creek. These receiving streams are all perennial in nature. Information on relative locations of streams and wetlands, flow direction of streams, and stream dimensions is illustrated on the Habitat Communities Mapping (Attachment E).

#### **Wetland Habitat Communities**

## PEM - Palustrine Emergent Wetlands

This wetland community is dominated by herbaceous plants rather than shrubs and trees. PEM wetlands within the project area are dominated by spotted touch-me-not/jewelweed and reed canary grass.

#### **PSS – Palustrine Scrub Shrub Wetlands**

This wetland community is dominated by shrubs rather than trees or herbaceous plants. PSS wetlands within the project area are dominated by northern spicebush.

#### **PFO – Palustrine Forested Wetlands**

This wetland community is dominated by trees rather than shrubs and herbaceous plants. PFO wetlands within the project area are dominated by red maple.

## **Potential Bog Turtle Habitat**

This wetland habitat is very species-specific and is applicable to this project. Such habitat includes the right mix of hydrology, mucky soils, and vegetation. A separate memorandum/report specific to the performed Phase 1 bog turtle habitat assessment was completed and is not part of this memorandum/report. However, the potential bog turtle habitat is depicted on the Habitat Communities Mapping in **Attachment E**.

#### **CONCLUSION**

One wetland (Wetland #9) within the project LOD contains suitable bog turtle habitat. Based on meetings and discussions with the USFWS and MDNR, the agencies concur with the current wetland delineation and bog turtle habitat survey conducted by RETTEW; however, because the original bog turtle trapping effort is over five years old, an updated trapping effort will be required and could be conducted in May/June of 2017.

The project is located within the summer habitat range of the Indiana bat. Therefore, in order to avoid impacts to the Indiana bat, it may be necessary to identify individual potential roosting trees or maternity habitat and avoid their removal, or at minimum remove trees during the winter months when the bats are not using them as seasonal roosts. If impacts may potentially occur, further consultation with the USFWS may be required.

Prepared by:

Mark Metzler, Senior Environmental Scientist

Reviewed by: Thomas 9. Sin

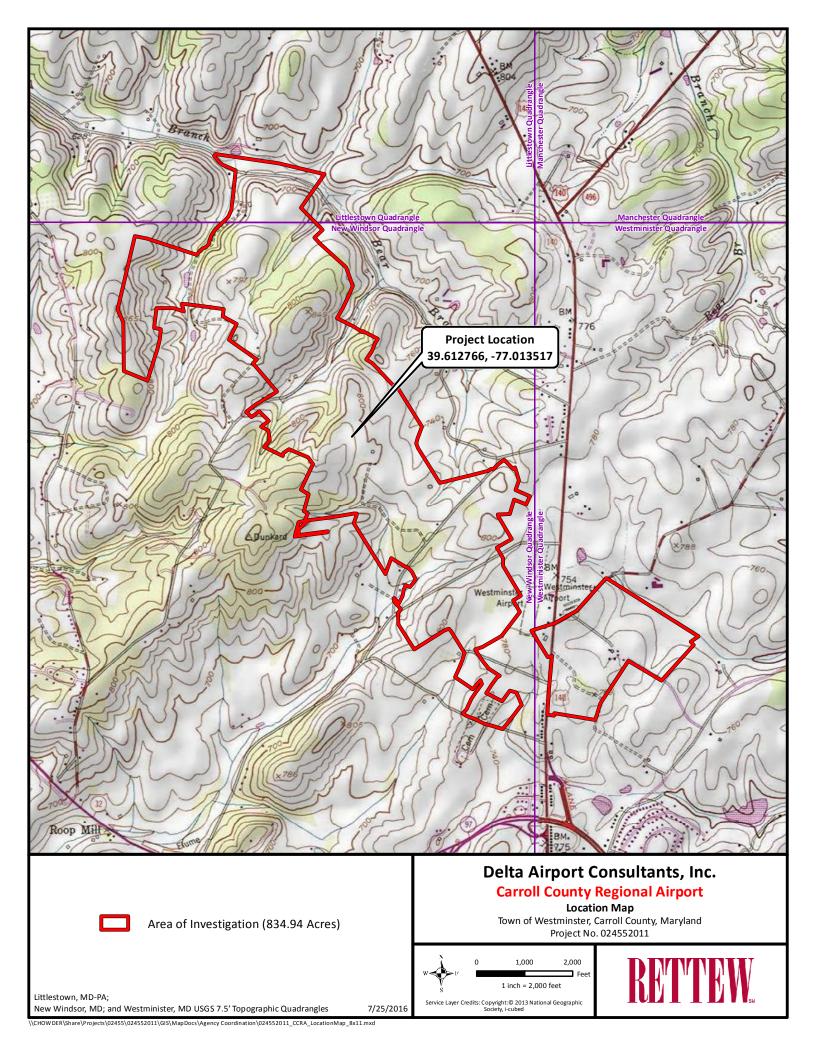
Thomas J. Stich, Senior Environmental Scientist

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## **ATTACHMENT A**

## **LOCATION MAP**



# ATTACHMENT B IPaC OFFICIAL SPECIES LIST



## **United States Department of the Interior**

## FISH AND WILDLIFE SERVICE

Chesapeake Bay Ecological Services Field Office 177 ADMIRAL COCHRANE DRIVE ANNAPOLIS, MD 21401

PHONE: (410)573-4599 FAX: (410)266-9127 URL: www.fws.gov/chesapeakebay/;

www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



July 25, 2016

Consultation Code: 05E2CB00-2016-SLI-1567

Event Code: 05E2CB00-2016-E-01608

Project Name: Carroll County Regional Airport

Subject: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan

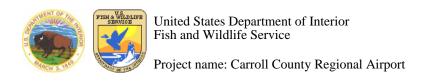
(http://www.fws.gov/windenergy/eagle\_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



## **Official Species List**

## Provided by:

Chesapeake Bay Ecological Services Field Office 177 ADMIRAL COCHRANE DRIVE ANNAPOLIS, MD 21401 (410) 573-4599

http://www.fws.gov/chesapeakebay/

http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

Consultation Code: 05E2CB00-2016-SLI-1567

**Event Code:** 05E2CB00-2016-E-01608

**Project Type:** DEVELOPMENT

**Project Name:** Carroll County Regional Airport

**Project Description:** The proposed airport expansion project is located in the Town of Westminster, Carroll County, Maryland and appears on the New Windsor and Westminster, Maryland U.S. Geological Survey (USGS) 7.5-minute quadrangles. The project is still in the planning stages and will include runway extensions, new hangers, commercial and industrial buildings, and supporting infrastructure. The area of investigation is approximately 835 acres, but only a portion of this area will be developed.

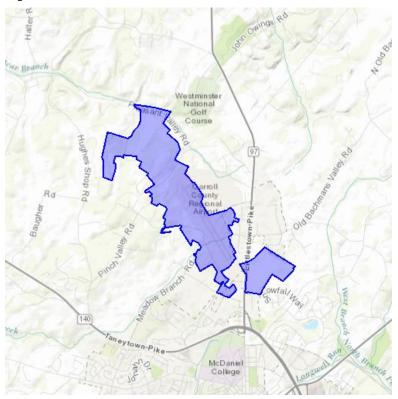
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



## United States Department of Interior Fish and Wildlife Service

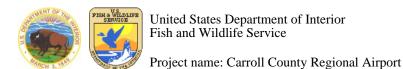
Project name: Carroll County Regional Airport

## **Project Location Map:**



**Project Coordinates:** The coordinates are too numerous to display here.

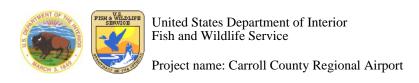
Project Counties: Carroll, MD



## **Endangered Species Act Species List**

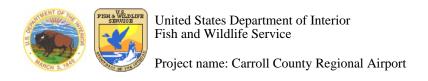
There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Indiana bat (Myotis sodalis)	Endangered		
Population: Entire			



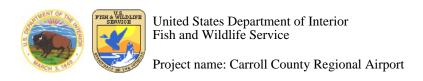
## Critical habitats that lie within your project area

There are no critical habitats within your project area.



## Appendix A: FWS National Wildlife Refuges and Fish Hatcheries

There are no refuges or fish hatcheries within your project area.



## **Appendix B: NWI Wetlands**

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery and/or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Exclusions** - Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Precautions** - Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of





## United States Department of Interior Fish and Wildlife Service

Project name: Carroll County Regional Airport

this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

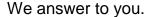
The following NWI Wetland types intersect your project area in one or more locations. To understand the NWI Classification Code, see <a href="https://ecos.fws.gov/ipac/wetlands/decoder">https://ecos.fws.gov/ipac/wetlands/decoder</a>. To view the National Wetlands Inventory on a map go to <a href="http://www.fws.gov/wetlands/Data/Mapper.html">http://www.fws.gov/wetlands/Data/Mapper.html</a>.

Wetland Types	NWI Classification Code				
Freshwater Emergent Wetland	PEM1A				
Freshwater Emergent Wetland	PEM5A				
Freshwater Forested/Shrub Wetland	PFO1A				
Freshwater Forested/Shrub Wetland	PSS1/EM1A				
Freshwater Forested/Shrub Wetland	PSS1A				
Freshwater Pond	PUBHh				
Riverine	R4SBC				
Riverine	R5UBH				

## **ATTACHMENT C**

## **AGENCY LETTERS**







3020 Columbia Avenue, Lancaster, PA 17603 • Phone: (800) 738-8395

E-mail: rettew@rettew.com • Website: rettew.com

July 25, 2016

Environmental Consultants

Surveyors

**Engineers** 

Landscape Architects

Safety Consultants

Ms. Lori Byrne
Maryland Department of Natural Resources
Wildlife and Heritage Service
Tawes State Office Building, E-1
580 Taylor Avenue
Annapolis, MD 21401
(410) 260-8573

RE: Endangered and Threatened Species Coordination

Carroll County Regional Airport

Town of Westminster, Carroll County, Maryland

RETTEW Project No. 024552011

**FED-EX** 

Dear Ms. Byrne:

This correspondence is a request for an endangered and threatened species review of a proposed airport extension project at the Carroll County Regional Airport Site. The proposed project is located in the Town of Westminster and surrounding areas, Carroll County, Maryland and appears on the New Windsor and Westminster, Maryland and Littlestown, MD-PA U.S. Geological Survey (USGS) 7.5-minute quadrangles (attached).

Coordination for this project was previously conducted in 2008; at that time, there were no state or federal records for rare, threatened or endangered species within the project boundary. Since then the project boundary has been expanded, and an updated review is requested. Please note our project number has changed from 07-02455-002 to 024552011.

The project is still in the planning stages; however, the overall plan remains the same with the exception of two additional areas now included within the project boundary. Expansion of the airport will include runway extensions, new hangers, commercial and industrial buildings, and supporting infrastructure. The area of investigation includes a portion of the airport property and several adjacent parcels totaling approximately 835 acres. The entire property is transected and bordered by several roads and is also bounded by commercial and private properties. The site is dominated by a mixture of vegetative communities, including mowed lawns, agricultural fields, mature woods, successional woods, and wetlands. There are several small streams on-site identified as tributaries to Bear Branch of Big Pipe Creek and Meadow Branch of Big Pipe Creek. There are also several palustrine emergent/scrub-shrub/forested wetlands within the project site. These are all non-tidal resources. Because the project is still in the planning stages, please consider the area of investigation to be the site boundary.



Page 2 of 2 MDNR July 25, 2016 RETTEW Project No. 024552011

Please conduct a search of your database to determine the potential presence of listed endangered or threatened species or their habitat under your jurisdiction within the proposed site. We have enclosed the previous clearance letter and a location map. A Phase I Bog Turtle Habitat Assessment and coordination with Scott Smith of MDNR are in the process of being completed. Should you have any questions or need additional information, please contact me at (717) 205-2219. Thank you very much for your assistance.

Sincerely,

Laura V. Hall

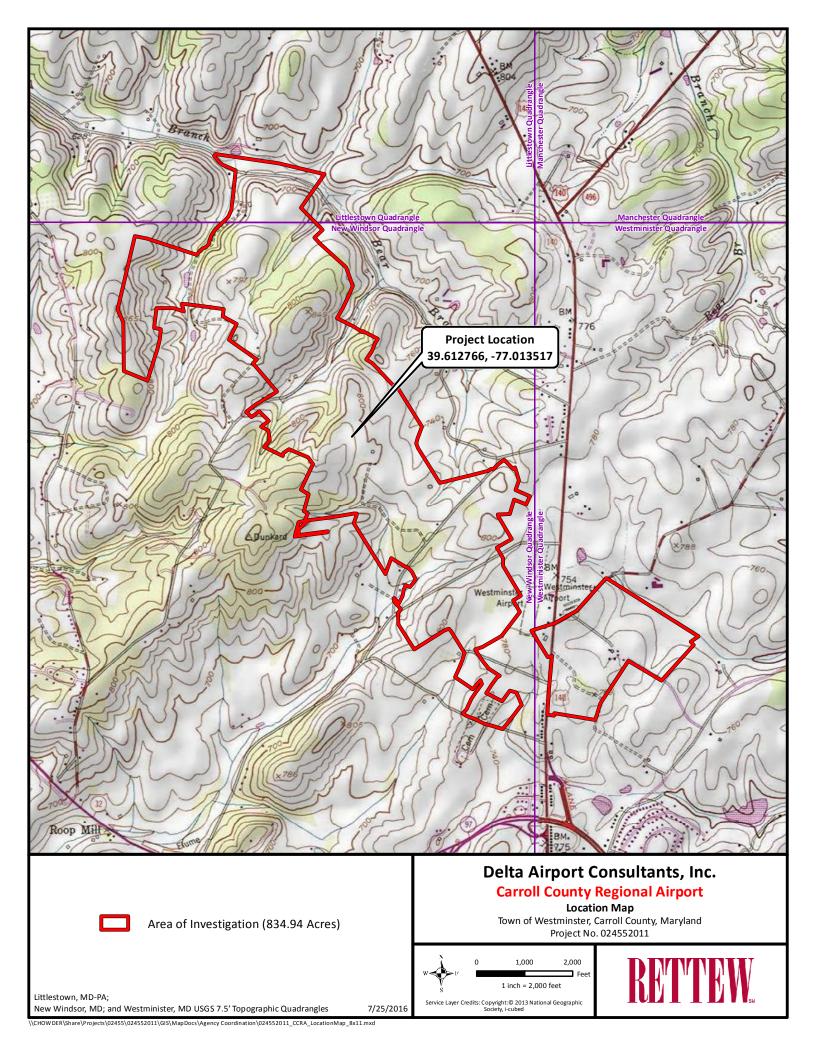
**Environmental Scientist** 

**Enclosures** 

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Martin O'Malley, Governor Anthony G. Brown, Lt. Governor John R. Griffin, Secretary Eric Schwaab, Deputy Secretary

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JUL 30 2000

ARTHUM PASSE INC.

July 28, 2008

Jeremy Hite RETTEW 3020 Columbia Ave. Lancaster, PA 17603

Environmental Review for Carroll County Regional Airport, Project 07-02455-002, Westminster, Carroll County, MD.

Dear Mr. Hite:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

> Sincerely, Louia. Bym

Lori A. Byrne,

Environmental Review Coordinator Wildlife and Heritage Service

MD Dept. of Natural Resources

ER# 2008.1190



3020 Columbia Avenue, Lancaster, PA 17603 • (717) 394-3721 • (ax (717) 394-1063 E-mail: rettew@rettew.com • Web site: www.rettew.com

June 6, 2008

Ms. Lori Byrne Maryland Department of Natural Resources Wildlife and Heritage Service 580 Taylor Avenue Tawes State Office Building, E-1 Annapolis, Maryland 21401



- e Engineers
- Planners
- Surveyors
- Landscape
   Architects
- Environmental Consultants

RE:

Threatened and Endangered Species Coordination

Carroll County Regional Airport

Town of Westminster, Carroll County, Maryland

RETTEW Project No. 07-02455-002

CERTIFIED/Phase 404

#### Dear Lori:

Please consider this request for a threatened and endangered species review for a proposed airport extension site at the Carroll County Regional Airport Site.

The Carroll County Regional Airport Site located in the Town of Westminster, Carroll County, Maryland and appears on the New Windsor and Westminster, Maryland U.S. Geological Survey (USGS) 7.5-minute quadrangles (Latitude N 39° 36' 51.57" and Longitude W 77° 0' 41.68") (Figure 1).. The proposed plans are still in the feasibility stages; however, expansions of the airport may include runway extensions, new hangers, commercial and industrial buildings, and supporting infrastructure, etc. The area of investigation includes a portion of the airport property and several adjacent parcels totaling approximately 741.978 acres. The entire property is transected and border by several roads and is also bounded by commercial and private properties. The site is dominated by a mixture of vegetative communities, which include mowed lawns, agricultural fields, mature woods, successional woods, and wetlands. There are several small streams that are tributaries to Bear Branch Big Pipe Creek and Meadow Branch of Big Pipe Creek on site. There are several palustrine emergent/scrub-shrub/forested wetlands within the Carroll County Regional Airport Site. These are all non-tidal resources. The project is still in the preliminary planning stages, so please consider the area of disturbance to be the site boundary.

Please conduct a search of your database to determine the potential presence of listed threatened or endangered species or their habitat under your jurisdiction within the proposed site. We have enclosed a copy of the New Windsor and Westminster, MD USGS 7.5-minute quadrangle with the location of the site identified.



Page 2 of 2 Maryland Department of Natural Resources June 6, 2008 RETTEW Project No. 07-02455-002

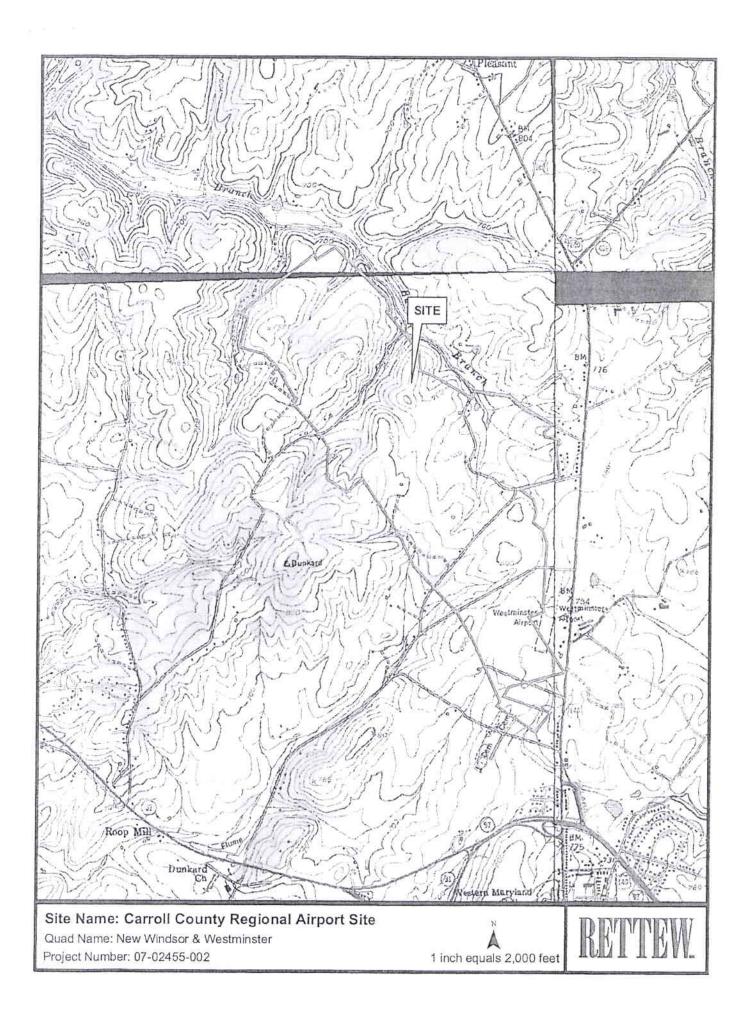
In your response, please reference the site name and job number so that we can accurately document the findings. Should you have any questions or need additional information, please contact me at (717) 394-3721. Thank you very much for your assistance.

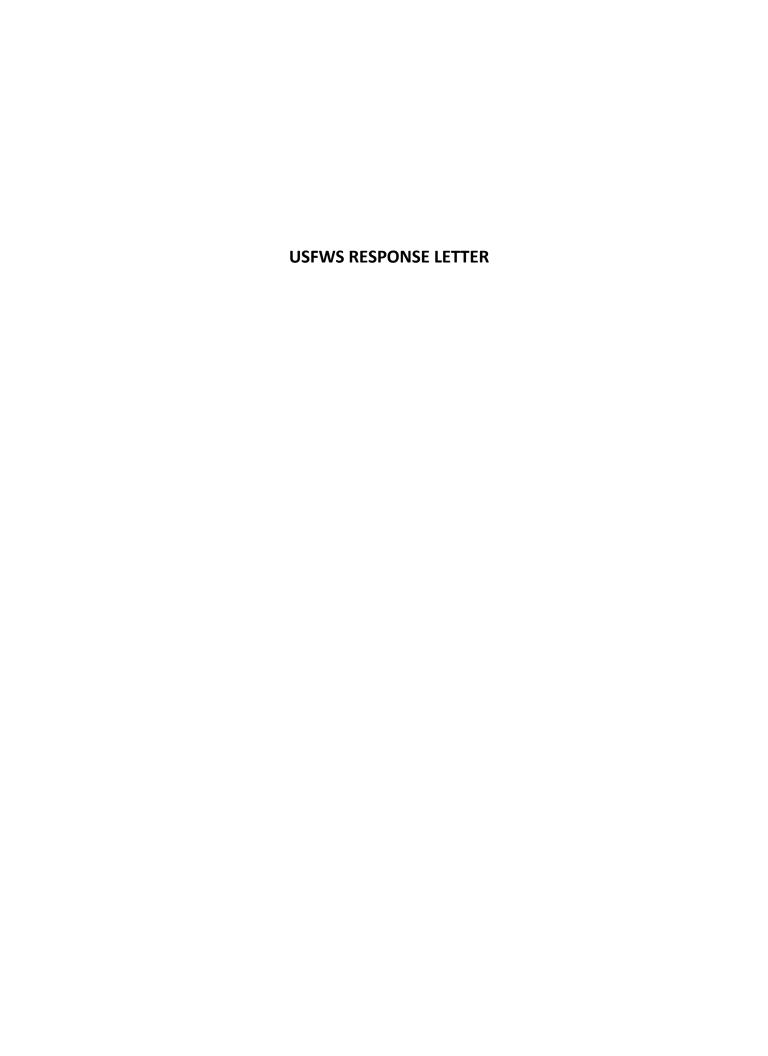
Sincerely,

Jeremy Hite Biologist

Enclosure

 $H:\label{eq:h:07-02455-002NS} H:\label{eq:h:07-02455-002NS-Agency} Letters \c Ltr-MDNR-6-5-08. doc$ 







## **United States Department of the Interior**

FISH AND WILDLIFE SERVICE Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401 410/573-4599



August 25, 2016



RETTEW Associates, Inc. 3020 Columbia Ave. Lancaster, PA 17603-4011

RE: Carroll County Regional Airport

#### Dear Laura V. Hall:

This responds to your letter, received July 25, 2016, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The above referenced project is within the summer habitat range of the federally endangered Indiana bat (*Myotis sodalis*). This species may use the project area for foraging and roosting between April 1 and mid November. Indiana bat summer foraging habitats are generally defined as riparian, bottomland, or upland forest, and old fields or pastures with scattered trees. Streams, associated flood plain forests, and impounded bodies of water (e.g., ponds, wetlands and reservoirs) have also been identified as preferred foraging habitats for pregnant and lactating Indiana bats. This species feeds exclusively on flying insects. Roosting/maternity habitat consists primarily of live or dead tree species five-inches in diameter at breast height, or greater, which have exfoliating bark that provides space for bats to roost between the bark and bole of the tree. Tree cavities, crevices, splits, or hollow portions of tree boles and limbs also provide roost sites. The Indiana bat could be impacted by construction activity that involves removing potential roost trees and maternity habitat. Any potential impacts on Indiana bat habitat should be analyzed as a part of your environmental assessment. If such impacts may occur, further section 7 consultation with the U.S. Fish and Wildlife Service may be required.

Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species are known to exist within the area. Should additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at:

 $\underline{http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf.}$ 

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities. This proposed permit process will not be available until the Service issues a final rule for the issuance of these take permits under the Bald and Golden Eagle Protection Act.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Andy Moser at (410) 573-4537.

Sincerely,

Genevieve LaRouche

y La Rouche

Supervisor

# ATTACHMENT D UPLAND SAMPLING POINT DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region Project/Site: CAROLL CO. PEGIONAL AIRPORT City/County: CARROLL CO. Sampling Date: 4/13/2016 Applicant/Owner: CARROLL Co. State: MA Sampling Point: 5916 913-1145 Investigator(s): JTH, TJ S Section, Township, Range:\_\_\_\_ Landform (hillslope, terrace, etc.): TERMIC Local relief (concave, convex, none): None Slope (%): O Subregion (LRR or MLRA): <u>LRR S</u> Lat: <u>39.628//</u> Long: <u>77.022/5</u> Datum: Soil Map Unit Name: GLENVILLE SILT WAR 3-8% SCORES (GhB) NWI classification: N/A Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.) Are Vegetation <u>No</u>, Soil <u>No</u>, or Hydrology <u>No</u> significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_ Are Vegetation <u>No</u>, Soil <u>No</u>, or Hydrology <u>No</u> naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes \_\_\_\_\_ No\_\_ Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? Yes \_\_\_\_\_ No\_\_\_\_\_ within a Wetland? Yes No No Wetland Hydrology Present? Remarks: THE SP IS REPRESENTATIVE OF THE PREDOMINANTY HEMSEROUS UPWA PARES NEAR THERE ARE A FEW THEE + SHEWE SPECIMENS, NOTE THESE UPLANDS ALES ARE TOPOGRAPHICALLY HIGHER THAN WETANDS ADJOINING THE STIEGH CHANNEL ASCOE 465, ppg (N) **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) \_ \_\_ Surface Soil Cracks (B6) \_\_\_ Sparsely Vegetated Concave Surface (B8) \_\_\_ True Aquatic Plants (B14) Surface Water (A1) \_\_\_ Hydrogen Sulfide Odor (C1) \_\_ Drainage Patterns (B10) High Water Table (A2) Saturation (A3) \_\_\_ Oxidized Rhizospheres on Living Roots (C3) \_\_\_ Moss Trim Lines (B16) \_\_\_ Presence of Reduced Iron (C4) \_\_\_ Dry-Season Water Table (C2) \_\_\_ Water Marks (B1) \_\_\_ Recent Iron Reduction in Tilled Soils (C6) Sediment Deposits (B2) \_\_\_ Crayfish Burrows (C8) Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) \_\_\_ Other (Explain in Remarks) Stunted or Stressed Plants (D1) \_\_\_ Geomorphic Position (D2) \_\_\_ Iron Deposits (B5) \_\_\_ Shallow Aquitard (D3) \_\_\_ Inundation Visible on Aerial Imagery (B7) \_\_\_ Water-Stained Leaves (B9) \_\_\_ Microtopographic Relief (D4) \_\_\_ FAC-Neutral Test (D5) Aquatic Fauna (B13) Field Observations: Yes \_\_\_\_\_ No / Depth (inches):\_\_\_\_\_ Surface Water Present? Yes \_\_\_\_ No \_\_\_\_ Depth (inches):\_\_\_\_\_ Water Table Present? Yes \_\_\_\_ No \_\_\_ Depth (inches):\_\_\_\_\_ Wetland Hydrology Present? Yes \_\_\_\_\_ No\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: WERNEL HIBEROOM INDICATORS ORCHENURS

## **VEGETATION** (Four Strata) – Use scientific names of plants.

	Absolute Do	minant Indicato	Dominance Test worksheet:
Tree Stratum (Plot size: 30' )	% Cover Sp	ecies? Status	I trained of bonniant openies
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant 2
3,			_ Species Across All Strata: (B)
4,			Percent of Dominant Species
5			That Are OBL, FACW, or FAC: 50 (A/B)
6			
7			Prevalence Index worksheet:
	= To	otal Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of tota	l cover:	OBL species  x1 = 0
Sapling/Shrub Stratum (Plot size: 15"			FACW species $x^2 = \frac{2}{3}$
1			FAC species O x 3 = O
2			FACU species x 4 =
3			UPL species x 5 =
4			Column Totals: (A) (B)
5.			Prevalence Index = B/A = 3.33
6.			
7			Hydrophytic Vegetation Indicators:
8			1 - Rapid Test for Hydrophytic Vegetation
9.			2 - Dominance Test is >50%
V		otal Cover	3 - Prevalence Index is ≤3.0¹
50% of total cover:			4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:)	····		data in Remarks or on a separate sheet)
1. Pholoris arundinacea	83	& FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Tarapacum officinale		N FACE	-
3. Glechona hederacea		Y FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
•			•
4,			- Definitions of Four Vegetation Strata:
5			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6			more in diameter at breast height (DBH), regardless of height.
7			neight
8			Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10			-   '
11.	(12)		<ul> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> </ul>
50% of total cover:	$\frac{(2.1)}{20\%}$ = To		of Size, and woody plants less than 3.20 it tail.
Woody Vine Stratum (Plot size:)	20% 01 tota	r cover	Woody vine – All woody vines greater than 3.28 ft in
			height.
1			-
2			-
3			-
4			Hydrophytic
5			Vegetation Present? Yes No No
7707 ft 1.1		tal Cover	105 105
50% of total cover:		r cover	-
Remarks: (Include photo numbers here or on a separate s			
Phalaris arundinacea 15 VE LEACU) Jugleus nigra specimens (40	on compe	mit ve	
(FACU)			The same of the sa
Juglans nigra specimens (no	the Course W	patres d SCA	TEMO, THROUGHOUT CIRP AREA
			9

Depth Matrix		lox Features	T1	Loc²	Touters	Remar	ke
(inches) Color (moist)	% Color (moist)	%	Type <sup>1</sup>	LOC	Texture	Kemar	V2
0-17 6-125/4	00	+ +	-		SiL -	Cateron K. Large	
17-21 101R 6/6	(00		-	-	21.r		
, *	t t						
					· · · · · · · · · · · · · · · · · · ·		
							Village
0	r						
- 0							
Type: C=Concentration, D=Depleti	on RM=Reduced Matrix M		and Grai	ns.	<sup>2</sup> Location: PL=I	Pore Lining, M=Mat	rix.
ydric Soil Indicators:	on, raw-reduced wath, r	no-musica o	una ora	1131		rs for Problemation	
Histosol (A1)	Dark Surface	ce (S7)				Muck (A10) (MLR	
Histic Epipedon (A2)		Below Surface	(S8) (MI	_RA 147,	148) Coa	st Prairie Redox (A	
Black Histic (A3)		Surface (S9) (N		7, 148)		ILRA 147, 148)	
_ Hydrogen Sulfide (A4)		yed Matrix (F2	2)			mont Floodplain So	oils (F19)
_ Stratified Layers (A5)	Depleted M					ILRA 136, 147) Shallow Dark Surf	aco (TE12)
_ 2 cm Muck (A10) (LRR N) _ Depleted Below Dark Surface (A		k Surface (F6) ark Surface (F				er (Explain in Rema	
_ Thick Dark Surface (A12)		ressions (F8)	,,		0	" (Explain in rema	
Sandy Mucky Mineral (S1) (LRI		nese Masses	(F12) (L	RR N,			
MLRA 147, 148)	MLRA 1						
_ Sandy Gleyed Matrix (S4)		face (F13) <b>(M</b> I				tors of hydrophytic	
Sandy Redox (S5)		loodplain Soil:				nd hydrology must	
_ Stripped Matrix (S6)	Red Parent	Material (F21	) (IVILRA	127, 147	) unles	s disturbed or probl	emauc.
estrictive Layer (if observed):				150			
Type:					Hydric Soil Dr.	esent? Yes	No. /
Depth (inches):					Trydric 30ii 1 i	C3CIIC: 1C3	
Remarks: PT 21" AFFP							
MONE ONSEMA	Δ						
	.5						
	•						

#### WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region Project/Site: CARRILL Co. REGIONAL AILPORT City/County: CARROLL Co. Sampling Date: 4/21/2016 Applicant/Owner: Cauna Co. State: MA Sampling Point: 591604210825 \_\_\_\_\_ Section, Township, Range:\_\_\_\_\_ Investigator(s): JTH, TIS Landform (hillslope, terrace, etc.): HILLSLOPE (FROM ROAD) Local relief (concave, convex, none): CONVEX Slope (%): 10 Subregion (LRR or MLRA): LRR S Lat: 39.62735 Long: -79.016494 Datum: NAS & 83 Soil Map Unit Name: Brinklow channey loam, 15-25% scres (Br D) NWI classification: N/A Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_ (If no, explain in Remarks.) Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_ Are Vegetation No, Soil No, or Hydrology No significantly disturbed? (If needed, explain any answers in Remarks.) Are Vegetation No, Soil No, or Hydrology No naturally problematic? SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes \_\_\_\_\_ No\_\_\_ Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? Yes \_\_\_\_\_ No\_\_\_\_ within a Wetland? Wetland Hydrology Present? Yes \_\_\_\_\_ No\_\_\_\_ A RUAD BED "SCOPE", P-AD HAS BEEN IN PLACE FOR LONG PERIOD YIECDING "NOWHAL" **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) \_\_ Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) \_\_\_ True Aquatic Plants (B14) Surface Water (A1) \_\_\_ Drainage Patterns (B10) \_\_\_ Hydrogen Sulfide Odor (C1) \_\_\_ High Water Table (A2) \_\_\_ Oxidized Rhizospheres on Living Roots (C3) \_\_\_ Moss Trim Lines (B16) \_\_\_ Saturation (A3) \_\_\_ Dry-Season Water Table (C2) \_\_\_ Water Marks (B1) \_\_\_ Presence of Reduced Iron (C4) \_\_\_ Recent Iron Reduction in Tilled Soils (C6) \_\_\_ Crayfish Burrows (C8) Sediment Deposits (B2) \_\_\_ Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) \_\_\_ Algal Mat or Crust (B4) \_\_\_ Stunted or Stressed Plants (D1) \_\_\_ Other (Explain in Remarks) Geomorphic Position (D2) \_\_\_ Iron Deposits (B5) \_\_\_ Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) \_\_\_ Water-Stained Leaves (B9) \_\_ Microtopographic Relief (D4) FAC-Neutral Test (D5) \_ Aquatic Fauna (B13) Field Observations: Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches):\_\_\_\_\_ Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_ Depth (inches):\_\_\_\_\_ Water Table Present? Wetland Hydrology Present? Yes \_\_\_\_ No\_\_ Yes \_\_\_\_ No \_\_\_ Depth (inches):\_\_\_\_\_ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: NONE OBSERVES

## **VEGETATION** (Four Strata) – Use scientific names of plants.

· · · · · · · · · · · · · · · · · · ·	Absolute	- Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')		Species?		Number of Dominant Species
1. Acer negrado	$_{\mathcal{C}}$	4	FAC	That Are OBL, FACW, or FAC:(A)
2				
ł				Total Number of Dominant Species Across All Strata:  4 (B)
3				Species Across All Strata: (B)
4		-		Percent of Dominant Species
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 25 % (A/B)
6				
7				Prevalence Index worksheet:
5-le= = A/2	<i>V</i> .	= Total Cov	er	Total % Cover of: Multiply by:
50% of total cover:				OBL species x 1 =
Sapling/Shrub Stratum (Plot size: \ \( \sigma \)	2070 01	total coron		FACW species x 2 =
Sapinig/Stratum (Piot Size	17	$\checkmark$		FAC species x 3 =
1. Prunus pansylvanica	(D) T		YACU	1 · · ·
2. Carya ovata	<u> </u>	<u> </u>	PACU	FACU species x 4 =
3. Rusa multiflora	8	_ N	FACU	UPL species x 5 =
4. Juniperus Virginiana	12	И	FACU	Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8			<b>,</b>	2 - Dominance Test is >50%
9.				
5/2: 47.5/19	95 =	= Total Cov	er	3 - Prevalence Index is ≤3.0¹
50% of total cover:		total cover:		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:)				data in Remarks or on a separate sheet)
reib Stratum (Flot size:)	~	<b>✓</b>	FACU	Problematic Hydrophytic Vegetation (Explain)
1. Podophyllum peltatum				
2. Erythronium rostratum	46	7	UPL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3. Claytonia virginica	2_	M	FAC	be present, unless disturbed or problematic.
4. Allium vineale		N	FACU	Definitions of Four Vegetation Strata:
5. Carey pourylvanion	11	$\overline{M}$	+ NL	Definitions of Four Vegetation Strata.
		N	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6. Carya ovata				more in diameter at breast height (DBH), regardless of
7. Prunos pensylvanica	_(0	<u> </u>	FACU	height.
8				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11.				
50/2 5 54/21/2	10.0	Total Cov		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
1000		∍ rotai Covi total cover:	21	of size, and woody plants less than 5.20 it tall.
50% of total cover:	2076 01	total cover.		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 36')	A	./	m 4 011	height.
1. Parthenocises quinque fol, a	<u>~1</u>	<u> </u>	FACU	
2. Lonicera joponica	2	<u> </u>	FACU	
3.				
1				
T-,				Hydrophytic
o				Vegetation Present? Yes No No
5/2 - 3/1.5				resent: resnov
50% of total cover:	20% of t	total cover:		
Remarks: (Include photo numbers here or on a separate s	heet.)			
Canga ovata (FACV) THEE SPEC	THEN SH	act loss	D) ALSO	HEARBY
Chamber of Constitution of the			,And	
				·

Sampling Point: 1604 210225

° SOIL

Profile Desc	ription: (Describe t	o the depti	ı needed to docu	ment the ir	ndicator	or confirm	the absence	of indicators.)	
Depth	Matrix			x Features				_	
(inches)	Color (moist)	%	Color (moist)	%	_Type	Loc2	<u>Texture</u>	Remar	ks
0-3	104K 4/3	1.63				45:	SiL	CINAVEL	
3-13	7.54R6/4	100	1	<u> </u>	and of	26	<u>s.L</u>	GNER	
<b></b>									
••••		<del></del> -		***************************************		· · · · · · · · · · · · · · · · · · ·			
				·				•	
Type: C=Co Hydric Soil I	ncentration, D=Deplondicators:	etion, RM=I	Reduced Matrix, M	S=Masked	Sand Gra	iins.	Location: PL Indica	_=Pore Lining, M=Mati tors for Problematic	rix. Hydric Soils <sup>3</sup> :
Histosol			Dark Surface	(S7)				cm Muck (A10) (MLR.	
	ipedon (A2)		Polyvalue Be		e (S8) <b>(M</b>	LRA 147,		oast Prairie Redox (A1	1
Black His			Thin Dark Su					(MLRA 147, 148)	,
	n Sulfide (A4)		Loamy Gleye					edmont Floodplain So	ils (F19)
	Layers (A5)		Depleted Ma		·			(MLRA 136, 147)	
	ck (A10) (LRR N)		Redox Dark		S)		Ve	ery Shallow Dark Surfa	ace (TF12)
	Below Dark Surface	(A11)	Depleted Dar				Ot	ther (Explain in Rema	·ks)
	rk Surface (A12)		Redox Depre						
Sandy M	ucky Mineral (S1) (L	RR N,	Iron-Mangan			.RR N,			
	147, 148)		MLRA 13						
	leyed Matrix (S4)		Umbric Surfa	ce (F13) (N	/ILRA 130	6, 122)	<sup>3</sup> Indie	cators of hydrophytic v	egetation and
	edox (S5)		Piedmont Flo					land hydrology must b	
-	Matrix (S6)		Red Parent N					ess disturbed or proble	•
	ayer (if observed):			· · · · · · · · · · · · · · · · · · ·	, ,				
	hes):						Hydric Soil I	Present? Yes	No
Remarks: V	EMA ROCKA, LIN	11 MB 18	EXCHUATION, L	dude th	ry se	2.310			
									1
					•				
			·						
							-		

WETLAND DETERMINATION DATA FORM - E	Eastern Mountains and Piedmont Region
Project/Site: CAKKOLL C. REGIONAL AIRPORT City/Cou	nty: Cannu Co. Sampling Date: 4/22/2016
Applicant/Owner: CARROLL Cor	State: MD Sampling Point: SP 16 0422 10
Investigator(s): <u>ITH, TIS</u> Section,	
Landform (hillslope, terrace, etc.): HILL SLOPE Local relief	
Subregion (LRR or MLRA): LRR S Lat: 39.6/363	
Soil Map Unit Name: Brinklow channery loams, 3-8% Scare	LOTY. NAME description: NA
· ·	1
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation $\frac{N^{\omega}}{}$ , Soil $\frac{N^{\omega}}{}$ , or Hydrology $\frac{N^{\omega}}{}$ significantly disturbed	
Are Vegetation $\underline{N^{O}}$ , Soil $\underline{N^{O}}$ , or Hydrology $\underline{N^{O}}$ naturally problematic	? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sample	ling point locations, transects, important features, etc.
Hydric Soil Present?  Yes No  Wetland Hydrology Present?  Yes No	s the Sampled Area vithin a Wetland? Yes No
Remarks: - FORESTES UPMANDS - WOOD FROG (Lithobates sylvatious) OBSTERVES ,	UEAR THIS SP
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B1-	
High Water Table (A2) Hydrogen Sulfide Odor (	
Saturation (A3) Oxidized Rhizospheres of Water Marks (B1) Presence of Reduced Inc.	
Water Marks (B1) Presence of Reduced Iron Sediment Deposits (B2) Recent Iron Reduction in	
Sediment Deposits (B2) Recent non Reduction in Thin Muck Surface (C7)	
Algal Mat or Crust (B4) Other (Explain in Remar	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	_
Water Table Present? Yes No Depth (inches): 19	
Saturation Present? Yes No Depth (inches): 19	Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous)	us inspections), if available:
Demorko	
Remarks: None Observes	
·	

Sampling	Point:	160422	0940
Januaria	1 01111	Chronitan	200 / 2

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Number of Dominant Species
1. Quercus rubra	30	<u> </u>	FACU	That Are OBL., FACW, or FAC: (A)
2. Liviodendron tolipifera	36	<u> </u>	FACU	Total Number of Dominant
3				Species Across All Strata: 5 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 20 1/6 (A/B)
				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
/				Total % Cover of: Multiply by:
72		= Total Co		OBL species x 1 =
50% of total cover: 33	20% or	total covei	13.2	FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 15 )		V		
1. Lindera benzain		_L_	FAC	FAC species x 3 =
2. Hamanelis Virginiana	17	4	FACU	FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				
C				Prevalence Index = B/A =
0				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0³
		= Total Cov		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 15.5	20% of	total cover	: 6.2	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				· '
1. Rubus phoenicolasius	2	N	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Rosa multiflore	Z	N	FACU	
3. Thelypteris noveboracensis		\ <u>'</u>	UPL	¹Indicators of hydric soil and wetland hydrology must
' 1				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
56				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
7				height.
8,				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11.				Herb – All herbaceous (non-woody) plants, regardless
	22.	Total Cov	er er	of size, and woody plants less than 3.28 ft tall.
50% of total cover: //	20% of	total cover	1.4	
Woody Vine Stratum (Plot size: 30 )				Woody vine – All woody vines greater than 3.28 ft in height.
				neight
1,				
2		•		
3			· ——	
4				Hydrophytic
5				Vegetation
	=			Present? Yes No
50% of total cover:	20% of	total cover		
Remarks: (Include photo numbers here or on a separate s	heet.)			
- Quercus montana Barono LIMITI OF	25			
+ NL: NOT LISTED IN 2016 EMP, ASSU	ues un	۷		
I ME . HOL FIELDS IN SOIL EMB YEER	W. V.	-		

LIONIN	Matrix	••		x Feature		or commi	n the absence			
Depth (inches)	Color (moist)	%	Color (moist)	<u> </u>	_Type <sup>1</sup> _	Loc²	Texture		Remark	s
0-5	104RA/3	100			,	poss	SiL			
5-18	104R 6/6	22	7.5465/8	12	C	PL	SiL			
18-20	104E 7/2	90	7.54x5/8	(0		PL	CLATUAN			
10 20								<u> </u>		
				<del></del>						
					-			-		
					-					
							Viii			
,										
							-			
	oncentration, D=Dep	oletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	<sup>2</sup> Location: P			ix. Hydric Soils³:
Hydric Soil			Dark Surface	(67)					(A10) (MLRA	
Histosol	i (A1) pipedon (A2)		Dark Surface Polyvalue Be		ne (S8) <b>(N</b>	II RA 147.			e Redox (A1	
HISUL E <sub>F</sub> Black Hi			Thin Dark Su				· ·-, ·	(MLRA 1		•
	en Sulfide (A4)		Loamy Gleye		F2)		P		oodplain Soi	ls (F19)
	d Layers (A5)		Depleted Ma				1	(MLRA 1		oo (TE12)
	ick (A10) <b>(LRR N)</b> d Below Dark Surfac	·ο (Δ11)	Redox Dark Depleted Da						w Dark Surfa ain in Remar	
	ark Surface (A12)	c (ATT)	Redox Depre					with (marph		
	/lucky Mineral (S1) (	LRR N,	Iron-Mangan			LRR N,				
MLRA	A 147, 148)		MLRA 13				3			- watatian and
	Gleyed Matrix (S4)		Umbric Surfa Piedmont Flo						iyaropriyiic v ology must b	egetation and e present
Sandy R							•		ology mast b oed or proble	
Strinned	l Matrix (S6)		Red Parent i	vialenai ir	ZIJUVILK	H 121. 14.	r) un	icaa uiatui i		
Stripped Restrictive I		:	Red Parent I	viateriai (r	ZI) (IVILK	H 121, 14.	) un	iess distait	300 0. proble	
Restrictive I	Layer (if observed)			viateriai (F	ZI) (WILK	H 121, 14.	/) un	iess distait	300 01 p. 0010	
Restrictive I Type:				viateriai (F	ZT) (WILK	H 121, 14	Hydric Soil		· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (in	Layer (if observed)			viateriai (F	zi) (WILK	A 121, 14			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (in	Layer (if observed)  ches):	rea Soles			ZI) (WILK	A 121, 14.			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (in	Layer (if observed)	rea Soles			Z I) (IVILK	A 121, 14.			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (in	Layer (if observed)  ches):	rea Soles			Z I) (WILK	A 121, 14.			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (inc	Layer (if observed)  ches):	rea Soles			Z I) (IVILR	A 121, 14.			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (inc	Layer (if observed)  ches):	rea Soles			Z I) (IVILK	A 121, 14.			· · · · · · · · · · · · · · · · · · ·	
Restrictive I Type: Depth (inc	Layer (if observed)  ches):	rea Soles			ZI) (IVILK	A 121, 14.			Yes	
Restrictive I Type: Depth (inc	Layer (if observed)  ches):	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type: Depth (inc	Layer (if observed)  ches):	rea Soles			Z I) (IVILR	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):	rea Soles			Z I) (IVILR	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):  - BRIGHTH COLON	rea Soles			Z I) (IVILR	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type:	Layer (if observed)  ches):  - BRIGHTH COLON	rea Soles			Z I) (IVILR	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):  - BRIGHTH COLON	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):  - BRIGHTH COLON	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type: Depth (in	Layer (if observed)  ches):  - BRIGHTH COLON	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
Restrictive I Type: Depth (inc	Layer (if observed)  ches):  - BRIGHTH COLOR  - NO KIDRIC	rea Soles			Z I) (WILK	A 121, 14.			Yes	No
testrictive l Type: Depth (inc	Layer (if observed)  ches):  - BRIGHTH COLOR  - NO KIDRIC	rea Soles			Z I) (WILK	A 121, 14.			Yes	No

WETLAND DETERMINATI	ON DATA FORM	– Eastern Mountai	ns and Piedmont Region		
Project/Site: CARPALL CO. REGIONAL	Aleroer City/C	County: <u>CARROLL</u> Co	Sampling Date: 4/23/2016		
Applicant/Owner: CAUROLC Co.	•		State: MA Sampling Point: 160 125 0		
Investigator(s): JTH, TJS					
Landform (hillslope, terrace, etc.): TERRACE		on, rownship, Range	NAME SILVEY		
Landform (hillstope, terrace, etc.): \\ \text{TERRACE}	Local reli	et (concave, convex, no	ine): Slope (%):		
Subregion (LRR or MLRA): LRR S La Soil Map Unit Name: MyERSVICUE SILT LOAM	t: 34.579/7	Long:	70. 77023 Datum: <u>NAA 93</u>		
Soil Map Unit Name: MyELSVILLE SILT LOAM	, 3.8% SLOPES	(MyB)	NWI classification: N/A		
Are climatic / hydrologic conditions on the site typical	for this time of year? Y	es No	(If no, explain in Remarks.)		
Are Vegetation	o significantly distur	bed? Are "Norma	ll Circumstances" present? Yes No		
Are Vegetation No., Soil No., or Hydrology			explain any answers in Remarks.)		
SUMMARY OF FINDINGS – Attach site r					
Hydrophytic Vegetation Present? Yes	No	Is the Sampled Area	<b>F</b>		
Hydric Soil Present? Yes	No	within a Wetland?	Yes No		
Wetland Hydrology Present? Yes	1	96.25	1/19 75		
Remarks: CP IN SMOTE WOOLGT SHATE	isks Ry NO-FI	LL AG FIELDS			
MEM CONTHEAM END OF A OIL					
AN TRAP EASE, CHECKES,	500 Draka - 8400	585 10 1055 2	A mes		
, ,	, , , , , , , , , , , , , , , , , , , ,	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
HYDROLOGY					
Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; chec			Surface Soil Cracks (B6)		
	True Aquatic Plants (I		Sparsely Vegetated Concave Surface (B8)		
=	Hydrogen Sulfide Odd		Drainage Patterns (B10)		
		_	Moss Trim Lines (B16)		
	Presence of Reduced		Dry-Season Water Table (C2)		
-	Recent Iron Reduction		Crayfish Burrows (C8)		
	Thin Muck Surface (C		Saturation Visible on Aerial Imagery (C9)		
_	Other (Explain in Rem	iarks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)			Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)			Shallow Aquitard (D3)		
Water-Stained Leaves (B9)			Microtopographic Relief (D4)		
Aquatic Fauna (B13)			FAC-Neutral Test (D5)		
Field Observations:					
	_ Depth (inches):	1			
	_ Depth (inches):				
Saturation Present? Yes No (includes capillary fringe)	_ Depth (inches):	Wetland H	Hydrology Present? Yes No		
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, prev	vious inspections), if ava	ilable:		
, , , , , , , , , , , , , , , , , , , ,	****				
Remarks: NONE OBSERUMS					
•					
<b>                                    </b>					
9'					
		•			
* .					
			The state of the s		

Commence of the second second second

### **VEGETATION (Four Strata) – Use scientific names of plants.**

70'	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species?		Number of Dominant Species
1. Morac rulora	52	- 1/	+upL	That Are OBL, FACW, or FAC: (A)
2. Provide pring fronten	<u> 146                                   </u>	<u> </u>	FACU	Total Number of Dominant
3				Species Across All Strata: (B)
4				Dercent of Deminent Species 2 0/
5				Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/B)
6				
7			***************************************	Prevalence Index worksheet:
	<u>99.</u>	= Total Cov	er	Total % Cover of: Multiply by:
50% of total cover:	20% of	total cover:	29.6	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:				FACW species x 2 =
1. Carin ovata	8	<u> </u>	FACU	FAC species x 3 =
2. Lunicens totavica		7	FACU	FACU species x 4 =
3. Rulus phoenicolosius	4	7	FACU	UPL species x 5 =
4				Column Totals: (A) (B)
5				December 1 december 17/4
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
g	,,			2 - Dominance Test is >50%
<u> </u>	1 40	- Total Cov		3 - Prevalence Index is ≤3.0¹
50% of total cover: _ੁੱ		total cover:	3.2	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum (Plot size:)		10101 001011	•	data in Remarks or on a separate sheet)
	72	4	EACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Alliaria petiolata	1-7.	K/	FACU	
3. Arisaema triphyllum	11		=Acw	¹Indicators of hydric soil and wetland hydrology must
4. Alliam videale	7.	<del>-17</del>	FACU	be present, unless disturbed or problematic.
5. Know part tiller		-N	FACU	Definitions of Four Vegetation Strata:
		<del>N</del>		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6. German marcolatum	********		FACU	more in diameter at breast height (DBH), regardless of
7				height.
8				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb - All herbaceous (non-woody) plants, regardless
50% of total cover: 61.5	12.5	Total Cov	er aak	of size, and woody plants less than 3.28 ft tall.
	20% of t	total cover:	2-1,4	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	60	У		height.
1. Carthemorier avaguetalia	- J		FACU	
2. Consers jopanica.	/	7	PACU	
3				
4,				Hydrophytic
5				Vegetation
		Total Cove		Present? Yes No
50% of total cover: 1 o		otal cover:		
Remarks: (Include photo numbers here or on a separate shape of the separate shape shape shape of the separate				
Crosse are the foreign or	1.701.23			
				And the second s
* UPL: NOT LISTED IN NWPL, ASSUME	ma upe			
				T design

Depth	Matrix		Redox Fea	tures 1	_Loc²	Tout		Domosti	
(inches)	Color (moist)	%	Color (moist) 9	<u>Type<sup>1</sup></u>		Texture		Remarks	<u> </u>
0 12	25484/3	160				576			
7 - 80	7.5485/4	100				c.(_	Come	AVENT	
							·		
		. ——							
								.,	
					<u> </u>				
vne: C=C	oncentration, D=Depl	etion. RM=	Reduced Matrix, MS=Ma	sked Sand Grai	ns. <sup>2</sup> L	.ocation: F	L=Pore Lini	ng, M=Matrix	Κ.
	Indicators:								lydric Soils <sup>3</sup>
Histosol	(A1)		Dark Surface (S7)			2	cm Muck (	A10) (MLRA	147)
_ Histic Ep	oipedon (A2)		Polyvalue Below S			8) (		Redox (A16	i)
_ Black Hi			Thin Dark Surface		7, 148)	_	(MLRA 14		(=40)
	n Sulfide (A4)		Loamy Gleyed Ma			— <sup>†</sup>	edmont Flo. 13 MLRA)	oodplain Soil:	s (F19)
	d Layers (A5) ick (A10) (LRR N)		Depleted Matrix (F Redox Dark Surface			,		r Dark Surfac	ጉድ (TF12)
	d Below Dark Surface	e (A11)	Depleted Dark Sur					in in Remark	
	ark Surface (A12)	, (, , ,	Redox Depression				` '		•
	lucky Mineral (S1) (L	RR N,	Iron-Manganese M	asses (F12) (LF	RR N,				
	\ 147, 148)		MLRA 136)			2			
	leyed Matrix (S4)		Umbric Surface (F						getation and
	ledox (S5) Matrix (S6)		Piedmont Floodpla Red Parent Materia					logy must be ed or probler	
	_ayer (if observed):		ICCUT BIGHT MATERIA	ii (i 2 i) (MEKA	127, 147)	- ui	icos distarb	ca or probler	natio.
Type:									
	ches):					lvdric Soil	Present?	Yes	No/
emarks:									<del></del>
marks.									
				•					
					* 200				
									N.

·	A HON DATA FORM – Eastern Mounta		<i>T</i> 1
Project/Site: 024552a11	City/County: Calerote		Sampling Date: 4/29/2016
Applicant/Owner: CCRA		State: <u>M</u>	Sampling Point: 100429 - 0
	Section, Township, Range:_		
	Local relief (concave, convex, n		
	Lat: 39,605 98 Long:		
Soil Map Unit Name: GLENVILLE SILT LOAD	1 3-8% SINGE (GhB)	NIMI classific	ation: N/A
Are climatic / hydrologic conditions on the site typi		(If no, explain in R	'
* * *		×	
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology			resent? Yes No
Are Vegetation, Soil, or Hydrology	•••	explain any answer	
SUMMARY OF FINDINGS – Attach si	te map showing sampling point locati	ons, transects	, important features, etc.
Hydric Soil Present? Yes	No Is the Sampled Area within a Wetland?	Yes	No
Remarks: IN AN ACTIVE AGRICUITA	at PASTURE; GENERALLY THE LOW		THIC ALCA OFF
THE AUT. SP BETWEEN	TWO SWA PONDS; WATER FROM R	owns is rec	nces
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indical	tors (minimum of two required)
Primary Indicators (minimum of one is required;	check all that apply)	Surface Soil (	·
Surface Water (A1)	True Aquatic Plants (B14)	<del></del>	etated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Pati	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)		
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season V	Vater Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burr	
Drift Deposits (B3)	Thin Muck Surface (C7)	•	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)		ressed Plants (D1)
Iron Deposits (B5)		Geomorphic I	Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	ard (D3)
Water-Stained Leaves (B9)		Microtopogra	•
Aquatic Fauna (B13)		FAC-Neutral	
Field Observations:			
Surface Water Present? Yes No _	Depth (inches):		
	Depth (inches):		
Saturation Present? Yes No _		Hydrology Present	1? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitor	I ring well, aerial photos, previous inspections), if av	ailable:	
Remarks: No PMMAM OF SECONDAM	HYBEROCY		
INDICATORS OBSTRUCT			·

ACOUNT OF				-	
<b>₹EGETATION</b> (	Four Strata)	- Use	scientific	names of	plants.

VEGETATION (Four Strata)	OSC SCICITION				Sampling Follo		
Trop Ctrotum (District	,	Absolute			Dominance Test worksheet:		
Tree Stratum (Plot Size:	)		Species?		Number of Dominant Species	1	
1					That Are OBL, FACW, or FAC: _		(A)
2					Total Number of Dominant	~	
3		***			Species Across All Strata:	2	(B)
4					_		` ,
			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Percent of Dominant Species	50	
5	- Andrews - Andr				That Are OBL, FACW, or FAC:		(A/B)
6			·		Prevalence Index worksheet:		
7		***************************************					
			= Total Co	ver	Total % Cover of:		
50	0% of total cover:				OBL species x 1	=	_
Sapling/Shrub Stratum (Plot size:					FACW species x 2	=	_
•					FAC species x 3		
1					FACU species x 4		
2	***************************************						
3	- Tarana	para para .			UPL species x 5		
4	and the same of th				Column Totals: (A)		(B)
5	- Commence of the Commence of						
					Prevalence Index = B/A =		
6	-			- ——	Hydrophytic Vegetation Indicate	rs:	
7					1 - Rapid Test for Hydrophytic	Vegetation	
8					2 - Dominance Test is >50%	3	
9					+ —		
			= Total Cov	/er	3 - Prevalence Index is ≤3.0¹	1	
5(	0% of total cover:				4 - Morphological Adaptations		porting
Howh Stratum /Blot size: 5/	)		10101 00101		data in Remarks or on a se	parate sheet)	
Herb Stratum (Plot size: 5/	)	22	V	A	Problematic Hydrophytic Vege	etation <sup>1</sup> (Explai	in)
1. Tarayacus officinal				FACU		•	
2. Ciraminoac of *		<i>B€</i>	_7	# NL	<sup>1</sup> Indicators of hydric soil and wetlan	nd hudrologu r	muet
3					be present, unless disturbed or pro	nu nyurology n nhlematic	nust
4.							
					Definitions of Four Vegetation S	trata:	
5					Tree - Woody plants, excluding vir	nes. 3 in. (7.6	cm) or
6				· ——	more in diameter at breast height (	DBH), regardl	ess of
7					height.		
8					Confined Short Manda danta a	b di i	
9					Sapling/Shrub – Woody plants, ex than 3 in. DBH and greater than or	cuual to 3 28	, iess : fr (1
10					m) tall.	equal to 3.20	iii Xi
					,,		
11				·	Herb - All herbaceous (non-woody		rdless
55/22			= Total Cov		of size, and woody plants less than	1 3.28 ft tall.	
	% of total cover:	20% of	total cover	:	Woody vine - All woody vines gre	ator than 3.28	l ft in
Woody Vine Stratum (Plot size:	301				height.	ater train 5.20	, 10 111
1							
2			,				
3					1		
4					Hydrophytic "		
5.					Vegetation	allino.	
		:	= Total Cov	er	Present? Yes	No	
50	% of total cover						
50 Remarks: (Include photo numbers	% of total cover: here or on a separate s	20% of	= Total Cov total cover		Present? Yes	NO	
+NL : ASSUMES"	EAC" IGNA						
VEG. CAU	CUATIONS						

	cription: (Describe	to the depth				or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redo	x Features	Type <sup>1</sup>	Loc <sup>2</sup>	Touturo		Remarks	
(inches)	Color (moist)	_ %	Color (moist)	%	Type:	LOC	SiZ		Remarks	
0.M	10485/3	150	Lot-				3/0			
									,,	
					<u>Fr-Indian</u>					
		<del></del>								
			*							
			1							
									·	
	And the second districts of th									
	***************************************							-		
		<u> </u>								
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM∈Re	educed Matrix, MS	S=Masked	Sand Gra	ins.			ng, M=Matrix	
Hydric Soil I	indicators:	*,4					Indic	ators for P	roblematic H	ydric Soils³:
Histosol	(A1)		Dark Surface	(S7)		•			A10) (MLRA	
	pipedon (A2)		Polyvalue Be				148) (		Redox (A16	)
Black His			Thin Dark Su			47, 148)		(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		2)		F		oodplain Soils	s (F19)
	d Layers (A5)	,	Depleted Mai					(MLRA 13		- (TF12)
(20 T)	ick (A10) (LRR N)	. (0.7.1)	Redox Dark :						<i>i</i> Dark Surfac in in Remark:	
333.6	d Below Dark Surface	e (ATT)	Depleted Dar Redox Depre				. — `	лиет (схріа	BI BE IZCHION	5)
1000	ark Surface (A12) Iucky Mineral (S1) (L	DD N	Iron-Mangan			RR N.				
	147, 148)		MLRA 13		3 (i 12) (i					
	Gleyed Matrix (S4)		Umbric Surfa		ALRA 13	6, 122)	3Inc	dicators of h	ydrophytic ve	getation and
	Redox (S5)		Piedmont Flo				8) w	etland hydro	logy must be	present,
	Matrix (S6)		Red Parent N					iless disturb	ed or problen	natic.
Restrictive I	Layer (if observed):									
Туре:			_							_
Depth (inc			_				Hydric Soi	l Present?	Yes	_ No
	HOIC: DUE TO RE	eval a muse	624	ur ai		- 0 - 4				
, 12:11211111 k	YOLE BUE TO RE	scell are	20421	7 2 11	14	Deep				
			•							
			•							
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	and the same					9		

WETLAND DETERMINA	TION DATA FORM – Eastern	MOURITAINS and Fredin	one region
roject/Site:	City/County: <u>C4&amp;</u>	RULE Con	Sampling Date: 4/29/2016
	Section, Township	o, Range:	
	1 cool rollet (concava	COUNTRY HUBBELL CON-	
traction (I DD or MI DA): LPR S	Lat: 39.60543	Long: <u>~ 7 7. 0 1/38 4</u>	Datum: NAO 83
ndform (hillslope, terrace, etc.): Httlstope bregion (LRR or MLRA): LRR S il Map Unit Name: GLENVIUE SIG WAM	1, 3-8 % scores (GhB)	NWI classifi	cation:
e climatic / hydrologic conditions on the site typic	I Farable sime of year? Vac V	MU III HO, EXPIGIT III I	Children
e climatic / hydrologic conditions on the site typic	Av.2 significantly disturbed?	Are "Normal Circumstances"	present? Yes No
e Vegetation _ 🏎 , Soil _ 👞 , or Hydrology		(If needed, explain any answ	
re Vegetation <u>V</u> o, Soil <u>W</u> , or Hydrology			
SUMMARY OF FINDINGS – Attach sit	e map showing sampling po	III iocations, transcot	V/ 1111p - 1 - 1
Hydric Soil Present? Yes	No Is the San within a V	npled Area Vetland? Yes	No <u>/</u>
Remarks: IN A PASTURE, ADJACENT	TO OUTSION OHANDEL ( DIND WAY (A/ZE) AND THIS MORE		
HYDROLOGY		Secondary Indi	cators (minimum of two required)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required;	check all that apply)	Surface So	il Cracks (B6)
Primary Indicators (minimum of one is required)  Surface Water (A1)	True Aquatic Plants (B14)	Sparsely V	'egetated Concave Surface (B8)
Surface Water (A1) High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage F	Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on Living	g Roots (C3) Moss Trim	Lines (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)		n Water Table (C2) urrows (C8)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled S		Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Thin Muck Surface (C7)		Stressed Plants (D1)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Geomorph	nic Position (D2)
Iron Deposits (B5)		Shallow A	quitard (D3)
Inundation Visible on Aerial Imagery (B7)		Microtopog	graphic Relief (D4)
Water-Stained Leaves (B9)		FAC-Neuti	ral Test (D5)
Aquatic Fauna (B13) Field Observations:			
Surface Water Present? Yes No	Depth (inches):		
Water Table Present? Yes No	Depth (inches):		/
Saturation Present? Yes No	Depth (inches):	Wetland Hydrology Pres	sent? Yes No/
Saturation		ections), if available:	
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitor)	oning well, aerial priotos, previous insp	cono(io)) ii er aiii	
Demortos			
Remarks: No PHAMM OR SECONDAM	1001 CAFORS		
OBSERVED			

Sampling Point: 160429 -6755 VEGETATION (Four Strata) – Use scientific names of plants. Dominance Test worksheet: Absolute Dominant Indicator Number of Dominant Species % Cover Species? Status Tree Stratum (Plot size: \_\_\_\_\_) (A) That Are OBL, FACW, or FAC: Total Number of Dominant (B) Species Across All Strata: Percent of Dominant Species \_\_ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover OBL species \_\_\_\_\_ x 1 = \_\_\_ 50% of total cover: \_\_\_\_\_ 20% of total cover:\_ FACW species \_\_\_\_\_ x 2 = \_\_\_\_ Sapling/Shrub Stratum (Plot size:\_\_\_\_\_) FAC species \_\_\_\_\_ x 3 = \_\_\_ FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_ UPL species \_\_\_\_\_ x 5 = \_\_\_\_ Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B) 5.\_\_\_\_\_ Prevalence Index = B/A = \_\_\_\_\_ Hydrophytic Vegetation Indicators: \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation \_\_\_ 2 - Dominance Test is >50% \_\_\_ 3 - Prevalence Index is ≤3.01 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting = Total Cover 50% of total cover: \_\_\_\_\_ 20% of total cover:\_ data in Remarks or on a separate sheet) Herb Stratum (Plot size: Etwas (5.1)) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Tarraca diciode 11 Y Facu 2. Plantago major 11 Y FACU <sup>1</sup>Indicators of hydric soil and wetland hydrology must 3. Capsella bursa pastoris 6 4 FACU be present, unless disturbed or problematic. 4. Cerastium fontanum 2 N FACU **Definitions of Four Vegetation Strata:** FACU Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of 6.\_\_\_\_\_\_ height. 8.\_\_\_\_\_ Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3,28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. 50/20 2 15/4

| Solution | Stratum | Solution | Stratum | Solution | Stratum | Solution | Stratum | Solution | So

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

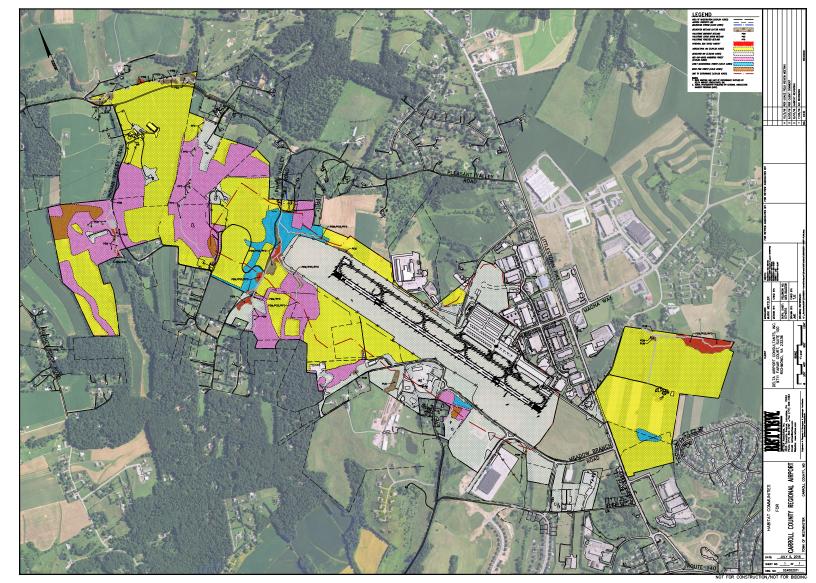
TREATIE, OUT DIFF. CLT

- DOES NOT HEET DOMINEUR TREST

Sampling Point: 160129-0755

Color (moles)   %   Color (moles)   %   Type   Loc   Toxture   Remarks	Depth	cription: (Describe Matrix			ox Feature				is strong de th
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19)  MLRA 136, 122)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MLRA 147, 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MLRA 147, 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MILRA 147, 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MILRA 147, 148)  MILRA 147, 148)  MILRA 147, 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MILRA 147, 148)  MILRA 147, 148)  MILRA 147, 148)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  MILRA 147, 148)  MILRA 148, 148  MILRA 147, 148  MILRA 148, 148  MILRA							Loc2		Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   2   2   2   2   2   3   3   3   3   3	9- 4	1011 4/3	lev			-	200	5:6	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Tuocation: PL=Pore Lining, M=Matrix.	96-7	1042 6/4	75	7.548 \$6	25	_	H	5: L	FRIABLE
ydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thic Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thic Dark Surface (F6)  Depleted Dark Surface (F7)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Sandy Redox (S5)  Stripped Matrix (S6)  Depth (inches):  Depth (inches):  Depth (inches):  Dark Surface (S7)  Deleted Surface (S8) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  MLRA 147, 148)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Umbric Surface (F12) (LRR N, MLRA 136, 122)  Sandy Redox (S5)  Stripped Matrix (S6)  Bright Matrix (S6)  MICRA 147, 148)  MICRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Thick Dark Surface (F12) (LRR N, MLRA 136, 122)  MICRA 136, 122)  Jandicators of hydrophytic vegetation wetland hydrology must be present, unless disturbed or problematic.  Wetland hydrology must be present, unless disturbed or problematic.  Wetland hydrology must be present, unless disturbed or problematic.  Wetland hydrology must be present, unless disturbed or problematic.	7-14	107R 4/A	60	7. TYK 5/E	20	· c	М	SiL	
ydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thic Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thic Dark Surface (F6)  Depleted Dark Surface (F7)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Setrictive Layer (if observed):  Type:  Depth (inches):  Histosol (A1)  Dark Surface (S7)  Dark Surface (S8) (MLRA 147, 148)  Loamy Gleyed Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  MLRA 147, 148)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)  Sandy Redox (S5)  Stripped Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 148)  Red Parent Material (F21) (MLRA 148)  wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No				<u>, , , , , , , , , , , , , , , , , , , </u>				ī	<u> </u>
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Setrictive Layer (if observed):  Type:  Depth (inches):  Derivalue Below Surface (S7)  Depleted Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Screen Served (A16)  (MLRA 147, 148)  (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Type:  Depth (inches):  Hydric Soil Present? Yes No			-					9. 1	
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Setrictive Layer (if observed):  Type:  Depth (inches):  Derivalue Below Surface (S7)  Depleted Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Screen Served (A16)  (MLRA 147, 148)  (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Type:  Depth (inches):  Hydric Soil Present? Yes No						-			
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Setrictive Layer (if observed):  Type:  Depth (inches):  Derivalue Below Surface (S7)  Depleted Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Screen Served (A16)  (MLRA 147, 148)  (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Type:  Depth (inches):  Hydric Soil Present? Yes No	5			**************************************	-				
Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Medox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Piedmont Floodplain Soils (F19)  (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Indicators for Problematic Hydric Soil  2 cm Muck (A10) (MLRA 147, 148)  Doast Prairie Redox (A16)  (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Indicators of hydrophytic vegetation wetland hydrology must be present, unless disturbed or problematic.  Bripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  Depth (inches):  Hydric Soil Present? Yes No  No  No  Hydric Soil Present? Yes No  Mack (A10) (MLRA 147, 148)  Loamy Gleyed Matrix (F2)  MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Indicators of hydrophytic vegetation wetland hydrology must be present, unless disturbed or problematic.				V.					
Histosol (A1)  Histic Epipedón (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Below Dark Surface (F6)  Thick Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Piedmont Floodplain Soils (F19)  (MLRA 147, 148)  MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Jandicators of hydrophytic vegetation wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No			oletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ins.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Setricitive Layer (if observed): Type: Depth (inches):  Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Nedox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)  Black Histic (A3)  (MLRA 147, 148) Piedmont Floodplain Soils (F19) Other (Explain in Remarks)  Indicators of hydrophytic vegetation wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present? Yes No	350				X 1934	200		48	2 1
Black Histic (A3)						1	6.	2	
Hydrogen Sulfide (A4)  Stratified Layers (A5)  2 cm Muck (A10) (LRR N)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N,  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  Emarks:  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  (MLRA 136, 147)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Type:  Depth (inches):  Hydric Soil Present? Yes No								148) (	Doast Prairie Redox (A16)
Stratified Layers (A5)  2 cm Muck (A10) (LRR N)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Stripped Matrix (S6)  Depleted Matrix (F3)  Meric Soil Present? Yes No							47, 148)		(MLRA 147, 148)
2 cm Muck (A10) (LRR N)						F2)		P	Piedmont Floodplain Soils (F19)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Stripped Matrix (S6) Estrictive Layer (if observed): Type: Depth (inches):  Emarks:  Depleted Dark Surface (F7) Depleted Dark Surface (F7) Surface (F7) Other (Explain in Remarks)  Needox Depressions (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Sindicators of hydrophytic vegetation Wetland hydrology must be present, Umless disturbed or problematic.  Hydric Soil Present?  Yes No  Hydric Soil Present?  No  Type:  Demarks:  Hydric Soil Present?									(MLRA 136, 147)
Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N,  MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Stripped Matrix (S6)  Stripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  Emarks:  Depleted Dark Surface (F7)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR N,  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Red Parent Material (F21) (MLRA 127, 147)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present?  Yes  No  Hydric Soil Present?  Yes  No  Piedmont?				Redox Dark S	Surface (F	6)		v	ery Shallow Dark Surface (TF12)
Thick Dark Surface (A12)  Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Estrictive Layer (if observed):  Type:  Depth (inches):  Type:  Demarks:  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR N, MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Piedmont Floodplain Soils (F19) (MLRA 148)  Wetland hydrology must be present, unless disturbed or problematic.  Hydric Soil Present?  Yes  No  Hydric Soil Present?  No  Piedmont?  Hydric Soil Present?  Yes  No  Piedmont Floodplain Soils (F19) (MLRA 127, 147)  Umbric Surface (F13) (MLRA 127, 147)  Piedmont Floodplain Soils (F19) (MLRA 128)  Piedmont	Depleted	d Below Dark Surfac	e (A11)	Depleted Dar	k Surface	(F7)			
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# ATTACHMENT E HABITAT COMMUNITIES MAPPING



#### **Mary Ashburn Pearson**

From: Scott A. Smith -DNR- <scott.smith@maryland.gov>

Sent: Monday, September 26, 2016 1:13 PM

**To:** Mary Ashburn Pearson; Thomas Stich; Jeremy Hite; Mark Metzler

Cc: Frazier, Mary A NAB; Thompson, Julie; Lori Byrne -DNR-; Greg Golden -DNR-; Dave

Brinker -DNR-

**Subject:** Re: Carroll County Regional Airport expansion

Attachments: QUALIFIED BT Surveyors ListMD\_updated2016AUG24.pdf

**Categories:** Filed by Newforma

And as an addendum to these comments, trapping must be conducted by a Qualified Bog Turtle Surveyor off of the attached current Maryland list (Jeremy Hite is on the list).

Regards,

Scott

## On Mon, Sep 26, 2016 at 1:06 PM, Scott A. Smith -DNR- <<u>scott.smith@maryland.gov</u>> wrote: All:

I met on site on Friday Sept. 23, 2016 with Thomas Stich and Jeremy Hite (QBTS) of Rettew Associates, Inc. and three Army Corp of Engineers staff (Seth Keller, Donald Bole, Cynthia Ovdenk) to visit wetlands identified by Jeremy as potential bog turtle habitat in the Rettew report, "Phase 1 Bog Turtle Habitat Assessment for Carroll County Regional Airport" dated August 2016. We visited wetland #9, which had been trapped in 2008, and some additional areas of contiguous wetland with it (160422-1120 and 160422-930), all of which will be filled or within the 300-foot Protection Zone 2 buffer (as per Bog Turtle Federal Recovery Plan) as part of the proposed runway extension/expansion. We also visited a number of other wetlands that were deemed suitable bog turtle habitat by Jeremy, though none were in areas that are currently proposed for any type of disturbance (just fall within "avigational easement" areas).

I had a phone discussion today with Julie Slacum of U.S Fish & Wildlife Service about this project. In my professional opinion, the best bog turtle habitats in the study area are wetland #9 and the new additions to it noted above, and Wetland 160505-1250 on the Tansil property. Unfortunately the trapping conducted in Wetland #9 was 8 years ago, did not include the additional areas since identified, and also does not meet our current standards for trapping (20 consecutive days), though at the time Rettew was following my (DNR) instructions and I previously had accepted the results (no bog turtles captured). However, as noted by Julie Slacum in our discussion today, survey results >5 years old are no longer valid. Therefore, a trapping effort needs to be conducted in 2017 following the attached trapping protocol (during the May 1-June 15 trapping window). Trapping needs to include all of Wetland #9 plus the

additional portions of that wetland noted above. If in the future there is a possibility that Wetland 160505-1250 will be subject to earth-moving or other disturbance within the wetland or its 300-foot buffer I recommend that consideration be given to trapping it in 2017 also, following the attached trapping protocol. If it is definitely NOT going to be disturbed in the future than there is no need for trapping. I will also want to meet onsite with whomever conducts the trapping at some date during the trapping effort.

If you have any questions please feel free to contact me at our Wye Mills field office ( $410-827-8612 \times 103$ ).

Regards,

Scott

--

Scott Smith
Wildlife Ecologist
Maryland DNR-Wildlife & Heritage Service
PO Box 68
Wye Mills, MD 21679
(O) 410-827-8612 x103

--

Scott Smith Wildlife Ecologist Maryland DNR-Wildlife & Heritage Service PO Box 68 Wye Mills, MD 21679 (O) 410-827-8612 x103



### **Phase 1 Bog Turtle Habitat Assessment**

For

## Carroll County Regional Airport Town of Westminster, Carroll County, Maryland

August 2016 (Revised October 2016)

**RETTEW Project No. 024552011** 

Prepared for:

Delta Airport Consultants, Inc. 9711 Farrar Court, Suite 100 Richmond, VA 23236

Prepared by:

RETTEW Associates, Inc. 3020 Columbia Ave Lancaster, PA 17603 (717) 394-3721

Prepared by:

Jeremy 1. Hite, Biologist

Reviewed by:

Mark A. Metzler. Sr. Environmental Scientist

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2.0	PROPOSED PROJECT DESCRIPTION	
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4.0	AGENCY COORDINATION	. 1
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	6.1 Wetlands	. 2
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#### **APPENDICES**

APPENDIX A: Site Maps

APPENDIX B: Wetland Tables

APPENDIX C: USFWS Bog Turtle Habitat Evaluation Field Forms

APPENDIX D: Site Photos

APPENDIX E: Phase 1 Bog Turtle Assessment Site Plan

APPENDIX F: 2009 Phase II/III Bog Turtle Report

APPENDIX G: Professional Qualifications

#### 1.0 INTRODUCTION

RETTEW Associates, Inc. has completed a Phase I Bog Turtle Habitat Assessment for the Carroll County Regional Airport Site. The following information outlines the review of published resource materials, existing site conditions, and results of the field investigation. Phase I and Phase II Bog Turtle Habitat Assessments were completed for this project in 2008 and 2009 during the previous Environmental Assessment effort. The purpose of this field study is to supplement the previous Environmental Assessment to reflect a more expansive study area.

#### 2.0 PROPOSED PROJECT DESCRIPTION

The Commissioners of Carroll County, owner and operator of the Carroll County Regional Airport, propose airport development. Delta Airport Consultants, Inc. is facilitating expansion of the airport which will include runway extensions, new hangars, commercial and industrial buildings, and supporting infrastructure.

#### 3.0 SITE DESCRIPTION

The project site is located in the City of Westminster and surrounding areas, Carroll County, Maryland and appears on the New Windsor and Westminster, Maryland and Littlestown, MD-PA U.S. Geological Survey (USGS) 7.5-minute quadrangles (**Appendix A**, **Figure 1**). The area of investigation includes the majority of the airport property and several adjacent parcels totaling approximately 835 acres. The entire property is transected and bordered by several roads and is also bounded by commercial and private properties. The site is dominated by a mixture of vegetative communities, including mowed lawns, agricultural fields, mature woods, successional woods, and wetlands. There are several small streams on-site identified as tributaries to Bear Branch of Big Pipe Creek and Meadow Branch of Big Pipe Creek. There are also several palustrine emergent/scrub-shrub/forested wetlands within the project site; these are all non-tidal resources.

RETTEW conducted wetland investigations for the entire expanded project area in April and May of 2008 and 2016. During the 2016 wetland investigations, a total of 27 wetlands and 25 streams were identified within the AOI. Five streams and five wetlands that were identified during the original 2008 delineation are located within the current project area and were confirmed in 2016 with minor boundary adjustments; the expanded portion of the AOI contains an additional 22 wetlands and 22 streams; however, two of the streams in the expanded portion are continuations of streams from the original delineations and are not considered separate streams. All wetlands within the current project area are listed in the Wetland Tables in Appendix B. In general, surficial hydrology in the northern portion of the site drains to Bear Branch and/or several unnamed tributaries (UNTs) to Bear Branch. The southeastern portion of the site drains to the West Branch North Branch Patapsco River via a UNT to West Branch North Branch Patapsco River while the southern and southwestern portions drain to an unnamed tributary to Meadow Branch Big Pipe Creek. These receiving streams are all perennial in nature.

#### 4.0 AGENCY COORDINATION

An online U.S. Fish and Wildlife Service (USFWS) IPaC search of the project area was performed on July 25, 2016. The resulting official species list indicated that the Indiana Bat (*Myotis sodalis*), a federally endangered species, may occur within the boundary of the proposed project. The Maryland Department of Natural Resources (MDNR) also lists the Bog Turtle (*Glyptemys muhlenbergii*) as a federally threatened species; therefore, a Phase 1 Bog Turtle Habitat Assessment was conducted on the Carroll County Regional Airport Site and within a 300-foot buffer surrounding the project area. Environmental review requests

were sent to both the USFWS and the MDNR on July 25, 2016. The USFWS sent a response letter dated August 25, 2016 indicating the Indiana bat could be impacted by construction activity that involves removing potential roost trees and maternity habitat. No other federally listed endangered or threatened species are known to exist with the area. A response from MDNR has not yet been received.

#### 5.0 METHODS

RETTEW used the methods outlined in the USFWS Bog Turtle Habitat Evaluation Field Form (Revised June 1, 2006) for the determination of the presence or absence of potential bog turtle habitat. All wetlands were examined for the three criteria necessary for bog turtle habitat (hydrology, mucky soils, and vegetation). Data on hydrology, soils, and vegetation was collected in April and May, 2016 by Jeremy T. Hite, a USFWS Certified Bog Turtle Surveyor of RETTEW. Data on hydrology, soils, and vegetation for the wetlands originally delineated in 2008 was collected in April and May, 2008 by Jeremy T. Hite; further details are included in the 2009 Phase II/III Bog Turtle Report in **Appendix F**.

#### 6.0 RESULTS AND DISCUSSION

#### 6.1 Wetlands

Qualified RETTEW wetland biologists conducted wetland investigations of the Carroll County Regional Airport Site in April and May of 2008 and in April and May of 2016. RETTEW's Phase 1 Bog Turtle Habitat Assessment Survey was conducted in April and May of 2016 and verified that five wetlands from the original 2008 delineation and 22 additional wetlands exist within the current project AOI. See **Tables 1** and **2** in **Appendix B** for wetland locations and a summary of the Bog Turtle Phase 1 Habitat Assessment Survey for all wetlands within the current project area. Complete wetland descriptions for the wetlands originally delineated in 2008 are included in the 2009 Phase II/III Bog Turtle Report in **Appendix F**.

Wetland 160413-1130 was identified as a palustrine emergent (PEM) wetland located on the north side of Pleasant Valley Road in a riparian area. The wetland was 1.07 acres in size. Bear Branch flows east to west through the wetland and a UNT to Bear Branch flows south to north through the southeastern end of the wetland. Vegetation in the wetland was dominated by a monoculture of reed canary grass (*Phalaris arundinacea*). Other species within the wetland were jewelweed (*Impatiens capensis*) and sweet flag (*Acorus calamus*). Wetland hydrology is derived mostly from floodwaters of Bear Branch. There was one spring/seep located in a small swale along the southwestern end of the wetland near Pleasant Valley Road. The soils within the spring seep area of the wetland had a mucky substrate that could be probed 3 to 8 inches. The other portions of wetland 160413-1130 contained soils that were mostly dry and lacking a mucky substrate. Wetland 160413-1130 did contain a small pocket that meets the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat.

Wetland 160420-1630 was identified as a large PEM wetland located in a riparian area near the northern portion of the AOI. The wetland is located north of Pleasant Valley Road and continues to the north and east outside the AOI. The wetland was 1.05 acres in size within the AOI and was bounded by Pleasant Valley Road to the south, Bear Branch to the North, an agricultural field to the west, and riparian area to the east. Vegetation in the wetland was dominated by a monoculture of reed canary grass. Other species within the wetland were skunk cabbage (*Symplocarpus foetidus*) and jewelweed. Wetland hydrology is derived from floodwaters of Bear Branch, overland drainage, and seep pockets along Bear Branch. The soils of the wetland were mostly dry except for the areas around the seeps which had substrate that could be probed 3 to 8 inches. Wetland 160420-1630 does meet the three criteria necessary for bog turtle

habitat and therefore was considered bog turtle habitat. The off-site portion of Wetland 160420-1630 was surveyed and there was a small pocket of suitable habitat just north of the AOI.

Wetland 160414-0830 was identified as a fringe PEM wetland located north of Bear Branch on the northern end of the AOI and was 0.24 acres in size within the AOI. The wetland was bounded by Bear Branch to the south, Conservation Reserve Program (CRP) area to the north, and riparian area on all other sides. Vegetation in the wetland was dominated by sweet flag and reed canary grass, and jewelweed was also present. Wetland hydrology is derived from floodwaters of Bear Branch and a small seep. The soils within the seep area of the wetland had a mucky substrate that could be probed 3 to 8 inches. Wetland 160414-0830 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat. Wetland 160414-0830 continued to the north outside the AOI and this area did not contain suitable bog turtle habitat.

Wetland 160421-1010 was identified as a large PEM wetland located in a riparian area in the northern portion of the AOI. The wetland is located north of Bear Branch and continues to the north outside the AOI. The wetland was 1.04 acres in size and was bounded by Bear Branch to the south, woods to the north, and riparian area to the east and west. Vegetation in the wetland was dominated by a monoculture of reed canary grass. Other species within the wetland were skunk cabbage and jewelweed. Wetland hydrology is derived from floodwaters of Bear Branch and overland drainage. The soils of the wetland were dry and lacking a mucky substrate that could be probed to 3 inches. Wetland 160421-1010 does not meet the three criteria necessary for bog turtle habitat and therefore was not considered bog turtle habitat. The off-site portion of Wetland 160421-1010 was recently planted with trees.

Wetland 160421-1220 was identified as a fringe PEM wetland located along a UNT to Bear Branch near the northern end of the AOI and was 0.08 acres in size. The wetland was bounded by an old cow pasture on all sides. Vegetation in the wetland was dominated by sedges (*Carex* spp) and grasses (*Poa* spp). Other species within Wetland 160421-1220 were jewelweed and elderberry (*Sambucus canadensis*). Wetland hydrology is derived from seeps and the UNT to Bear Branch. Approximately 40% of the wetland soils had a mucky substrate that could be probed 3 to 10 inches. Wetland 160421-1220 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat. Wetland 160421-1220 continued to the north outside the AOI.

Wetland 160429-1300 was identified as a palustrine emergent/scrub-shrub (PEM/PSS) wetland located at the northwestern end of the AOI. The wetland was located in a dense scrub-shrub area and was 0.27 acres in size. Vegetation in the wetland was dominated by sedges, skunk cabbage, tussock sedge (*Carex stricta*), and spicebush (*Lindera benzoin*). Other species within Wetland 160421-1300 were jewelweed, sweet flag, sensitive fern (*Onoclea sensibilis*), reed canary grass, speckled alder (*Alnus incana*), golden rod (*Solidago spp*), and pin cherry (*Prunus pensylvanica*). Wetland hydrology is derived from springs/seeps and headwaters to a UNT to Bear Branch. Approximately 30% of the wetland soils had a mucky substrate that could be probed 3 to 10 inches. Wetland 160429-1300 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat. This description for Wetland 160429-1300 is also representative of Wetlands 160429-1030 (0.005 ac) and 160505-1220 (0.01 ac).

Wetland 160505-1230 was identified as a PEM wetland located at the northwestern end of the AOI and was 0.09 acres in size. The wetland was bounded by a driveway to the north, a UNT to Bear Branch to the northeast, and a scrub-shrub area on all other sides. Vegetation in the wetland was dominated by sedges and grasses. Other vegetation within the wetland were skunk cabbage, tussock sedge, and jewelweed. Wetland hydrology is derived from flood waters of a UNT to Bear Branch and it was completely dry.

Wetland 160505-1230 does not meet the three criteria necessary for bog turtle habitat and therefore was not considered bog turtle habitat.

Wetland 160505-1250 was identified as a palustrine emergent/palustrine open water (PEM/POW) wetland located at the northwestern end of the AOI. The wetland is a manmade pond where portions of the dam have failed; the PEM portion of the wetland is 0.28 acres in size. Vegetation in the wetland was dominated grasses. Other species of vegetation within Wetland 160505-1250 were sedges, tussock sedge, and jewelweed. Wetland hydrology is derived from springs/seeps, a UNT to Bear Branch, and pond water. There were rivulets in the PEM portion of the wetland. Approximately 60% of the wetland soils had a mucky substrate that could be probed 3 to 20 inches in the PEM portion of the wetland. Wetland 160505-1250 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat.

Wetland 160505-1515 was identified as a fringe PEM wetland located at the northwestern end of the AOI and was 0.03 acres in size. The wetland was bounded by a fallow field to the south and a dense scrubshrub area on all other sides. Vegetation in the wetland was dominated by sedges and grasses. Other species within Wetland 160505-1515 were skunk cabbage, tussock sedge, and jewelweed. Wetland hydrology is derived from springs/seeps and headwaters to a UNT to Bear Branch. Approximately 25% of the wetland soils had a mucky substrate that could be probed 3 to 5 inches. Wetland 160505-1515 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat. This description for Wetland 160505-1515 is also representative of Wetland 160505-1420 (0.02 ac).

Wetland 160506-0835 was identified as a fringe PEM wetland located at the northwestern end of the AOI and was 0.01 acres in size within the AOI. The wetland continued to the north outside the AOI and was bounded by Indian Valley Trail to the east, an agricultural field to the west, and a dense scrub-shrub area on all other sides. Vegetation in the wetland was dominated by sedges and jewelweed. Wetland hydrology is derived from springs/seeps and a UNT to Bear Branch. Approximately 25% of the wetland soils had a mucky substrate that could be probed 3 to 5 inches. Wetland 160506-0835 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat. Only a small portion of Wetland 160506-0835 was located in the AOI and only a small portion of the off-site portion was surveyed on foot due to lack of property access by the landowner. The off-site portion of the wetland contained suitable bog turtle habitat.

Wetland 160506-0920 was identified as a small PEM wetland associated with a UNT to Bear Branch and was located at the northwestern end of the AOI. The wetland was 0.002 acres in size and was bounded by Indian Valley Trail to the west and upland woods on all other sides. The wetland was sparsely vegetated with elderberry. Soil substrate consisted of gravel and lacked a mucky substrate that could be probed to 3 inches. Wetland 160506-0920 does not meet the three criteria necessary for bog turtle habitat and therefore was not considered bog turtle habitat.

Wetland 160422-1120/160422-0930 was identified as a PEM wetland located near the mid-northern end of the AOI and was 0.70 acres in size. The wetland was bounded by Pinch Valley Road to the north and a mown meadow on all other sides. Vegetation in the wetland was dominated by sedges, rushes, and grasses. Other species within Wetland 160422-1120/160422-0930 were skunk cabbage, rice cut grass, and jewelweed. Wetland hydrology is derived from springs/seeps and a UNT to Bear Branch. There were subterranean rivulets within the northern portion of the wetland. Approximately 30% of the wetland soils had a mucky substrate that could be probed 3 to 8 inches. Wetland 160422-1120/160422-0930 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat.

Wetland 160428-1425 was identified as a large palustrine emergent/palustrine scrub-shrub/palustrine forested (PEM/PSS/PFO) wetland complex located at the southern end of the AOI. The wetland continued to the north and east outside the AOI and was 5.63 acres in size within the AOI. The wetland was bounded by agricultural fields to the north and south and riparian areas to the east and west. Vegetation in the wetland was dominated by sedges, rushes, skunk cabbage, speckled alder, and red maple (*Acer rubrum*). Other species within Wetland 160428-1425 were rice cut grass, jewelweed, reed canary grass, spice bush, and white pine (*Pinus strobus*). Wetland hydrology is derived from springs/seeps and a UNT to West Branch North Branch Patapsco River. There were rivulets within the wetland. Approximately 40% of the wetland soils had a mucky substrate that could be probed 3 to 14 inches. Wetland 160428-1425 does meet the three criteria necessary for bog turtle habitat and therefore was considered bog turtle habitat.

Wetland 160428-1245/160428-1250 was identified as a PEM/PUB wetland located at the southern end of the AOI. The wetland was excavated into a pond. The wetland was 0.16 acres in size and was bounded by wooded riparian area on all sides. Vegetation within the wetland was dominated by jewelweed. Other vegetation within the wetland were sedges and garlic mustard. Wetland hydrology was derived from spring/seep and ponded water. Soils lacked a mucky substrate that could be probed to 3 inches. Wetland 160428-1245/160428-1250 does not meet the three criteria necessary for bog turtle habitat and therefore was not considered bog turtle habitat.

Wetlands 160428-1240, 160428-1105, and 160428-1600 were all man made ponds that were identified as palustrine unconsolidated bottom (PUB) wetlands located within the AOI. Phase 1 Bog Turtle Habitat Evaluation Forms weren't filled out for these wetlands and they were not considered suitable bog turtle habitat.

#### 7.0 SUMMARY/CONCLUSIONS

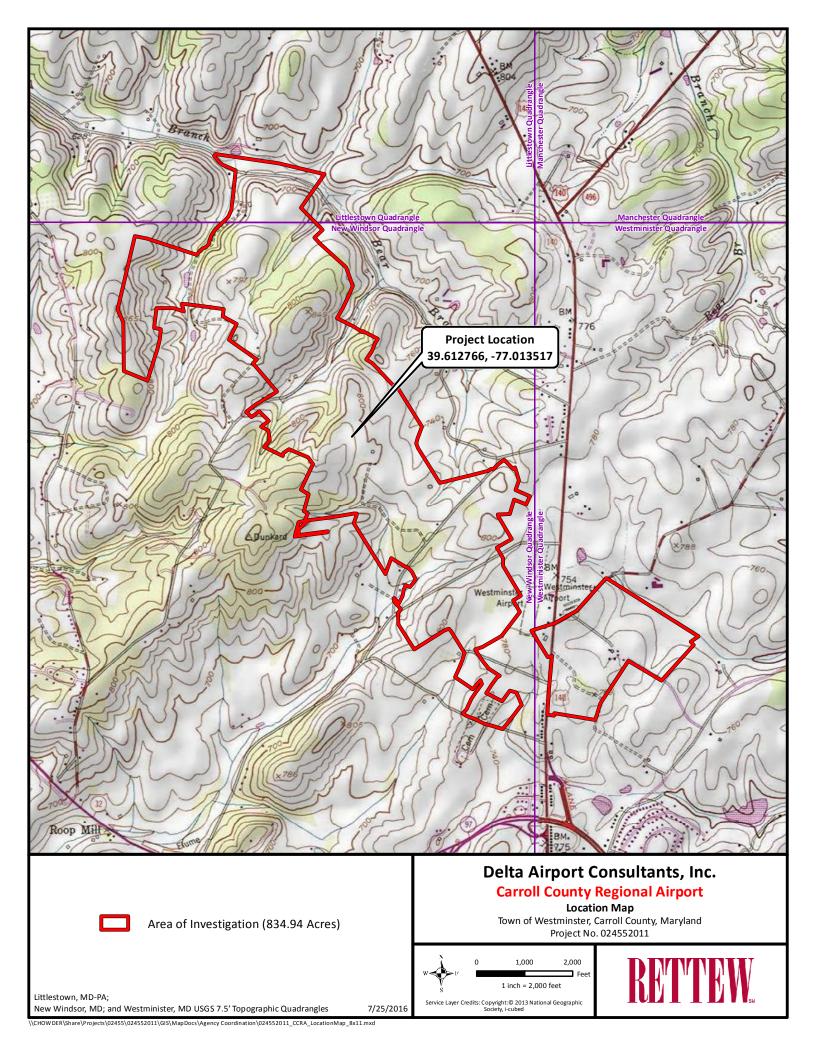
RETTEW has completed this Phase I Bog Turtle Habitat Assessment for the Carroll County Regional Airport Site located in Carroll County, Maryland. RETTEW's review of existing documentation and the field investigations revealed that there is potential bog turtle habitat situated within Wetlands 160413-1130, 160420-1630, 160414-0830, 160421-1220, 160429-1300, 160429-1030, 160505-1220, 160505-1250, 160505-1515, 160505-1420, 160506-0835, 160422-1120/160422-0930, and 160428-1425 within the expanded portion of the AOI.

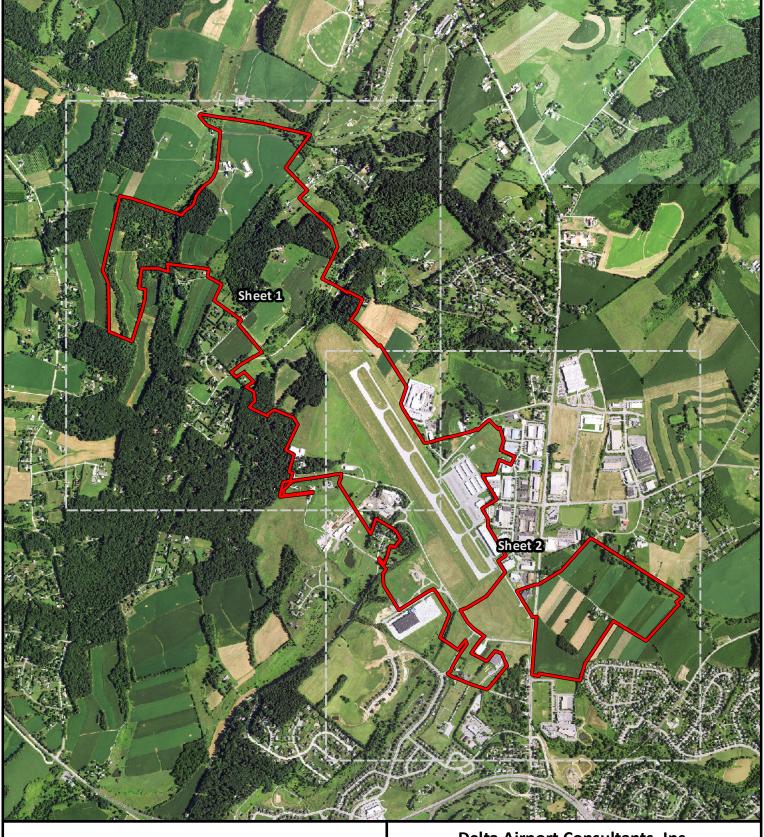
However, Wetland #9 from the previous 2009 Phase II/III Bog Turtle Report is the only wetland containing bog turtle habitat within the proposed limit of disturbance (LOD) where actual earthwork is planned at this time. The wetlands containing bog turtle habitat from the expanded 2016 investigation are all outside of the LOD. All wetlands from the original investigations were verified during the 2016 investigations. Refer to **Appendix F** for a description of Wetland #9 within the 2009 Phase II/III Bog Turtle Report, as well as the original clearance letter.

Data on which this report is based are on file at the RETTEW Associates' Lancaster Office.

**APPENDIX A** 

**SITE MAPS** 







Area of Investigation (834.94 Acres)



**Grid Sheet** 

Imagery Source: National Agriculture Imagery Program Imagery Date: July 2015

9/16/2016

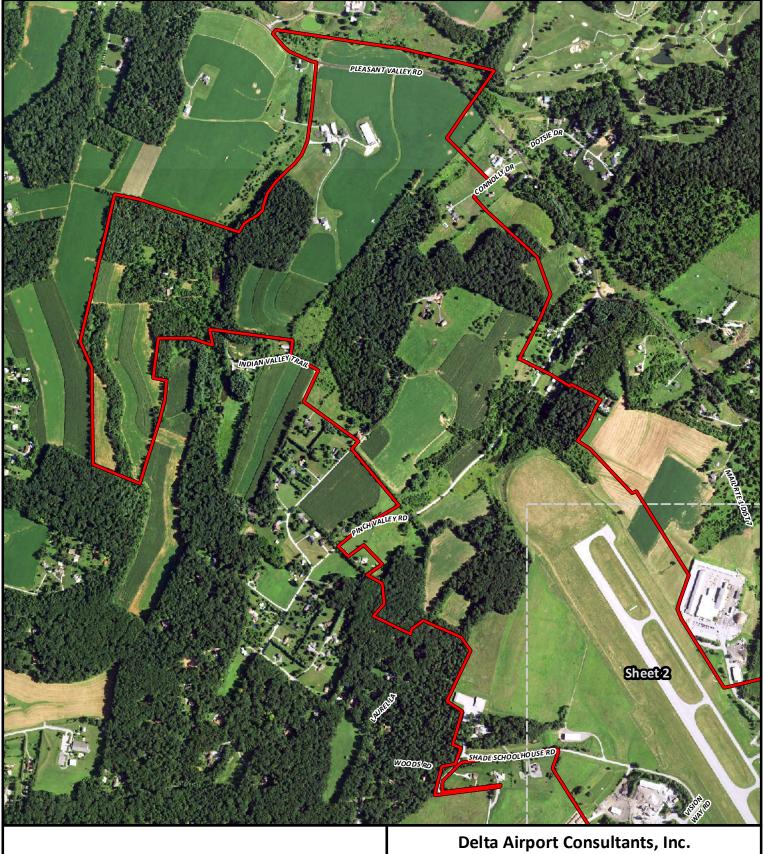
## Delta Airport Consultants, Inc.

#### **Carroll County Regional Airport**

2015 Aerial Map: Index Sheet Town of Westminster & Carroll County, Maryland Project No. 024552011









Area of Investigation (834.94 Acres)



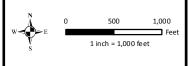
**Grid Sheet** 

Imagery Source: National Agriculture Imagery Program Imagery Date: July 2015

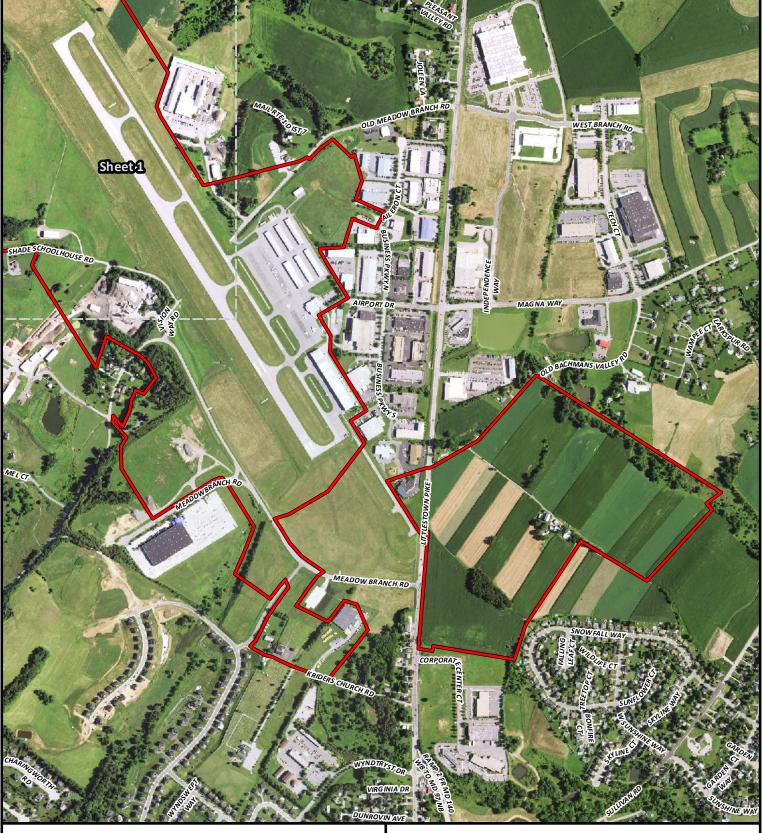
9/16/2016

#### **Carroll County Regional Airport**

2015 Aerial Map: Sheet 1 of 2 Town of Westminster & Carroll County, Maryland Project No. 024552011









Area of Investigation (834.94 Acres)



**Grid Sheet** 

Imagery Source: National Agriculture Imagery Program Imagery Date: July 2015

ery Frogram

## Delta Airport Consultants, Inc.

#### **Carroll County Regional Airport**

2015 Aerial Map: Sheet 2 of 2
Town of Westminster & Carroll County, Maryland
Project No. 024552011





## APPENDIX B

**WETLAND TABLES** 

Table 1. Wetland Size and Location for the Carroll County Regional Airport in the Town of Westminster, Carroll County, MD

Wetland ID	Wetland Size (acres)	Latitude/Longitude	Is the entire wetland on-site?	Year of Original Delineation*
160413-1130	1.07	39.628513, -77.023638	Yes	2016
160420-1630	1.05	39.628360, -77.018750	No	2016
160414-0830	0.24	39.628160, -77.017750	No	2016
160421-1010	1.04	39.627791, -77.016830	No	2016
160421-1220	0.08	39.625110, -77.016530	No	2016
160429-1300	0.27	39.620464, -77.026302	Yes	2016
160429-1030	0.005	39.620511, -77.026444	Yes	2016
160505-1220	0.01	39.620588, -77.025978	Yes	2016
160505-1230	0.09	39.620988, -77.020166	Yes	2016
160505-1250	0.28	39.621472, -77.025833	Yes	2016
160505-1515	0.03	39.622116, -77.026347	YES	2016
160505-1420	0.02	39.622731, -77.027020	Yes	2016
160506-0835	0.01	39.623280, -77.025240	No	2016
160506-0920	0.002	39.621433, -77.025469	Yes	2016
160422-1120	0.64	39.614744, -77.019000	Yes	2016
160422-0930	0.06	39.614300, -77.018800	Yes	2016
160428-1425	5.63	39.601864, -76.989658	No	2016
160428-1245	0.04	39.603533, -76.993340	Yes	2016
160428-1250	0.12	39.603533, -76.993340	Yes	2016
160428-1240	0.04	39.603780, -76.992895	No	2016
160428-1105	0.06	39.608563, -77.013966	Yes	2016
160428-1600	1.18	39.607125, -77.011806	Yes	2016
9	4.09	39.617261, -77.014989	No	2008
10	0.30	39.616481, -77.012594	Yes	2008
11	0.27	39.614975, -77.010978	Yes	2008
12	0.08	39.614994, -77.018372	Yes	2008
14	0.06	39.600514, -77.004972	No	2008

Total Wetland Acres:

16.767

<sup>\*</sup>Further details regarding wetlands originally delineated in 2008 can be found in the 2009 Phase II/III Bog Turtle Report in **Appendix F**. Acreages listed in this table have been updated where applicable based on the 2016 investigation.

Table 2. Summary of Phase I Bog Turtle Survey Results for the wetlands at the Carroll County Regional Airport in the Town of Westminster, Carroll County, MD

Wetland ID	Wetland Size (acres)	Wetland Type & Amount (% or acres)	Extent of Mucky Soils (by Wetland Type)	Survey Effort (person-hours)	Bog Turtle Habitat?	Bog Turtles Found?	Year of Original Delineation*
160413-1130	1.07	PEM – 100%	PEM – <10%	0.5	Yes	No	2016
160420-1630	1.05	PEM – 100%	PEM – <10%	0.42	Yes	No	2016
160414-0830	0.24	PEM – 100%	PEM – <10%	033	Yes	No	2016
160421-1010	1.04	PEM – 100%	PEM – 0%	0.5	No	No	2016
160421-1220	0.08	PEM -100%	PEM – 40%	0.5	Yes	No	2016
160429-1300	0.27	PEM – 80% PSS – 20%	PEM – 30% PSS – 30%	0.66	Yes	No	2016
160429-1030	0.005	PEM – 100%	PEM – 30%	0.66	Yes	No	2016
160505-1220	0.01	PEM – 100%	PEM – 30%	0.66	Yes	No	2016
160505-1230	0.09	PEM – 100%	PEM – 0%	0.25	No	No	2016
160505-1250	0.28	PEM – 50% PUB – 50%	PEM – 60% PSS – 0%	0.5	Yes	No	2016
160505-1515	0.03	PEM – 100%	PEM – 25%	0.42	Yes	N0	2016
160505-1420	0.02	PEM – 100%	PEM – 25%	0.42	Yes	No	2016
160506-0835	0.01	PEM – 100%	PEM – 20%	0.25	Yes	No	2016
160506-0920	0.002	PEM – 100%	PEM – 0%	0.16	No	No	2016
160422-1120	0.64	PEM – 100%	PEM – 30%	0.75	Yes	No	2016
160422-0930	0.06	PEM – 100%	PEM – 30%	0.75	Yes	No	2016
160428-1425	5.63	PEM – 55% PSS – 35% PFO – 10%	PEM – 40% PSS – 50% PFO – 50%	1	Yes	No	2016
160428-1245	0.04	PEM – 100%	PEM – 0%	0.25	No	No	2016
160428-1250	0.12	PUB – 100%	PUB – 0%	0.25	No	No	2016
160428-1240	0.04	PUB – 100%	PUB – 0%	-	No	No	2016
160428-1105	0.06	PUB – 100%	PUB – 0%	-	No	No	2016
160428-1600	1.18	PUB – 100%	PUB – 0%	-	No	No	2016
9	4.09	PEM – 75% PSS – 5% PFO – 20%	PEM – 30% PSS – 0% PFO – 5%	1	Yes	No	2008
10	0.30	PEM – 20% PSS – 15% PFO – 65%	PEM – 5% PSS – 0% PFO – 0%	0.5	No	No	2008
11	0.27	PEM – 100%	PEM – 0%	0.5	No	No	2008
12	0.08	PEM – 50% PFO – 50%	PEM – 0% PFO – 0%	0.5	No	No	2008
14	0.06	PEM – 100%	PEM – 0%	0.5	No	No	2008

<sup>\*</sup>Further details regarding wetlands originally delineated in 2008 can be found in the 2009 Phase II/III Bog Turtle Report in **Appendix F**. Acreages listed in this table have been updated where applicable based on the 2016 investigation.

### APPENDIX C

**USFWS BOG TURTLE HABITAT EVALUATION FIELD FORMS** 

## USFWS / PFBC Bog Turtle Habitat Evaluation Field Form<sup>1</sup> (revised 06/01/2006)

Project/Property Name: Caroll County Regional Arrant
Project type: Aur port Expansion
Applicant/Landowner Name: Delta Airput Consultants
County: Caroll, MD Quad: New Windson, Westman Township/Municipality: Town of West Minste
Project/Property Name: Carroll County Region Arrows  Project type: Arrows from  Applicant/Landowner Name: Delta Air part Consultants  County: Carroll MD Quad: New Window, Westman Township/Municipality: Town of Westminste  PNDI# Potential conflict with USFWS species? \( \text{Y} \) \( \text{N} \)
ACTION AREA <sup>2</sup> Action area size: $814.23$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $PY \square N^3$
WETLAND ID: $ \cancel{O} 3 -  \cancel{O} $ PHOTOS TAKEN: $ \cancel{V} $ Yes $ \cancel{O} $ No WETLAND SIZE: $ \cancel{O} $ acres Wetland size estimation – If actual acreage is not known at time of investigation, check one: $ \cancel{O}  < 0.1$ acre $ \cancel{O}  < 0.1$ acre $ \cancel{O}  < 0.5$ to $ \cancel{O}  < 0.$
WETLAND LOCATION: Lat 39, 628 513 Long 77, 023638 (approximate center of wetland) GPS Datum (check one): $\square$ NAD 27 PNAD 83 $\square$ WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: 4/20/16 Time In: 1:05 Time Out: 1:35 Last precipitation: □ < 24 hours □ + 7 days □ > 1 week □ unknown Drought conditions? □Y □ + □ Unknown
How much of this wetland is located <i>off-site</i> (i.e., outside the property boundaries or right-of-way)?  If none of it — the entire wetland is within the property boundaries (skip next 2 questions)  If some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the <i>off-site portion</i> was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)? $\Box$ all of it $\Box$ part of it (at least acres) $\Box$ none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
Pleasant Jailley, Strem Wetland, rapperson grea
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM 100
Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe    V   N   Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Flas 417

Project Name	Carroll County Regional	Augoott	Wetland (con't)
EYON	Springs or seeps \( \text{visible} \) or \( \text{\text{Likely}} ? \) Spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round Water visible on surface? Check all that ap \( \text{rivulets} \) rivulets \( \text{\text{\text{"}}} \) deep) \( \text{\text{Larger pools/po}} \) Evidence of flooding? If yes, describe inditional):	? Likely \( \text{Unlike}\) ply: \( \text{Small puddles}/\) nds (\( \text{L} \) " deep)	ly □ Unknown depressions (" deep)
	ns confirm mapped type?   YES   NO	□ Unknown	
Soils – PEM F	Portion of Wetland		
Mucky⁴?	How much of it (PEM) is <b>mucky</b> ?  □ 10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from:	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\Box \mathcal{B}=5$ " $\Box 6-8$ " $\Box 9-11$ " $\Box \ge 12$ "
Non-mucky <sup>6</sup> ?  □YES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □>70%		
Soils – PSS an	d PFO Portions of Wetland		
Mucky <sup>4</sup> ?  ☐ YES ☐ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from: to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\Box$ 3-5" $\Box$ 6-8" $\Box$ 9-11" $\Box$ $\geq$ 12"
Check (X) if pre	ation (characterize the wetland as a wholesent (≥ 5% areal coverage), and also circle in the sign of	f dominant (≥ 20% co	
□ sensitive fern	☐ rice cutgrass ☐ tearthumb ☐ reed canar wood ☐ red maple ☐ willow ☐ poison sum	y grass Phragmites	☐ purple loosestrife
Herptiles Were any bog to Other herptiles	urtles observed?   YES <sup>7</sup> NO  If yes  observed  previously observed:	s, how many?	
	nments/Observations: (use additional shee		Ting from Rand Mantanage
INVESTIGATED NO DAYES NO DAYES NO DAYES NO	□ UNSURE The soils criterion8 for both the soils criterion criterion criterion8 for both the soils criterion criter	og turtle habitat is met for bog turtle habitat	•
I certify that to	the best of my knowledge, all of the informa	tion provided herein is	accurate and complete.
Term	Name (print)	Vestigator's Signature	9/24/g

## USFWS / PFBC Bog Turtle Habitat Evaluation Field Form<sup>1</sup> (revised 06/01/2006)

Project/Property Name: Caroll Carol Registra A report
Project type: Airput Expansion  Applicant/Landowner Name: Delta Airput Consultant  County: Carol MD Quad: New Windson   Westman Township/Municipality: Town of Westmant
Applicant/Landowner Name: Delta Ayput Consultants
County: Corol MD Quad: New Windson Westmant Township/Municipality: Town of Westmant
PNDI # Potential conflict with USFWS species? $\square$ Y $\square$ N
ACTION AREA <sup>2</sup> Action area size: $81433$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $\Box Y \Box N^3$
WETLAND ID:  PHOTOS TAKEN:  See □ No WETLAND SIZE:  acres Wetland size estimation – If actual acreage is not known at time of investigation, check one: □ < 0.1 acre □ 0.1-0.5 acre □ >0.5 to <1 acre □ 1-2 acres □ 2-4 acres □ 5+ acres □ 10+ acres
WETLAND LOCATION: Lat 39 Long Long (approximate center of wetland) GPS Datum (check one): □ NAD 27 □ NAD 83 □ WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: Time In: Time Out: Time Out: Last precipitation: □ < 24 hours □ 1-7 days □ > 1 week □ unknown Drought conditions? □Y □ N □ Unknown
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  □ none of it — the entire wetland is within the property boundaries (skip next 2 questions)  ▼ some of it — acres or% of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it ( // 0 % or acres of the off-site portion)
How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  [Dall of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box U$ nknown If yes, could they be potential bog turtle habitat? $\Box Y \Box N \Box U$ nknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  **Title Strain Riparian Area Pleasant valley Rout**
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: DPEM 100 PSS PFO PFO POW
☐ Y ■ N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ⚠N Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	Carrol Causty Regunal	ANDER	Wetland (con't)		
Hydrology					
DYON	Springs or seeps □ visible or □ likely?	Watercress present?	Yes INo		
	Spring houses in or adjacent to wetland?				
DYON	Saturated soils present? If yes, year-round	? Thikely   Unlike	lv □ Unknown		
ZYON	Water visible on surface? Check all that ap				
	□ rivulets (" deep) □ larger pools/po	nds (" deep)	depressions ( deep)		
$\Box$ Y $\Box$ N	Evidence of flooding? If yes, describe indi	icators			
Soils Mapping	Unit (optional):		•		
	ons confirm mapped type?   YES   NO	□ Unknown	16.14 17.01		
Soils – PEM I	Portion of Wetland				
Mucky <sup>4</sup> ?	How much of it (PEM) is mucky?	Mucky soils range	Most of the mucky part(s) of		
1	□ 10% □10 20% □ 30 40%	in depth from:	the wetland can be probed <sup>5</sup> :		
OYÉS 🗆 NO	□ 50-70% □ >70%	_3_to_8_"	<b>2</b> 3-5" □ 6-8" □ 9-11" □ ≥12"		
Non-mucky <sup>6</sup> ?	How much of it (PEM) is non-mucky?				
Non-mucky?	□ <10% □10-29% □30-49%				
☐ YES ☐ NO	□ 50-70% □>70%				
Soils - PSS an	nd PFO Portions of Wetland				
		Mucky soils range	Most of the mucky part(s) of		
Mucky <sup>4</sup> ?	How much of it is mucky?	in depth from:			
☐ YES ☐ NO	□ <10% □10-29% □30-49%		the wetland can be probed <sup>5</sup> :		
,	□ 50-70% □ >70%	to"	□ 3-5" □ 6-8" □ 9-11" □ ≥12"		
	ation (characterize the wetland as a wholesent (≥ 5% areal coverage), and also circle i		verage).		
□ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □					
<u>Herptiles</u>					
	urtles observed? $\square YES^7 \square NO$ If yes	s, how many?			
Other herptiles   observed   previously observed:					
Additional Comments/Observations: (use additional sheets if necessary)					
influence. There was also intable buy tartle habital inout oxlaw justouts it of ADI westend was mostly day					
AUX westland was must don					
INVESTIGATOR'S OPINION					
TYES $\square$ NO $\square$ UNSURE The <u>hydrology</u> criterion <sup>8</sup> for bog turtle habitat is met.					
☐YES ☐ NO ☐ UNSURE The soils criterion <sup>8</sup> for bog turtle habitat is met.					
	■YES □ NO □ UNSURE The <u>vegetation</u> criterion <sup>8</sup> for bog turtle habitat is met.				
☐YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.					
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.					
Jeneo	my 14 to Conserve	AL No	Gendelal la		
Investigator'	s Name (print)	vestigator's Signature	Date		

Project/Property Name: Courte Resident Award
Project/Property Name: Course Regional Assessarian Project type: Assessarian Expansion
Applicant/Landowner Name: Delta Aigust Consultants, Inc
County: County: Quad: Littleston PAT, MD Quad: West work West months Town of west months
PNDI# Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup>
Action area size: $814.33$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $\mathbb{P}Y \square N^3$
WETLAND ID: PHOTOS TAKEN: Pres \( \text{No} \) No WETLAND SIZE: acres  Wetland size estimation – If actual acreage is not known at time of investigation, check one:  \( \text{ < 0.1 acre }  0.1 \) 0.1-0.5 acre \( \text{ > 0.5 to < 1 acre }  \text{ 1-2 acres }  \text{ 2-4 acres }  \text{ 5+ acres }  \text{ 10+ acres } \)
WETLAND LOCATION: Lat 39 (28) Long 77.01775 (approximate center of wetland) GPS Datum (check one): $\square$ NAD 27 $\square$ NAD 83 $\square$ WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: $\square - 20 - 16$ Time In: $\square : 2 : 20$ Time Out: $\square : 3 : 20$ Last precipitation: $\square < 24$ hours $\square \cdot 1 - 7$ days $\square > 1$ week $\square$ unknown Drought conditions? $\square Y \square N \square$ Unknown
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  \[ \textsite \text{ none of it } - \text{ the entire wetland is within the property boundaries (skip next 2 questions)} \] \[ \text{some of it } - \text{ acres or } \text{ \% of the wetland appears to be located off-site} \]
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ part of it (% or acres of the off-site portion)
How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  Dall of it  part of it (at least acres)  none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \ \Box N \ \Box \ Unknown$ If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \ \Box N \ \Box \ Unknown$
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM / PSS PFO POW
☐ Y ♣ Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ♠ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

W160414 83018

Project Name	Carroll (	Count	Regional.	Argont	Wetland	(con't)
Hydrology  Springs or seeps □ visible or □ likely? Watercress present? □ Yes □ No  Spring houses in or adjacent to wetland?  Saturated soils present? If yes, year-round? □ Likely □ Unlikely □ Unknown  □ Y □ N Water visible on surface? Check all that apply: □ small puddles/depressions (□ " deep)  □ rivulets (□ " deep) □ larger pools/ponds (□ " deep)  □ Y □ N Evidence of flooding? If yes, describe indicators □ Ves □ No  Note that apply: □ Small puddles/depressions (□ " deep)  □ Revidence of flooding? If yes, describe indicators □ Ves □ No  Note that apply: □ Ves □ No  Surface visible or □ likely ves vestions						
C 11 3/F				7		
Field observati	Unit (optional)	): pped type?	YES NO	□ Unknown	6433	71.716.7
	Portion of Wetl	1 1-1-1	roa (Marie 100)	er-se ba -		
6 5	How much c		is mucky?	Mucky soils range	Most of the mucky pa	art(s) of
Mucky <sup>4</sup> ?	100%		□ 30-49%	in depth from:	the wetland can be p	111
■YES □ NC	50-70%		□ 30-4970		□ 3-5" □ 6-8" □ 9-11"	
Non-mucky <sup>6</sup> ?	How much o	of it (PEM)	) is non-mucky?	,	#300 E00 E311	
The state of the s	□<10%	□10-29%	□ 30-49%			
☐ YES □ NO	□ 50-70%	<b>□</b> > 70%				
Soils – PSS a	nd PFO Portion	ns of Wetl	and			
	How much o			Mucky soils range	Most of the mucky pa	art(s) of
Mucky <sup>4</sup> ?	1		□ 30-49%	in depth from:	the wetland can be p	T. 11.
	0 □ 50-70%		20 1570	to"	□ 3-5" □ 6-8" □ 9-11"	
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).  □ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumae □ multiflora rose □						
Were any bog to Other herptiles	Were any bog turtles observed?   YES <sup>7</sup> NO  If yes, how many?  Other herptiles   observed   previously observed:					
Additional Comments/Observations: (use additional sheets if necessary)  Small pucket of mack almost mem						
INVESTIGATOR'S OPINION         □YES       □NO       □UNSURE       The hydrology criterion <sup>8</sup> for bog turtle habitat is met.         □YES       □NO       □UNSURE       The soils criterion <sup>8</sup> for bog turtle habitat is met.         □YES       □NO       □UNSURE       The vegetation criterion <sup>8</sup> for bog turtle habitat is met.         □YES       □NO       □UNSURE       This wetland is potential bog turtle habitat.						
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.						
	em Who	is .	Den	1-12-2	4-26	1-16
Investigator	's Name (print)		J Int	vestigator's Signature	Da	ate

Project/Property Name: Carol County Regional Airport
Project type: Air part Expansion
Applicant/Landowner Name: Delta Arrowt Consultants Toc
County: Correll MD Quad: New Wordson, was many Township/Municipality: Town of West Marsh
Applicant/Landowner Name: Oelda Arrent Consultants Toc  County: Consultant Township/Municipality: Town of WestMarst  PNDI# Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup> Action area size:
WETLAND LOCATION: Lat 39, 62779 Long 77,016/85 (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey:
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, could they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
Stream to south, wood North, raparan area
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: DPEM 100 DPSS DPFO DPOW PPOW DPOW DPOW DPOW DPOW DPOW DPO
☐ Y ☐ Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ♠ N Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

160421-1010 Wetland (con't)
Q.No
Unknown ssions (" deep)
st of the mucky part(s) of wetland can be probed <sup>5</sup> :
.5" □ 6-8" □ 9-11" □ ≥12"
st of the mucky part(s) of wetland can be probed <sup>5</sup> : $.5$ " $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"
e).
num moss rple loosestrife

Project Name	Caroll Conty Regional	Amput	Wetland (con't)		
Hydrology  □ Y □ N Springs or seeps □ visible or □ likely? Watercress present? □ Yes □ No □ Y □ N Spring houses in or adjacent to wetland? □ Y □ N Saturated soils present? If yes, year-round? □ Likely □ Unlikely □ Unknown □ Y □ N Water visible on surface? Check all that apply: □ small puddles/depressions ( " deep) □ rivulets ( " deep) □ larger pools/ponds ( " deep) □ Y □ N Evidence of flooding? If yes, describe indicators □ Operatives					
Soils Mapping Field observation	Unit (optional):	□ Unknown	<u> </u>		
Nu -	ortion of Wetland				
Mucky⁴? □ YES □NO	How much of it (PEM) is mucky?  □ <10% □10-29% □ 30-49% □ 50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 3-5" $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"		
Non-mucky <sup>6</sup> ?  ☐ YES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □ 70%	19.			
Soils – PSS and	d PFO Portions of Wetland				
Mucky⁴?  □ YES □ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □30-49% □50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 3-5" $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"		
Check (X) if pre	ation (characterize the wetland as a wholesent (≥ 5% areal coverage), and also circle in	f dominant (≥ 20% co			
□ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □					
Herptiles  Were any bog turtles observed? □ YES <sup>7</sup> □ NO If yes, how many?  Other herptiles □ observed □ previously observed:					
Additional Comments/Observations: (use additional sheets if necessary)  Office putton planted with treat					
INVESTIGATOR'S OPINION         □ YES       □ NO       □ UNSURE       The hydrology criterion <sup>8</sup> for bog turtle habitat is met.         □ YES       □ NO       □ UNSURE       The soils criterion <sup>8</sup> for bog turtle habitat is met.         □ YES       □ NO       □ UNSURE       The vegetation criterion <sup>8</sup> for bog turtle habitat is met.         □ YES       □ NO       □ UNSURE       This wetland is potential bog turtle habitat.					
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.					
Investigator's Name (print)  Jeann Hite  Investigator's Signature  Date					

Project/Property Name: Carroll County Regional Arguet
Project/Property Name: Carroll County Regional Amount  Project type: Amount Expansion
Applicant/Landowner Name: Delta Airport Consultants Inc
County: Cure Quad: Kitheston MO-PA- Township/Municipality: Town of Westminty
County: County: Quad: Kitheston MO-PA Township/Municipality: Town of Westminstern PNDI# Potential conflict with USFWS species?   Y   N
three man that grappers who
ACTION AREA <sup>2</sup> Action area size: $8/4$ , $32$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $\mathbb{D}X \cap \mathbb{N}^3$
WETLAND ID:     PHOTOS TAKEN: EYes   No WETLAND SIZE: acres   wetland size estimation – If actual acreage is not known at time of investigation, check one:   < 0.1 acre   0.1-0.5 acre   > 0.5 to < 1 acre   1-2 acres   2-4 acres   5+ acres   10+ acres
WETLAND LOCATION: Lat Solution Long Long Long (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83 NGS 84
(approximate center of wetland) GPS Datum (check one):   NAD 27  NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: 4-2-16 Time In: 7-130 Time Out: 1:00
Date of survey: Time In: Time Out:
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  □ none of it — the entire wetland is within the property boundaries (skip next 2 questions)  □ some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ part of it (% or acres of the off-site portion)
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)?  Sall of it   part of it (at least acres)   none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box M \Box U$ Unknown If yes, could they be potential bog turtle habitat? $\Box Y \Box M \Box U$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PPEM / PSS PFO POW
☐ Y ⓓN Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

					1604211	120
Project Name	Carroll C	andy	Regional	Ampat	Wetland .	(con't)
OY ON OY ON	Spring houses in Saturated soils p Water visible on Trivulets (1 "Evidence of floo	or adjace oresent? I o surface? oding? If	ent to wetland? If yes, year-round Check all that ap □ larger pools/po yes, describe ind	onds (" deep) licators	ly □ Unknown 'depressions (" deep)	Tukudin Spranan aya Hare Junaka
193 C T 30	1 1 1 1 1 1 1 1 1 1 1 1		1125 1110			
Soils – PEM P	ortion of Wetla		.37	Majolar soils rouge	7.5 4 6.4	// C
Mucky <sup>4</sup> ?  ■YES □ NO	How much of  □ <10% □ 50-70% □	10-29%	A	Mucky soils range in depth from:	Most of the mucky part the wetland can be pro  □ 3-5" □ 6-8" □ 9-11" □	obed <sup>5</sup> :
Non-mucky <sup>6</sup> ?  ■YES □ NO		10-29%	is <b>non-mucky</b> ? □30-49%	y = ±2	1 _	
Soils – PSS and	d PFO Portions	of Wetla	nd			
Mucky⁴?  ☐ YES ☐ NO	How much of □ <10% □ 50-70% □	it is <b>mucl</b> 10-29%	ky?	Mucky soils range in depth from:to"	Most of the mucky parties the wetland can be pro  □ 3-5" □ 6-8" □ 9-11" □	bed <sup>5</sup> :
Wetland Vegetation (characterize the wetland as a whole)  Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).  □ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ Quality  Additional dominant species:						
Herptiles  Were any bog turtles observed? □ YES <sup>7</sup> □NO If yes, how many?  Other herptiles □ observed □ previously observed:						
Additional Comments/Observations: (use additional sheets if necessary)  Located along strong There are alot springs and  seem						
INVESTIGATO  INVES	□ UNSURE □ UNSURE □ UNSURE □ UNSURE	The <u>hy</u> The <u>soi</u> The <u>ve</u> This we	lls criterion <sup>8</sup> for begetation criterion etland is potential	for bog turtle habitat og turtle habitat is met for bog turtle habitat l bog turtle habitat.	is met.	
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.						
Investigator's	Name (print)		1 OW	vestigator's Signature	Date	e
111, 031, 5,000	(himit)		00			

Project/Property Name: Carroll County Regional Aspect
Project type: Arpart Expansion
Applicant/Landowner Name: Delta Arrent Con Saltarts
County: Caroll MD Quad: New Wordson West May Township/Municipality: Town of Westman
PNDI# Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup> Action area size: $814.33$ Does the Phase 1 survey include all wetlands in the action area? $PY \cap N^3$
WETLAND ID: 1/20 − 300 PHOTOS TAKEN: Exes □ No WETLAND SIZE: acres Wetland size estimation – If actual acreage is not known at time of investigation, check one: □ < 0.1 acre □ 0.1-0.5 acre □ > 0.5 to < 1 acre □ 1-2 acres □ 2-4 acres □ 5+ acres □ 10+ acres
WETLAND LOCATION: Lat 39,6204 Long 77,026322 (approximate center of wetland) GPS Datum (check one): NAD 27 NAD 83 WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey:
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  \[ \sum none of it \sum all of it \sum part of it \left(% or acres of the off-site portion) \]  How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  \[ \sum all of it \sum part of it (at least acres) \sum none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \ \Box V \Box U$ nknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \ \Box V \Box U$ nknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM 80 PSS 20 PFO POW POW
□ Y □ N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	_ Carroll County Regio	nel Amport	Wetland (con't)		
Hydrology DY DN DY DN DY DN	Springs or seeps <u>visible</u> or <u>likely</u> ? Spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round	Watercress present? [	ly □ Unknown		
	Water visible on surface? Check all that ap fivulets (→ deep) □ larger pools/po	nds (" deep)	depressions (" deep)		
$\Box$ Y $\Box$ N	Evidence of flooding? If yes, describe indi	cators			
Soils Mapping Field observation	Unit (optional):	□ Unknown			
Soils - PEM P	Portion of Wetland				
Mucky <sup>4</sup> ?	How much of it (PEM) is <b>mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □>70%	Mucky soils range in depth from:	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square 3-5$ " $\square 6-8$ " $\square 9-11$ " $\square \ge 12$ "		
Non-mucky <sup>6</sup> ?  □XES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □ 30-49%  □ 50-70% □ >70%				
Soils – PSS an	d PFO Portions of Wetland				
Mucky⁴?	How much of it is mucky?  □ <10% □ 10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from:3 to	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"		
Check (X) if pre	ation (characterize the wetland as a wholesent (≥ 5% areal coverage), and also circle in the second skunk cabbage cattail sweet florice cutgrass tearthumb freed can are wood red maple willow poison sum in the species:	if dominant (≥ 20% co ag ☑ jewelweed ☐ y grass ☐ <i>Phragmite</i> nac ☐ multiflora rose	sphagnum moss		
<u>Herptiles</u>	3				
Were any bog to		s, how many?	_		
Other herptiles Dobserved D previously observed:					
Additional Con	mments/Observations: (use additional shee	ets if necessary)	icated		
10	there shows the when	n included Mi	Flowd 160420-630 Crem		
INVESTIGATO YES DO YES DO YES DO YES DO	☐ UNSURE The <u>hydrology</u> criterion <sup>8</sup> ☐ UNSURE The <u>soils</u> criterion <sup>8</sup> for be ☐ UNSURE The <u>vegetation</u> criterion <sup>8</sup>	for bog turtle habitat og turtle habitat is me for bog turtle habitat	is met. t.		
I certify that to	the best of my knowledge, all of the informa	tion provided herein i	s accurate and complete.		
	n Hite Jory	At With	4-29-16		
investigator'	s Name (print) Inv	vestigator's Signature	Date		

#### USFWS / PFBC Bog Turtle Habitat Evaluation Field Form<sup>1</sup>

(revised 06/01/2006)

Project/Property Name: Caroll County Regional Apport				
Project/Property Name: Caroll County Regional Apport  Project type: Apport Expansion				
Applicant/Landowner Name: Delta Angol Consultante, Inc				
Applicant/Landowner Name: Delta Arrent Consultante, Inc.  County: Caroll MO Quad: Littleston Mo-PA Township/Municipality: Town of Westmader				
PNDI # Potential conflict with USFWS species? □ Y □ N				
ACTION AREA <sup>2</sup> Action area size: SU33 Does the Phase 1 survey include all wetlands in the action area? VY IN <sup>3</sup>				
WETLAND ID: 40505-030 PHOTOS TAKEN: Yes \( \text{No} \) WETLAND SIZE: \( \text{OO9} \) acres Wetland size estimation – If actual acreage is not known at time of investigation, check one:				
$\square$ < 0.1 acre $\square$ 0.1-0.5 acre $\square$ >0.5 to <1 acre $\square$ 1-2 acres $\square$ 2-4 acres $\square$ 5+ acres $\square$ 10+ acres				
WETLAND LOCATION: Lat 39,620988 Long 77,620166 (approximate center of wetland) GPS Datum (check one): NAD 27 NAD 83 WGS 84				
SURVEY CONDITIONS & LIMITATIONS				
Date of survey: Time In: Time Out:				
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  In one of it — the entire wetland is within the property boundaries (skip next 2 questions)  I some of it — acres or % of the wetland appears to be located off-site				
If part of this wetland continues off-site, how much of the <i>off-site portion</i> was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)				
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)? $\Box$ all of it $\Box$ part of it (at least acres) $\Box$ none of it				
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown				
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):				
Privenay to Nath Stream East, Scrub shrub				
WETLAND CHARACTERISTICS				
Wetland type(s) present and % cover: PEM 100 PSS PFO PFO POW				
□ Y □ Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe				
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe				

the of the leaveners, the little total artificial position and to the office and only the

Project Name	Carroll County Regional &	triput	Wetland (con't)			
Hydrology  □ Y □ N Springs or seeps □ visible or □ likely? Watercress present? □ Yes □ No □ Y □ N Spring houses in or adjacent to wetland? □ Y □ N Saturated soils present? If yes, year-round? □ Likely □ Unlikely □ Unknown □ Y □ N Water visible on surface? Check all that apply: □ small puddles/depressions ( " deep) □ rivulets ( " deep) □ larger pools/ponds ( " deep) □ Y □ N Evidence of flooding? If yes, describe indicators						
	Soils Mapping Unit (optional):					
Soils – PEM Po	ortion of Wetland					
Mucky⁴? □ YES ™NO	How much of it (PEM) is <b>mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 3-5" $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"			
Non-mucky <sup>6</sup> ?  □ YES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □√-70%					
Soils – PSS and	PFO Portions of Wetland					
Mucky⁴? □ YES □ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> :  □ 3-5" □ 6-8" □ 9-11" □ ≥12"			
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).  □ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ jewelweed □ sphagnum moss □ jewelweed □ jewelweed □ jewelweed □ jewelweed □ sphagnum moss □ jewelweed □						
Additional Comments/Observations: (use additional sheets if necessary)  Wetland has completely Dry on day of savey						
INVESTIGATOR'S OPINION  □ YES □ NO □ UNSURE The hydrology criterion <sup>8</sup> for bog turtle habitat is met.  □ YES □ NO □ UNSURE The soils criterion <sup>8</sup> for bog turtle habitat is met.  □ YES □ NO □ UNSURE The vegetation criterion <sup>8</sup> for bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat.  I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat.  I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat.  I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat.  I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potential bog turtle habitat is met.  □ YES □ NO □ UNSURE This wetland is potenti						
investigator's Signature Date						

#### USFWS / PFBC Bog Turtle Habitat Evaluation Field Form<sup>1</sup>

(revised 06/01/2006)

Project/Property Name: Carol County Regional Amport
Project/Property Name: Carol County Regional Airport  Project type: Airport Expansion
Applicant/Landowner Name: Delta Arput Consultants, Tre
Applicant/Landowner Name: Delta Arput Consultants, Tre  County: Cann MD Quad: NewWhater, westmade Township/Municipality: Town of westmaster
PNDI # Potential conflict with USFWS species?   \[ \sum Y \sum N \]
ACTION AREA <sup>2</sup> Action area size: $84.3$ Does the Phase 1 survey include all wetlands in the action area? $4.3$ N <sup>3</sup>
WETLAND ID: 160505
WETLAND LOCATION: Lat 30.62147 Long 77.028833 (approximate center of wetland) GPS Datum (check one): NAD 27 PNAD 83 UWGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: Time In: Time Out:
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  I none of it — the entire wetland is within the property boundaries (skip next 2 questions)  I some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)
How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  □ all of it □ part of it (at least acres) □ none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
Diversity South, Indian Valley Road East, Soul-Stub all others
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM SO PSS PFO PFO
TY IN Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	Carroll County Regional	Ampot	Wetland (con't)
DYDN S	Springs or seeps Visible or Likely? Visible or Likely? Visible or Likely? Spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round? Water visible on surface? Check all that apprivulets (2—2 deep) Larger pools/poo	PLikely Unlike ply: Ismall puddles/ nds (12" deep)	ly □ Unknown
Soils Mapping V Field observation	Unit (optional):	□ Unknown	
Soils - PEM P	ortion of Wetland		
Mucky⁴?  ☐ YES ☐ NO	How much of it (PEM) is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □>70%	Mucky soils range in depth from: _3 to _2"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : □ 3-5" □ 6-8" $\square$ 9-11" $\square$ ≥12"
Non-mucky <sup>6</sup> ?  ☐ YES ☐ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10%		
Soils – PSS an	d PFO Portions of Wetland		
Mucky <sup>4</sup> ?  □ YES □ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from:to	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> :  □ 3-5" □ 6-8" □ 9-11" □ ≥12"
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).  Sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □ Additional dominant species:			
Herptiles  Were any bog turtles observed? □ YES <sup>7</sup> □NO If yes, how many?  Other herptiles □ observed □ previously observed:			
a dan #	nments/Observations: (use additional sheet and its part of a man man man man man man man man man m	ets if necessary)  Le Pond that  Flow intent,	A Spom also Alurs
☐ YES ☐ NO ☐ UNSURE The hydrology criterion <sup>8</sup> for bog turtle habitat is met.  ☐ YES ☐ NO ☐ UNSURE The soils criterion <sup>8</sup> for bog turtle habitat is met.  ☐ YES ☐ NO ☐ UNSURE The yegetation criterion <sup>8</sup> for bog turtle habitat is met.  ☐ YES ☐ NO ☐ UNSURE This wetland is potential bog turtle habitat.			
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  Investigator's Name (print)  Investigator's Signature  Date			

#### USFWS / PFBC Bog Turtle Habitat Evaluation Field Form<sup>1</sup>

(revised 06/01/2006)

Project/Property Name: Caroll County Regional Awart
Project type: Arport Expansion
Applicant/Landowner Name: Delta Airport Consultante Ive
Project/Property Name: Carol County Regional Angert  Project type: Argert Expansion  Applicant/Landowner Name: Delta Argort Consultants INC  County: Caroll MD Quad: Littleston IND-PA  County: Caroll MD Quad: New Wordsor, Wast Musta Township/Municipality: Town of Westmunster
PNDI # Potential conflict with USFWS species?  \[ \subsection Y \subsection N \]
ACTION AREA <sup>2</sup> Action area size: $8/433$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $\square N^3$
WETLAND ID: 16050
WETLAND LOCATION: Lat 39.62216 Long 77.626347 (approximate center of wetland) GPS Datum (check one): DAD 27 DAD 83 DWGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: Time In: Time Out:
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  In none of it — the entire wetland is within the property boundaries (skip next 2 questions)  In some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)? $\Box$ all of it $\Box$ part of it (at least acres) $\Box$ none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box U$ nknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box U$ nknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  fallow field and dense brash
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: DPEM 100 DPSS DPFO DPOW DPOW
☐ Y ☑N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y N Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	Caroll Contity Regiona	(Airport	Wetland (con't)
Hydrology  Y ON S  OY ON S  OY ON S  OY ON S	Springs or seeps visible or likely? Visible or likely? Spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round? Water visible on surface? Check all that approved the control of the contro	Watercress present? ☐ ? ☐ Likely □ Unlike ply: □ small puddles/ nds (" deep)	1Yes □ No ly □ Unknown
Soils Mapping U Field observation	Unit (optional):	□ Unknown	
Soils – PEM Po	ortion of Wetland		
Mucky⁴?  ■YES □ NO	How much of it (PEM) is mucky?  □ <10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from:	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> :  □ 3-5" □ 6-8" □ 9-11" □ ≥12"
Non-mucky <sup>6</sup> ?  ■ YES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □>70%		
Soils - PSS and	I PFO Portions of Wetland		
Mucky⁴?  ☐ YES ☐ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from: to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : □ 3-5" □ 6-8" □ 9-11" □ ≥12"
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).			
Sedges □ rushes ☑ skunk cabbage □ cattail □ sweet flag ☑ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose ☑ Tuge Color Additional dominant species:			
Herptiles  Were any bog turtles observed? □ YES <sup>7</sup> DNO If yes, how many?  Other herptiles □ observed □ previously observed:			
Additional Com		ets if necessary)  Netland C	antained small balatat, Fralution
YES NO   YES NO   YES NO   YES NO	☐ UNSURE The <u>hydrology</u> criterion <sup>8</sup> ☐ UNSURE The <u>soils</u> criterion <sup>8</sup> for b ☐ UNSURE The <u>vegetation</u> criterion <sup>8</sup> ☐ UNSURE This wetland is potential	og turtle habitat is met for bog turtle habitat	List
I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.  Investigator's Name (print)  Investigator's Signature  Date			

Project/Property Name: Caroll County Regional August
Project type: Airport Et passion
Applicant/Landowner Name: Delta Airport Consultants, IN
Project/Property Name: Caroll County Regional Ampet  Project type: Airport Et pansion  Applicant/Landowner Name: Delta Airport Consultants, Inc.  County: Caroll MD Quad: New words, Washing Township/Municipality: Tarn of Westmann
PNDI# Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup> Action area size: $8143$ Does the Phase 1 survey include all wetlands in the action area? If $y = y^3$
WETLAND ID: 160506 30 PHOTOS TAKEN: Wes   No WETLAND SIZE: 0,0   acres
Wetland size estimation – If actual acreage is not known at time of investigation, check one: $\square < 0.1$ acre $\square > 0.5$ to $< 1$ acres $\square = 1-2$ acres $\square = 1-$
마는 마이크를 하는 것도 있다. 이 사용을 하는 사람들이 되는 것으로 보는 것이 되었다. 그런 그는 것이 되었다. 그런
WETLAND LOCATION: Lat 39, 6232 80 Long 77,02524 (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: Time In: Time Out:
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  \[ \sum none of it - the entire wetland is within the property boundaries (skip next 2 questions) \] some of it - \( \sum acres or \( \sum 8 \) % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (_/O% or acres of the off-site portion)
How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  [ all of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
Indually road East, Agrield Invode North, Scrab shrubent
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM 100 PSS PFO PFO POW
☐ Y ☐ Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

		_	110506-830
Project Name	Carroll County Regional	Amput	Wetland 160506 (con't)
Hydrology			
DY ON	Springs or seeps	Watercress present?	Yes Ato
DYTN	Spring houses in or adjacent to wetland?		Maria de la composición del composición de la co
DYON	Saturated soils present? If yes, year-round	? □Likely □ Unlike	ly □ Unknown
DYON	Water visible on surface? Check all that ap	ply:   small puddles	depressions (" deep)
	□rivulets (⊥" deep) □ larger pools/po		
	Evidence of flooding? If yes, describe indi	icators	
Soils Manning	Unit (optional):		
	ns confirm mapped type?   YES   NO	□ Unknown	
	The second of th		<u> </u>
Soils – PEM P	Portion of Wetland	1	
Mycky <sup>4</sup> ?	How much of it (PEM) is mucky?	Mucky soils range	Most of the mucky part(s) of
	□<10% □10-29% □30-49%	in depth from:	the wetland can be probed <sup>5</sup> :
TYES DNO	□ 50-70% □ >70%	_3_to_ <u>\$\scrt{\sin}}\single}}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\single}}}}}}}} \end{\scrt{\sin}}}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\sin}}}}}}}}} \end{\scrt{\sin}}}}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\sin}}}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\sin}}}}}}}} \end{\scrt{\scrt{\scrt{\sin}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\sin}}}}}}}} \end{\scrt{\scrt{\scrt{\sin}}}}}}}} \end{\scrt{\scrt{\scrt{\scrt{\scrt{\scrt{\sin}}}}}}}}} \end{\scrt{\scrt{\sin}}}}}}} \end{\scrt{\scrt{\scrt{\sin}}}}}}} \</u>	<b>□</b> 3-5" □ 6-8" □ 9-11" □ ≥12"
Non-mucky <sup>6</sup> ?	How much of it (PEM) is non-mucky?		t Calle A Control
1 / 2	□<10% □10-29% □30-49%		
DYES INO	□ 50-70% □ >70%		
7.			
Soils – PSS an	d PFO Portions of Wetland	Muelry goils rongo	
Mucky <sup>4</sup> ?	How much of it is mucky?	Mucky soils range	Most of the mucky part(s) of
☐ YES ☐ NO	□<10% □10-29% □30-49%	in depth from:	the wetland can be probed⁵:
, LES BRO	□ 50-70% □ >70%	to"	□ 3-5" □ 6-8" □ 9-11" □ ≥12"
XX7 (1 3 X7 4			
	ation (characterize the wetland as a whol sent (≥ 5% areal coverage), and also circle i		xiomaga)
Check (A) if pre	sent ( $\geq 5\%$ areal coverage), and also encle i	11 dominant (≥ 20% co	verage).
□ sedges □ rush	nes □ skunk cabbage □ cattail □ sweet fla	ag Diewelweed 🗆	sphagnum moss
□ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife			
□ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □			
Additional domi	nant species:		
Uowntilos			
Herptiles Were any bog tu	rtles observed? □ YES <sup>7</sup> □NO If yes	how many?	
Other herotiles	rtles observed?   YES <sup>7</sup> NO  If yes  observed:	M	
O tares area posses			
Additional Con	nments/Observations: (use additional shee	ts if necessary)	4 . ct
Only are	as sweeped of Krite appeared to	is located onself	e, about 1000
Of office n	as sureyed Offsite appeared to	contain good B	Chab.tal
INVESTIGATO	OR'S OPINION		
YES DNO	☐ UNSURE The <u>hydrology</u> criterion <sup>8</sup>	for bog turtle habitat	is met.
YES DNO	☐ UNSURE The soils criterion <sup>8</sup> for bo	og turtle habitat is met	
DYES DNO	☐ UNSURE The <u>vegetation</u> criterion <sup>8</sup>	for bog turtle habitat	is met.
DYES DNO	☐ UNSURE This wetland is potential		
I certify that to the	ne best of my knowledge, all of the information	tion provided herein is	accurate and complete.
	0.00	Mr. sa	
Investigation	Name (print)  Windows	restigator's Signature	5-4-16
mvesugator s	TAUTHE (HITTE)	congaior s orginature	Dale

Project/Property Name: Caroll County Regional Amount
Project/Property Name: Caroll County Regional Apport Project type: Arr purt Expansion
Applicant/Landowner Name: 1) altr Assauct Con Sultrate 1 ac
County: Caroll M1) Quad: Weshinder, Westman Fownship/Municipality: Town of Westman
PNDI# Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup> Action area size: Size: Does the Phase 1 survey include <u>all</u> wetlands in the action area? In N <sup>3</sup>
WETLAND ID:   WETLAND SIZE:   Wetland size estimation — If actual acreage is not known at time of investigation, check one:  □ < 0.1 acre □ 0.1-0.5 acre □ >0.5 to <1 acre □ 1-2 acres □ 2-4 acres □ 5+ acres □ 10+ acres
WETLAND LOCATION: Lat 39,621433 Long 77,025469 (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: Time In: Time Out: Last precipitation: D<24 hours D1-7 days D>1 week Dunknown Drought conditions? DY DND Unknown
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  I none of it — the entire wetland is within the property boundaries (skip next 2 questions)  I some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)? $\Box$ all of it $\Box$ part of it (at least acres) $\Box$ none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  Indian Valley Road and Upland Woods
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM /OO   PSS   PFO   POW   POW
DY N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
☐ Y ☐ Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	Carroll County Regional	Airport	Wetland 160506-920
	Springs or seeps visible or likely? Visible or likely? Visible or likely? Spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round? Water visible on surface? Check all that apprivulets (" deep) larger pools/posevidence of flooding? If yes, describe indi	Watercress present? ☐ ? ☐ Likely ☐ Unlike ply: ☐ small puddles/ nds (" deep)	ly □ Unknown
Soils Mapping U Field observation	Unit (optional):	□ Unknown	· · · · · · · · · · · · · · · · · · ·
Soils - PEM Po	ortion of Wetland		
Mucky <sup>4</sup> ?  ☐ YES ☑ NO	How much of it (PEM) is mucky?  □ <10% □10-29% □ 30-49% □ 50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\Box$ 3-5" $\Box$ 6-8" $\Box$ 9-11" $\Box$ $\geq$ 12"
Non-mucky <sup>6</sup> ?  ☐ YES ☐ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% <b>□</b> >70%		
Soils - PSS and	l PFO Portions of Wetland		
Mucky⁴?  □ YES □ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □ 30-49% □ 50-70% □ >70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\Box$ 3-5" $\Box$ 6-8" $\Box$ 9-11" $\Box$ $\geq$ 12"
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).			
□ sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □			
	rtles observed? □ YES <sup>7</sup> □ NO If yes □ observed □ previously observed:	s, how many?	
Additional Com	ments/Observations: (use additional sheet had a gard be thow	ets if necessary)	my It was sparsoly
INVESTIGATO     YES	DR'S OPINION  □ UNSURE  The vegetation criterion <sup>8</sup> This wetland is potential	og turtle habitat is met for bog turtle habitat	•
I certify that to th	e best of my knowledge, all of the informa	tion provided herein is	s accurate and complete.
Investigator's	not to Jery	/estigator's Signature	5-16-16 Date

Project/Property Name: Carroll County Regional Airport
Project/Property Name: Carroll County Regional Airport  Project type: Airport Expansion
Applicant/Landowner Name:    Delta A: part Consultants
County: (and My Quad: New Windson water Township/Municipality: Town of Westmister
PNDI # Potential conflict with USFWS species?  \[ \sum Y \subseteq N \]
ACTION AREA <sup>2</sup> Action area size: 8 14 33 Does the Phase 1 survey include all wetlands in the action area? PY \( \text{N}^3\)  WETLAND ID: 460432-730 PHOTOS TAKEN: Yes \( \text{No}\) WETLAND SIZE: Occidences  Wetland size estimation - If actual acreage is not known at time of investigation, check one:  \( \text{< 0.1 acre } \( \text{ 0.1-0.5 acre } \( \text{ > 0.5 to < 1 acre } \( \text{ 1-2 acres } \( \text{ 2-4 acres } \( \text{ 15+ acres } \( \text{ 10+ acres } \)  WETLAND LOCATION: Lat 39 6147 44 Long 72019
WETLAND LOCATION: Lat 39, 6147 44 Long 72,019 (approximate center of wetland) GPS Datum (check one):   NAD 27 PAAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey:
□ none of it □ all of it □ part of it (% or acres of the off-site portion)  How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)? □ all of it □ part of it (at least acres) □ none of it  Are there any wetlands located off-site and close enough to be affected by this project? □Y □N □ Unknown  If yes, could they be potential bog turtle habitat? □Y □N □ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  The Lang Road Man Meadon
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM /// PSS PFO POW
Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

gers.	
nresent? [	☐ Yes ☐ No
oresent:	1 CS LA LAC
	ely □ Unknown /depressions (" deep)
10.07%	
n	7.22 5.70 1
ils range	Most of the mucky part(s) of
from:	the wetland can be probed <sup>5</sup> :
12 "	<b>3-5</b> " □ 6-8" □ 9-11" □ ≥12"
1 9 .	
ils range	Most of the mucky part(s) of
from:	the wetland can be probed <sup>5</sup> :
	□ 3-5" □ 6-8" □ 9-11" □ ≥12"
hragmites	sphagnum moss  D purple loosestrife
y?	_
iry)	3" But contain
mlets	
le habitat	
itat is met	•
le habitat	•

Project Name	Caroll County, Regional	Agent	Wetland (con't)
Hydrology Y ON OY ON OY ON	Springs or seeps visible or likely?  Spring houses in or adjacent to wetland?  Saturated soils present? If yes, year-round  Water visible on surface? Check all that ap  Fivulets deep larger pools/po  Evidence of flooding? If yes, describe independence.	? Likely Unlike ply: small puddles onds ("deep)	ely □ Unknown
	Unit (optional):		
Field observation	ons confirm mapped type?   YES   NO	□ Unknown	1.2-5.7011 %
Soils - PEM I	Portion of Wetland		
Mucky <sup>4</sup> ?	How much of it (PEM) is mucky?	Mucky soils range	Most of the mucky part(s) of
	□ <10% □10-29% □30-49%	in depth from:	the wetland can be probed <sup>5</sup> :
□XES □ NO	□ 50-70% □ >70%	3 to 12"	<b>1</b> 3-5" □ 6-8" □ 9-11" □ ≥12"
Non-mucky <sup>6</sup> ?	How much of it (PEM) is non-mucky?		
	□ <10% □10-29% □ 30-49%		- ' '
☐ YES ☐ NO	□ 50-70% □ >70%		
G ! DGG	I DEC D. d. AW. d. J.		
Solls – PSS an	d PFO Portions of Wetland	Mucky soils range	75.4.64
Mucky <sup>4</sup> ?	How much of it is mucky?	in depth from:	Most of the mucky part(s) of
□ YES □ NO	□ <10% □10-29% □30-49%		the wetland can be probed <sup>5</sup> :
125 210	□ 50-70% □ >70%	to"	□ 3-5" □ 6-8" □ 9-11" □ ≥12"
Wetland Vegetation (characterize the wetland as a whole) Check (X) if present (≥ 5% areal coverage), and also circle if dominant (≥ 20% coverage).  Sedges □ rushes □ skunk cabbage □ cattail □ sweet flag □ jewelweed □ sphagnum moss □ sensitive fern □ rice cutgrass □ tearthumb □ reed canary grass □ Phragmites □ purple loosestrife □ alder □ dogwood □ red maple □ willow □ poison sumac □ multiflora rose □			
Additional dominant species:  Herptiles  Were any bog turtles observed? □ YES <sup>7</sup> □ NO If yes, how many?  Other herptiles □ observed □ previously observed:			
Additional Comments/Observations: (use additional sheets if necessary)  Most office that is making the than it but contain  Grand motor and some under grand first lets			
INVESTIGATO  YES DO  YES NO  YES NO  YES NO	☐ UNSURE The soils criterion <sup>8</sup> for bo	og turtle habitat is met for bog turtle habitat	
Jeve	he best of my knowledge, all of the information of	tion provided herein is restigator's Signature	s accurate and complete.  Date

Project/Property Name: Carroll County Regional Airport
Project type: A: round Exposed tops
Applicant/Landowner Name: Delta August Consultants, Inc
Applicant/Landowner Name: Delta Airput Consultants, Inc.  County: Corroll MD Quad: New Works, Westman, Township/Municipality: Town of Westmanston
PNDI # Potential conflict with USFWS species? □ Y □ N
ACTION AREA <sup>2</sup> Action area size: $N = N^3$ Does the Phase 1 survey include <u>all</u> wetlands in the action area? $N = N^3$
WETLAND ID: /60428-1405 PHOTOS TAKEN: □Yes □ No WETLAND SIZE: 5/63 acres Wetland size estimation – If actual acreage is not known at time of investigation, check one: □ < 0.1 acre □ 0.1-0.5 acre □ >0.5 to <1 acre □ 1-2 acres □ 2-4 acres □ 5+ acres □ 10+ acres
WETLAND LOCATION: Lat 39,6018638 Long 76,989658 (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: $2 \cdot 30$ Time In: $2 \cdot 30$ Time Out: $3 \cdot 30$ Last precipitation: $2 \cdot 40$ Hours $1 \cdot 70$ days $1 \cdot 70$ week $1 \cdot 100$ unknown Drought conditions? $1 \cdot 100$ Unknown
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  □ none of it — the entire wetland is within the property boundaries (skip next 2 questions)  □ some of it — acres or \( \begin{align*} \to
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (/O% or acres of the off-site portion)
How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)?  □ all of it □ part of it (at least
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  Ag field Morth and South Raparita Arcel
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM 55 PSS 35 PFO 10 POW POW
N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe
Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe

Project Name	Caroll County Regional A	1/port	Wetland (con't)
Hydrology  Y ON  Y ON  Y ON  Y ON	Springs or seeps visible or likely?  Spring houses in or adjacent to wetland?  Saturated soils present? If yes, year-round?  Water visible on surface? Check all that ap  rivulets ( deep) larger pools/po  Evidence of flooding? If yes, describe indi	Watercress present?   Property    Propert	ely □ Unknown  depressions (224" deep)
	Unit (optional):	□ Unknown	2.50, a 4 1) m
Soils – PEM F	Portion of Wetland		
Mucky⁴?  □YES □ NO	How much of it (PEM) is <b>mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □>70%	Mucky soils range in depth from:	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square 3-5$ " $\square 6-8$ " $\square 9-11$ " $\square \ge 12$ "
Non-mucky <sup>6</sup> ?  ✓ YES □ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □30-49% □50-70% □>70%	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Soils – PSS an	d PFO Portions of Wetland		
Mucky⁴?  ☐YES ☐ NO	How much of it is mucky?  □ <10% □10-29% □30-49%  □ 50-70% □>70%	Mucky soils range in depth from: 3 to 14"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 3-5" $\square$ 6-8" $\square$ 9-11" $\square$ ≥12"
	ation (characterize the wetland as a wholesent (≥ 5% areal coverage), and also circle i	•	verage).
☐ sensitive ferm ☐ alder ☐ dogw	hes I skunk cabbage   cattail   sweet flaterice cutgrass   tearthumb   reed canary red maple   willow   poison summant species:	y grass □ <i>Phragmites</i> nac □ multiflora rose	s □ purple loosestrife □
	artles observed? □ YES <sup>7</sup> □ NO If yes □ observed □ previously observed:	s, how many?	<u>-</u>
Theorem Con	☐ UNSURE The <u>vegetation</u> criterion <sup>8</sup>	for bog turtle habitat is met for bog turtle habitat is met for bog turtle habitat	is met. t.
•	he best of my knowledge, all of the informa		s accurate and complete.
	Name (print)  Jey Jiny	vestigator's Signature	<u>и 78-16</u> Date

Project/Property Name: Caroll County Regional Amport  Project type: Airport Expansion
Project type: Airport Expansion
Applicant/Landowner Name: Delta Airout Consultant, INC
County: Caroll Mo Quad: Newwords, Westman Township/Municipality: Town of WestMan
PNDI# Potential conflict with USFWS species? □ Y □ N
remaining of the control of the cont
ACTION AREA <sup>2</sup> Action area size: Signary Does the Phase 1 survey include all wetlands in the action area? $\blacksquare \cancel{X} \square N^3$
WETLAND ID: 1909 PHOTOS TAKEN: 1909 WETLAND SIZE: 100 WETLAND SIZE: 100 acres  Wetland size estimation — If actual acreage is not known at time of investigation, check one:  □ < 0.1 acre □ 0.1-0.5 acre □ > 0.5 to < 1 acre □ 1-2 acres □ 2-4 acres □ 5+ acres □ 10+ acres
WETLAND LOCATION: Lat 39,60 3533 Long 76,99334 (approximate center of wetland) GPS Datum (check one):   NAD 27 NAD 83  WGS 84
SURVEY CONDITIONS & LIMITATIONS
Date of survey: $\boxed{1-38-16}$ Time In: $\boxed{13/46}$ Time Out: $\boxed{160}$ Last precipitation: $\boxed{2}$ < 24 hours $\boxed{1}$ 1-7 days $\boxed{2}$ > 1 week $\boxed{2}$ unknown Drought conditions? $\boxed{2}$ $\boxed{2}$ $\boxed{1}$ $\boxed{2}$ $$
How much of this wetland is located off-site (i.e., outside the property boundaries or right-of-way)?  I none of it — the entire wetland is within the property boundaries (skip next 2 questions)  I some of it — acres or % of the wetland appears to be located off-site
If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?  □ none of it □ all of it □ part of it (% or acres of the off-site portion)
How much of the <i>off-site portion</i> of this wetland is visible (e.g., from the subject property or from a public road)? $\Box$ all of it $\Box$ part of it (at least acres) $\Box$ none of it
Are there any wetlands located off-site and close enough to be affected by this project? $\Box Y \Box N \Box$ Unknown If yes, <i>could</i> they be potential bog turtle habitat? $\Box Y \Box N \Box$ Unknown
Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):  Woulded rapus Aces
WETLAND CHARACTERISTICS
Wetland type(s) present and % cover: PEM 💫 🗆 PSS PFO POW 💯
Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe    Y   N   Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes, describe
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

			165428-124
Project Name	Caron Conty Regional	Argar	Wetland (con't)
	Springs or seeps visible or likely? No spring houses in or adjacent to wetland? Saturated soils present? If yes, year-round? Water visible on surface? Check all that appresents.	Watercress present? □ ? □ Likely □ Unlike	Yes □\D\o
/	☐ rivulets (" deep) ☐ larger pools/po	nds (21" deep)	
Soils Mapping U			
Soils – PEM Po	ortion of Wetland	A THE CONTRACTOR OF SHARE SAME SAME SAME SAME SAME SAME SAME SAM	
Mucky⁴? □ YES □ NO	How much of it (PEM) is <b>mucky</b> ?  □ <10% □10-29% □30-49% □50-70% □>70%	Mucky soils range in depth from:	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square$ 3-5" $\square$ 6-8" $\square$ 9-11" $\square$ $\ge$ 12"
Non-mucky <sup>6</sup> ?  ☐ YES ☐ NO	How much of it (PEM) is <b>non-mucky</b> ?  □ <10% □10-29% □30-49% □50-70% □>70%		
Soils - PSS and	l PFO Portions of Wetland	190 - 2 6 7-7	
Mucky <sup>4</sup> ?  □ YES □ NO	How much of it is <b>mucky</b> ?  □ <10% □10-29% □30-49% □ 50-70% □>70%	Mucky soils range in depth from:to"	Most of the mucky part(s) of the wetland can be probed <sup>5</sup> : $\square 3-5" \square 6-8" \square 9-11" \square \ge 12"$
Check (X) if pres  ✓ sedges □ rush □ sensitive fern □ □ alder □ dogwo	tion (characterize the wetland as a whole sent (≥ 5% areal coverage), and also circle is es □ skunk cabbage □ cattail □ sweet fla □ rice cutgrass □ tearthumb □ reed canary cod □ red maple □ willow □ poison summant species: □ 9 9/1/2 Mustare	f dominant (≥ 20% co ag □ jewelweed □ y grass □ Phragmites ac □ multiflora rose	sphagnum moss □ purple loosestrife
	tles observed? □ YES <sup>7</sup> □ NO If yes □ observed □ previously observed:	s, how many?	
Additional Com	ments/Observations: (use additional sheet	ts if necessary)	when portion
INVESTIGATO  VYES ONO YES ONO YES ONO	☐ UNSURE The <u>hydrology</u> criterion <sup>8</sup> ☐ UNSURE The <u>soils</u> criterion <sup>8</sup> for bo ☐ UNSURE The <u>vegetation</u> criterion <sup>8</sup>	g turtle habitat is met for bog turtle habitat	•
_	be best of my knowledge, all of the informate where the large state of the information with the informati	ion provided herein is estigator's Signature	4-28-16

**APPENDIX D** 

**SITE PHOTOS** 

Client: Delta Airport Consultants, Inc. Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 20, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 1
View of PEM Wetland
160413-1130 and a
UNT to Bear Branch.
This section of
Wetland 160413-1130
was not considered to
be bog turtle habitat.



**DATE:** April 20, 2016

**DIRECTION:** Southeast

#### **COMMENTS:**

PHOTO 2
View of a small swale
located within
Wetland 160413-1130
that contained
suitable bog turtle
habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 20, 2016

**DIRECTION:** Northeast

COMMENTS:
PHOTO 3
View of Wetland
160413-1130 and Bear
Branch.



**DATE:** April 20, 2016

**DIRECTION:** Southeast

COMMENTS:
PHOTO 4
View of Wetland
160420-1630 located
in the northeastern
portion of the AOI.
This portion of
Wetland 160420-1630
did not contain bog
turtle habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carrol County, MD

**Site Name:** Carroll County Regional Airport

**Project Number:** 024552011

**DATE:** April 20, 2016

**DIRECTION:** South

**COMMENTS:** PHOTO 5

View of a small seep area within Wetland 160420-1630 that contained suitable bog turtle habitat.



**DATE:** April 20, 2016

**DIRECTION:** Southeast

COMMENTS: PHOTO 6 Another view of Wetland 160420-1630.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 20, 2016

**DIRECTION:** Southwest

PHOTO 7
View of a small pocket
of suitable bog turtle
habitat located
outside the AOI within
Wetland 160420-1630.



**DATE:** April 20, 2016

**DIRECTION:** West

COMMENTS:
PHOTO 8
View of PEM Wetland
160414-0830 that
contained a small
pocket of suitable bog
turtle habitat.



Client: Delta Airport Consultants, Inc.

**Site Location:** Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 21, 2016

DIRECTION:

West

**COMMENTS:** 

PHOTO 9 View of PEM Wetland 160421-1010 that did not contain suitable bog turtle habitat.



**DATE:** April 21, 2016

DIRECTION:

Southwest

COMMENTS: PHOTO 10 View of PEM Wetland 160421-1220 that

contained suitable bog turtle habitat.

Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 29, 2016

**DIRECTION:** Southwest

COMMENTS:
PHOTO 11
View of a PEM portion
of Wetland 1604291300 that was
considered suitable
bog turtle habitat.



**DATE:** April 29, 2016

**DIRECTION:** West

**COMMENTS:** 

PHOTO 12 View of a PSS portion of Wetland 160429-1300 that was considered suitable bog turtle habitat.



Client: Delta Airport Consultants, Inc. Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 29, 2016

**DIRECTION:** West

COMMENTS:
PHOTO 13
View of PEM Wetland
160429-1030 that did
contain suitable bog
turtle habitat.



**DATE:** May 5, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 14
View of PEM Wetland
160505-1220 that did
contain suitable bog
turtle habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** May 5, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 15
View of PEM Wetland
160505-1230 that did
not contain suitable
bog turtle habitat.



**DATE:** May 5, 2016

**DIRECTION:** North

COMMENTS:
PHOTO 16
View of PEM/POW
Wetland 160505-1250
that was considered
suitable bog turtle
habitat.



Client: Delta Airport Consultants, Inc. Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** May 5, 2016

**DIRECTION:** South

PHOTO 17 View of PEM portion of Wetland 160505-1250 and a UNT to Bear Branch.



**DATE:** May 5, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 18
View of PEM Wetland
160505-1515 that was
considered suitable
bog turtle habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** May 5, 2016

**DIRECTION:** West

COMMENTS:
PHOTO 19
Another view of PEM
Wetland 160505-1515
that did contain
suitable bog turtle
habitat.



**DATE:** May 6, 2016

**DIRECTION:** Southwest

COMMENTS:
PHOTO 20
View of on-site portion
of PEM Wetland
160506-0835 that was
considered suitable
bog turtle habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** May 6, 2016

**DIRECTION:** North

COMMENTS:
PHOTO 21
View of off-site
portion of Wetland

160506-0835 that contained suitable bog turtle habitat.



DATE:

May 6, 2016

**DIRECTION:** 

East

**COMMENTS:** 

PHOTO 22 View of PEM Wetland 160506-0920 that was not considered to be suitable bog turtle habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 22, 2016

**DIRECTION:** West

COMMENTS:
PHOTO 23
View of PEM Wetland
160422-1120/1604220930 that did contain
suitable bog turtle
habitat.



**DATE:** April 22, 2016

**DIRECTION:** 

West

**COMMENTS:** 

PHOTO 24
Another view of
Wetland 1604221120/160422-0930
that was considered
suitable bog turtle
habitat.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 22, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 25
Another view of
Wetland 1604221120/160422-0930
and a UNT to Bear
Branch.



**DATE:** April 28, 2016

**DIRECTION:** Southeast

COMMENTS:
PHOTO 26
View of PEM/PSS
portion of Wetland
160428-1425 that was
considered to be
suitable bog turtle
habitat.



Client: Delta Airport Consultants, Inc. Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

DATE:

April 28, 2016

**DIRECTION:** 

Southeast

**COMMENTS:** 

PHOTO 27 Another view of Wetland 160428-1425 that contained suitable bog turtle habitat.



**DATE:** April 28, 2016

**DIRECTION:** 

Southeast

**COMMENTS:** 

PHOTO 28 Another view of an on-site PEM portion of Wetland 160428-1425.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 28, 2016

**DIRECTION:** South

COMMENTS:
PHOTO 29
View of PEM portion
of Wetland 1604281245/160428-1250
that did not contain
suitable bog turtle
habitat.



**DATE:** April 28, 2016

**DIRECTION:** Southeast

COMMENTS:
PHOTO 30
View of PUB portion of
Wetland 1604281245/160428-1250.



Client: Delta Airport Consultants, Inc.

Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

**DATE:** April 28, 2016

**DIRECTION:** North

COMMENTS:
PHOTO 31
View of PUB Wetland
160428-1240 that did
not contain suitable
bog turtle habitat.



**DATE:** April 28, 2016

**DIRECTION:** West

COMMENTS:
PHOTO 32
View of PUB Wetland
160428-1105 that did
not contain suitable
bog turtle habitat.



Client: Delta Airport Consultants, Inc. Site Location: Town of Westminster,

Carroll County, MD

Site Name: Carroll County Regional Airport Project Number: 024552011

DATE:

April 28, 2016

**DIRECTION:** 

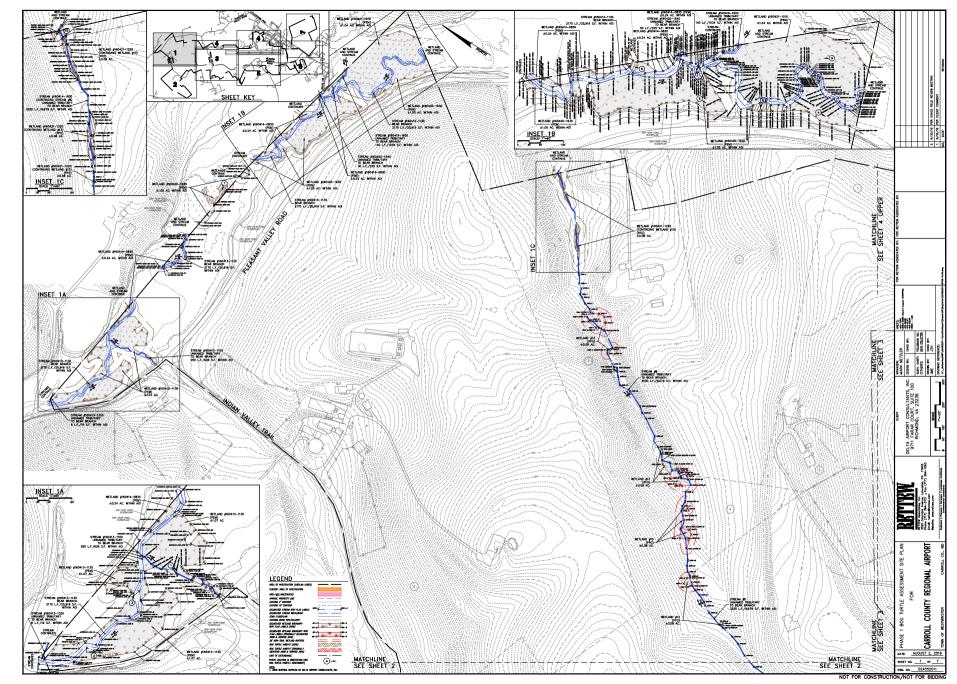
Northeast

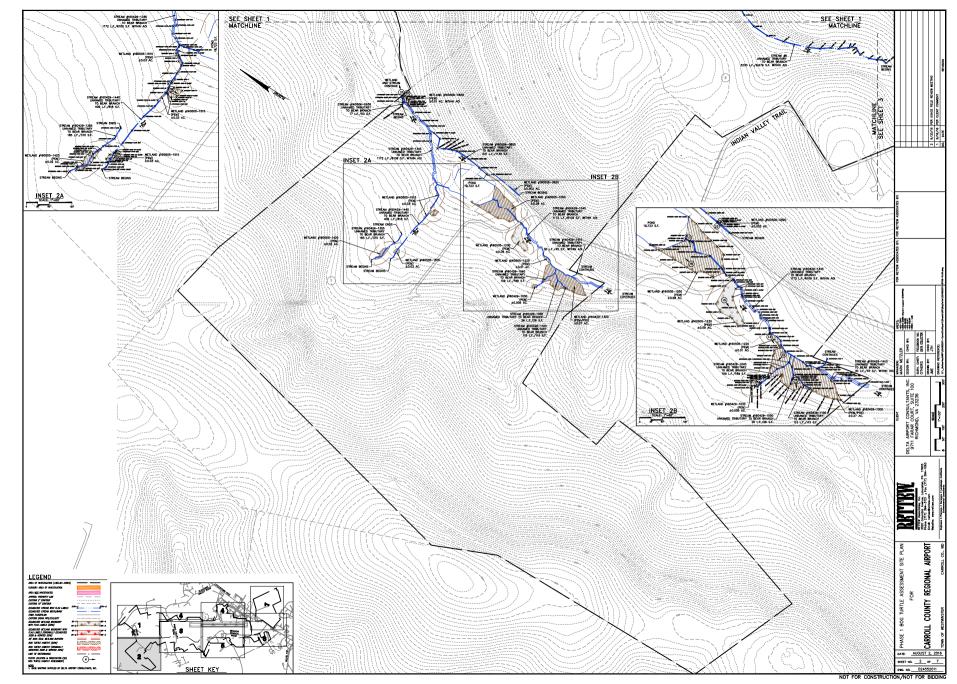
**COMMENTS:** 

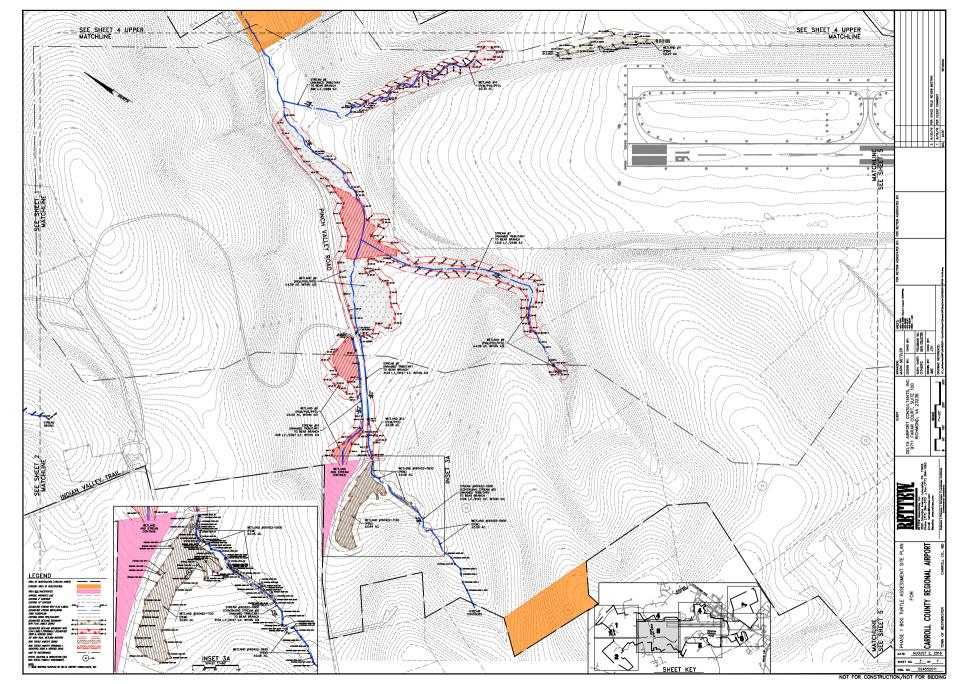
PHOTO 33 View of PUB Wetland 160428-1600 that did not contain suitable bog turtle habitat.

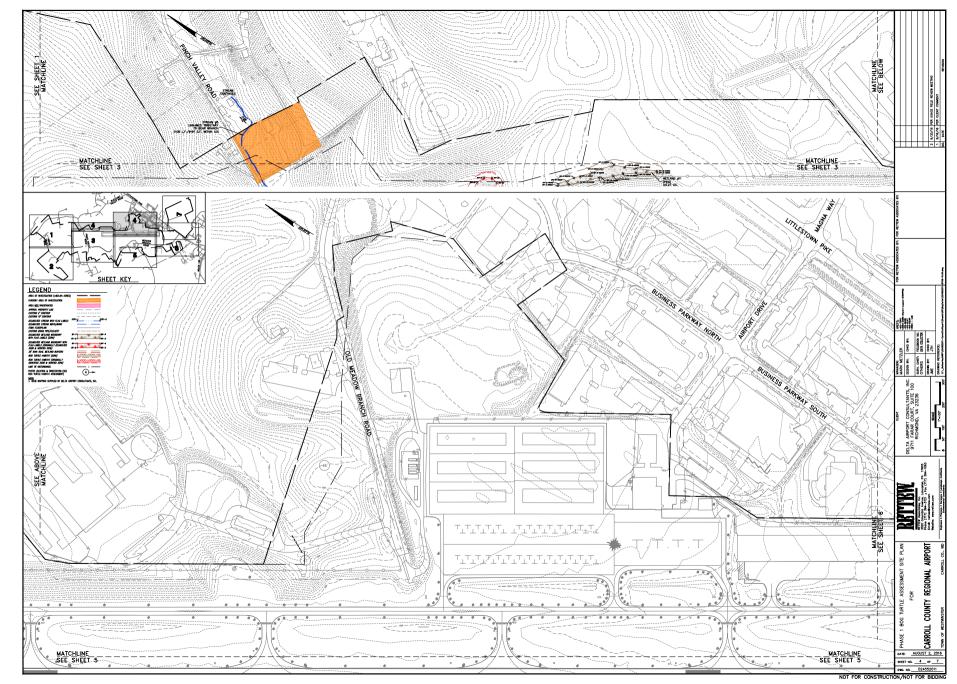


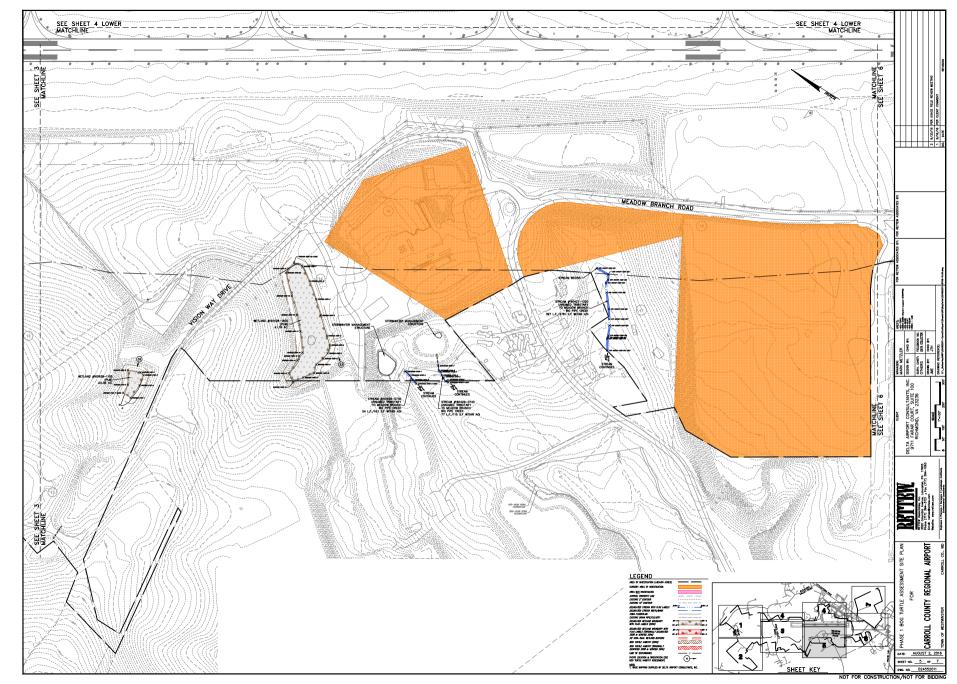
# APPENDIX E PHASE 1 BOG TURTLE ASSESSMENT SITE PLAN

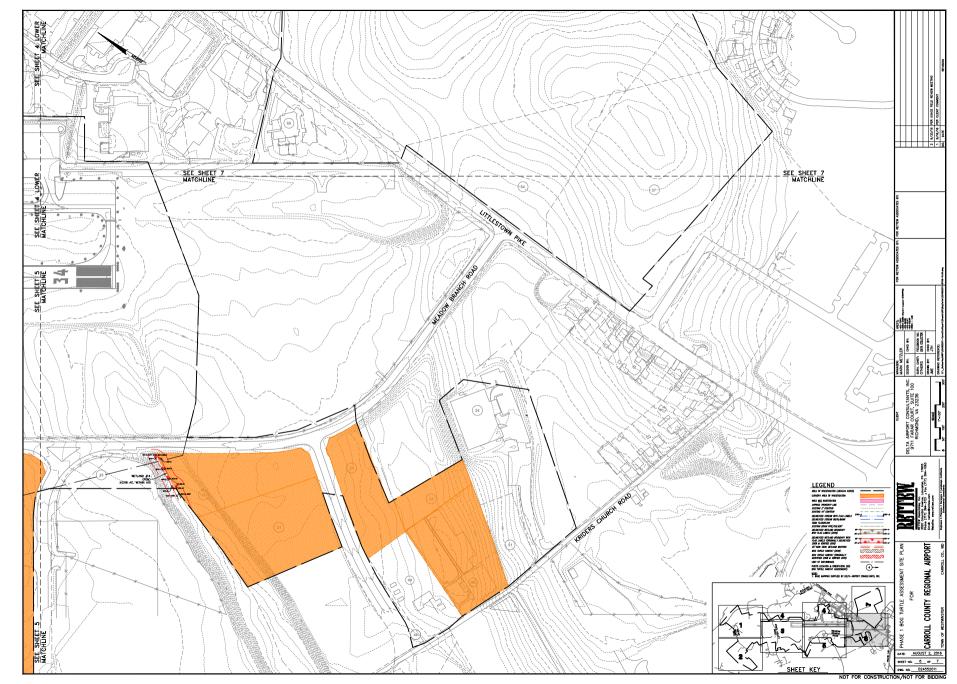


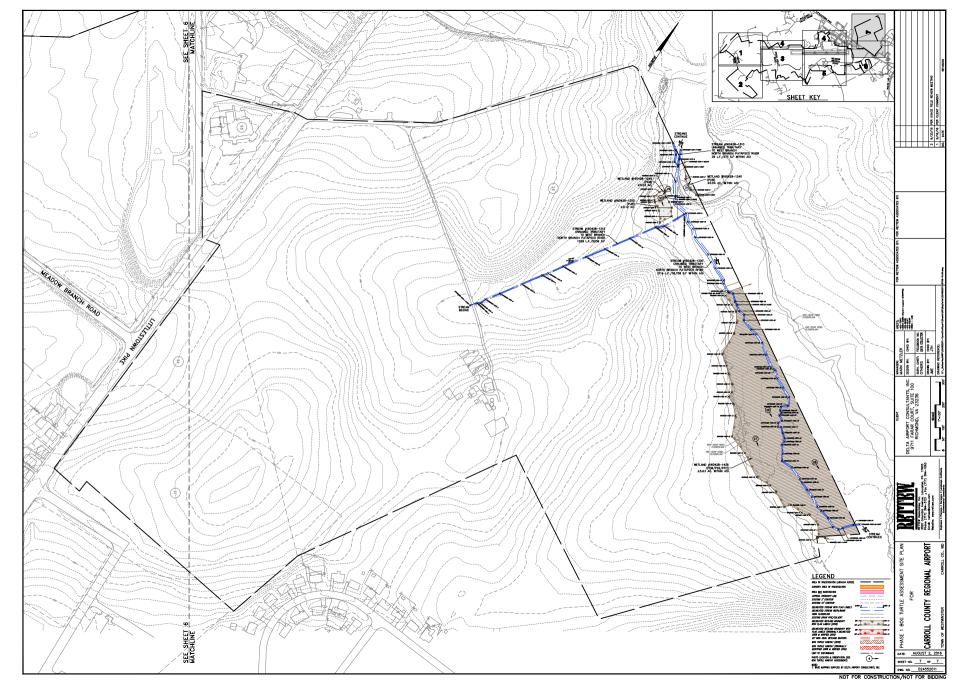












# APPENDIX F 2009 PHASE II/III BOG TURTLE REPORT



Martin O'Malley, Governor Anthony G. Brown, Lt. Governor John R. Griffin, Secretary Eric Schwaab, Deputy Secretary

January 30, 2009

Jeremy Hite RETTEW Associates, Inc. 3020 Columbia Ave. Lancaster, PA 17603

RE: Phase II/III Bog Turtle Habitat Assessment for Carroll County Regional Airport Site

RETTEW Project No. 08-02455-002

Dear Mr. Hite:

I have reviewed the report prepared by you for the above named project. Your Phase II and Phase III surveys were conducted within the protocols we had in place at that time. Note that for future projects we will be following the "20:20" rule for Phase III surveys; that is a minimum 20 traps/acre for 20 consecutive days. While your 2008 trapping does not meet the 20:20 rule for consecutive days (you did 15) you exceeded the minimum for traps (90 traps for 2.97 wetland acres). However, you were following the draft guidelines I had given you at that time, so I accept your results, which was no bog turtles captured and no sign (tracks, etc.) to indicate that any had been missed.

If you have any questions or comments please contact me at our Wye Mills field office (410-827-8612 x103).

Sincerely,

Scott Smith, Ecologist

DNR-Wildlife & Heritage Service

Cc:

L. Byrne, DNR

D. Brinker, DNR

A. Moser, USFWS

ER# 2008.1190.CA

# Phase II/III- Bog Turtle Report For Carroll County Regional Airport Site Carroll County, Maryland January 2009 RETTEW Project No. 08-02455-002

#### Prepared for:

Delta Airport Consultants, Inc. ATTN: Colleen Angstadt 8008 Corporate Center Drive, Suite 330 Charlotte, NC 28226

#### Prepared by:

RETTEW Associates, Inc. Environmental Sciences Group 3020 Columbia Avenue Lancaster, PA 17603 (717) 394-3721 (717) 394-1063 fax

Prepared by:

Prepared by:

Reviewed by:

y A. Fakenstein, Group Manager

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	Page
1.0	INTRODUCTION1
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3.0	SITE DESCRIPTION1
4.0	AGENCY COORDINATION1
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6.0	RESULTS AND DISCUSSION2
7.0	SUMMARY/CONCLUSIONS

#### **APPENDICES**

APPENDIX A: Site Maps (3)
APPENDIX B: Agency Letters

APPENDIX C: Wetland Tables (Tables 1 and 2)

APPENDIX D: Bog Turtle Survey Plan

APPENDIX E: Site Photographs
APPENDIX F: Trapping Data Sheets
APPENDIXG: Professional Qualifications

#### 1.0 INTRODUCTION

RETTEW Associates, Inc. (RETTEW) has conducted a bog turtle (Glyptemys muhlenbergii) presence/absence (Phase Il/III) survey for Delta Airport Consultants, Inc. at the Carroll County Regional Airport Site in the Town of Westminster, Carroll County, Maryland. This survey targeted wetlands on site that had potential bog turtle habitat. The Designated Search Area (DSA) for each wetland was surveyed 4 times between April 15 and June 15, 2008. Trapping of the on site wetlands were done between May 15 and May 30, 2008. The following report documents the search effort, wetland descriptions, weather conditions and survey dates.

#### 2.0 PROPOSED PROJECT DESCRIPTION

The proposed project involves the expansions of the Carroll County Regional Airport and may include runway extensions, new hangers, commercial and industrial buildings, and supporting infrastructure.

#### 3.0 SITE DESCRIPTION

The Carroll County Regional Airport Site is located in the Town of Westminster, Carroll County, Maryland and appears on the New Windsor and Westminster, Maryland U.S. Geological Survey (USGS) 7.5-minute quadrangles (Latitude N 39° 36' 51.57" and Longitude W 77° 0' 41.68") (Appendix A). The area of investigation includes a portion of the airport property and several adjacent parcels totaling approximately 741.98 acres. The entire property is transected and border by several roads and is also bounded by commercial and private properties. The site is dominated by a mixture of vegetative communities, which include mowed lawns, agricultural fields, mature woods, successional woods, and wetlands. There are several small streams that are tributaries to Bear Branch of Big Pipe Creek. There are numerous palustrine emergent/scrubshrub/forested wetlands within the Carroll County Regional Airport Site. These are all non-tidal resources.

#### 4.0 AGENCY COORDINATION

A Phase I Bog Turtle Habitat Assessment Survey Report was sent to the Maryland Department of Natural Resources (MDDNR) and United States Fish and Wildlife Service (USFWS) on August 12, 2008 for their review and comment. A site visit of the wetlands on the Carroll County Regional Airport Site was conducted on January 14, 2009 with Scott Smith of MDDNR. From this site visit a letter was received on January 16, 2009 from the MDDNR recommending a Phase II and Phase III bog turtle survey to be conducted at Wetland #9 to determine the presence or absence of bog turtles (Appendix B).

#### 4.0 METHODS

The Phase II bog turtle surveys were completed in accordance with the United States Fish and Wildlife Service (USFWS) "Guidelines for Bog Turtle Surveys" (Revised April 2006). Surveys were conducted on the following dates: April 16, May 7, May 14, May 30 and June 6, 2008 when the weather (ambient air temperature) was a minimum of 55°F. Phase II surveys were performed by Jeremy Hite (Qualified Bog Turtle Surveyor) with a 2-3 person survey crew.

The DSA was determined by the areas in the wetland that had suitable hydrology and soils during the 2008 bog turtle season. The DSA was calculated to be 2.97 acres. The search effort was 4.3-5.4 person hours/acre/visit. Total search time was 56.75 person hours.

Visual encounter techniques were done by walking quietly through the wetland searching for turtles basking, foraging, and in locomotion. If no turtles were found in the first sweep, a more intense search was done. Probing of mud, holes, and spring areas with hands and sticks was done to search for buried turtles. Lifting of dead and live vegetation was also done to find turtles in hiding. All other herpetafauna was identified and recorded.

Trapping was performed in accordance with the Maryland Department of Natural Resources-Wildlife and Heritage Services "Draft Phase 3 Survey Protocol- Maryland" (2008). Trapping took place from May 15 through May 30, 2008. Ninety "Fahey" design traps were placed strategically in travel corridors, rivulets, spring heads, and between vegetation to capture turtles passing through. Traps were covered with vegetation so the central area was shaded and was placed in shallow water to avoid exposing animals to ambient temperatures. All traps were given a unique label and a GPS coordinate was taken at each trap location. Traps were set by Jeremy Hite and checked once daily by Jeremy Hite. See Appendix F for information regarding the traps' location and orientation. All catch was identified and recorded.

#### 5.0 RESULTS AND DISCUSSION

#### Wetlands

RETTEW's investigation determined that 14 wetlands exist on the site. Of the 14 wetlands, only 2 containing 2.97 acres of potential bog turtle habitat, were subjected to the Phase – II/III protocols. Table 1 and 2 in Appendix C gives wetland location and a summary of the bog turtle Phase 1 survey.

#### Wetland #1

Wetland #1 is identified as a large palustrine emergent/scrub-shrub/forested (PEM/SS/FO) wetland complex, situated in an afforestion area on the south side of Pleasant Valley Road in the middle of the northern property line. The wetland is bounded

by a Pleasant Valley Road to the north, a driveway and successional wood line to the west and successional woods on all other sides. The total acreage is 5.052. A sphagnum-like bog is located in the southeastern portion of the wetland and had mucky soils greater than 12 inches in depth. What appears to be an old pond was located in the southwestern part of the wetland. The ponds berm was breached and it was filled with sediment that had a mucky substrate greater than 12 inches in depth. The dominant wetland vegetation was Typha latifolia (broadleaf cattail), Acorus calamus (sweet flag), Juncus effusus (common rush), Carex sp. (sedge), Solidago sp. (goldenrod), Acer rubrum (red maple), Fraxinus pennsylvanica (green ash) and Platanus occidentalis (American sycamore), Rosa multiflora (multiflora rose) and Scirpus cyperinus (woolgrass). The hydrology of the wetland is derived for springs, seeps, overland drainage and 2 unnamed tributaries to Bear Branch of Big Pipe Creek. There was a spring house located on the southeast portion of the wetland. Wetland #1 contained 1.59 acres of potential bog turtle habitat.

#### Wetland #2

Wetland #2 is identified as a small PEM wetland associated with an unnamed tributary to Bear Branch of Big Pipe Creek located near the northeast portion of the site. The total acreage of the wetland is 0.049. The dominant vegetation was Carex sp., Typha latifolia and Solidago sp. The hydrology of the wetland is derived from a small seep and from overland drainage. The soils were mostly dry and lacked a mucky substrate that could be probed to a depth of 3 inches. Wetland #2 did not meet the criteria for bog turtle habitat.

#### Wetland #3

Wetland #3 is identified as a small PEM/SS wetland associated with an unnamed tributary to Bear Branch of Big Pipe Creek and is bounded by agricultural fields. The total acreage of the wetland is 0.217. The dominant wetland vegetation was *Juncus effusus* (common rush), *Impatiens capensis* (jewelweed) and *Rosa multiflora* (multiflora rose). The hydrology of the wetland is derived from the unnamed tributary and seasonal seeps. The soils of the wetland were saturated, but lacked a mucky substrate that could be probed to a depth of 3 inches. Wetland #3 did not meet the criteria for bog turtle habitat

#### Wetland #4

Wetland #4 is identified as a palustrine emergent/scrub-shrub/forested (PEM/SS/FO) located near the northeast portion of the site and includes the headwaters of an unnamed tributary to the Bear Branch of Big Pipe Creek. The wetland is bounded by an agricultural field and contains 1.749 acres. The dominant wetland vegetation was Juncus effuses, Impatiens capensis, Onoclea sensibilis (sensitive fern), Acer rubrum (red maple), Salix nigra (black willow) and Rosa multiflora. The hydrology of the wetland is derived from the headwaters of the tributary and overland drainage. The soils were hard and lacked a mucky substrate. Wetland #4 was not potential bog turtle habitat.

#### Wetland #5

Wetland #5 is identified as a fringed PEM/SS/FO wetland associated with an unnamed tributary to Bear Branch of Big Pipe Creek near the northeast portion of the site. The wetland is bounded by woods and agricultural fields on all sides and has a total acreage of 0.452. The hydrology of the wetland is derived from the tributary and overland drainage. The dominant wetland vegetation was *Impatiens capensis*, *Acer rubrum*, *Salix nigra*, *Rosa multiflora* and *Sambucus canadensis* (common elderberry). The soils were hard and lacked a mucky substrate. Wetland # 5 did not contain potential bog turtle habitat.

#### Wetland #6

Wetland #6 is identified as a PEM/PSS wetland located north of Old Meadow Branch Road and has a total acreage of 0.293. The wetland is bounded by Old Meadow Branch Road to the south, successional woods to the west, and agricultural fields to the north and east. The dominant wetland vegetation was Juncus effusus, Carex sp., Impatiens capensis, Rosa multiflora and Solidago sp. The hydrology of the wetland is derived from a spring house, seeps and overland drainage. The wetland also includes the headwaters of an unnamed tributary to Bear Branch of Big Pipe Creek. The soils were mostly hard except for a small pocket (10' by 15') of mucky soils that could be probed to a depth of 3 inches. Due to the lack of mucky soils, Wetland #6 was not considered bog turtle habitat.

#### Wetland #7

Wetland #7 is identified as a PEM/SS/FO wetland located in an afforestion area near the center of the site, northwest of the runway and has a total acreage of 0.874. The wetland is bounded by a mowed grass area to the west, agricultural fields to the north, and successional woods to the east and south. The dominate vegetation was Juncus effuses, Typha latifolia, Leersia oryzoides (rice cutgrass), Rosa multiflora and Platanus occidentalis. The hydrology of the wetland is derived from an unnamed tributary to Bear Branch of Big Pipe Creek and overland drainage. The tributary empties into to the wetland from a culvert underneath the runway. The soils lacked a mucky substrate and were mostly dry. Wetland #7 was not potential bog turtle habitat.

#### Wetland #8

Wetland #8 is identified as a PEM/SS/FO wetland located on the northern and southern side of Pinch Valley Road, near the intersection of Pleasant Valley Road. The total acreage of the wetland is 0.883 acres. The wetland is bounded by a mown lawn to the west, a meadow to the east, and woods to the north and south. The dominant wetland vegetation was Carex sp., Juncus effusus, Leersia oryzoides, Salix nigra, Juglans nigra (black walnut), Poa sp. (bluegrass) and Acer rubrum. The hydrology of the wetland is derived from seasonal seeps, overland drainage and an unnamed tributary to Bear Branch of Big Pipe Creek. The wetland soils were firm and lacked a mucky substrate. Wetland #8 was not potential bog turtle habitat.

#### Wetland #9

Wetland #9 is identified as large PEM/SS/FO wetland complex located on the northern and southern sides of Pinch Valley Road. The wetland is 4.283 acres in size and is bounded by successional woods, forest, and agricultural fields. The dominant wetland vegetation was Carex stricta (tussock sedge), Carex sp., Juncus effusus, Symplocarpus foetidus (skunk cabbage), Typha latifolia, Leersia oryzoides, Microstegium vimineum (Nepalese browntop), Rosa multiflora, Rosa palustris (swamp rose), Acer rubrum, Liriodendron tulipifera (tuliptree), Solidago sp., Quercus rubra (northern red oak) and Quercus palustris (pin oak). The hydrology of the wetland is derived from two unnamed tributaries of Bear Branch of Big Pipe Creek, springs, seeps, and overland drainage of nearby uplands. The soils could be probe to a depth of 3-5 inches. Wetland #9 contained approximately 1.38 acres of potential bog turtle habitat.

#### Wetland #10

Wetland #10 is identified as a PEM/SS/FO wetland associated with an unnamed tributary to Bear Branch of Big Pipe Creek located near the north-central portion of site. The wetland is bounded by successional woods and forest on all sides and totals 0.342 acres in size. The dominant vegetation was Scirpus sp. (bulrush), Onoclea sensibilis, Alnus sp. (alder), Leersia oryzoides, Acer rubrum, Rosa multiflora, Liriodendron tulipifera, Symplocarpus foetidus, Rubus allegheniensis (Allegheny blackberry) and Quercus sp. The hydrology of the wetland is derived from the headwaters of the stream and overland drainage. There was a small pocket (10'by 10') of mucky soils that could be probe to a depth of 3 inches near the headwaters of the tributary. Due to small amount of mucky soils, Wetland #10 was not considered potential bog turtle habitat.

#### Wetland #11

Wetland #11 is identified as a PEM wetland located near the northeastern end of the runway and has a total acreage of 0.874. The wetland is located in a low lying area and is bounded by a mowed field. The dominant wetland vegetation was Typha latifolia, Leersia oryzoides, Carex sp., Juncus effuses, and Poa sp. The hydrology of the wetland is from overland drainage and was mostly dry. The soils were hard and lacked a mucky substrate. Wetland #11 did not meet the criteria for potential bog turtle habitat.

#### Wetland #12

Wetland #12 is identified as a small PEM/FO wetland located on the southern side of Pinch Valley Road and has a total acreage of 0.105. The wetland is bounded by Pinch Valley Road to the north and agricultural fields on all others sides. The dominant wetland vegetation was Symplocarpus foetidus, Impatiens capensis, Lonicera japonica (Japanese honeysuckle), Solidago sp., Poa sp., Acer rubrum, and Rosa multiflora. The hydrology of the wetland is derived from overland drainage and an unnamed tributary to Bear Branch

of Big Pipe Creek. The soils lacked a mucky substrate that could be probed to a depth of 3 inches. Wetland #12 was not potential bog turtle habitat.

#### Wetland #13

Wetland #13 is identified as a fringed PFO wetland, bounded by steep wooded slopes and has a total acreage of 0.301. The dominant wetland vegetation was *Symplocarpus foetidus*, *Impatiens capensis*, *Acer rubrum*, *Quercus* sp., *Carya tomentosa* (mockernut hickory), *Liriodendron tulipifera* and *Lindera benzoin* (northern spicebush). The hydrology of the wetland is derived from seeps at the tow of slope and an unnamed tributary to Bear Branch of Big Pipe Creek. The soils were rocky and lacked a mucky substrate. Wetland #13 did contain potential bog turtle habitat.

#### Wetland #14

Wetland #14 is identified as a PEM wetland located in a swale on the southern side of Meadow Branch Road and continues southwest offsite. The total acreage of the wetland is 0.055. The dominant wetland vegetation was *Typha latifolia*, *Carex* sp., *Juncus effuses*, *Solidago* sp. and *Poa* sp. The hydrology of the wetland is derived from stormwater runoff of Old Meadow Branch Road and overland drainage. The soils were hard and rocky. Wetland #14 did not contain potential bog turtle habitat.

#### 6.0 SUMMARY/CONCLUSIONS

RETTEW identified 2.97 acres of potential bog turtle habitat on the Carroll County Regional Airport Site. The potential bog turtle habitat was located in Wetlands #1 and 9. Turtle searches were focused on the DSA area, quick and opportunistic searches of other wetlands on site were also performed. Trapping was done in Wetlands #1 and 9.

After 4 surveys of each wetland of 56.75 person hours (4.3-5.4 person hours/acre/visits) and trapping of 15 consecutive days, no bog turtles or signs of bog turtles were observed. In conclusion, the site did not contain the presence of bog turtles. Table 3 and 4 summarizes dates, search effort, surveyors, and weather.

The following herpetafauna was observed during surveys: snapping turtle (Chelydra serpentine), pickerel frog (Rana palustris), green frog (Rana clamitans melanota), eastern garter snake (Thamnohpis sirtalis), northern water snake (Nerodia sipedon), Queen snake (Regina septemvittata), American toad (Bufo americanus), northern red salamander (Pseudotriton ruber) and northern two-lined salamander (Eurycea bislineata). Table 5 list the animals captured and their frequency of captured during the 15 day trapping period at the Carroll County Regional Airport Site. Data sheets of trap locations and catch data for each trap are located in Appendix F.

Table 3: Summary of search efforts and weather for a Phase II survey Wetland #1 at the

Carroll County Regional Airport Site

Survey Date	Time	Search Effort in Hours	Total Person hours	Surveyors	Weather In	Weather Out	Bog Turtle Found
5/7/08	9:00am- 11:30pm	2.5	7.5	Jeremy Hite Jon Kasitz Bryan Kondikoff	63°F Sunny	69°F Sunny	No
5/14/08	1:00pm- 3.30pm	2.5	7.5	Jeremy Hite Jon Kasitz Bryan Kondikoff	70° P. Cloudy	70°F P. Cloudy	No
5/30/08	10:00am- 12:30pm	2.5	7.5	Jeremy Hite Jon Kasitz Bryan Kondikoff	69°F Sunny	74°F Sunny	No
6/6/08	8am- 11:30pm	3.5	7	Jeremy Hite Bryan Kondikoff	68°F Sunny	76°F Sunny	No

Table 4: Summary of search efforts and weather for a Phase II survey Wetland #9 at the Carroll County Regional Airport Site

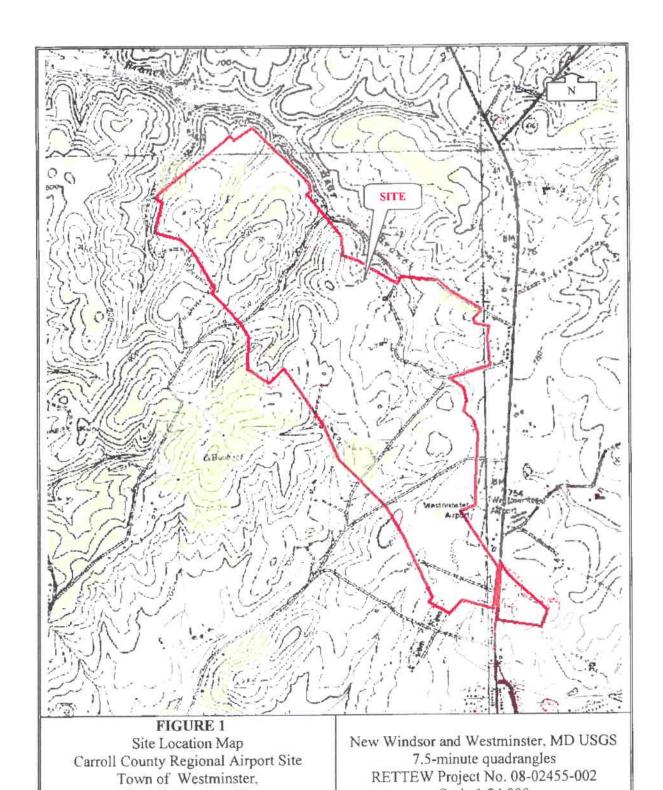
Survey Date	Time	Search Effort in Hours	Total Person hours	Surveyors	Weather In	Weather Out	Bog Turtle Found
4/23/08	10:00am- 1:30pm	3.5	7	Jeremy Hite Jon Kasitz	62°F P. Cloudy	70°F P. Cloudy	No
5/7/08	12:00am- 2:15pm	2.25	6.75	Jeremy Hite Jon Kasitz Bryan Kondikoff	70° Sunny	74°F Sunny	No
5/14/08	9:45am- 12:15pm	2.5	7.5	Jeremy Hite Jon Kasitz Bryan Kondikoff	63°F P. Cloudy	70°F P. Cloudy	No
5/30/08	7:30am- 9:30am	2	6	Jeremy Hite Jon Kasitz Bryan Kondikoff	60°F Sunny	69°F Sunny	No

Table 5: List of animals trapped and their frequency of capture at the Carroll County Regional Airport Site

Capture	Number of Catches
Snapping Turtle	12
Queen Snake	1
Green Frog	12
Pickerel Frog	2
Crayfish	11
Meadow Vole	4

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APPENDIX A
SITE MAPS



Carroll County, MD

Scale 1:24,000

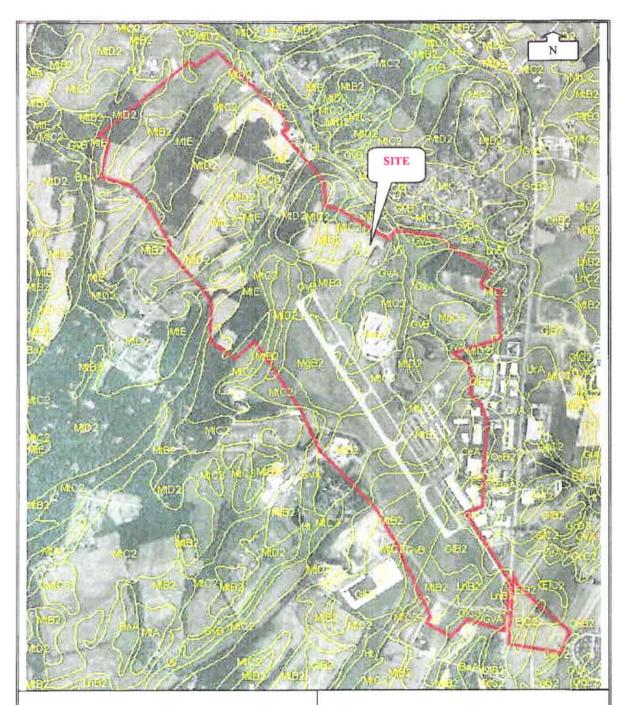


FIGURE 2
Soils Map
Carroll County Regional Airport Site
Town of Westminster,
Carroll County, MD

Soil Survey of Carroll County, MD

RETTEW Project No. 08-02455-002 1:19,000

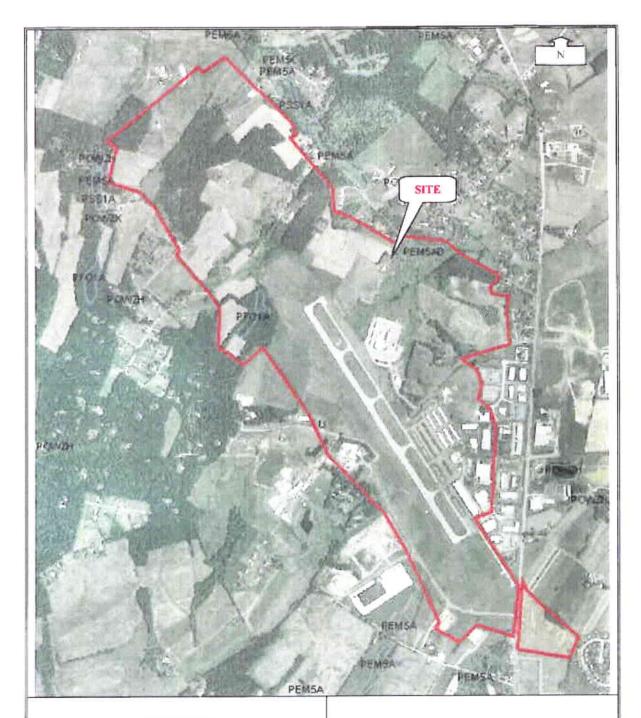


FIGURE 3
National Wetlands Inventory Map
Carroll County Regional Airport Site
Town of Westminster,
Carroll County, MD

RETTEW Project No. 08-02455-002 Scale 1:18,000

# APPENDIX B AGENCY LETTERS



Martin O'Malley, Governor Anthony G. Brown, Lt. Governor John R. Griffin, Secretary Eric Schwaab, Deputy Secretary

January 16, 2009

Jerotay Hite RET (DW Associates, Inc. 3020 Columbia Ave. Legenster, PA 17603

RP: Phase I Bog Turtle Habitat Assessment for Carroll County Regional Airport Site

RETTEW Project No. 07-02455-002

Dear Mr. Dite:

I have reviewed the report prepared by you for the above named project and, after meeting with you in the field on Linuary 14, 2009, offer the following comments:

- 1) The Feb. 4, 2002 letter from Lori Byrne of our staff to Timothy Falkenstein of your firm is in error in the following statement: "After consultation with our regional staff, it was determined that there is no suitable potential habitat for Bog Turtles on this site.". Based both on your report and on my field investigation with you, there is suitable potential bog turtle habitat within the project area, specifically Wetlands #9 and #1. According to the plans you provided and your verbal comments, Wetland #1 is not to be impacted by the proposed runway extension activities in Alarmative 4, so I have no further concerns with impacts to that area.
- 2) Welland #9 was suitable bog turtle habitat and most or all of the welland is proposed to be filled for the new runway associated with Alternative 4. I strongly recommend that Phase II and Phase III surveys be conducted at this welland, as we need to be certain that the presence or absence of bog turtles is indisputably determined. If bog turtles are found then further consultations will be required with both MD DNR and the USFWS. If they are not then we have no ferther concerns with this proposed project.

If you have any questions or comments please contact me at our Wye Mills field office (410-827-8612 x103).

Sincerely,

Scott Smith, Ecologist

DNR-Wildlife & Horitage Service

Co: L. Byrne, DNR A. Moser, USFWS

\* ER#2008.1190.CA

# APPENDIX C WETLAND TABLES

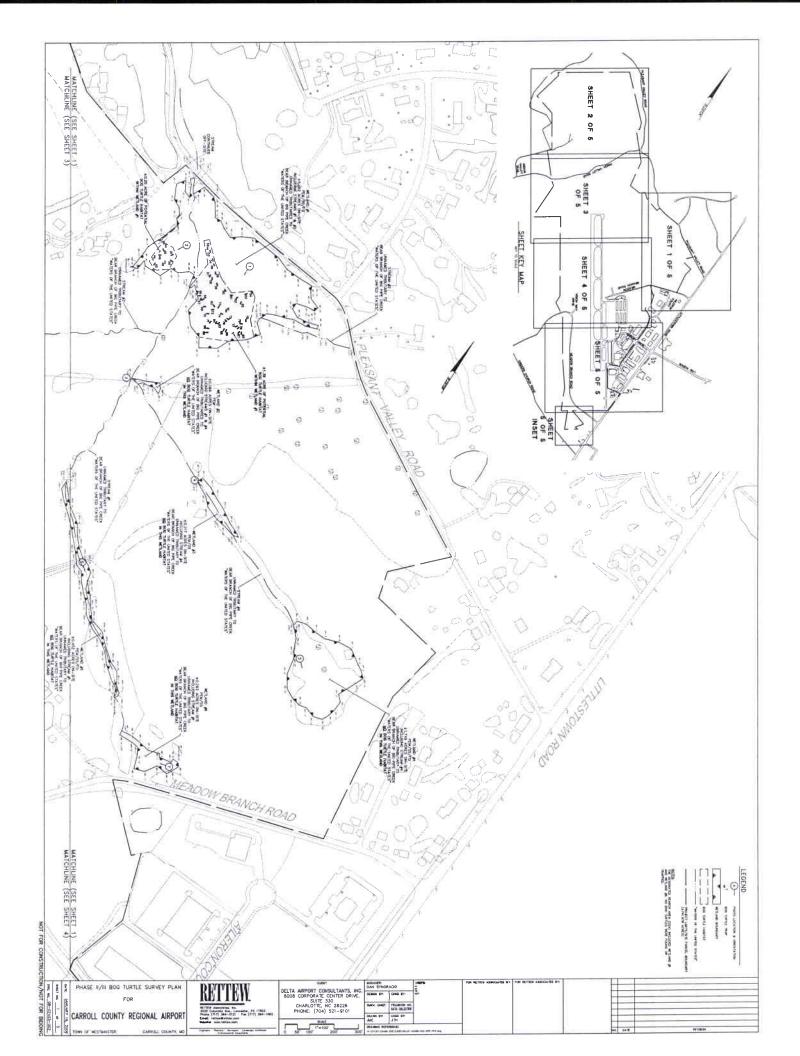
**Table 1:** Wetland Size and Location for the Carroll County Regional Airport in Carroll County, MD

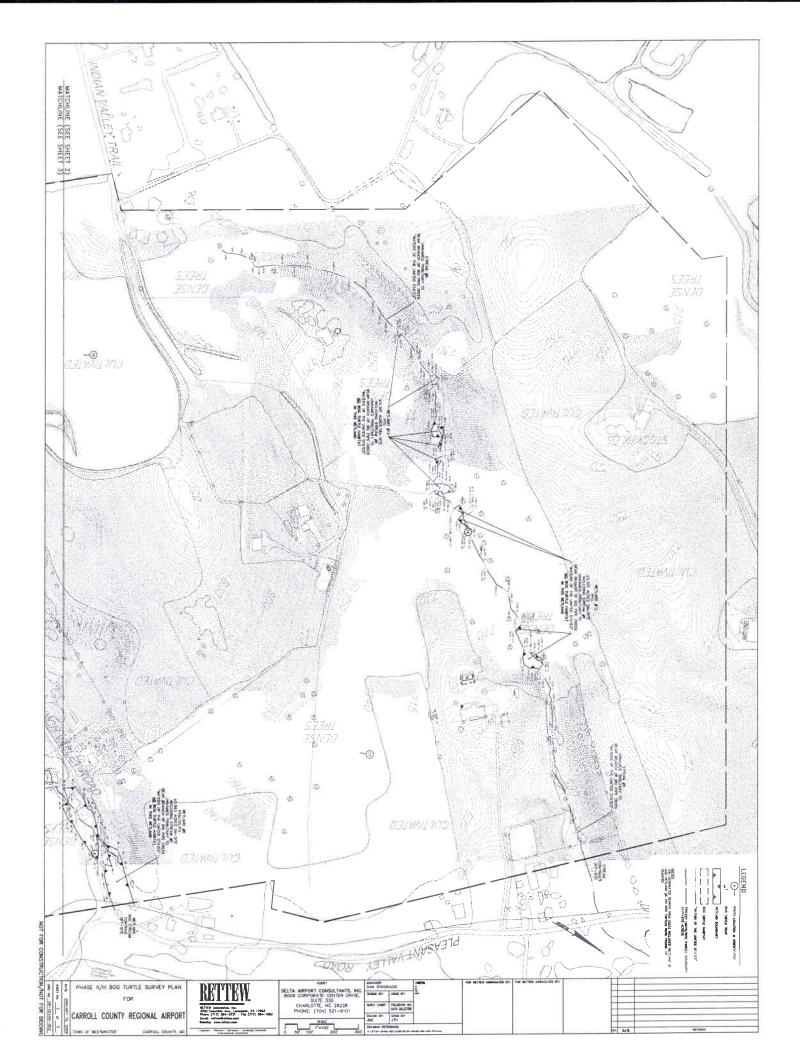
Wetland ID	Potential Bog Turtle Habitat (approximate acres)	Latitude/Longitude	ls the entire wetland on-site?
1	1.59	N 39-37-1.22 W 77-0-17.92	Yes
2	0	N 39-36-55.81 W 77-0-18.2	Yes
3	0	N 39-36-53.46 W 77-0-12.12	Yes
4	0	N 39-36-49.7 W 77-0-1.74	Yes
5	0	N 39-36-47.9 W 77-0-15.07	Yes
6	0	N 39-36-43.14 W 77-0-8.24	Yes
7	0	N 39-36-51.85 W 77-0-28.11	Yes
8	0	N 39-37-16.3 W 77-0-42.82	No
9	1.38	N 39-37-2.14 W 77-0-53.96	No
10	0	N 39-36-59.33 W 77-0-45.34	Yes
11	0	N 39-36-53.91 W 77-0-39.52	Yes
12	0	N 39-36-53.98 W 77-1-6.14	Yes
13	0	N 39-37-20.51 W 77-1-10.07	Yes
14	0	N 39-36-1.85 W 77-0-17.9	No

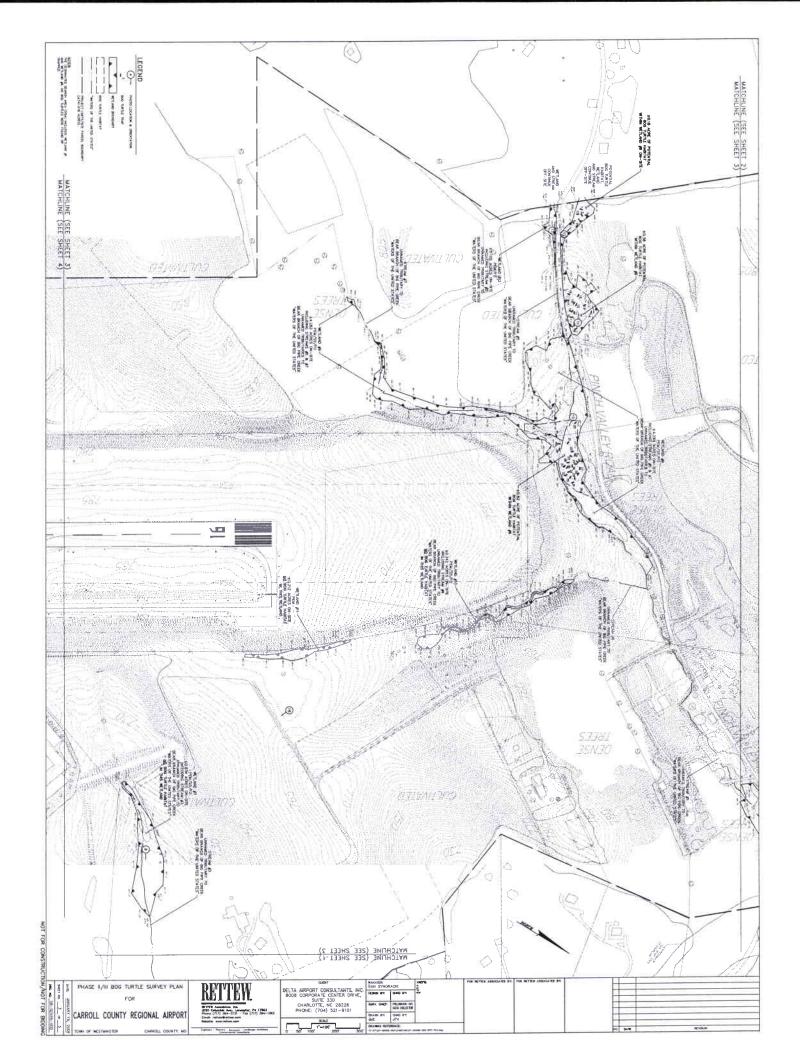
Table 2. Summary of Phase I Bog Turtle Survey Results for the Carroll County Regional Airport in Carroll County, MD

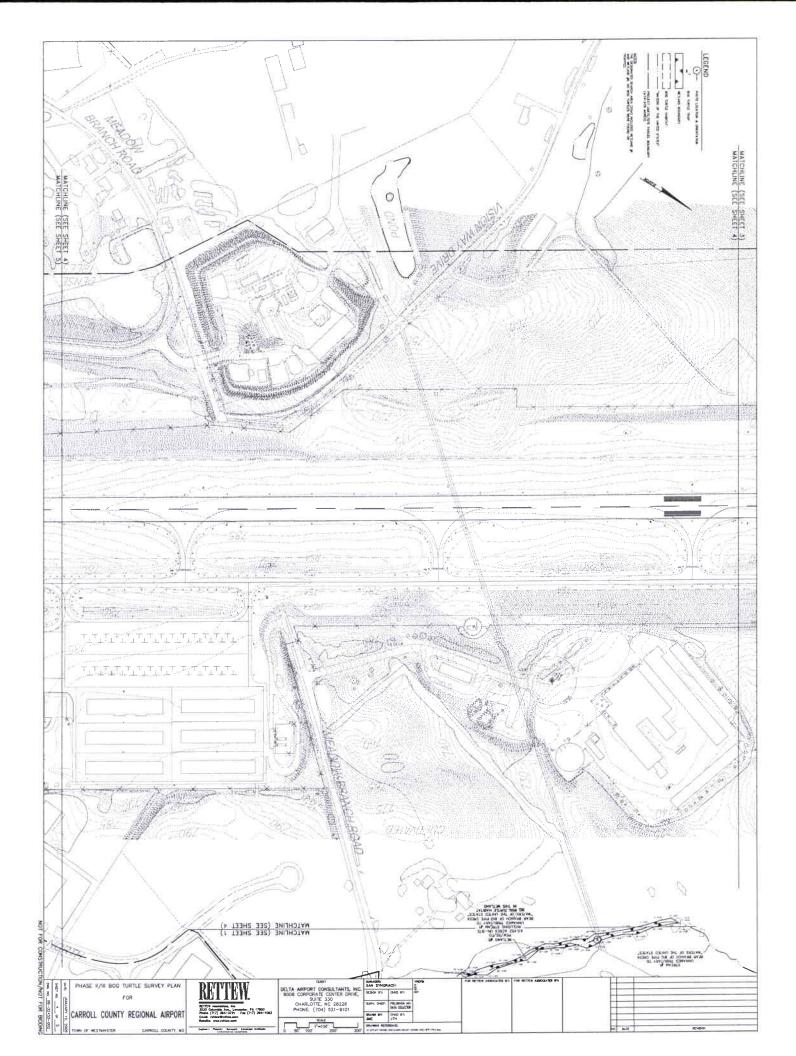
Wetland ID	Potential Bog Turtle Habitat (approximate acres)	Wetland Type & Amount (% or acres)	Extent of Mucky Soils (by Wetland Type)	Survey Effort (person- hours)	Bog Turtle Habitat?	Bog Turtles Found?
1	1.59	PEM - 60% PSS - 30% PFO -10%	PEM - 30% PSS - 0% PFO -0%	1	Yes	No
2	0	PEM - 100%	PEM - 0%	.5	No	No
3	0	PEM - 90% PSS - 10%	PEM - 0% PSS - 0%	.5	No	No
4	0	PEM - 15% PSS - 20% PFO - 65%	PEM -0% PSS - 0% PFO - 0%	1	No	No
5	0	PEM - 10% PSS - 20% PFO - 70%	PEM -0% PSS - 0% PFO - 0%	1	No	No
6	0	PEM - 90% PSS - 10%	PEM - 5% PSS - 0%	.75	No	No
7	0	PEM - 80% PSS - 15% PFO - 5%	PEM -0% PSS - 0% PFO - 0%	0.5	No	No
8	0	PEM - 80% PSS - 15% PFO - 5%	PEM -0% PSS - 0% PFO - 0%	.75	No	No
9	1.38	PEM - 75% PSS -5% PFO - 20%	PEM -30% PSS - 0% PFO - 5%	1	Yes	No
10	0	PEM - 20% PSS -15% PFO - 65%	PEM -5% PSS - 0% PFO - 0%	0.5	No	No
11	0	PEM - 100%	PEM - 0%	0.5	No	No
12	0	PEM - 50% PFO - 50%	PEM - 0% PFO - 0%	0.5	No	No
13	0	PFO - 100%	PFO - 0%	1.5	No	No
14	0	PEM - 100%	PEM - 0%	.5	No	No

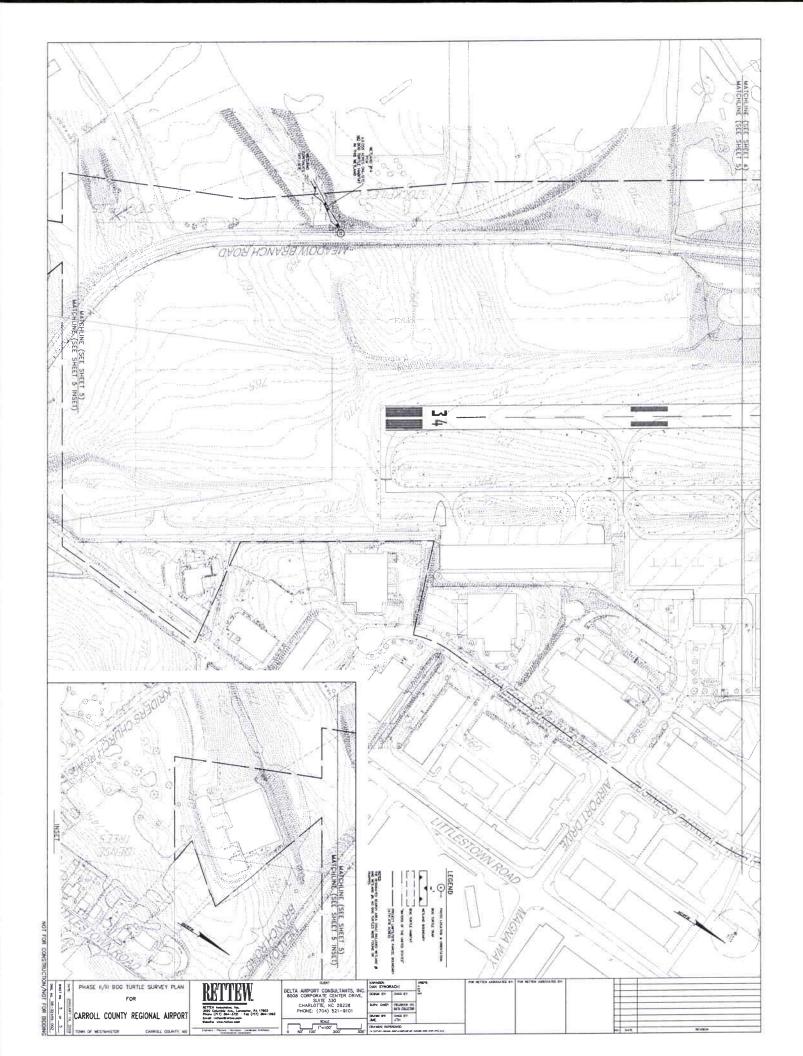
## APPENDIX D BOG TURTLE SURVEY PLAN











APPENDIX E SITE PHOTOS



Photo 1- Facing west, viewing sphagnum moss portion of Wetland #1 and potential bog turtle habitat at the Carroll County Regional Airport Site.



Photo 2- Facing southwest, viewing cattail area of Wetland #1 that appears to be an old pond containing potential bog turtle habitat.



Photo 3- Facing northeast, viewing PEM Wetland #2 that was not potential bog turtle habitat at the Carroll County Regional Airport Site.



Photo 4- Facing east, viewing PEM/SS Wetland #3 that was not potential bog turtle habitat at the Carroll County Regional Airport Site.



Photo 5- Facing east, viewing PEM/SS/FO Wetland #4 that was not potential bog turtle habitat at the Carroll County Regional Airport Site.



Photo 6- Facing west, viewing fringed PEM/SS/PFO Wetland #5 that did not contain potential bog turtle habitat at the Carroll County Regional Airport Site



Photo 7- Facing northwest, viewing PEM/SS Wetland #6 that was not consider potential bog turtle habitat at the Carroll County Regional Airport.



Photo 8- Facing northeast, viewing PEM portion of Wetland #7 that was not potential bog turtle habitat.



Photo 9- Facing west, viewing PEM/SS/FO Wetland #8 that was not potential bog turtle habitat at the Carroll County Regional Airport.



Photo 10- Facing east, viewing PEM portion of Wetland #9 that contains potential bog turtle habitat at the Carroll County Regional Airport.



Photo 11- Facing west, viewing PEM Wetland #9 and potential bog turtle habitat on the northwestern side of Pinch Valley Road.



Photo 12- Facing northwest, viewing a pocket of potential bog turtle habitat at Wetland #9 at the Carroll County Regional Airport.



Photo 13- Facing west, viewing PEM/PSS/PF0 Wetland #12 that was not consider potential bog turtle habitat at the Carroll County Regional Airport Site.



Photo 14- Facing southwest, viewing a portion of fringed PFO Wetland #13 and an unnamed tributary to Bear Branch of Big Pipe Creek that was not potential bog turtle habitat.



Photo 15- Facing south, viewing a PEM Wetland #14 that was not potential bog turtle habitat at the Carroll County Regional Airport.



Photo 16- Facing southeast from the northern end of the site, viewing an agricultural field and proposed runway expansion corridor.



Photo 17- Facing south, viewing a viewing a characteristic wooded area at the Carroll County Regional Airport Site.



Photo 18- Facing southeast from the mid-northern portion of the site, viewing a characteristic agricultural field.

## APPENDIX F TRAPPING DATA SHEETS

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## APPENDIX G PROFESSIONAL QUALIFICATIONS

Jeremy T. Hite – Mr. Hite has a bachelor's degree in Wildlife and Fisheries Science from the Pennsylvania State University. He is currently involved in developing a Bog Turtle (Glyptemys muhlenbergii) Habitat Conservation Plan in Chester County, PA and New Castle County, DE. He is a qualified bog turtle surveyor for the state of PA and has six years of experience in searching and assessing different wetland environments for bog turtles as a technician for the Penn State University and as an environmental consultant. Through his employment as Research Technician at the Penn State Cooperative Wetlands Center he has been trained in and has helped development various protocols in assessing stream, wetlands, and riparian areas across the Mid-Atlantic Region. This research also included the sampling of streams and wetlands for macroinvertebrates and other herpetofauna. Some of these projects include Bog Turtle (Gleptemys muhlenbergii), Wood Turtle (Gleptemys insculpta), Eastern Massassauga (Sistrurus catenatus catenatus), Stream-sided salamanders, benthic macroinvertebrates, and River Otter (Lutra canadensis) surveys. His responsibilities include leading field crews, field data collection, data management, filling out permits, meeting coordination, and landowner contacts.

Jonathan P. Kasitz – Mr. Kasitz has a bachelor's degree in Biology/Ecology from Millersville University. He has used the 1987 Corps of Engineers Wetland Delineation Manual for numerous field delineations in PA, MD and NY. He has completed the U.S. Army Corp of Engineers' Wetland Delineation Course. He has also been trained in several different stream assessment protocols, both in the eastern U. S. as well as in the Rocky Mountain region. Mr. Kasitz participated in internships with the PA Department of Environmental Protection in their Water Quality division and with the PA Department of Military and Veteran Affairs as a Biology Tech at Fort Indiantown Gap. He has worked with various government agencies including the National Park Service at Yellowstone NP and the US Forest Service in Colorado. He has performed biological surveys for many different threatened and endangered species across the country. He also completed honors research on the effects of ponds on stream nitrate levels in Lancaster County while at Millersville.

Bryan J. Kondikoff – Mr. Kondikoff has a bachelor's degree in Biology/Ecology from Millersville University. During his employment and course work, he has been trained to conduct wetland delineations in PA and is familiar with the 1987 Corps of Engineers Wetland Delineation Manual and 1989 Federal Interagency Manuel. While attending Millersville, he has also been trained in various stream bioassessment protocols in the eastern U.S. region by completing research in Lancaster County, PA on the long-term effects of stream remediation on both the aquatic macroinvertebrate and fish communities. Mr. Kondikoff has also participated in several internships with The Stroud Water Research Center in Avondale, PA as an Aquatic Biologist and for the PA Department of Environmental Protection in their Water Quality/Vector Management division. He was also employed by The Stroud Water Research Center and Millersville University, both as a Research Assistant, to conduct numerous water quality assessments in PA, NY, DE, MD, and NJ.

Timothy A. Falkenstein - Mr. Falkenstein has degrees in Forestry and Environmental Resource Management from the Pennsylvania State University and a Masters Degree in Biology from Shippensburg University. He has attended numerous professional training courses including Wetland Delineation Methodology, Wetland Soils and Hydrology, Identification of grasses, sedges and rushes, and Threatened and Endangered species of New Jersey. In his 16 years of environmental consulting he has conducted numerous wetland delineations at sites throughout Pennsylvania, Ohio, Maryland, Virginia, West Virginia, Delaware, New York, and Tennessee. He regularly conducts field meetings with the USACOE, PADEP, USFWS and other agencies to secure Jurisdictional Determinations and develop appropriate permit applications. He routinely prepares and submits general and joint permit applications for clients including private developers, and municipalities and state infrastructure projects. He has conducted and participated in rare species searches for state and federally listed plants and animals, including Clemmys muhlenbergii. He is also certified by the US Fish and Wildlife Service to conduct Phase I Bog Turtle Habitat Assessments. His Masters thesis entitled "Vascular Plant Communities of the Mount Cydonia Ponds in the Michaux State Forest Natural Area, Franklin County, Pennsylvania" involved plant community classification, topographic descriptions, and soil chemical analysis of 17 temporary autumnal/vernal pools within the Michaux State Forest Natural Area.

Joel M. Esh - Mr. Esh has an Associate in Specialized Technology Degree in Computer Aided Drafting and Design from York Technical Institute and 6 years of experience at RETTEW. He is responsible for the technical workload of the Natural Sciences department, including computer-aided drafting and design (CADD), global positioning systems (GPS), and geographic information systems (GIS). He has created and been involved with the design of stream restoration plans, dam removal plans, pond restoration plans, wetland mitigation plans, and wetland delineation plans. Additional training has included Introduction to Stream Processes and Ecology by Canaan Valley Institute and West Virginia University. When working in the field, he has assisted with data collection and surveying for stream design and wetland delineations in PA, NY, and DE using the 1987 Corps of Engineers Wetland Delineation Manual. Utilizing GIS information, he has obtained and analyzed information for watershed assessments and created maps for grant applications and other uses. He has also been involved with cultural resources by performing site visits for documentation of buildings and bridges and creating plans for historic survey forms. In his first four years at RETTEW, he worked in the Transportation Engineering department, where he has directed data collection, prepared traffic engineering analysis, and completed PENNDOT plans involving right-of-way, traffic signals and highway occupancy permits utilizing PENNDOT resources.

## APPENDIX G PROFESSIONAL QUALIFICATIONS

Jeremy T. Hite – Mr. Hite has a bachelor's degree in Wildlife and Fisheries Science from the Pennsylvania State University. He is currently involved in developing a Bog Turtle (*Glyptemys muhlenbergii*) Habitat Conservation Plan in Lancaster County, PA and New Castle County, DE. He is a qualified bog turtle surveyor for the state of PA and has six years of experience in searching and assessing different wetland environments for bog turtles as a technician for the Penn State University and as an environmental consultant. Through his employment as Research Technician at the Penn State Cooperative Wetlands Center he has been trained in and has helped development various protocols in assessing stream, wetlands, and riparian areas across the Mid-Atlantic Region. This research also included the sampling of streams and wetlands for macroinvertebrates and other herpetofauna. Some of these projects include Bog Turtle (*Glyptemys muhlenbergii*), Wood Turtle (*Glyptemys insculpta*), Eastern Massassauga (*Sistrurus catenatus catenatus*), Stream-sided salamanders, benthic macroinvertebrates, and River Otter (*Lutra canadensis*) surveys. His responsibilities include leading field crews, field data collection, data management, filling out permits, meeting coordination, and landowner contacts.

Mark A. Metzler, Senior Environmental Scientist/NICET II — Mr. Metzler has an associate's degree in Wildlife Technology from the Pennsylvania State University and is certified by the National Institute for Certification in Engineering Technologies in Land Management and Water Control/Erosion and Sediment Control. Mr. Metzler has twelve years of experience working in the environmental regulatory community (Lancaster County Conservation District) and 13 years of private consulting experience. He received training in both the 1987 Corps of Engineers Wetland Delineation Manual and the 1989 Federal Manual from both the PA Dept. of Environmental Protection and the U.S. Army Corps of Engineers. In addition, he received soil mechanics training from the U.S. Dept. of Agriculture — Natural Resources Conservation Service. As an environmental regulator, Mr. Metzler reviewed, permitted, and inspected over 2,000 various plans and project sites many of which involved impacts to Waters of the Commonwealth (wetlands, rivers, lakes). Mr. Metzler has prepared four TMDL implementation plans for the Commonwealth of Pennsylvania and U.S. EPA, as well as numerous watershed assessment and river restoration plans. He is also experienced in dam removal design, the issue of legacy sediment and has overseen dam removal and fish migration projects within Pennsylvania, Maryland, and Virginia.