

WATER RESOURCES TECHNICAL REPORT

AUGUST 2013



Table of Co	ontents	
1. Introdu	uction and Project Description	1
1.1 li	ntroduction	1
1.2 F	Project Description	1
1.2.1	No Build Alternative	1
1.2.2	Preferred Alternative	1
2. Regula	atory Context and Methodology	3
2.1 V	VUS and Wetlands	3
2.2 \$	Surface Waters	5
2.3 F	loodplains	6
2.4	Groundwater and Hydrogeology	7
2.5 A	Aquatic Biota and Habitat	7
3. Affecte	ed Environment	8
3.1 V	VUS and Wetlands	8
3.2 \$	Surface Waters	27
3.2.1	Watersheds	27
3.2.2	Water Quality	31
3.2.3	Maryland Scenic and Wild Rivers	34
3.2.4	Federal Wild and Scenic Rivers	34
3.3 F	loodplains	34
3.4 0	Groundwater and Hydrogeology	34
3.5 A	Aquatic Biota and Habitat	36
3.5.1	Aquatic Biota	36
3.5.2	Benthic Macroinvertebrates	40
3.5.3	Physical Habitat	42
4. Preferr	red Alternative	44
4.1 L	ong-Term Operational Effects and Mitigation	44
4.1.1	WUS and Wetlands	44
4.1.2	Surface Waters	46
4.1.3	Floodplains	46
4.1.4	Groundwater and Hydrogeology	47
4.1.5	Aquatic Biota and Habitat	47
4.1.6	Avoidance and Minimization	48

	4.1.7	Wetland and Stream Mitigation Site Identification	49
	4.1.8	Mitigation	55
4.	2 Sł	hort-Term Construction Effects	55
	4.2.1	WUS and Wetlands	55
	4.2.2	Surface Water	56
	4.2.3	Floodplains	56
	4.2.4	Groundwater and Hydrogeology	56
	4.2.5	Aquatic Biota and Habitat	56
	4.2.6	Avoidance and Minimization	57
	4.2.7	Mitigation	57
5.	Referer	nces	58

Appendices

Appendix A – List of Acronyms and Abbreviations

Appendix C – Wetland Function-Value Evaluation Form

Appendix B – Glossary/Terminology

Appendix D – Wetland Determination Data Forms and Stream Features Field Sheets Appendix E – Agency Field Review Meeting Minutes and Maps Appendix F – Mitigation Agency Field Review Packages	
List of Figures	
Figure 1. Wetlands, Waterways and Floodplains	9
Figure 2. Watersheds and Water Quality Sampling Locations	28
List of Tables	
Table 1. WUS and Wetland within Study Area	13
Table 2. Use I and Use IV COMAR Standards	31
Table 3. Summary of Chemical Water Quality Conditions in the Little Falls, Rock Creek, and Sligo Creek	
Watersheds	32
Table 4. Summary of Chemical Water Quality Conditions in the Northwest Branch, Northeast Branch, and Lo	wer
Beaverdam Creek Watersheds	32
Table 5. Current Status of TMDLs within the Project Study Area	33
Table 6. MDNR/PGDER and MCDEP FIBI Scores and Rankings	37
Table 7. Summary of Existing Fish Community Data in Purple Line Watersheds	37
Table 8. Fish Species Documented in Purple Line Watersheds	
Table 9. MDNR/PGDER and MCDEP BIBI Scores and Rankings	40

 Table 10.
 Summary of Existing Benthic Macroinvertebrate Community Data for Purple Line Watersheds From 2000

 2011
 41

Table 11.	MCDEP, PGDER, MDNR Habitat Ranking Criteria	42
Table 12.	Summary of Existing Habitat Data for Purple Line Watersheds	43
Table 13.	Type of Impact to WUS and Wetlands	44
Table 14.	Summary of Impacts to Waters of the U.S. and Wetlands	45
Table 15.	100-Year Floodplain Impacts per Stream System (Acres)	47
Table 16.	Projected Wetland Compensation Ratios	49
Table 17.	Projected Stream and Open Water Compensation Ratios	49
Table 18.	Potential Wetland Mitigation Sites	51
Table 19.	Potential Stream Mitigation Sites	53
Table 20.	Conceptual Wetland and Stream Mitigation Sites	55

1. Introduction and Project Description

1.1 Introduction

The information presented in this technical report provides additional details in support of the FEIS for the following resources within the study area: waters of the United States (WUS) and wetlands, surface waters, floodplains, groundwater and hydrogeology, and aquatic biota and habitat. This document provides further discussions on the affected environment, impact assessment of the Preferred Alternative, and potential mitigation measures.

1.2 Project Description

The Purple Line is a proposed 16.2-mile transit line located north and northeast of Washington DC, inside the circumferential I-95/I-495 Capital Beltway. The Purple Line would extend between Bethesda in Montgomery County and New Carrollton in Prince George's County. The "Purple Line corridor" includes five major activity centers: Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton.

The purposes of the Purple Line project are the following:

- Provide faster, more direct, and more reliable east-west transit service connecting the major activity centers in the Purple Line corridor at Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton,
- Provide better connections to Metrorail services located in the corridor, and
- Improve connectivity to the communities in the corridor located between the Metrorail lines.

There are two Alternatives discussed herein: the No Build Alternative and the Preferred Alternative.

1.2.1 No Build Alternative

The No Build Alternative represents the future conditions of transportation facilities and services in 2040 in the corridor if the Purple Line were not built. The No Build Alternative includes the existing highway network and transit service, plus those transportation projects listed within the Purple Line corridor for which funding sources have been identified and have been included in the National Capital Region Transportation Planning Board's (TPB) *Financially Constrained Long-Range Transportation Plan* (CLRP) for implementation by 2040. The No Build Alternative provides the basis against which the Preferred Alternative is compared.

1.2.2 Preferred Alternative

The Preferred Alternative would be at grade except for one short tunnel section and three sections elevated on structures. The Preferred Alternative would operate mainly in dedicated or exclusive lanes, providing fast, reliable transit operations.

The following 21 stations are planned for the Preferred Alternative:

- Bethesda
- Chevy Chase Lake
- Lyttonsville
- Woodside/16th Street
- Silver Spring Transit Center
- Silver Spring Library
- Dale Drive
- Manchester Place
- Long Branch
- Piney Branch Road
- Takoma/Langley Transit Center

- Riggs Road
- Adelphi Road/West Campus
- UM Campus Center
- East Campus
- College Park
- M Square
- Riverdale Park
- Beacon Heights
- Annapolis Road/Glenridge
- New Carrollton

Stations would include ticket vending machines, weather shelters for passengers, lighting, wayfinding and informational signage, trash receptacles, seating, and security equipment such as emergency telephones and closed circuit television cameras. Most riders would walk to the stations or transfer from other transit services. Access plans for each station have been developed to enhance pedestrian and transit access for nearby communities. The stations would have either side or center platforms depending on the site characteristics and space availability.

Two storage and maintenance facilities are proposed: one at Lyttonsville in Montgomery County and the other at Glenridge in Prince George's County. Additionally, traction power substations, used to convert electric power to appropriate voltage and type to power the light rail vehicles, would be required approximately every mile.

As part of the Preferred Alternative the permanent Capital Crescent Trail would be constructed within the Georgetown Branch right-of-way for a distance of 3.3 miles between Bethesda and the CSXT Metropolitan Branch. At the junction with the CSXT the trail is planned to continue on the north side of the CSXT corridor to the SSTC. The permanent Capital Crescent Trail would replace the existing Georgetown Branch Interim Trail which currently extends from Bethesda to Stewart Avenue within the Georgetown Branch right-of-way. The completion of the trail along the CSXT corridor is contingent on agreement with CSXT on the use of their property on the north side of the CSXT tracks for the trail. If agreement is not reached by the time the Purple Line construction occurs, MTA would construct the trail from Bethesda to Talbot Avenue. From Talbot Avenue to Silver Spring an interim signed bike route on local streets would be used. MTA will plan, design, and construct the permanent Capital Crescent Trail will be owned and operated by Montgomery County, which will be responsible for providing the funds to construct it.

2. Regulatory Context and Methodology

The study area assessed for water resources is the Purple Line project's limit of disturbance (LOD), which is the boundary within which construction, materials storage, grading, landscaping, and related activities would occur. For consideration of surface water quality, the nearest sampling sites, located upstream or downstream from the study area, were used.

2.1 WUS and Wetlands

The federal Clean Water Act (CWA) establishes the structure for regulating discharges of pollutants into the WUS and regulating water quality standards for surface waters. WUS include unvegetated ponds, seasonal pools, and perennial, intermittent, and ephemeral stream channels. Wetlands are a subset of WUS and support a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 2012).

The federal Clean Water Act (CWA) as well as other regulations requires transportation projects to minimize, avoid, or reduce WUS, including wetland impacts. The following regulations and guidance apply to WUS and wetlands:

- Section 404 of the CWA- Any project activities that result in the potential discharge of dredged or fill material into WUS, including wetlands, require a permit from the U. S. Army Corps of Engineers (USACE).
- Executive Order 11990, Protection of Wetlands, and DOT Order 5660.1A, Preservation of the Nation's Wetlands- This order requires that transportation projects and facilities employ practicable measures to minimize, avoid, or reduce impacts to wetlands during the planning and construction phases.
- Federal Compensatory Mitigation Rule (33 CFR Part 322) The Environmental Protection Agency (EPA) and the USACE require a hierarchy of preferred mitigation for unavoidable impacts to WUS and wetlands. The EPA and USACE prefer compensatory mitigation in the following order: mitigation banks, in-lieu fee, permittee responsible mitigation.
- Section 401 of the Clean Water Act- Before the USACE can issue a Section 404 permit, the Maryland Department of the Environment (MDE) must issue a Section 401 Water Quality Certification, which is a finding that the project complies with the State's water quality standards.
- Maryland Nontidal Wetlands Protection Act- The MDE issues permits for project activities affecting nontidal wetlands and their vegetated 25-foot buffer.
- Waterway and 100-year Floodplain Construction Regulations- Authorization from MDE is required for activities affecting surface waters and 100-year floodplains. These activities may involve bridges or culverts, excavation or filling, channelization, changing the current course or cross section of any stream, and temporary construction within the 100-year floodplain.

Because of the length of time between the AA/DEIS and FEIS, and because of shifts in the Preferred Alternative, the FEIS phase of the project included an updated assessment of WUS, including wetlands. This updated assessment focused on WUS in the vicinity of the Preferred Alternative. Information on potential WUS and wetlands within the study area were gathered from published sources including the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps and NRCS Soil Surveys for Prince George's and Montgomery Counties.

The study area was field investigated for potential WUS and wetlands. Wetland delineations were conducted between December 2011 and April 2012 to verify and supplement data sources in accordance

with the Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 (USACE 2010) and Eastern Mountains and Piedmont Region (USACE 2010).

All identified WUS and wetlands were classified according to A Classification of Wetland and Deep-Water Habitats in the United States (USFWS 1979). The wetland indicator status of the observed vegetation was identified using the National List of Plant Species That Occur in Wetlands: Region 1 – Northeast (USFWS 1988).

Wetland functions and values were assessed for all wetlands greater than one-half acre in size using the USACE New England Method as presented in *The Highway Methodology Workbook Supplement – Wetland Functions and Values; A Descriptive Approach* (USACE 1999). This method provides a framework for assessment that relies on the presence of certain physical characteristics broadly understood to indicate the presence of related functions, along with best professional judgment of an experienced wetland scientist. Functions/values assessed using this methodology include groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, recreation, educational/scientific value, uniqueness/heritage, visual quality/aesthetics, and endangered species habitat. For smaller wetlands, a formal analysis of functions and values was not conducted; however, observed functions and values were noted based on the professional experience of the wetland scientists performing the delineations.

The relative extent to which a particular function/value is potentially being provided was evaluated by reviewing a comprehensive list of qualifiers and determining the applicability of each, using a combination of field data, mapping, and best professional judgment. Results were recorded on a Wetland Function-Value Evaluation Form (see Appendix C). This approach was only undertaken for functions/values determined to be "suitable", based on the characteristics of a given wetland. For example, fish and shellfish habitat is a function/value that is not suitable for consideration among wetlands without permanent aquatic habitat. A function/value was said to be "principal" if more than 50 percent of the potential qualifiers were met. The threshold of 50 percent was established in collaboration with the USACE, MDE, and USFWS during the permitting process for projects throughout the State of Maryland. For wetlands less than one half acre, a formal analysis was not conducted. Rather, relevant functions/values were noted on the wetland field data sheets using best professional judgment only.

Based on EPA and USACE guidance, the agencies will assert jurisdiction over the following WUS:

- Traditional navigable waterways (TNWs)
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least three months of the year
- Wetlands that abut such tributaries

The agencies will determine jurisdiction on a case-by-case basis over the following waters after a basis analysis has been performed to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

A significant nexus evaluation (SNE) will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs. As a matter of policy, not law, the USACE requires performing a SNE on all intermittent non-navigable (not perennial) tributaries and their adjacent wetlands, even if the tributary's flow may be relatively permanent.

Wetland Determination Data Forms and Stream Features Field Sheets were completed in the field for each numbered wetland and waterway, as well as adjacent uplands from sampled test plots (see Appendix D). Data recorded included dominant vegetation, hydrologic indicators, and hydric soil indicators. Mapped soil types were documented using NRCS soil surveys and used to support soil profile descriptions in the field. Hydric soil indicators were assessed using the Field Indicators of Hydric Soils in the United States (USDA 1998). Soil color was identified using the Munsell Color Chart handbook (Munsell 1975).

To gain agency concurrence on field-identified WUS and wetland boundaries, USACE and MDE agency field reviews were conducted on May 8 and 9, 2012. The wetlands and waterways described in Section 3.1 reflect the results of these field reviews and agency concurrence with the boundaries as shown. An additional field review was conducted on July 30, 2013 to review additional wetlands and waterways that had been identified since the 2012 field reviews. Minutes of the agency field reviews and corresponding maps are provided in Appendix E.

Based on subsequent coordination with the USACE, the MTA anticipates the USACE will provide an Approved Jurisdictional Determination¹ for WUS and wetlands within the study area by late September, 2013.

2.2 Surface Waters

Under the CWA, the EPA has implemented pollution control programs and set water quality standards for all contaminants in surface waters. The CWA mandates that the State establish total maximum daily loads (TMDL) in order to bring existing water quality up to minimum established water quality standards in streams that have been categorized as "impaired." A TMDL is an estimate of the maximum amount of a pollutant that a given waterbody can absorb without violating environmental water quality standards (MDE 2011). The State of Maryland has established water quality standards for the protection of public health or welfare, simultaneously providing enhancement of water quality and protection of aquatic resources. Additional regulations apply to streams that are designated as scenic or wild, either through the federal or state designation, or navigable. The following regulations and standards apply to streams and water quality:

• Section 303 (d) of the Clean Water Act- This section of the CWA mandates that the State establish total maximum daily loads (TMDLs), in order to bring existing water quality up to minimum

¹ Approved Jurisdictional Determinations (JDs) are used by the USACE to help implement Section 404 of the CWA and Sections 9 and 10 of the RHA. An approved JD is an official USACE determination that jurisdictional "waters of the United States," or "navigable waters of the United States," or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the CWA/RHA. (See 33 C.F.R. 331.2.)

established water quality standards in streams that have been categorized as "impaired". A TMDL is an estimate of the maximum amount of a pollutant that a given waterbody can absorb without violating environmental water quality standards (MDE 2011). Category 5 of Maryland's Surface Integrated Report of Surface Water Quality, historically known as the 303 (d) list, is the current list of impaired stream segments. Surface water is typically analyzed for chemical composition and is compared to the standard level of water quality established by the CWA.

- **MDE Water Quality Standards** MDE defines the goals for a water body by designating its uses, setting criteria to measure attainment of those uses, and establishing policies to protect water quality from pollutants.
- Federal Wild and Scenic River Act- This act was established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development.
- **Maryland Scenic and Wild Rivers Act of 1968** A Scenic or Wild River is a river that possesses outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value(s). The Maryland Department of Natural Resources (MDNR) program regulates current and future use and development of rivers designated as Scenic or Wild, tributaries thereto, and adjacent land areas, in order to provide protection of their inherent qualities and characteristics, and to protect and maintain the high water quality within such rivers.
- Section 10 of the Rivers and Harbors Appropriation Act of 1899- The USACE regulates structures that are located in, under or over navigable waters of the U.S. under this Act. "Navigable waters of the United States are those waters that are subject to ebb and flow of the tide and/or are presently used or have been used in the past or may be susceptible for use to transport interstate or foreign commerce" (33 C.F. R. Part 329.4).

Data for the chemical characteristics of existing water supplies within project-area watersheds were gathered from the MDNR, the Montgomery County Department of Environmental Protection (MCDEP), the Maryland Biological Stream Survey (MBSS), and the Prince George's Department of Environmental Resources (PGDER). Existing data were based on studies completed over many years; however, only data collected since 2000 were considered current. The MDE has established standards regarding water quality, with parameters based on designated Stream Use Classification. These standards are listed in the COMAR 26.08.02.01-.03–Water. The State has developed and the EPA has approved TMDLs for the overall Chesapeake Bay watershed including the Purple Line study area. The study area streams that are classified as impaired were identified in Maryland's Integrated Report of Surface Water Quality (MDE 2010).

2.3 Floodplains

Floodplains are regulated to minimize flooding impacts on upstream and downstream properties, and to avoid or minimize impacts to floodplains. The following requirements apply to floodplains:

- **USDOT Order 5650.2, "Floodplain Management and Protection"-** Prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse effects to regulated floodplains.
- **Executive Order 11988, "Floodplain Management,"** requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and

modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

• **MDE 100-Year Floodplain Construction Regulations**- These regulations assure that activities in a 100- year floodplain do not create flooding on upstream or downstream property. Authorization from MDE is required for project activities, including bridges or culverts and temporary construction, affecting 100-year floodplains.

Regulated floodplains within the project study area were identified based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) used in conjunction with GIS mapping.

2.4 Groundwater and Hydrogeology

Information regarding groundwater resources and existing hydrology within the study area was gathered from available published data sources, including the United States Geological Survey (USGS), Maryland Geological Survey (MGS), and MDE.

2.5 Aquatic Biota and Habitat

Aquatic biota and habitat within project area surface waters are governed by the same regulations as surface waters as both are a component.

- COMAR 26.08.02.08- Stream Segment Designations (MDE 2007)- The MDE has established designated uses for streams in Maryland to attain or maintain water quality standards to protect aquatic resources. Under this regulation, MDE also regulates in-stream construction for the protection of aquatic habitat and fisheries resources during certain periods of the year, depending upon the designated use of the stream.
- The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSRA) requires the National Marine Fisheries Service (NMFS) to integrate NEPA and the fisheries management process for environmental review and to regulate project effects to marine habitat and fisheries resources.
- Section 404/401 of the Clean Water Act- This act is regulated by the USACE and MDE for impacts to streams and consequently, the aquatic biota and habitat within them.

3. Affected Environment

3.1 WUS and Wetlands

Field investigations identified 48 WUS and wetlands (33 streams and 15 wetlands), shown in Figure 1. Most stream systems located within developed areas have been relocated, ditched, or channelized to accommodate runoff from adjacent roadways and the Georgetown Branch Interim Trail. The larger streams (such as Sligo Creek, Rock Creek, Northwest Branch, and Northeast Branch) are channelized near roadway bridge crossings but remain stable and without channelization upstream and downstream of the transitway alignment.

Most wetlands in the study area have been degraded by road encroachments and vegetation removal. Despite the high degree of disturbance, these wetland areas continue to provide some limited functions including groundwater discharge/ recharge, sediment/toxicant retention, nutrient removal, and wildlife habitat. The least affected and highest functioning wetlands in the study area are vegetated systems located in the forested floodplain of Rock Creek (Wetland GB-8).

Each of the WUS and wetlands identified during the field investigation are described in detail below and summarized in Table 1. Areas that contained only vegetated wetland resources are denoted as wetlands; areas identified as perennial and intermittent streams or ephemeral channels are labeled as waterways.

Waterway WUS GB-1 is the uppermost reach of Coquelin Run, which originates just south of the southern end of Pearl Street and flows east along the Capital Crescent Trail and under the trail to join the mainstem of Coquelin Run. This stream begins as an intermittent riverine system with a mud bottom (R4SB5) and becomes perennial (R2UB1/2) as it flows under the road to join the mainstem. The channel has been straightened along the trail and is fed by a partially concrete-lined stormwater outfall classified as an ephemeral channel. The intermittent stream is about seven feet wide and four feet deep, while the ephemeral channel is about six feet wide and three feet deep. Approximately one half inch of flowing water was present in the main channel at the time of the field visit, while negligible flow was present in the ephemeral channel. Habitat complexity was considered very poor in this system due to the absence of stable habitat, shallow flows, heavy silt deposition, and moderate bank erosion in the main channel. The perennial portion of the stream is approximately ten feet wide with a channel depth of five feet. During the site visit, the stream was approximately one foot deep. Habitat complexity was considered moderate and characterized by riffle/pool sequencing and undercut banks.

Waterway WUS GB-2 is an unnamed tributary that originates within the Columbia Country Club golf course and flows south under the Capital Crescent Trail, eventually joining Coquelin Run and ultimately, Rock Creek. This stream is classified as an intermittent riverine system with a mud substrate (R4SB5). The width and depth of the channel are eight and three and a half feet, respectively. At the time of the field visit, less than one inch of flowing water was evident within the channel. The stream is channelized near the culvert as it flows south under the trail. Habitat complexity was considered very poor due to a lack of stable habitat and shallow flows.





Figure 1. Wetlands, Waterways and Floodplains (continued)



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Figure 1. Wetlands, Waterways and Floodplains (continued)

Purple Line Final Environmental Impact Statement and Draft Section 4(f) Evaluation

Table 1. WUS and Wetland within Study Area

	1			Vegetation			
Wetland Number	Cowardin Classification	Hydrology	Common Name Scientific Name Indicator Sta		Indicator Status	Soils	Principal Functions
WUS GB-1	R4SB5/R2UB1/2 Ephemeral	n/a	n/a	n/a	n/a	n/a	n/a
WUS GB-2	R4SB5	n/a	n/a	n/a	n/a	n/a	n/a
WUS GB-3	R2UB3/4	n/a	n/a	n/a	n/a	n/a	n/a
WUS GB-4	R4SB3/4	n/a	n/a	n/a	n/a	n/a	n/a
WUS GB-6	R2UB1	n/a	n/a	n/a	n/a	n/a	n/a
Wetland GB-8	PF01E/F	Surface Water, High Water Table, Saturation, Water-Stained Leaves, Drainage Patterns, Crayfish Burrows, Saturation on Aerial, Stunted or Stressed Plants	green ash box elder American elm common buttonbush broadleaf cattail sweet woodreed arrowleaf tearthumb	<i>Fraxinus pennsylvanica Acer negundo Ulmus americana Cephalanthus occidentalis Typha latifolia Cinna arundinacea Polygonum sagittatum</i>	FACW FAC FACW OBL OBL FACW OBL	Codorus silt loam; Depleted Matrix (F3); 6-12 inches of 10YR5/2 silty clay loam with 7.5YR4/6 redox concentrations	Groundwater Recharge/ Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Recreation, Uniqueness/ Heritage, Visual Quality/Aesthetics
WUS GB-9	R4SB4	n/a	n/a	n/a	n/a	n/a	n/a
WUS 003	R2UB1	n/a	n/a	n/a	n/a	n/a	n/a
WUS 005	R2UB1/2	n/a	n/a	n/a	n/a	n/a	n/a
WUS 006	R2UB2	n/a	n/a	n/a	n/a	n/a	n/a
WUS 007	R2UB2	n/a	n/a	n/a	n/a	n/a	n/a
WUS 008	R4SB4	n/a	n/a	n/a	n/a	n/a	n/a
WUS 009	R4SB3/4	n/a	n/a	n/a	n/a	n/a	n/a
WUS 011	R4SB3/4	n/a	n/a	n/a	n/a	n/a	n/a
WUS 012	R2UB1/2x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 015	R2UBx	n/a	n/a	n/a	n/a	n/a	n/a
WUS 016	R4SB3/4	n/a	n/a	n/a	n/a	n/a	n/a
WUS 018	R2UB1/2	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 019	POW/PEM1Hx	Surface Water, High Water Table, Saturation, Hydrogen Sulfide Odor	broadleaf cattail common rush Japanese honeysuckle	<i>Typha latifolia Juncus effusus Lonicera japonica</i>	OBL FACW FAC	Codorus-Hatboro-Urban land complex; Soils did not meet hydric soils criteria due to recent creation of wetland	Floodflow Alteration, Groundwater Recharge/ Discharge, Sediment- Toxicant Retention
Waterway WUS 023	R4SB2/4	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 024 WTP-1	PF01A/C	Surface Water, High Water Table, Saturation, Drift Deposits, Water- Stained Leaves	black willow American sycamore green ash northern catalpa sweetgum eastern cottonwood silver maple American elm boxelder Amur honeysuckle sallow sedge Japanese stiltgrass Indian hemp curly dock meadow fescue eastern poison ivy Japanese honeysuckle	Salix nigra Platanus occidentalis Fraxinus pennsylvanica Catalpa speciosa Liquidambar styraciflua Populus deltoides Acer saccharinum Ulmus americana Acer negundo Lonicera maackii Carex lurida Microstegium vimineum Apocynum cannabinum Rumex crispus Festuca pratensis Toxicodendron radicans Lonicera japonica	OBL FACW FAC OBL FAC FAC FACU FAC UPL OBL FAC FACU FAC FACU FAC FACU FAC	Christiana-Downer-Urban land complex; Loamy Gleyed Matrix (F2); 10-15 inches of N5/0 sandy clay with 10YR4/6 redox concentrations	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal

Table 1. WUS and Wetland within Study Area (continued)

				Vegetation			
Wetland Number	Cowardin Classification	Hydrology	Common Name	Scientific Name	Indicator Status	Soils	Principal Functions
Wetland 024 WTP-2	PEM1A/C	Saturation, Geomorphic Position	common reed	Phragmites australis	FACW	Loamy Gleyed Matrix (F2); 10-15 inches of N5/0 with 10YR4/6 redox concentrations	
WUS 030	R4SB2x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 032	R4SB2x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 034	R4SB2x	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 035	PFO1E	Surface Water, Saturation,	American sycamore	Platanus occidentalis	FACW	Issue-Urban land complex;	Floodflow Alteration, Sediment-
		Drainage Patterns	northern catalpa	Catalpa speciosa	FAC	Depleted Matrix (F3);	Toxicant Retention, Nutrient
			boxelder	Acer negundo	FAC	2-8 inches of 10YR4/2 silt loam with	Removal
			black willow	Salix nigra	FACW	7.5YR4/6 redox concentrations	
			reed canarygrass	Phalaris arundinacea	FACW		
			smallspike falsenettle	Boehmeria cylindrica	FACW		
			Asiatic tearthumb	Polygonum perfoliatum	FAC		
WUS 036	R4SB2x	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 037	PEM1G	Surface Water, Saturation, Water	common reed	Phragmites australis	FACW	Issue-Urban land complex;	Floodflow Alteration, Sediment-
		Marks	unknown goldenrod	Solidago sp.	N/A	Depleted Matrix (F3);	I oxicant Retention, Nutrient
			common rush	Juncus effusus	FACW	4-12+ inches of 2.5Y4/2 fine sandy	Removal, Visual Quality/Aesthetics
			Allegheny blackberry	Rubus allegheniensis	FACU	clay with TUYR5/6 redox	
	51051	,	Japanese honeysuckie	Lonicera japonica	FAC	concentrations	,
WUS 038	R4SB4x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 048	R4SB3/4x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 057	R4SB4x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 058	Ephemeral	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 059	PFO1E	Surface Water, High Water Table,	green ash	Fraxinus pennsylvanica	FACW	Codorus and Hatboro soils;	Groundwater Recharge/ Discharge,
		Saturation, Water Marks, Drift	eastern cottonwood	Populus deltoides	FAC	Depleted Matrix	Sediment-Toxicant Retention,
		Deposits, Drainage Patterns	sweetgum	Liquidambar styraciflua	FAC	(F3);	Nutrient Removal, Wildlife Habitat
				Acer negunao	FAC	0-12 Inches of TUYR4/1 slit loam with	
			fig buttereup	Rosa multinora	FACU	7.5 Y R3/4 Tedox concentrations	
			ng bullercup	Ranunculus incaria			
			white avers	Julicus ellusus Coum canadonso	FACW		
			field poppycross	Thlaspi anopso	FACU NI		
			reed caparvarass	Dhalaris arundinacea	FACW		
			eastern poison ivy	Toxicodendron radicans	FAC		
Wetland 060	PEO1E	Surface Water Saturation	sweetnum	l iquidambar styraciflua	FAC	Codorus and Hatboro soils	Eloodflow Alteration Sediment-
Welland 000	TTOTE	Sediment Deposits, Drift	green ash	Fraxinus pennsylvanica	FACW	Codorus-Hatboro-Urban land	Toxicant Retention, Nutrient
		Deposits, Water-Stained Leaves	Chinese privet	Ligustrum sinense	FACU	complex, Christiana-Downer-Urban	Removal, Production Export, Wildlife
			meadow garlic	Allium canadense	FACU	land complex;	Habitat, Uniqueness/Heritage,
			Japanese honevsuckle	Lonicera iaponica	FAC	Depleted Matrix (F3);	Visual Quality/Aesthetics
			multiflora rose	Rosa multiflora	FACU	0-6 inches of 10YR4/1 silty clay loam	
			black cherry	Prunus serotina	FACU	with 7.5YR4/6 redox concentrations	
			white avens	Geum canadense	FACU		
			eastern poison ivy	Toxicodendron radicans	FAC		
			Virginia creeper	Parthenocissus quinquefolia	FACU		
WUS 062	Ephemeral	n/a	n/a	n/a	n/a	n/a	n/a
WUS 063	R4SB4x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 064	R4SB4x	n/a	n/a	n/a	n/a	n/a	n/a
WUS 066	R2UB1/2	n/a	n/a	n/a	n/a	n/a	n/a

Table 1. WUS and Wetland within Study Area (continued)

				Vegetation			
Wetland Number	Cowardin Classification	Hydrology	Common Name	Scientific Name	Indicator Status	Soils	Principal Functions
Wetland 067	POW w/PEM1F fringe	Surface Water, High Water Table, Saturation, Inundation on Aerial Imagery, Oxidized Rhizospheres	swamp verbena common rush seedbox woolgrass	<i>Verbena hastata Juncus effusus Ludwigia alternifolia Scirpus cyperinus</i>	FACW FACW FACW FACW	Issue-Urban land complex, Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-10 inches of 10YR5/2 clay with 7.5YR4/6 redox concentrations along pore linings	Floodflow Alteration, Sediment- Toxicant Retention, Nutrient Removal, Visual Quality/Aesthetics
WUS 068	R4SB3/4	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 069	PEM1A	Sediment Deposits, Sparsely Vegetated Concave Surface, Drainage Patterns	Vegetation not identifiable due to frequent mowing	n/a	n/a	Codorus and Hatboro soils; Redox Dark Surface (F6); 0-4 inches of 10YR3/2 silty clay loam with 7.5YR4/6 redox concentrations	Sediment-Toxicant Retention
WUS 071	Ephemeral	n/a	n/a	n/a	n/a	n/a	n/a
Wetland 072	PFO1B	High Water Table, Saturation, Water-stained Leaves, Sphagnum moss	red maple unknown sedge Northern catalpa tapered rosette grass common rush sweetgum Japanese honeysuckle	Acer rubrum Carex sp. Catalpa speciosa Dichanthelium acuminatum Juncus effusus Liquidambar styraciflua Lonicera japonica	FAC n/a FAC FAC FAC FAC FAC	Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-12+ inches of 10YR6/2 clay with 7.5YR4/6 redox concentrations	Groundwater Recharge/ Discharge
Wetland 073	PF01A	Surface Water, Saturation, Drainage Patterns, Geomorphic Position, Shallow Aquitard	silver maple black willow red maple northern catalpa Virginia pine tuliptree sweetgum American sycamore southern arrowwood American elm fig buttercup fowl bluegrass sensitive fern spotted touch-me-not eastern poison ivy Japanese honeysuckle	Acer saccharinum Salix nigra Acer rubrum Catalpa speciosa Pinus virginiana Liriodendron tulipifera Liquidambar styraciflua Platanus occidentalis Viburnum dentatum Ulmus americana Ficaria verna Poa palustris Onoclea sensibilis Impatiens capensis Toxicodendron radicans Lonicera japonica	FAC OBL FAC FACU UPL FACU FAC FAC FAC FAC FAC FAC FAC FAC FAC FAC	Issue-Urban land complex, Christiana-Downer-Urban land complex; Depleted Matrix (F3); 0-3 inches of 2.5Y4/2 sandy clay loam with 7.5YR4/6 redox concentrations	Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat
Wetland 075	PEM1A	Surface Water, Saturation, Drift Deposits, Drainage Patterns, Geomorphic Position	lamp rush unknown sedge spotted touch-me-not multiflora rose eastern poison ivy Japanese honeysuckle	<i>Juncus effusus Carex</i> sp. <i>Impatiens capensis Rosa multiflora Toxicodendron radicans Lonicera japonica</i>	OBL n/a FACW FACU FAC FAC	Codorus-Hatboro-Urban land complex; Redox Dark Surface (F6); 0-8 inches of 10YR3/1 sandy loam with 7.5YR5/6 redox concentrations	Sediment/Toxicant Retention

Table 1. WUS and Wetland within Study Area (continued)

		Hydrology		Vegetation			
Wetland Number	Cowardin Classification		Common Name	Scientific Name	Indicator Status	Soils	Principal Functions
Wetland 079	PFO1A	Sparsely vegetated concave surface, Geomorphic Position	red maple northern catalpa sweetgum American elm black willow white oak meadow garlic eastern poison ivy	Acer rubrum Catalpa speciosa Liquidambar styraciflua Ulmus americana Salix nigra Quercus alba Allium vineale Toxicodendron radicans	FAC FAC FAC OBL FACU FACU FACU	Aquasco-Urban land complex; Depleted Matrix (F3), Redox Dark Surface (F6); 0-6 inches of 2.5Y3/2 loam with 10YR4/6 redox concentrations, 6-15 inches of 10YR6/2 silty clay loam with 10YR6/8 redox concentrations	Groundwater Recharge/Discharge, Floodflow Alteration, Wildlife Habitat
Wetland 080	PEM1C	Surface Water, Saturation, Sediment Deposits, Algal Mat or Crust, Inundation Visible on Aerial Imagery, Geomorphic Position, Shallow Aquitard	Japanese honeysuckle lamp rush knotty-leaf rush common fox sedge unknown sedge blunt spikerush curly dock seedbox meadow fescue unknown goldenrod Indian hemp	Lonicera japonica Juncus effusus Juncus acuminatus Carex vulpinoidea Carex sp. Eleocharis obtusa Rumex crispus Ludwigia alternifolia Festuca pratensis Solidago sp. Apocynum cannabinum	FAC OBL OBL FACW n/a OBL FAC OBL FACU n/a FACU	Sassafras-Urban land complex; Depleted Matrix (F3); 0-6 inches of 10YR4/2 silt loam with 7.5YR4/6 redox concentrations	Sediment/Toxicant Retention
Wetland 081	PEM1A/C	Surface Water, High Water Table, Saturation	boxelder red maple broadleaf cattail	Acer negundo Acer rubrum Typha latifolia	FAC FAC OBL	Udorthents, Christiana-Downer- Urban land complex Soils could not be assessed due to the presence of a fence around the perimeter of the wetland. Soils are assumed to be hydric based on the presence of other indicators.	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention
WUS 082	R4SB2	n/a	n/a	n/a	n/a	n/a	n/a

Waterway WUS GB-3 is an unnamed tributary that originates near the intersection of Manor Road and Connecticut Avenue, and flows south under the Capital Crescent Trail before joining Coquelin Run and ultimately, Rock Creek. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The width and depth of the channel are three and four feet, respectively. At the time of the field visit, approximately two inches of flowing water was evident within the channel, which has been heavily manipulated to accommodate development. Waterway WUS GB-3 is culverted both upstream and downstream of the study area, but the channel remains relatively natural near the Capital Crescent Trail bridge crossing. Habitat complexity was considered poor due to a lack of stable habitat; although some leaf pack habitat was present.

Waterway WUS GB-4 is an unnamed tributary that originates near Brierly Court, just north of the Capital Crescent Trail, and flows under the trail before joining Coquelin Run and ultimately Rock Creek. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The width and depth of the channel are eight and three feet, respectively. At the time of the field visit, approximately two inches of flowing water was evident within the channel. Waterway WUS GB-4 is culverted under the trail but remains natural both upstream and downstream of the bridge. Habitat complexity was considered poor to average due to the presence of some stable habitat in the form of undercut banks and rootwads, although banks were slumping in some areas and silt deposition was moderate throughout.

Waterway WUS GB-6 is the mainstem of Rock Creek where it flows under the Capital Crescent Trail. This stream is classified as a lower perennial riverine system with an unconsolidated bottom consisting of cobble and gravel (R2UB1). The average channel width and depth are 60 feet and 5 feet, respectively. During the field visit, the average water depth was one and a half feet. The stream has been channelized to flow under the trail, and a bridge pier exists in the center of the stream. Habitat complexity was considered average due to the presence of deep pools, but stable cover was scarce and few riffle-pool sequences were observed. Silt deposition was heavy, and bank erosion was moderate.

Wetland GB-8 is located north of the Capital Crescent Trail, immediately east of Rock Creek. This wetland flows into Rock Creek through a pipe situated under the path that parallels the western edge of the wetland. Wetland GB-8 is classified as palustrine forested with a seasonally flooded water regime, with some areas being semipermanently flooded (PFO1E/F). Indicators of wetland hydrology observed during the site visit were abundant, including up to one half inch of surface water, a high water table, saturation at the soil surface, water-stained leaves, drainage patterns, crayfish burrows, and stunted or stressed plants. Aerial imagery of the site also showed inundation. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 8-1) are considered FAC, FACW, or OBL. The dominant vegetation included Acer negundo (boxelder), Cephalanthus occidentalis (common buttonbush), Cinna arundinacea (sweet woodreed), Fraxinus pennsylvanica (green ash), Polygonum sagittatum (arrowleaf tearthumb), Typha latifolia (broadleaf cattail), and Ulmus americana (American elm). Soils in the wetland are mapped as Codorus silt loam, which is not listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches, with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6. Based on the New England method, the principal functions/values likely provided by this wetland include groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, recreation, uniqueness/heritage, and visual quality/aesthetics.

Waterway WUS GB-9 is an unnamed tributary that appears to flow west via a pipe to a tributary to Rock Creek. This stream is classified as an intermittent riverine system with a sand substrate (R4SB4). The channel is natural in the vicinity of the study area but has undergone significant manipulations downstream. Width and depth of the channel are eight and four feet, respectively. At the time of the field visit, less than one inch of flowing water was observed. Habitat complexity was considered poor due to shallow flows and a lack of stable habitat, as well as heavy silt deposition throughout the assessed reach.

Waterway WUS 003 is the mainstem of Sligo Creek where it flows south under Wayne Avenue. This stream is classified as a lower perennial riverine system with an unconsolidated cobble-gravel bottom (R2UB1). The channel is natural up and downstream of the Wayne Avenue bridge crossing, with an average width and depth of 15 and five feet, respectively. Approximately one foot of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of riffle-run complexes and leaf pack habitat, as well as only minor silt deposition.

Waterway WUS 005 is the mainstem of Long Branch, a tributary of Sligo Creek, where it flows south under Piney Branch Road near Garland Avenue. This stream is classified as a lower perennial riverine system with an unconsolidated sand-gravel-cobble bottom (R2UB1/2). The channel is natural up and downstream of the Piney Branch Road bridge crossing, with an average width and depth of 10 and three feet, respectively. Approximately four inches of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of riffle-run complexes, coarse woody debris, and rootmat habitat, as well as only minor silt deposition.

Waterway WUS 006 is the mainstem of Northwest Branch, which flows south through the study area, under MD 193. This stream is classified as a lower perennial riverine system with a sand substrate (R2UB2). The average width and depth of the stream are 25 and five feet, respectively. During the field visit, six inches of flowing water was present within the channel. Habitat complexity was considered poor to average due to an absence of clean riffles and few deep pools, as well as heavy silt deposition near the bridge crossing.

Waterway WUS 007 is an unnamed tributary that originates on the east side of Adelphi Manor Park, just north of MD193, and flows west under a private driveway into Northwest Branch. This stream is classified as a lower perennial riverine system with a sand substrate (R2UB2). The channel has been channelized and culverted, with average dimensions of approximately five and a half feet wide and four feet deep. During the field visit, approximately two inches of water were present in the channel. Habitat complexity was considered poor due to heavy silt deposition, and a lack of deep pools or clean riffles.

Waterway WUS 008 is an unnamed tributary that flows east from Lyndon Street through Adelphi Manor Park to join Northwest Branch along the north side of MD 193. This stream is classified as an intermittent riverine system with a sand substrate (R4SB4). The channel has been channelized and directed into a culvert, and consists of an average width and depth of approximately three and a half and three feet, respectively. During the field visit, approximately two inches of flowing water were present in the channel. Habitat complexity was considered poor due to moderate silt deposition and shallow flows.

Waterway WUS 009 is an unnamed tributary that originates within a stormwater management pond in the southeast corner of Adelphi Manor Park and flows southeast into Waterway WUS-008 (described above). This stream is classified as an intermittent riverine system with a gravel-sand substrate (R4SB3/4). The channel was channelized and rip-rapped at the upstream end to accommodate high flows during storm events. Average width and depth of the channel are both about two feet; approximately one

inch of flowing water was present during the field visit. Habitat complexity was considered poor due to shallow flows and lack of stable habitat.

Waterway WUS 011 is an unnamed tributary that originates north of a large parking lot east of Presidential Drive on the University of Maryland College Park campus, and then flows south into a pipe which most likely drains to Northwest Branch. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The channel has been straightened and a portion of it has been redirected into a manmade stormwater pond. Average width and depth of the channel are three feet and one foot, respectively, and about four inches of flowing water was present during the field visit. Despite only minor silt deposition, habitat complexity was poor due to a lack of stable habitat within the assessed reach.

Waterway WUS 012 is an unnamed tributary that originates about 600 feet northeast of the intersection of Paint Branch Parkway and US Route 1, then flows southeast into Paint Branch. This stream is classified as lower perennial with a gravel/sand substrate (R2UB1/2x) but has been manipulated in some places in order to straighten and/or stabilize the channel with riprap. Furthermore, a stormwater outfall is present within the more southerly portion of the assessed reach. Width and depth of the channel are 10 and two and a half feet, respectively, and about two inches of flowing water was present in the channel during the field visit. Habitat complexity was considered average based on the presence of some deep pools and undercut banks, although silt deposition was heavy in places.

Waterway WUS 015 flows east into the WUS 012 from the north side of Paint Branch Parkway. The stream is classified as lower perennial with a rip-rap substrate (R2UBx). The average channel width of the stream is five feet with a channel depth of one foot. During the site visit, approximately two inches of water was present within the channel. Habitat complexity is low due to the rip-rap channel and the short distance from the outfall to the confluence.

Waterway WUS016 is an unnamed tributary that originates just east of a railroad berm near the College Park metro station and flows east under River Road toward Northeast Branch. This stream is classified as an intermittent riverine system with a gravel/sand bottom (R4SB3/4). The channel has been straightened, and has an average width and depth of five and two feet, respectively. There was approximately two inches of flowing water during the field visit. Habitat complexity was considered very poor due to shallow flows, lack of structure, and moderate silt deposition.

Waterway WUS 018 is the mainstem of Northeast Branch, which flows south through the study area. This stream is classified as a lower perennial riverine system with a gravel/sand substrate (R2UB1/2). The channel has been straightened in the past, with a width and depth of 55 and seven feet, respectively. Approximately 12 inches of flowing water was present during the field visit. Habitat complexity was considered average due to the presence of riffle-pool sequences and minor silt deposition.

Wetland 019 is located southeast of the intersection of River Road and University Research Court, adjacent to Northeast Branch. This wetland is a vegetated stormwater pond that is classified as palustrine open water-emergent with a permanently flooded water regime (POW/PEM1Hx). Indicators of wetland hydrology observed during the field visit included up to 0.5 inch of surface water, saturation at the soil surface, a high water table, and hydrogen sulfide odor. The only dominant plant that occurred within the wetland test plot (WTP 19-1) was broadleaf cattail, which is considered OBL. Therefore, the requirement for hydrophytic vegetation was satisfied. Soils in the wetland are mapped as Codorus-Hatboro-Urban land complex, which is not listed as hydric by NRCS. Soil samples did not satisfy the hydric soil criteria due to the recent creation of the wetland, but hydric soils are expected to develop over time given the

presence of both wetland hydrology and hydrophytic vegetation. Based on best professional judgment, functions/values likely provided by this wetland include floodflow alteration, groundwater recharge/discharge, and sediment-toxicant retention.

Waterway WUS 023 is an unnamed tributary that flows north from a culvert under MD 410 and eventually into Brier Ditch about 0.4 mile north of the study area. Waterway WUS 023 primarily conveys stormflows from adjacent roadways and developments, but is likely also supported by longer duration subsurface flows from Wetland 024 (described below). Thus, it is classified as intermittent with a sand/rip-rap substrate (R4SB2/4). During the field visit, the channel was approximately five feet wide and six inches deep, and an average of three inches of flowing water was present. Habitat complexity was virtually absent, although some low-quality pools and riffles were observed.

Wetland 024 consists of a stormwater retention basin and streamside terrace which both abut Waterway WUS 023, occurring immediately north of the intersection of Eastpine Drive and MD 410. This system contains both emergent and forest vegetation, both of which maintain temporarily to seasonally flooded hydrologic regimes (PEM1A/C, PFO1A/C). In order to best represent observed differences, data were collected at two separate test plots.

The forested portion of Wetland 024, represented by W24-WTP-1, forms a relatively narrow buffer around the center of the stormwater retention basin and extends to the north and east as the floodplain of Waterway WUS 023. During the field visit, hydrologic indicators observed included up to one inch of surface water, a high water table at a depth of six inches, saturation at the soil surface, drift deposits, and water-stained leaves. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species observed within the test plot are considered FAC, FACW, or OBL. These included *Salix nigra* (black willow), *Fraxinus pennsylvanica* (green ash), *Acer saccharinum* (silver maple), *Liquidambar styraciflua* (sweetgum), *Carex lurida* (sallow sedge), *Microstegium vimineum* (Japanese stiltgrass), *Toxicodendron radicans* (eastern poison ivy), and *Parthenocissus quinquefolia* (Virginia creeper). Soils in this portion of the wetland are mapped as Christiana-Downer-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Loamy Gleyed Matrix (F2) hydric soil indicator based on the presence of a layer of N5/0 sandy clay with redox concentrations of 10YR4/6 occurring at a depth of 10 to 15 inches.

The emergent portion of the wetland, which constitutes the wettest part of the stormwater retention basin and a small disturbed area on the floodplain of Waterway WUS 023, is represented by W24-WTP-2. During the field visit, saturated soils were observed at the ground surface. Geomorphic position was confirmed as a secondary indicator of wetland hydrology. Only *Phragmites australis* was present within the 30-foot radius of the test plot, therefore the Rapid Test for Hydrophytic Vegetation was met. Soils within this portion of the wetland are also mapped as Christiana-Downer-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Loamy Gleyed Matrix (F2) hydric soil indicator based on the presence of a layer of N5/0 sandy clay with redox concentrations of 10YR4/6 occurring at a depth of 10 to 15 inches.

Based on best professional judgment, the primary functions/values associated with this wetland are floodflow alteration, sediment/toxicant retention, and nutrient removal.

Waterway WUS 030 is an unnamed tributary that flows north under MD 410 toward Brier Ditch, a tributary to Northeast Branch. This stream is classified as an intermittent riverine system with a rip-rap lined channel (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four feet and one foot, respectively; flowing water was not evident during the field visit. Habitat complexity was considered poor due to infrequent flows and a lack of instream structure.

Waterway WUS 032 is an unnamed tributary that flows north under MD 410 toward an unnamed tributary to Brier Ditch and ultimately, Northeast Branch. This stream is classified as an intermittent riverine system with a rip-rap lined bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four feet and one foot, respectively; flowing water was not evident during the field visit. Habitat complexity was considered poor due to infrequent flows and a lack of instream structure.

Waterway WUS 034 is an unnamed tributary that flows southeast through forested habitat adjacent to MD 410, eventually joining Lower Beaverdam Creek. This stream is classified as an intermittent riverine system with a rip-rap bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are four and a half and three feet, respectively. Approximately three inches of flowing water was present during the field visit. Habitat complexity was poor due to a lack of stable habitat, unvegetated banks, shallow flows, and moderate silt deposition.

Wetland 035 is located immediately west of the intersection of Hanson Oaks Drive and Ellin Road, on the floodplain of Waterway WUS 034. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included up to four inches of surface water, soil saturation at a depth of six inches, and drainage patterns. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 35-1) are considered FAC, FACW, or OBL. The dominant vegetation included boxelder, *Catalpa speciosa* (northern catalpa), *Phalaris arundinacea* (reed canarygrass), *Platanus occidentalis* (American sycamore), and *Salix nigra* (black willow). Soils in the wetland are mapped as Issue-Urban land complex, which is not listed as hydric by NRCS. Soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator at a depth of two to eight inches with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6. Based on best professional judgment, functions/values likely provided by this wetland include floodflow alteration, sediment-toxicant retention, and nutrient removal.

Waterway WUS 036 is an unnamed tributary that receives drainage from Waterway WUS 034 and Wetland 035 via a culvert under Hanson Oaks Drive, and flows into a stormwater management pond complex which then drains to Lower Beaverdam Creek. This stream is classified as an intermittent riverine system with a rip-rap lined bottom (R4SB2x). The channel has been channelized and stabilized with rip-rap to control erosion from stormwater runoff. Width and depth of the channel are three and a half and one and a half feet, respectively. Approximately one inch of flowing water was present during the field visit. Despite only minor silt deposition, habitat complexity was considered poor due to a lack of stable habitat and shallow flows.

Wetland 037 is the second pond forming the aforementioned stormwater management complex, located directly east of Wetland 067. This wetland is classified as palustrine emergent with an intermittently exposed water regime (PEM1G). Indicators of wetland hydrology observed during the field visit included up to six inches of surface water, saturation at the soil surface, and water marks. Based on the dominance

test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 35-1) are considered FAC, FACW, or OBL. The dominant vegetation included *Phragmites australis* (common reed) and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Issue-Urban land complex, which is not listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of four to 12 inches with a matrix color of 2.5Y4/2 and redox concentrations of 10YR5/6.Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment/toxicant retention, nutrient removal, and visual quality/aesthetics.

Waterway WUS 038 is classified as an intermittent stream with a sand and rip-rap substrate (R4SB4x). The stream parallels the north side of Ellin Road and is bordered by the community of West Lanham Hills to the north. This stream is approximately four feet wide and has a depth of one foot. At the time of the field investigation, approximately two inches of water were present in the channel. Little or no evidence of bank erosion was observed. Stream habitat complexity was low due to a lack of riffle-pool sequences. The forest buffer is dominated by catalpa, *Prunus* sp. (cherry), tulip poplar, poison ivy, and *Vitis* sp. (grape vine), which provide approximately 95 percent shading to the stream.

Waterway WUS 048 is an unnamed tributary that flows north into Waterway WUS 030. This stream is classified as an intermittent riverine system with a rip-rap/sand-gravel bottom (R4SB3/4x). The southern reaches have been channelized and stabilized with rip-rap to control erosion from stormwater runoff, while the more northern portions of the stream are natural. Average width and depth of the channel are fourteen and nine feet, respectively; less than one inch of flowing water was observed during the field visit. Habitat complexity was considered poor due to infrequent flows, failing banks, and a lack of instream structure.

Waterway WUS 057 is an unnamed tributary that originates near MD 193 and flows east toward Northwest Branch. This stream is classified as an intermittent riverine system with a sand bottom (R4SB4x) that was excavated and rip-rap lined, then directed toward a pipe system just outside the study area. The channel was approximately four and a half feet wide and four feet deep during the field visit, and about six inches of flowing water was present. Despite only minor silt deposition, habitat complexity was poor due to a lack of stable habitat within the assessed reach.

Waterway WUS 058 is an ephemeral channel that extends under a private driveway then north under MD 193 into Waterway WUS 007. This stream is considered ephemeral based on the observation of several indicators of an ordinary high water mark. Such indicators included disturbed/washed away leaf litter, sediment deposition, the presence of a wrack line, and scour. Width of the ephemeral channel is five feet with a channel depth of three feet. The average water depth during the site visit was six inches.

Wetland 059 is located on the south side of MD 193, east of and adjacent to Waterway WUS 058 near a three-acre man-made pond. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included one inch of surface water, saturation at the soil surface, a high water table, water marks, drift deposits, and drainage patterns. Based on the dominance test for hydrophytic vegetation, 75 percent of the dominant species identified within the wetland test plot (WTP 59-1) are considered FAC, FACW, or OBL. The dominant vegetation included boxelder, green ash, *Ranunculus ficaria* (fig buttercup), *Rosa multiflora* (multiflora rose), and *Toxicodendron radicans* (eastern poison ivy). Soils in the wetland are mapped as Codorus and Hatboro soils, which are listed as hydric by NRCS. Soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator throughout the soil profile with a matrix color of 10YR4/1 and redox concentrations of 7.5YR3/4.

Based on best professional judgment, functions/values likely provided by this wetland include groundwater recharge/discharge, sediment-toxicant retention, nutrient removal, and wildlife habitat.

Wetland 060 is located on the north side of MD 193, just east of Waterway WUS 007, which facilitates a surface connection to Northwest Branch. This wetland is classified as palustrine forested with a seasonally flooded/saturated water regime (PFO1E). Indicators of wetland hydrology observed during the field visit included one inch of surface water, saturation at the soil surface, sediment deposits, drift deposits, and water-stained leaves. Based on the dominance test for hydrophytic vegetation, 50 percent of the dominant species identified within the wetland test plot (WTP 60-1) are considered FAC, FACW, or OBL. Vegetation was confirmed to meet the requirement for hydrophytic vegetation based on the prevalence index, which was 3.0. The dominant vegetation included *Allium canadense* (meadow garlic), green ash, *Liquidambar styraciflua* (sweetgum), *Ligustrum sinense* (Chinese privet), *Parthenocissus quinquefolia* (Virginia creeper), multiflora rose, and eastern poison ivy. Soils in the wetland are mapped as Codorus and Hatboro soils, Codorus-Hatboro-Urban complex, and Christiana-Downer-Urban complex, only the first of which is listed as hydric by NRCS. Soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches with a matrix color of 10YR4/1 and redox concentrations of 7.5YR4/6.

Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment-toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/heritage, and visual quality/aesthetics.

Waterway WUS 062 is an unnamed tributary that originates south of MD 410 and flows north via a pipe system toward Brier Ditch and ultimately, Northeast Branch. This stream is considered ephemeral based on the observation of several indicators of an ordinary high water mark. Such indicators included disturbed/washed away leaf litter, sediment deposition, destruction of terrestrial vegetation, and the presence of a wrack line. Width and depth of the ephemeral channel are both two feet; flowing water was not evident at the time of the field visit.

Waterway WUS 063 is a channel that flows north under a private road into Waterway WUS 032. This stream is classified as intermittent with a mud and rip-rap lined substrate (R4SB5x). The average channel width and depth are two feet, with an average water depth of less than one half inch. Habitat complexity was low due lack of riffle/pool complexes.

Waterway WUS 064 is an unnamed tributary that converges with Waterway WUS 063 and flows north under a private road into Waterway WUS 032. This stream is classified as intermittent with a sand and rip-rap lined substrate (R4SB4x). The average channel width and depth are two feet, with an average water depth of less than one inch. Habitat complexity was low due lack of riffle/pool complexes.

Waterway WUS 066 is a tributary to Rock Creek which originates just north of the CSX track and flows south under the track via a culvert, then through forested habitat, eventually joining Rock Creek. This stream is classified as a lower perennial riverine system with an unconsolidated sand-gravel bottom (R2UB1/2). The channel is natural with an average width and depth of 10 and four feet, respectively. Approximately six inches of flowing water was present at the time of the field visit. Habitat complexity was considered average due to the presence of some deep pools and riffle-run complexes, as well as only minor silt deposition.

Wetland 067 is located south of Ellin Drive, and receives drainage directly from Waterways WUS 034 and WUS 036. This wetland is part of a stormwater management pond complex consisting of two ponds

that are physically separated by a manmade berm, but remain hydrologically connected by a culvert that was installed underneath the berm. Wetland 067 is classified as palustrine open water with an emergent fringe, and a semipermanently flooded water regime (POW/PEM1F). Hydrologic indicators observed during the field visit included greater than one foot of surface water, a high water table, saturation at the soil surface, and oxidized rhizospheres along living roots. Aerial imagery of the site also showed inundation. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP 67-1) were considered FAC, FACW, or OBL. The dominant vegetation included *Juncus effusus* (common rush) and *Ludwigia alternifolia* (seedbox). Soils in the wetland are mapped as Issue-Urban land complex and Christiana-Downer-Urban land complex, neither of which are listed as hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator with a matrix color of 10YR5/2 and redox concentrations of 7.5YR4/6. Based on the New England method, the principal functions/values likely provided by this wetland include floodflow alteration, sediment/toxicant retention, nutrient removal, and visual quality/aesthetics.

Waterway WUS 068 is a tributary to Rock Creek that begins on the south side of the proposed Lyttonsville facility. The stream is classified as an intermittent stream with a sand/gravel bottom (R4SB3/4). The channel has an average width of six feet and a depth of one foot. Approximately one inch of flowing water was present at the time of the field visit. Habitat complexity was considered very low due to flashy flows.

Wetland 069 is a regularly mowed swale located adjacent to a parking lot just north of MD193 that collects surface runoff and drains into Waterway WUS 007. This wetland is classified as palustrine emergent with a temporarily flooded water regime (PEM1A). During the field visit, sediment deposits were confirmed as a primary indicator of wetland hydrology. Secondary indicators included drainage patterns and a sparsely vegetated concave surface. Vegetation was not identifiable due to frequent mowing, therefore hydrophytic vegetation could not be confirmed. However, it is likely that the species present would satisfy the hydrophytic vegetation criteria if allowed to grow. Soils in the wetland are mapped as Codorus and Hatboro soils, which are listed as hydric by NRCS. Soil samples met the Redox Dark Surface (F6) hydric soil indicator at a depth of zero to four inches with a matrix color of 10YR3/2 and redox concentrations of 7.5YR4/6. Based on best professional judgment, the primary function/value likely provided by this wetland is sediment/toxicant retention.

Waterway WUS 071 is an unnamed tributary along Ellin Road that directs surface runoff into Waterway WUS 034. This channel is considered ephemeral based on the lack of groundwater discharge, sand deposition along a rip-rap substrate, and defined bed and bank features. The channel was manipulated to reduce erosion using rip-rap placement, with dimensions of four feet wide and two feet deep.

Wetland 072 is a small seepage wetland located on a steep, north facing slope along Ellin Road that is classified as palustrine forested wetland with a saturated water regime (PFO1B). This wetland drains directly into Waterway WUS 034. During the field visit, saturation at the soil surface, a high water table, and water-stained leaves constituted primary indicators of wetland hydrology. Sphagnum moss was confirmed as a secondary indicator. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species identified within the wetland test plot (WTP-72-1) are considered FAC, FACW, or OBL. These included red maple, *Carex* sp. (unknown sedge), northern catalpa, *Dichanthelium acuminatum* (tapered rosette grass), sweetgum, seedbox, common rush, and Japanese honeysuckle. Soils in the wetland are mapped as Christiana-Downer-Urban land complex, which is not listed as hydric by NRCS. However, soil samples were confirmed to meet the Depleted Matrix (F3) hydric soil indicator throughout the soil profile, with a matrix color of 10YR6/2 and redox concentrations of 7.5YR4/6. Based

on best professional judgment, the primary function/value likely provided by this wetland is groundwater recharge/discharge.

Wetland 073 is a bowl-shaped depression located immediately northeast of Hanson Oaks Drive and Ellin Road, that abuts Waterway WUS 038. This wetland is classified as palustrine forested with a temporarily flooded hydrologic regime (PFO1A). Wetland 073 is primarily influenced by surface runoff from areas to the north and east, which is perched on top of a shallow clay layer. During the field visit, hydrologic indicators observed included up to an inch of surface water, saturation at the soil surface, drainage patterns, geomorphic position, and a shallow aquitard. Based on the dominance test for hydrophytic vegetation, 75 percent of the dominant species observed within the wetland test plot (WTP-73) are considered FAC, FACW, or OBL. These included *Acer saccharinum* (silver maple), *Salix nigra* (black willow), *Acer rubrum* (red maple), *Pinus virginiana* (Virginia pine), *Liriodendron tulipifera* (tuliptree), *Liquidambar styraciflua* (sweetgum), *Ficaria verna* (fig buttercup), *Poa palustris* (fowl bluegrass), *Toxicodendron radicans* (eastern poison ivy), and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Christiana-Downer-Urban land complex and Issue-Urban land complex, neither of which are considered hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at depths of zero to three and three to 12 or more inches with matrix colors of 2.5Y4/2 and 10YR6/2, respectively, and redox concentrations of 7.5YR4/6.

Based on best professional judgment, the primary functions/values associated with this wetland are floodflow alteration, sediment/toxicant retention, nutrient removal, production export, and wildlife habitat.

Wetland 075 is a linear, maintained roadside ditch along 54th Ave, just west of the 54th Place intersection. This wetland conveys stormwater flows toward Waterway WUS 018 but is sufficiently entrenched to intercept groundwater. This wetland is classified as palustrine emergent with a temporarily flooded hydrologic regime (PEM1A). During the field visit, hydrologic indicators observed included up to five inches of surface water, saturated soils at the soil surface, drift deposits, drainage patterns, and geomorphic position. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species observed within the wetland test plot (W075-WTP-1) are considered FAC, FACW, or OBL. These included *Toxicodendron radicans* (eastern poison ivy) and *Lonicera japonica* (Japanese honeysuckle). An unknown sedge (*Carex* sp.), likely a hydrophyte, accounted for significant areal coverage within the wetland, but could not be positively identified due to a lack of flowering parts. Soils in the wetland are mapped as Codorus-Hatboro-Urban land complex, which is considered hydric by NRCS. Soil samples were confirmed to meet the Redox Dark Surface (F6) hydric soil indicator at a depth of zero to eight inches with a matrix color of 10YR3/1 and redox concentrations of 7.5YR5/6.

Based on best professional judgment, the primary function/value associated with this wetland is sediment/toxicant retention.

Wetland 079 is an isolated depression located immediately west of River Road, about 500 feet north of Waterway WUS 016. This wetland is classified as palustrine forested with a temporarily flooded hydrologic regime (PFO1A). Hydrology in the wetland may be partly supported by a seasonally high groundwater table, but the presence of a manmade berm associated with a stormwater conveyance swale found immediately north of the wetland boundary effectively restricts drainage, causing ponding to be the predominant hydrologic influence. Indicators of wetland hydrology observed during the site visit

included a sparsely vegetated concave surface and geomorphic position. Based on the dominance test for hydrophytic vegetation, 56 percent of the dominant species found within the wetland test plot (W079-WTP-1) are considered FAC, FACW, or OBL. These included *Liquidambar styraciflua* (sweetgum), *Ulmus americana* (American elm), *Allium vineale* (meadow garlic), *Toxicodendron radicans* (eastern poison ivy), and *Lonicera japonica* (Japanese honeysuckle). Soils in the wetland are mapped as Aquasco-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Redox Dark Surface (F6) and Depleted Matrix (F3) hydric soil indicators with matrix colors of 2.5Y3/2 and 10YR6/2 and redox colors of 10YR4/6 and 10YR6/8 occurring at depths of zero to six and six to 15 or more inches, respectively.

Based on best professional judgment, the primary functions/values provided by this wetland are groundwater recharge/discharge, floodflow alteration, and wildlife habitat.

Wetland 080 is an isolated depression located within the powerline right-of-way on the north side of MD 193, just east of the Phelps Road intersection. This wetland is classified as palustrine emergent with a seasonally flooded hydrologic regime (PEM1C). Indicators of wetland hydrology observed during the field visit included up to eight inches of surface water, saturation at the soil surface, sediment deposits, algal mats, inundation visible on aerial imagery, geomorphic position, and a shallow aquitard. The latter is likely due to soil compaction resulting from continued maintenance activities within the right-of-way. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species found within the wetland test plot (W080-WTP-1) are considered FAC, FACW or OBL. These included *Juncus effusus* (common rush), *Juncus acuminatus* (tapertip rush), *Carex vulpinoidea* (fox sedge), *Eleocharis obtusa* (blunt spikerush), and *Ludwigia palustris* (marsh seedbox). *Carex* sp. (unknown sedge) and *Solidago* sp. (unknown goldenrod) were also dominant, but could not be identified due to a lack of flowering parts; these plants were not included in the dominance calculation. Soils in the wetland are mapped as Sassafras-Urban land complex, which is not considered hydric by NRCS. However, soil samples met the Depleted Matrix (F3) hydric soil indicator at a depth of zero to six inches with a matrix color of 10YR4/2 and redox concentrations of 7.5YR4/6.

Based on best professional judgment, the primary function/value provided by this wetland is sediment/toxicant retention.

Wetland 081 is a stormwater retention pond located adjacent to the eastern side of the MD410-Riverdale Road intersection. This system flows directly into Waterway WUS 082 (described below), which eventually flows into Brier Ditch. Access to the wetland could not be gained during the field work due to the presence of a large fence; therefore, wetland indicators were assessed from the perimeter where possible. The wetland is classified as palustrine emergent with a temporarily to seasonally flooded hydrologic regime (PEM1A/C). During the field visit, approximately one-half-inch of surface water was evident. Saturation at the soil surface and a high water table were assumed to be present. Saturation visible from aerial imagery was confirmed as a secondary indicator of wetland hydrology. Based on the dominance test for hydrophytic vegetation, 100 percent of the dominant species occurring within the wetland are considered FAC, FACW, or OBL. These included *Acer negundo* (boxelder), *Acer rubrum* (red maple), and *Typha latifolia* (broadleaf cattail). Soils are mapped as Udorthents and Christiana-Downer-Urban land complex, neither of which are considered hydric by NRCS. Hydric soils could not be formally assessed due to the aforementioned fence, but their presence is assumed based on the strongly hydrophytic plant assemblage and excessive hydroperiod.

Based on best professional judgment, the primary functions/values provided by this wetland include groundwater recharge/discharge, floodflow alteration, and sediment/toxicant retention.

Waterway WUS 082 is the outlet channel for Wetland 081, and is classified as intermittent with a rip-rap bottom (R4SB2). Flow was determined to be intermittent during the field visit primarily based on the stream's direct surface connection to a seasonally flooded wetland. Waterway WUS 082 flows north under Riverdale Road and into Brier Ditch about 750 feet north of the study area. The channel was three feet wide and two feet deep, and approximately three inches of surface water was observed flowing through the rip-rap. Habitat complexity was essentially absent given the modified substrate and lack of structural diversity.

3.2 Surface Waters

3.2.1 Watersheds

The study area is in the Chesapeake Bay watershed and contains three MDNR third order watersheds²—Potomac River Montgomery County, Rock Creek, and Anacostia River. Within these watersheds are six perennial streams each with their own subwatersheds: Little Falls, Rock Creek, Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek. The majority of the subwatersheds are highly developed with little or no vegetated buffer remaining along streams, especially the more urbanized watersheds of Little Falls, Sligo Creek, and Lower Beaverdam Creek. The subwatersheds are described below and are shown on Figure 2.

Little Falls

The Little Falls subwatershed is located in the westernmost portion of the study area and drains approximately 10 square miles (6,400 acres). Fifty percent of the subwatershed is developed, 10 percent is used for agriculture, and 30 percent is forested (CBP 2007). The Little Falls stream system originates south of Bethesda and flows south into the Potomac River, near the Montgomery County line. The Little Falls subwatershed is located within the Piedmont Physiographic Province.

The Little Falls subwatershed is one of Montgomery County's most urban stream systems and was greatly influenced by chemical pollution from the 1950s into the 1970s. The causes of this pollution include chlorine discharges from drinking water treatment facilities, sewer line problems, and a large oil spill that occurred in 1959. In 1976, a study found no aquatic life in Little Falls, although more recent studies have shown the presence of pollution-tolerant fish and macroinvertebrate species in low quantities (MCDEP 2011).

 $^{^2}$ Using the Strahler stream order, stream size is defined based on a hierarchy of tributaries. When two first-order streams (those with no tributaries) come together, they form a second-order stream. When two second-order streams come together, they form a third-order stream. The U.S. NRCS redefined the third order watersheds creating the HUA14 file.

Figure 2. Watersheds and Water Quality Sampling Locations





Figure 2. Watersheds and Water Quality Sampling Locations (continued)

Rock Creek

The Rock Creek subwatershed, another tributary of the Potomac River, drains approximately 82 square miles (52,480 acres) and lies within the Piedmont Physiographic Province in Montgomery County, Maryland. Within this subwatershed, 45 percent of land is developed, 19.5 percent is used for agriculture, and 31.7 percent is forested (CBP 2007). The stream originates south of Laytonsville and west of the Oaks Sanitary Landfill in northeast Montgomery County.

The Rock Creek subwatershed contains one of the area's most treasured and frequently used recreation corridors. The forested stream valley corridors provide a protective buffer to the stream and contain wetlands and vernal pools in the floodplain (MCDEP 2011). A major tributary to the Rock Creek watershed within the study area is Coquelin Run. Coquelin Run originates south of Bethesda, flows east paralleling the south side of the Capital Crescent Trail, and joins Rock Creek in the Rays Meadow section of Rock Creek Park. The Rock Creek subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010) for phosphorous and total suspended solids. The 2010 Integrated Report is discussed in detail in the total maximum daily loads section.

Sligo Creek

The Sligo Creek subwatershed drains approximately 11.6 square miles (7,424 acres) into the Northwest Branch of the Anacostia River, near Hyattsville. Within this urbanized subwatershed, 75 percent is residential, 10 percent is forested, and eight percent is commercial (AWN 2009). The stream system originates in the Kemp Mill section of Silver Spring. This subwatershed occurs in both the Piedmont and the Coastal Plain Physiographic Provinces.

Long Branch is a major tributary of the Sligo Creek subwatershed within the study area. Long Branch originates southwest of the intersection of I-495 and MD 193 and flows south through the study area to join Sligo Creek. Many tributaries of the Sligo Creek subwatershed have been paved over and piped into storm drains. The remaining areas have been channelized, and many banks have been lined with rip-rap to prevent erosion during storm events. These alterations result in little habitat for aquatic life. Until recently, only three pollution-tolerant species of fish were identified in Sligo Creek. New runoff controls and stream channel restoration efforts have allowed for the successful recolonization of native fish species in recent years (MCDEP 2011).

Northwest Branch

The Northwest Branch is one of the largest subwatersheds in the study area and drains 41.89 square miles (26,812 acres). Within this subwatershed, 52 percent of land use is residential, 22 percent forested, nine percent is agricultural, and seven percent is parkland (AWN 2009). The Northwest Branch stream system originates southeast of Olney, in Montgomery County. It flows southeast across the Prince George's county line to meet the Northeast Branch, north of Bladensburg, forming the Anacostia River. This subwatershed occurs in both the Piedmont and the Coastal Plain Physiographic Provinces.

The headwaters of the Northwest Branch include some of the best water quality conditions in the Anacostia watershed. However, in the lower portions of the Northwest Branch these conditions deteriorate due to higher density development, stream channelization, and stormwater impacts (AWN 2009). The Northwest Branch subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010) for heptachlor epoxide and polychlorinated biphenyls.

Northeast Branch

The Northeast Branch subwatershed drains approximately 14.7 square miles (9,419 acres). Within this subwatershed, 51 percent is residential, 26 percent is forested, and 10 percent is commercial (AWN 2009). The stream originates east of College Park at the confluence of Paint Branch and Indian Creek. Northeast Branch flows south from the confluence to meet the Northwest Branch, north of Bladensburg, to form the Anacostia River. This subwatershed occurs entirely within the Coastal Plain Physiographic Province.

The Northeast Branch subwatershed is channelized for 85 percent of its mainstem length, and most of it is managed as a flood-control channel. This prevents the growth of a riparian forest buffer and, consequently, only 21 percent of the mainstem has an adequate riparian buffer. Thermal loading resulting from channelization and lack of in-stream shading may impair aquatic biotic communities (AWN 2009). The Northwest Branch subwatershed was placed in Category 5 of MDE's, U.S. EPA approved, *The 2010 Integrated Report of Surface Water Quality in Maryland* (MDE 2010)for polychlorinated biphenyls.

Lower Beaverdam Creek

The Lower Beaverdam Creek subwatershed drains 15.7 square miles (10,065 acres). Within this subwatershed, 44 percent of land is in residential land use, 25 percent is forested, and 17 percent is industrial (AWN 2009). The stream flows west, paralleling the south side of US 50 and joins the Anacostia River in the District of Columbia. The subwatershed is located entirely in the Coastal Plain Physiographic Province.

The Lower Beaverdam Creek subwatershed is one of the most developed sections of the Anacostia watershed with its headwaters in dense residential and commercial development. Only 20 percent of the mainstem has an adequate riparian forest buffer. The degradation of aquatic habitat and poor water quality in Lower Beaverdam Creek has severely impaired the aquatic community (AWN 2009).

3.2.2 Water Quality

The MDE has established acceptable standards for several water quality parameters for each designated Stream Use Classification. The standards are listed in the Code of Maryland Regulations (COMAR) 26.08.02.01-.03 – Water Quality and are shown in Table 2.

Parameter	Use I-P	Use IV		
Temperature	Maximum of 90°F (32°C) or ambient	Maximum of 75°F (23.9°C) or ambient temperature,		
remperature	temperature, whichever is greater	whichever is greater		
рН	6.5 to 8.5	6.5 to 8.5		
Dissolved Oxygen	Minimum of 5 mg/L	Minimum of 5 mg/L		
Turbidity	Maximum of 150 Nephelometer Turbidity Units	Maximum of 150 Nephelometer Turbidity Units		
rubiuity	(NTU) and maximum monthly average of 50 NTU	(NTU) and maximum monthly average of 50 NTU		

Table 2. Use I and Use IV COMAR Standards

Source: Maryland COMAR 26.08.02.01-03-Water Quality

With the exception of a portion of Northwest Branch, all streams within the study area are classified as Water Quality Use I: Water Contact Recreation and Protection of Non-tidal Warm Water Aquatic Life, which means that these streams support water contact sports, leisure activities involving direct contact with surface water, growth and propagation of fish other than trout and other aquatic life and wildlife, and agricultural and industrial water supply. Northwest Branch, north of East West Highway, is designated as Use IV: Recreational Trout Waters. This designation means waters from this portion of Northwest Branch are capable of supporting adult trout for a put and take fishery, in addition to the uses supported by Use I streams.

Each parameter, measured by *in situ* sampling and regulated by the State of Maryland, can have a substantial effect on the aquatic communities of streams. These parameters – temperature, pH, dissolved oxygen, turbidity, and conductivity – each have different effects on aquatic biota.

The results of the chemical water quality sampling are summarized in Tables 3 and 4, and the locations of the water quality sampling stations are shown in Figure 2.

Table 3. Summary of Chemical Water Quality Conditions in the Little Falls, Rock Creek, and Sligo Creek Watersheds

		Little Falls		Rock Creek		Sligo Creek	
Parameter	Standard	Avg	% sites outside standard	Avg	% sites outside standard	Avg	% sites outside standard
Dissolved Oxygen (mg/L)	>5	7.97	11.1	9.45	2.7	7.52	12.5
pH (field)	6.5 to 8.5	7.39	0	7.44	0	7.25	0
Temperature (°C)	<32°C	16.97	0	15.81	0	18.90	0
Conductivity (mS/cm)	none	0.61	N/A	0.47	N/A	0.36	N/A

Source: MBSS On-line Resource, MCDEP, and PGDER; N/A= sample not collected

Table 4. Summary of Chemical Water Quality Conditions in the Northwest Branch, Northeast Branch, and Lower Beaverdam Creek Watersheds

		Northwest Branch		Northeast Branch		Lower Beaverdam Creek	
Parameter	Standard	Avg	% sites outside standard	Avg	% sites outside standard	Avg	% sites outside standard
Dissolved Oxygen (mg/L)	>5	10.01	0	9.79	8.7	10.70	0
pH (field)	6.5 to 8.5	7.70	18.2	7.43	17.4	7.55	12.5
Temperature (°C)	<32°C	18.24	0	13.69	0	9.50	0
Conductivity (mS/cm)	none	0.310	N/A	0.31	N/A	0.48	N/A

Source: MBSS On-line Resource, MCDEP, and PGDER; NA= sample not collected

Generally, the six subwatersheds in the study area have *in situ* water quality averages that were within state water quality standards. Within the Little Falls subwatershed, dissolved oxygen levels were below Maryland State standards at one site, or 11.1 percent of the sampling events. Only one out of 70 sites within the Rock Creek subwatershed was below state standards for pH, the remaining *in situ* measurements were in compliance with COMAR standards. One site, or 12.5 percent of the dissolved oxygen readings in the Sligo Creek subwatershed, exhibited dissolved oxygen levels below State standards. In the Northwest Branch subwatershed, pH levels at two sites, or 18.2 percent of the sampling events, were out of compliance with State standards. Within the Northeast Branch subwatershed, pH levels and dissolved oxygen levels were below state standards at 8.7 and 17.4 percent of the readings, respectively, with most of the pH readings exceeding the 8.5 upper limit. Two sites within the Lower
Beaverdam Creek subwatershed, or 12.5 percent of the readings within this subwatershed, were outside of state standards for pH. The highest conductivity levels were seen in Lower Beaverdam Creek and Little Falls, which would be expected due to the high urbanization of these two watersheds.

Total Maximum Daily Loads

Impaired stream segments, also known as water quality limited (WQL) segments, are required by MDE to have a TMDL developed for each segment. These WQL can be considered "impaired" by analyzing a wide variety of water quality monitoring data, including chemical grab samples, *in situ* measurements, continuous measurements, and biological data. After listing a stream as a WQL in Category 5 of the Integrated Report, the state is required to prioritize each waterbody's need for TMDL development. Several WQL segments have been identified by MDE within the project area, and the status and results of the TMDL process are summarized in Table 5. The EPA has also developed and approved TMDLs throughout the Chesapeake Bay watershed.

Watershed/Basin	Impairment	Status
Potomac River (in Maryland)	Nitrogen	Approved: December 29, 2010
Potomac River (in Maryland)	Phosphorus	Approved: December 29, 2010
Potomac River (in Maryland)	Sediments	Approved: December 29, 2010
Potomac River (Montgomery County)	Sediments	Submitted: September 28, 2011
Potomac River (Montgomery County)	Nutrients	Submitted: September 28, 2011
Anacostia River	Bacteria	Approved: March 14, 2007
Anacostia River	РСВ	Approved: September 30, 2011
Anacostia River	Sediment	Approved: July 24, 2007
Anacostia River	Nutrients	Approved: June 5, 2008
Anacostia River	Trash	Approved: September 21, 2010
Rock Creek	Sediments	Approved: September 29, 2011
Rock Creek	Bacteria	Approved: July 30, 2007

Table 5. Current Status of TMDLs within the Project Study Area

Sources: MDE TMDL On-line Resource (www.mde.state.md.us/Programs/WaterPrograms/TMDL), EPA Chesapeake Bay TMDL (http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html)

The Little Falls subwatershed is part of the nontidal portion of the Potomac River Montgomery County watershed. In 2011, this portion of the Potomac River had TMDLs submitted for sediment and nutrient impairments, but they have not yet been approved.

The nontidal portion of Rock Creek had TMDLs approved for bacteria and sediment impairments in 2007 and 2011, respectively. Currently, the primary sources of bacteria are bacterial loads from urban wildlife sources. Sediment impairments can be attributed to urbanization and uncontrolled stormwater runoff (MCDEP 2012).

The nontidal portion of the Anacostia River watershed, including Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek subwatersheds, had TMDLs approved for bacteria and sediment impairments in 2007. In 2008, a TMDL was approved for nutrients and in 2010 for trash. TMDL approval in 2011 was for Polychlorinated Biphenyls (PCBs), due to concentrations in the water column that exceed the criteria for human fish consumption. The primary sources of sediment impairment include stormwater runoff and in-stream erosion/scour. Elevated levels of bacteria, PCBs, and nutrients can be attributed to industrial and municipal point sources and combined sewer overflows (DDOE 2012). The Chesapeake Bay TMDL was developed by the EPA and approved in 2010 to restore clean water in the Bay. The Bay TMDL allocated loadings for phosphorous, nutrients, and sediment based on the 19 major drainage basins. The project lies within the Potomac River basin.

3.2.3 Maryland Scenic and Wild Rivers

Portions of the Potomac River located in Montgomery County and its tributaries and the Anacostia River and its tributaries are designated as Scenic Rivers by the state of Maryland. Within the study area, the tributaries designated as Scenic Rivers are Little Falls, Sligo Creek, Northwest Branch, Northeast Branch, and Lower Beaverdam Creek. Although Rock Creek is a tributary of the Potomac River, it joins the Potomac downstream of the limits of the Scenic River designation and is not considered a Scenic River.

3.2.4 Federal Wild and Scenic Rivers

There are no designated Wild and Scenic Rivers within the study area.

3.3 Floodplains

The 100-year floodplains within the study area are associated with the larger perennial streams – Coquelin Run, Rock Creek, Sligo Creek, Northwest Branch, Paint Branch, Northeast Branch, Brier Ditch, and Lower Beaverdam Creek. Most of these floodplains are wooded because they occur in stream valley parks, where current or future development is regulated, if not prohibited. However, substantial encroachment already has occurred from private development and the construction of public infrastructure, including streets, sewer lines, and water mains that cross or parallel the floodplains. This is especially true within the floodplains of Coquelin Run, Northeast Branch, and Lower Beaverdam Creek. Despite these encroachments, the 100-year floodplains along study area streams continue to serve important floodplain functions including, but not limited to, floodflow attenuation, water quality improvement, and wildlife habitat.

3.4 Groundwater and Hydrogeology

The study area overlies the Piedmont and Blue Ridge Crystalline Rock and the Northern Atlantic Coastal Plain aquifers. The former extends from west of the study area to Riggs Road, while the latter extends eastward from Riggs Road to beyond the study area.

The hydrogeology of the project area is largely defined by the geology of the area. Based on the information gathered from the USGS, MGS, and MDE, five main aquifers are located within the project area. Three major aquifers occur west of MD 212 (Riggs Road) within the Piedmont Physiographic Province: crystalline-rock and undifferentiated sedimentary-rock aquifers, aquifers in early Mesozoic basins, and carbonate-rock aquifers. Two aquifers, Castle-Hayne Aquia and Potomac, located within the Coastal Plain Physiographic Province, extend from MD 212 to the eastern end of the project study area.

Most of the Piedmont Physiographic Province is underlain by dense impermeable bedrock that yields water from secondary porosity and permeability provided by fractures. Recharge is highly variable in these aquifers because it is determined by local precipitation and runoff, which are highly variable and are influenced by topographic relief, roadway infrastructure, land use, and the infiltration rates of the available land surface (USGS 1997). The crystalline-rock and undifferentiated sedimentary-rock aquifers are primarily composed of crystalline metamorphic and igneous rocks. An unconsolidated, permeable material called regolith overlies these aquifers. The regolith consists of saprolite, colluvium, alluvium,

and soil. The hydraulic properties of the regolith vary greatly due to the variation in thickness, composition, and grain size. The recharge and discharge process takes place in these aquifers in instream areas where precipitation enters the regolith and then moves laterally through this material, discharging into nearby streams. However, some of the water moves downward through the regolith until it reaches the bedrock where it enters fractures in crystalline rocks. Base flow ranges from 33 to 67 percent of stream flow in the drainage basins underlain by crystalline rocks (USGS 1997).

The aquifers in the early Mesozoic basins are composed of rocks that lie on crystalline rocks and locally sedimentary rocks. Sedimentary rocks in the basins consist predominately of interbedded shale, sandstone, and siltstone. Groundwater in the early Mesozoic aquifers moves primarily along joints and fractures. The hydraulic connection between individual aquifers is poor because most groundwater movement is parallel along bedding planes (USGS 1997).

The carbonate-rock aquifers are composed of limestone, dolomite, and marble, which have low permeability and porosity. Water moves through these rocks along joints, faults, and other openings created by dissolution. These mini-aquifers store water in deep fractures or solution channels that can transmit water several miles from recharge areas to discharge areas. Well yields from carbonate-rock aquifers are generally larger than those from the other two aquifers within the study area. Wells located in rock that is fractured only near the surface will yield from 10 to 20 gallons per minute for a limited amount of time until the fractures are drained. Wells located in depressional areas and valleys tend to have higher-than-average yields as these areas commonly occur near fracture zones in rock or the water table is near or at the surface in topographically low areas. The baseflow of a stream is supported by groundwater discharge and indicates the maximum sustained groundwater yield (USGS 1997).

The Castle Hayne-Aquia aquifer of the Coastal Plain Physiographic Province is subdivided into two local aquifers: the Piney Point Nanjemoy aquifer and the Aquia-Rancocas aquifer. Both aquifers are composed of glauconitic sand from different formations within this group. The aquifers are separated by silt and clay confining units that can be as thick as 210 feet. Water in these aquifers moves laterally from the northwestern limits of the aquifers toward the Potomac River. The Castle Hayne-Aquia aquifer does not receive recharge directly from precipitation and does not discharge by evapotranspiration. Recharge occurs from overlying and underlying aquifers by vertical leakage through confining units.

The Potomac aquifer has an extent that underlies a majority of the eastern portion of the project area. This larger aquifer includes two local aquifers: Patapsco and Patuxent aquifers. The local Patapsco aquifer and the underlying Patuxent aquifer contain a range of fine to coarse gravelly sand. The clay confining unit that separates the two aquifers is approximately 300 feet thick. The Potomac aquifer receives little direct recharge by precipitation. Water moves laterally through the Potomac aquifer but also flows vertically in and out of the aquifer from overlying aquifers.

Groundwater well withdrawals from the Piedmont province aquifers are generally suitable for drinking and other uses, but iron, manganese, and sulfate occur locally in concentrations well above EPA's National Secondary Drinking Water Regulations (NSDWR). These regulations are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. High iron concentrations within drinking water can be attributed to corrosion of steel casings and well fittings, as well as iron-fixing bacteria. The natural weathering of rocks within the Mesozoic aquifers can also contribute iron and manganese to groundwater, especially if the water is slightly acidic. The Potomac Aquifer of the Coastal Plain province has experienced saline water encroachment in several areas due to the ion-exchange reactions that occur in the water that percolates downward through overlying aquifers and confining units. Groundwater from monitoring wells drilled within the Coastal Plain aquifers had a more acidic pH than the recommended EPA standard (USGS 2006). Samples were significantly elevated above the EPA standards for the following organic compounds: alachor, benzoanthracene, benzopyrene, diethlpthalate, hexachorobenzene, hexachlorocyclopentadiene, and pentachlorophenol. The potential sources of contamination include discharge from rubber and chemical factories, metal refineries, agricultural chemical factories, and wood-preserving factories. Additional sources of contamination include leaching from the linings of water storage tanks and distribution lines, as well as runoff from herbicide used on row crops. The potential health effects from ingesting water with elevated levels of the above-listed contaminants include problems with the eye, liver, kidney, or spleen; anemia; increased risk of cancer; and reproductive difficulties.

3.5 Aquatic Biota and Habitat

3.5.1 Aquatic Biota

Data relating to aquatic biota were gathered from the Montgomery County Department of Environmental Protection (MCDEP), Prince George's County Department of Environmental Resources (PGDER), and Maryland Department of Natural Resources Maryland Biological Stream Survey (MDNR MBSS). A scale of very poor to good was used for community health, and a scale of degraded to excellent was used for physical habitat.

MDNR and MCDEP have both developed a Fish Index of Biological Integrity (FIBI), which compares the fish community at a given site to reference fish communities in the least-impaired streams. Both of these FIBIs are based on the same principles of measuring a community using a set of comparative metrics. However, the MDNR FIBI is based on state-wide reference streams and uses nine community metrics found to characterize fish community health in Maryland's Piedmont streams. PGDER follows the MDNR methods of sampling and analysis; consequently, PGDER and MDNR data are directly comparable. The MCDEP FIBI was developed using reference streams that are only located in Montgomery County, and the scoring of the nine metrics used is adapted specifically to conditions within the County. This difference in the metrics and scoring criteria causes FIBI scores and narrative rankings to also differ between MDNR/PGDER and MCDEP. Table 6 summarizes how each agency ranks each FIBI score and how each of these scores and rankings relates to reference conditions. Table 7 summarizes the scores associated with each subwatershed.

Three MCDEP sites and one MDNR site were located within the Little Falls subwatershed. Fish were absent from two out of three MCDEP sites and blacknose dace and largemouth bass were collected at the third site. Two species, creek chub and blacknose dace were collected at the MDNR site. All three of these fish species are considered to be pollution-tolerant.

Nineteen MCDEP sites were located in the Rock Creek subwatershed, and these sites had a FIBI ranging from 1.20 (Poor) to 3.90 (Fair). Two sites sampled by MDNR had scores ranging from 1.33 (Poor) to 1.67 (Poor). The Rock Creek sites showed a relatively diverse fish community comprising 23 species. Nine of these species are considered to be pollution-intolerant. No game fish were collected at these sites. One migratory species, American eel, was present.

FIBI Score	Narrative Ranking	Characteristics
MDNR/PGD	DER	
4.0 – 5.0	Good	Comparable to reference streams considered to be minimally impacted, biological metrics fall within the upper 50 percent of reference site conditions.
3.0 – 3.9	Fair	Comparable to reference conditions, but some aspects of biological integrity may not resemble the qualities of minimally impacted streams.
2.0 – 2.9	Poor	Significant deviation from reference conditions, indicating some degradation. On average, biological metrics fall below the 10 th percentile of reference site values.
1.0 - 1.9	Very Poor	Strong deviation from reference conditions, with most aspects of biological integrity not resembling the qualities of minimally impacted streams, indicating severe degradation. On average, most or all metrics fall below the 10 th percentile of reference site values.
MCDEP		
>4.5	Excellent	Comparable to the biological community found in reference streams. Exceptional assemblage of species with a balanced community composition.
3.5 –4.5	Good	Decreased number of sensitive species; decreased number of specialized feeding groups with some intolerant species present.
2.3 – 3.4	Fair	Intolerant and sensitive species are largely absent; unbalanced feeding group structure.
<u><</u> 2.2	Poor	Top carnivores and many expected species are absent or rare; general feeders and tolerant species dominate.

Table 6. MDNR/PGDER and MCDEP FIBI Scores and Rankings

Source: Roth et. al. 1997, MCDEP 1998, and PGDER 1995

Table 7. Summary of Existing Fish Community Data in Purple Line Watersheds

Subwatershed	Agency	Number of Sites	FIBI Score Range	FIBI Narrative	FIBI Average
Little Falls	MCDEP	2	1.00-1.70	Poor	1.23
Little Falls	MDNR	1	1.00	Very Poor	-
Rock Creek	MCDEP	5	1.20-3.90	Poor-Good	2.43
Rock Creek	MDNR	2	1.33-1.67	Very Poor	1.50
Sligo Creek	MCDEP	7	1.40-2.60	Poor-Fair	1.98
Sligo Creek	MDNR	1	1.33	Very Poor	-
Northwest Branch	MCDEP	1	3.40-4.30	Fair -Good	3.87
Northwest Branch	MDNR	2	3.67-4.00	Fair-Good	3.89
		MNDR- 5			
Northeast Branch	MDNR/PGDER	PGDER- 2	1.00-4.33	Very Poor - Good	3.24
Lower Beaverdam Creek	PGDER	9	2.00-3.67	Poor - Fair	2.70

Nine sites, eight sampled by MCDEP and one sampled by MDNR, were located within the Sligo Creek subwatershed. At the MCDEP sites, FIBI scores ranged from 1.40 (Poor) to 2.60 (Fair). The MDNR FIBI score was 1.33 (Poor). These sites showed moderate diversity with 14 different species of fish collected. Of these 14 species, 50 percent are considered to be pollution-tolerant. One migratory fish species was present, the American eel.

Three sites were sampled by MCDEP in the Northwest Branch subwatershed and had FIBI scores ranging from 3.40 (Fair) to 4.30 (Good). Three MDNR sites had scores ranging from 3.67 (Good) to 4.00 (Good). Species diversity was relatively high with 36 species of fish documented. Of these species, more than 25

percent are considered to be pollution intolerant and over 33 percent to be pollution-tolerant. Two species of game fish were present, largemouth bass and smallmouth bass. Three migratory fish species were present, the American eel, sea lamprey, and yellow perch.

Seven sites were located in the Northeast Branch subwatershed. Five sites sampled by MDNR had FIBI scores ranging from 2.00 (Poor) to 4.33 (Good). The other two sites were sampled by PGDER and had a range of FIBI scores from 1.00 (Very Poor) to 4.00 (Good). Diversity was high with 37 species of fish documented in this subwatershed. Approximately 30 percent are considered pollution-tolerant species, while approximately 24 percent are considered to be pollution-intolerant. Two species of game fish, largemouth bass and striped bass, were collected in the Northeast Branch. Three migratory fish were found at these sites, American eel, American shad, and sea lamprey.

Five sites, sampled by PGDER, were located in the Lower Beaverdam Creek subwatershed. The FIBI scores at these sites ranged from 2.00 (Poor) to 3.67 (Good). These sites showed moderate diversity with 16 different species of fish collected. Of these 16 species, more than 37 percent are considered to be pollution-tolerant. No game fish were collected at these sites. The American eel was the only migratory species found in the Lower Beaverdam Creek subwatershed.

Table 8 identifies the species of fish that have been collected at each of these sites, summarized by watershed. Overall, 45 species of fish have been collected since 2000, including three species of game fish – largemouth bass, smallmouth bass, and striped bass were collected; and four migratory species – the American eel, striped bass, sea lamprey, and yellow perch.

Fish Species	Pollution Tolerance	Little Falls	Rock Creek	Sligo Creek	Northwest Branch	Northeast Branch	Lower Beaverdam Creek
American eel (Anguilla rostrata)	No type		Х	Х	Х	Х	Х
American shad (Alosa sapidissima)	No type					Х	
Banded killifish (Fundulus diaphanus)	No type				Х	Х	Х
Blacknose dace (Rhinichthys atratulus)	Т	Х	Х	Х	Х	Х	Х
Bluegill (Lepomis macrochirus)	Т		Х	Х	Х	Х	Х
Blue Ridge sculpin (<i>Cottus</i> <i>caeruleomentum</i>)	I			Х			
Bluntnose minnow (Pimephales notatus)	Т		Х		Х	Х	
Brown bullhead (Ameiurus nebulosus)	Т			Х	Х	Х	
Channel catfish (Ictalurus punctatus)	No type				Х	Х	
Common carp (Cyprinus carpio)	No type		Х		Х		
Common shiner (Luxilus cornutus)				Х	Х	Х	
Creek chub (Semotilus atromaculatus)	Т	Х	Х	Х	Х	Х	
Creek chubsucker (Erimyzon oblongus)	No type					Х	Х
Cutlips minnow (Exoglossum maxillingua)	I		Х		Х	Х	
Eastern mosquitofish (Gambusia holbrooki)	No type				Х	Х	Х
Eastern mudminnow (Umbra pygmaea)	Т				Х	Х	

Table 8. Fish Species Documented in Purple Line Watersheds

Table 8.	Fish S	necies I	Documented	in Pur	ple Line	Watersheds	(continued)
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	Pollution	Little	Rock	Sligo	Northwest	Northeast	Lower Beaverdam
Fish Species	Tolerance	Falls	Creek	Creek	Branch	Branch	Creek
Eastern silvery minnow	No type					Х	
(Hybognanthus regius)							
Fallfish (Semotilus corporalis)			Х		X		
Fantall darter (<i>Etheostoma flabellare</i>)	No type				X		
Fathead minnow (Pimephales promelas)	No type					Х	
Gizzard shad (Dorosoma _cepedianum)	No type					Х	
Golden redhorse (Moxostoma erythrurum)	No type				Х	Х	
Golden shiner (Notemigonus crysoleucas)	Т		Х		Х		Х
Goldfish (Carssius auratus)	No type		Х	Х		Х	
Green sunfish (Lepomis cyanellus)	T		Х	Х	Х	Х	Х
Lepomis hybrid (Lepomis sp.)	No type			Х			Х
Largemouth bass (Micropterus salmoides)	T	Х			Х	Х	
Longnose dace (Rhinichthys cataractae)	No type		Х	Х	Х	Х	
Mummichog (Fundulus heteroclitus)	No type				Х	Х	Х
Northern hogsucker (Hypentelim nigricans)	I		Х		Х	Х	
Pumpkinseed (Lepomis gibbosus)	Т		Х		Х	Х	Х
Redbreast sunfish (Lepomis auritus)			Х		Х	Х	Х
Rosyside dace (Clinostomus funduloides)	I				Х	Х	
Satinfin shiner (Cyprinella analostana)			Х		Х	Х	Х
Sea lamprey (Petromyzon marinus)					Х	Х	
Silverjaw minnow (Notropis buccatus)	No type				Х	Х	
Smallmouth bass (Miropterus dolomieu)	No type				Х		
Spotfin shiner (Cyprinella spilopterus)			Х		Х	Х	
Spottail shiner (Notropis hudsonius)			Х		Х	Х	Х
Striped Bass (Morone saxatilis)	No type					Х	
Swallowtail shiner (Notropis procne)	No type		Х	Х	Х	Х	Х
Tessellated darter (Etheostoma olmstedi)	Т		Х	Х	Х	Х	
White sucker (Catostomus commersoni)	Т		Х	Х	Х	Х	Х
Yellow bullhead (Ameiurus natalis)	No type		Х		Х	Х	
Yellow perch (Perca flavescens)	No type				Х		
Total Number of Species		2	22	14	36	37	16

T = Pollution Tolerant I = Pollution Intolerant

Source: MCDEP Database, MDNR MBSS Database, PGDER Sampling

In a letter dated May 2012, the NMFS commented that Paint Branch, Northeast Branch, and Brier Ditch are documented as spawning grounds for anadromous fish, such as blueback herring, alewife, and hickory shad, which live in marine waters but migrate to fresh water to breed. They also serve as nursery grounds for catadromous fish, such as the American eel fish, which live in fresh water but migrate to marine waters to breed.

Historically, blockages within and downstream of the study area have prevented anadromous and catadromous fish from migrating. Specific blockages within Rock Creek and Northwest Branch were identified in 2004 and 2007. These blockages continue to be present downstream of the study area, which reduces the likelihood of finding anadromous and catadromous fish passing through or using the study area streams for breeding or early development. A blockage on Northeast Branch just south of River Road was modified to permit fish passage in 1991. Anadromous fish were observed just below this blockage point in 2007. However, the 1991 modification could allow for fish to move north of River Road into the study area.

3.5.2 Benthic Macroinvertebrates

MDNR and MCDEP have both developed a Benthic Index of Biotic Integrity (BIBI) that compares the macroinvertebrate community within a given site to reference macroinvertebrate communities in a least-impaired stream. The MDNR BIBI is based on statewide reference streams and uses nine community metrics found to characterize macroinvertebrate community health in Maryland's Piedmont streams. For its sampling, PGDER follows the MDNR methods of sampling and analysis, so PGDER and MDNR data are directly comparable. The MCDEP BIBI was developed using reference streams only within Montgomery County, and the scoring of the nine metrics used is tailored specifically to conditions within the County. Because the metrics and scoring criteria differ, the resulting BIBI scores and narrative rankings are also different between MDNR/PGDER and MCDEP. Table 9 summarizes how each agency ranks each BIBI score and how each of these scores and rankings relates to reference conditions.

BIBI Score	Narrative Ranking	Characteristics
MDNR/PGDER		
4.00 - 5.00	Good	Comparable to reference streams considered to be minimally impacted, biological metrics fall within the upper 50 percent of reference site conditions.
3.00 - 3.90	Fair	Comparable to reference conditions, but some aspects of biological integrity may not resemble the qualities of minimally impacted streams.
2.00 – 2.90	Poor	Significant deviation from reference conditions, indicating some degradation. On average, biological metrics fall below the 10 th percentile of reference site values.
1.00 - 1.90	Very Poor	Strong deviation from reference conditions, with most aspects of biological integrity not resembling the qualities of minimally impacted streams, indicating severe degradation. On average, most or all metrics fall below the 10 th percentile of reference site values.
MCDEP		
<u>></u> 35	Excellent	Comparable to the biological community found in reference streams. Exceptional assemblage of species with a balanced community composition.
26 – 34	Good	Decreased number of sensitive species; decreased number of specialized feeding groups with some intolerant species present.
17 – 25	Fair	Intolerant and sensitive species are largely absent; unbalanced feeding group structure.
<u><</u> 17	Poor	Top carnivores and many expected species are absent or rare; general feeders and tolerant species dominate.

Table 9. MDNR/PGDER and MCDEP BIBI Scores and Rankings

Table 10 summarizes the benthic macroinvertebrate community data for the watersheds within the study area, and each watershed is described below.

Subwatershed	Agency	Number of Sites	BIBI Score Range	BIBI Narrative	BIBI Average
Little Falls	MCDEP	2	8-16	Poor	11.6
Little Falls	MDNR	1	2.33	Poor	-
Rock Creek	MCDEP	12	8-22	Poor-Fair	11.74
Rock Creek	MDNR	2	1.00-1.67	Very Poor	1.34
Sligo Creek	MCDEP	3	8-14	Poor	11.5
Sligo Creek	MDNR	1	1.67	Very Poor	-
Northwest Branch	MCDEP	1	16	Poor	16
Northwest Branch	PGDER	4	1.00-3.00	Very Poor - Fair	2.24
Northeast Branch	MDNR/PGDER	MDNR- 5 PGDER- 15	1.00-4.14	Very Poor - Good	2.59
Lower Beaverdam Creek	PGDER	15	1.00-3.00	Very Poor - Fair	2.33

Table 10. Summary of Existing Benthic Macroinvertebrate Community Data for Purple Line Watersheds From 2000 - 2011

Within the Little Falls subwatershed, benthic macroinvertebrate communities were rated as Poor. The macroinvertebrate community within the Little Falls subwatershed was generally dominated by pollution-tolerant midges (Chironomidae) and common net-spinning caddisflies (Hydropsychidae and Cheumatopsyche).

Nineteen sites were located within the Rock Creek subwatershed in the study area; seventeen were sampled by MCDEP, and two were sampled by MDNR. The eighteen sites sampled by MCDEP had BIBI scores ranging from 8 (Poor) to 22 (Fair); over 80 percent of the scores were in the Poor range. Both sites sampled by MDNR were rated as Very Poor. Generally, within Rock Creek, benthic macroinvertebrate communities were comprised of pollution-tolerant midges and net-spinning caddisflies with the sites that scored in the Fair range containing greater numbers of less tolerant damselfly and mayfly larvae.

The MCDEP recorded BIBI scores for four sites in the Sligo Creek subwatershed; all four were rated as Poor. Additionally, MDNR rated one site in the subwatershed as Very Poor. The benthic macroinvertebrate community within Sligo Creek was dominated by tolerant midge taxa, with other less tolerant taxa including scuds (Amphipoda) and net-spinning caddisflies comprising the MDNR site.

The macroinvertebrate community of Northwest Branch was rated as Poor by MCDEP. Maryland Department of Natural Resources and PGDER rated sites in this subwatershed with BIBI scores ranging from 1.00 (Very Poor) to 3.00 (Fair) and an average score of 2.24. These communities were also dominated by midges and net spinning caddisflies, with the addition of a few less tolerant taxa at the higher scoring sites.

The benthic macroinvertebrate communities in Northeast Branch subwatershed as rated by MDNR and PGDER ranged from 1.00 (Very Poor) to 3.86 (Fair), with an average score of 2.59. Similar to other subwatersheds in the project area, these sites were dominated by midges; however, the higher scoring

sites had a few less tolerant taxa, including mayflies. The sites in this subwatershed exhibited greater taxa diversity than the other subwatersheds sampled.

Sites sampled within Lower Beaverdam Creek had BIBI scores that ranged between 1.00 (Very Poor) and 3.00 (Fair), with an average score of 2.33. Seventy-three percent of the sites in this subwatershed were rated as Poor. Benthic macroinvertebrate communities were dominated by midges and sensitive benthic macroinvertebrates, and EPT taxa were uncommon in Lower Beaverdam Creek. However, midge dominance was lower in this subwatershed than it was at other sites within the project area.

3.5.3 Physical Habitat

Each agency from which biological data were collected uses its own habitat scoring and narrative ranking process. MCDEP uses EPA's Rapid Bioassessment Protocol (RHAB) for habitat scoring. This protocol is based on the quality of instream habitat, epifaunal substrate, embeddedness, channel alteration, channel flow status, bank vegetative protection, bank stability, and riparian vegetative zones. Through extensive sampling, the narrative ranking criteria in Table 11 were developed by MCDEP specifically for streams within Montgomery County. Prince George's County also uses EPA's RHAB, but with ranking criteria developed specifically for streams within Prince George's County. The habitat assessment used by the MDNR, referred to as the Physical Habitat Index (PHI) is specialized for both Piedmont and Coastal Plain streams. Within the Piedmont Physiographic Province PHI scores are based on remoteness, shading, epifaunal substrate, instream habitat, instream woody debris and rootwads, bank stability, riffle quality, and embeddedness. In the Coastal Plain Physiographic Province, PHI scores are based on remoteness, shading, epifaunal substrate, instream habitat, instream woody debris and rootwads, and bank stability. In 2007, MDNR stopped calculating the PHI, therefore data from this agency will only be presented through 2006.

Score	Narrative		
MCDEP RHAB			
166-200	Excellent		
154-165	Good/Excellent		
113-153	Good		
101-112	Fair/Good		
60-100	Fair		
54-59	Poor/Fair		
0-53	Poor		
PGDER RHAB			
151-200	Comparable		
126-151	Supporting		
100-125	Partially Supporting		
< 100	Non-supporting		
MDNR PHI			
81-100	Minimally Degraded		
66-80	Partially Degraded		
51-65	Degraded		
0-50	Severely Degraded		

Table 11. MCDEP, PGDER, MDNR Habitat Ranking Criteria

Source: MCDEP1998, PGDER 1995, and MDNR 2003

Table 12 summarizes the existing habitat data for the watersheds within the study area, and each watershed is described below.

Subwatershed	Agency	Number of Sites	RHAB/ PHI Score Range	BIBI Narrative	BIBI Average
Little Falls	MCDEP	2	78-155	Fair - Excellent/Good	117
Rock Creek	MCDEP	10	80-139	Fair/Good	106
Rock Creek	MDNR	1	61.32	Degraded	-
Sligo Creek	MCDEP	2	69-123	Fair - Good	102
Sligo Creek	MDNR	1	59.27	Degraded	-
Northwest Branch	MCDEP	1	85-162	Fair - Excellent/Good	125
Northwest Branch	MDNR	1	66.82	Partially Degraded	-
		MDNR-1		Severely Degraded - Minimally	
Northeast Branch	MDNR/PGDER	PGDER-1	30.36-85.93	Degraded	58

Table 12.	Summarv	of Existina	Habitat Da	ta for Purple	Line Watersheds
	ourning (Tradition Du		

In the Little Falls subwatershed, the MCDEP habitat scores ranged from Fair to Good/Excellent. The lowest parameter scores within the Little Falls subwatershed were bank stability, bank vegetation, and sedimentation.

Twenty three MCDEP RHAB ratings were given to 11 sites in the Rock Creek subwatershed. Ratings ranged from Fair to Good. The lowest parameter scores within the Rock Creek subwatershed were riparian vegetation, bank stability, and bank vegetation, while the MDNR site was degraded.

The MCDEP rated five sites in the Sligo Creek subwatershed from Fair to Good. The lowest parameter scores within the Sligo Creek subwatershed were instream habitat for fish, bank stability, bank vegetation, and sedimentation.

The MCDEP documented aquatic habitat conditions at five sites in the Northwest Branch subwatershed with scores ranging from Fair (85) to Excellent Good (162). The MDNR assessed one site in the subwatershed as having Partially Degraded aquatic habitat conditions. The lowest parameter scores within the Northwest Branch subwatershed were instream habitat for fish, embeddedness, and bank stability.

The MDNR PHI rated two sites within the Northeast Branch subwatershed, one as Minimally Degraded and one as Severely Degraded.

4. Preferred Alternative

4.1 Long-Term Operational Effects and Mitigation

4.1.1 WUS and Wetlands

The Preferred Alternative has the potential to permanently affect WUS and wetlands in the study area where roadway widening to accommodate the transitway would occur and to implement drainage improvements. Table 13 describes the potential permanent impacts of the Preferred Alternative on WUS and wetlands within the study area. Table 14 summarizes the total impact by project element. Quantities were calculated based upon the current limit of disturbance.

Water Resource	Preferred Alternative	Type of Impact
WUS GB-1 Coquelin Run	Waterway Impact (110 linear feet of ephemeral, 1,447 linear feet of intermittent)	Both the ephemeral channel and stream will be placed in a closed drainage system.
WUS GB-2	Waterway Impact (134 linear feet of intermittent)	Culvert extension
WUS GB-3	Waterway Impact (70 linear feet of intermittent)	Culvert extension
WUS GB-4	Waterway Impact (117 linear feet of intermittent)	Culvert extension
WUS GB-9	Waterway Impact (352 linear feet of intermittent)	Stream relocation
WUS 003 Sligo Creek	Waterway Impact (323 linear feet of perennial)	Sligo Creek stream relocation
WUS 005 Long Branch	Waterway Impact (260 linear feet of perennial)	Culvert replacement
WUS 007	Waterway Impact (419 linear feet of perennial)	Retaining walls
WUS 008	Waterway Impact (413 linear feet of intermittent)	Retaining walls
WUS 009	Waterway Impact (41 linear feet of intermittent)	Stream relocation
WUS 012	Waterway Impact (71 linear feet of perennial)	Outfall reconfiguration
WUS 015	None	None
WUS 016	Waterway Impact (249 linear feet of perennial)	Culvert placement
Wetland 019	Wetland Impact (0.02 acre of PEM); POW impact (0.08 acre)	Retaining wall
WUS 030	Waterway Impact (82 linear feet of intermittent)	Stream relocation at culvert in the Glenridge Facility
WUS 032	Waterway Impact (111 linear feet of intermittent)	Stream will be placed in close drainage system in the Glenridge Facility
WUS 034	Waterway Impact (590 linear feet of intermittent)	Relocation into a closed drainage system
Wetland 035	Wetland Impact (0.06 acre of PEM)	Permanent impact due to fill
WUS 036	Waterway Impact (46 linear feet of intermittent)	Culvert reconfiguration
Wetland 037	Wetland Impact (0.10 acre of PEM); POW Impact (0.02 acre)	Culvert reconfiguration
WUS 048	Waterway Impact (139 linear feet of intermittent)	Stream relocation near culvert in the Glenridge Facility
WUS 057	Waterway Impact (33 linear feet of intermittent)	Culvert Extension
WUS 058	Waterway Impact (110 linear feet of ephemeral)	Retaining walls
Wetland 059	Wetland Impact (0.06 acre of PFO)	Retaining walls
Wetland 060	Wetland Impact (0.18 acre of PFO)	Retaining walls

Table 13. Type of Impact to WUS and Wetlands

Water Resource	Preferred Alternative	Type of Impact
WUS 062	Waterway Impact (65 linear feet of ephemeral)	None
WUS 063	Waterway Impact (83 linear feet of intermittent)	Stream will be placed in closed drainage system in the Glenridge Facility
WUS 064	Waterway Impact (107 linear feet of intermittent)	Stream will be placed in closed drainage system in the Glenridge Facility
WUS 066	Waterway Impact (50 linear feet of perennial)	Culvert reconfiguration
Wetland 067	Wetland Impact (0.03 acre of PEM); POW Impact (0.01 acre)	Culvert reconfiguration
WUS 068	Waterway Impact (14 linear feet of intermittent)	Outfall reconfiguration due to Lyttonsville Facility
WUS 071	Waterway Impact (70 linear feet of ephemeral)	Stream relocation
Wetland 072	None	None
WUS 073	Wetland Impact (0.03 acre of PFO)	Permanent impact due to fill
Wetland 075	Wetland Impact (0.02 acre of PFO)	Permanent impact due to fill
Wetland 079	Wetland Impact (0.23 acre of PEM)	Proposed SWM facility
Wetland 080	Wetland Impact (0.04 acre of PEM)	TPSS location

Table 13. Type of Impact to WUS and Wetlands (continued)

Table 14. Summary of Impacts to Waters of the U.S. and Wetlands

Alternative and other Project Elements	Vegetated Wetlands (acres)	Palustrine Open Water (acres)	R2/R4 ¹ (linear feet)	Ephemeral (linear feet)
Transitway and Stations	0.73	0.11	4,616	355
Lyttonsville Yard	0	0	14	0
Glenridge Maintenance Facility	0	0	522	0
TPSS	0.04	0	0	0
Project Total	0.77	0.11	5,152	355

¹R2 = Riverine Lower Perennial, R4 = Riverine Intermittent

As the project currently stands, the Preferred Alternative would permanently affect approximately 0.77 acres of wetland, with a majority of impacts occurring to the vegetated wetlands located north and south of University Boulevard, west of Northwest Branch, and along the south side of Ellin Road. A majority of the anticipated impacts to WUS occur at streams that currently flow under or parallel to the proposed Purple Line corridor. Long-term effects to these systems are a result of widening the existing roadways to accommodate the track.

During the construction of new, or replacement or extension of existing pipes, culverts or bridges, 5,152 linear feet of intermittent or perennial stream channel would be affected by drainage improvements involving new, replaced, or extended drainage pipes, or by culverts, or bridges. The majority of the stream impacts would occur within the Georgetown Branch right-of-way and along Ellin Road, where stream systems would be placed in closed drainage systems for most of their length within the limits of the project.

• Additionally, a total of 355 linear feet of ephemeral channel (channels that contain water for only short periods of time following precipitation or snowmelt) would be affected by the Preferred Alternative, with a majority of the impacts occurring along the south side of University Boulevard.

Approximately 0.08 acre of a palustrine open water system (small, shallow, unvegetated pond), located along the south side of River Road may also be permanently affected due to retaining walls along that portion of the road as part of the Preferred Alternative. Approximately 0.03 acres of two large palustrine open water systems (small, shallow, unvegetated ponds) located south of Ellin Road would be affected by the extension of a triple box culvert.

4.1.2 Surface Waters

Water Quality

While the MTA has strived to avoid or minimize the water quality impacts, the project would increase impervious surfaces in the study area, which could increase the amount of surface runoff and potentially increase the level of contaminants such as heavy metals, salt, organic molecules, and nutrients in the surface runoff (Trombulak 1999).

MTA is considering using green track along the Georgetown Branch right-of-way and the CSXT right-ofway to minimize runoff. Green tracks typically consist of grass or sedum plantings in an 8-inch deep section of planting medium (a non-engineered soil mix), placed over a free-draining track ballast. Green track allows for some water absorption within the planting medium, thereby reducing the movement of potential contaminants to surface water bodies. The green track reduces stormwater runoff and increases local air humidity. The majority of the eastern portion of the transitway would be located largely within currently paved areas along existing roadways, although some roadway expansions would be required to accommodate the transitway. Redevelopment of the Lyttonsville site for the proposed Lyttonsville Yard would almost completely overlie existing impervious areas, thus creating minimal new impervious surfaces. The Glenridge Maintenance Facility would add new impervious surfaces, as would some stations and TPSS. However, the addition of impervious surfaces from the Glenridge Maintenance Facility would only contribute a net increase of approximately 0.06 percent of impervious surface to the Northeast Branch watershed.

Total Maximum Daily Loads

Since the study area is already developed and the Preferred Alternative includes proposed infrastructure to effectively manage stormwater runoff generated by the project, increases in nutrient and sediment levels from the project are unlikely to affect overall TMDL management. Current water quality impairment issues primarily result from bacteria in animal waste, leaking septic and sewer systems, stormwater outfalls, and sanitary sewer overflows. It is unlikely that the Preferred Alternative would affect or contribute substantially to bacteria levels within the subwatersheds. To the extent that TMDL thresholds pertain to typical contaminants from impervious surfaces and transportation operations, the project stormwater BMPs designed in coordination with the MDE would minimize adverse effects.

Scenic and Wild Rivers

The Preferred Alternative would affect tributaries of the Montgomery County portion of the Potomac River and the Anacostia Rivers, all parts of which are designated as State-listed scenic rivers. The impacts to these streams would be due to culvert and pipe replacement and extension from bridge crossings. The relocation of a section of Sligo Creek north of Wayne Avenue would result in the greatest impact.

4.1.3 Floodplains

The Preferred Alternative has the potential to affect approximately 23.2 acres of existing 100-year floodplains, as quantified in Table 15. These quantities were determined by the estimated footprints of

cut and fill areas associated with project construction. Longitudinal crossings of floodplains, which create longer crossings along the length of the floodplain rather than crossing in the shortest perpendicular span, have been avoided because they would result in more floodplain fill, a reduction in water conveyance, and reduction in floodplain storage capacity.

Project Elements	Rock Creek	Sligo Creek	Northwest Branch	Paint Branch	Northeast Branch	Total
Transitway and Stations	0.80	1.4	6.4	4.5	10.0	23.1
Lyttonsville Yard	0	0	0	0	0	0
Glenridge Maintenance Facility	0	0	0	0	0	0
TPSS	0	0	0	0	0.1	0.1
Project Total	0.80	1.4	6.4	4.5	10.0	23.2

 Table 15.
 100-Year Floodplain Impacts per Stream System (Acres)

4.1.4 Groundwater and Hydrogeology

The majority of the Preferred Alternative, including the yard, maintenance facility and substations, would be constructed at-grade, and only minor changes to the movements of the shallow groundwater table likely would occur during site grading and construction. Where feasible, surface runoff will be directed to suitable outfalls through approved SWM facilities some of which provide environmental site design (ESD) stormwater management techniques as required by the Maryland Stormwater Management Act of 2007. In areas where this is not feasible, off site water quality mitigation will be identified. Any treated or untreated surface runoff will be released at suitable discharge velocities to prevent downstream erosive forces. The proposed tunnel would intercept groundwater within the underlying aquifers. With an expected maximum depth of 50 feet below existing grade, the tunnel could cause permanent, but localized, changes to groundwater flow patterns. The proposed tunnel would likely affect only local water movements and not the quantity or quality of groundwater. Impacts to recharge are not anticipated as recharge is highly variable within the aquifer because it is determined by local precipitation and runoff.

4.1.5 Aquatic Biota and Habitat

Impacts to aquatic habitats and species include loss of habitat from construction of infrastructure elements and the degradation of water quality resulting from construction and operation activities. The installation of proposed infrastructure elements, such as culvert extensions and closed drainage systems, would result in the permanent loss of approximately 5,183 linear feet of stream habitat. While some of these proposed improvements are being undertaken to address local drainage and flooding problems, the proposed activities could lead to direct loss of fish and other aquatic biota within the construction zone and would permanently alter the localized habitat. Northeast Branch would be affected when the in-stream piers of an existing bridge would be replaced with larger piers. Benthic organisms, such as macroinvertebrates, would be impacted by in-stream construction more so than fish, as they are relatively stationary. However, fish mortality is also a possibility as they can be trapped in pools during dewatering of the channel. Most of the species expected to be impacted are acclimated to disturbed settings and would be likely to recolonize temporarily disturbed areas, though the communities are unlikely to be identical to those present prior to construction.

4.1.6 Avoidance and Minimization

Waters of the U.S. and Wetlands

MTA has strived to avoid impacts to WUS and wetlands wherever possible through design solutions, including shifting the transitway alignment, adjusting construction work areas, and using retaining walls and ballast curbs to minimize the area of disturbance. The following measures are currently included in the design:

- Retaining walls along Veterans Parkway to minimize impacts to wetlands located north and south of the roadway and along the proposed Rock Creek trail connection to avoid direct impacts to Wetland GB-8
- Shifting the transitway alignment to the south side of Veterans Parkway to avoid the extensive tributary and wetland system associated with Brier Ditch
- Use of ballast curb, effectively creating a retaining wall condition, where the proposed transitway and the widened existing roadways would parallel stream and ditch edges to reduce horizontal encroachment into existing streams or ditches and minimize the overall LOD.

Floodplains

Several measures designed to minimize, restore, and preserve natural and beneficial floodplain values would be considered as the project design advances, including minimizing fill within the floodplain, returning disturbed areas to natural contours, using minimum grading requirements, reducing compaction, and minimizing vegetation removal.

Groundwater and Hydrogeology

Impacts to groundwater have been minimized, as much of the Preferred Alternative would occupy existing transportation rights-of-way and other paved surfaces. Stormwater runoff from these surfaces will be managed in accordance with MDE guidelines.

Aquatic Biota and Habitat

MTA has and continues to strive to avoid long-term water quality and quantity impacts to aquatic biota by minimizing the amount of new impervious surface associated with the transitway, yard, and maintenance facility. Where practicable, MTA has aligned the transitway and located associated facilities in areas of existing pavement and impervious surfaces, such as the Lyttonsville Yard site.

Project-related riparian impacts to a tributary to Paint Branch along Paint Branch Parkway, impacts to migratory fish species using the Paint Branch tributary, and stormwater discharge to Paint Branch were cited as concerns by the NMFS during the agency field review of the project on May 8th and 9th, 2012. In response to these concerns, MTA shifted this portion of the transitway south to minimize impacts to the riparian zone. In addition, the project has been designed so that stormwater associated with the transitway would not be discharged directly into the tributary of Paint Branch.

As part of project-wide avoidance and minimization efforts, the footprint of the Glenridge Maintenance Facility was shifted east to minimize impacts to a tributary of Brier Ditch.

MTA will continue to coordinate with the NMFS and other regulatory agencies as project design advances to identify measures to avoid or minimize:

- Creation of in-stream barriers that block migratory fish from upstream spawning ground
- Alterations of stream configuration, characteristics and hydrology
- Incremental changes to in-stream water quality from deforestation of the riparian zone

MTA will design proposed culverts and bridges to MDE standards to avoid or minimize secondary and cumulative impacts to migratory fish and to avoid alteration of habitat.

MTA will prepare a FCP, or similar, as the project design advances and will detail additional impact avoidance and minimization techniques to be applied during construction.

4.1.7 Wetland and Stream Mitigation Site Identification

Impacts to aquatic resources and those that cannot be minimized using practicable measures, require mitigation through mitigation banking credits, in-lieu fees, or permittee-responsible mitigation using a watershed approach that is the establishment/creation, enhancement, and preservation of aquatic resource functions.

Traditionally, mitigation requirements under Section 404 are determined by the ratio of wetland acres replaced to wetland acres lost as the result of project implementation. Emergent wetlands are typically mitigated on a 1:1 replacement basis, while forested and scrub-shrub wetlands are mitigated at a 2:1 ratio. The decision to replace function, acreage, or both, may be adjusted at the discretion of the USACE or MDE, depending on the quality of the affected resource and the practicability of the proposed mitigation.

Table 16 provides potential acreage impacts and requirements for wetland compensation based on typical replacement ratios.

Cowardin Class ¹	Wetland Acres Impacted	Wetland Acres Compensation Required (Replacement Ratio)
Palustrine Forested	0.52	1.04 (2:1)
Palustrine Emergent	0.25	0.25 (1:1)
Total	0.77	1.29

Table 16. Projected Wetland Compensation Ratios

The MTA will also mitigate for unavoidable impacts to streams and palustrine open water systems (POWs) by replacing affected functions, when feasible. The determination of mitigation measures for waterway and open water impacts by federal and state regulatory agencies typically considers the size, stream order, and location. Other mitigation measures, such as removal of fish blockages, riparian buffer enhancements, and water quality improvements, also may be required. Table 17 provides potential linear feet stream impacts and open water acreage impacts and requirements for stream mitigation based on typical replacement ratios.

Table 17. Projected Stream and Open Water Compensation Ratios

Cowardin Class ¹	Wetland Acres	Linear Feet Impacted	Compensation Required (Replacement Ratio)
R2/R4	N/A	5,152	5,152 (1:1)
POW	0.11	N/A	0.11 (1:1)

The compensatory mitigation package will be designed to fulfill the mitigation requirements, as well as meet the resource protection goals of natural resource agencies.

Anticipating the requirement for wetland and stream mitigation of unavoidable impacts, the MTA conducted a mitigation site search, which included the potential for contributing to an established wetland and stream mitigation bank, and simultaneously coordinated with reviewing agencies regarding potential mitigation, in accordance with the Mitigation Rule hierarchy. The mitigation banking organizations that MTA consulted with included EPA, USACE, and Ecotone, Inc. Currently, no active mitigation banks are located within, or near, the study area watersheds.

The project will be required to do permittee responsible mitigation to compensate for unavoidable wetland and stream impacts due to the general lack of approved wetland/stream mitigation banks. Payment into the MDE Wetland Compensation Fund is not an option as permittee mitigation is available and feasible.

A preliminary search was conducted to locate sites with the highest potential for wetland creation or restoration with emphasis on "in-kind" replacement, first on-site and then within specific sub-watersheds to be affected, or the larger watershed if on-site locations are not available.

Wetland Mitigation Site Identification

The mitigation site selection process focused on areas within the USGS-designated watersheds impacted by the project corridor. This designation is represented by Hydrologic Unit Codes (HUC) 02070010 -- Middle Potomac-Anacostia-Occoquan watershed and the Middle Potomac-Catoctin.

In addition to the sites previously identified in the DEIS, a desktop review was conducted in order to identify new sites, and in particular to locate potential sites within the Anacostia watershed. Additional sites were first located using the NRCS Soil Survey for Montgomery and Prince George's counties, USGS topographic maps, digital MDNR wetland inventory maps, digital USFWS national wetland inventory maps, Maryland Department of Assessment and Taxation property maps, and the online Watershed Resource Registry (WRR) developed by the EPA in partnership with other agencies. Land cover types and areas displaying characteristics of poor drainage were identified using Bing aerial photographs.

A windshield survey and then on-site investigations were performed for selected sites. Additional potential mitigation sites were selected based upon the following criteria: presence of hydric soils, hydrology, landscape position, vegetation, habitat and water quality, and potential constraints. These sites are summarized in Table 18.

Site ID	Watershed	County	Latitude/ Longitude	Location Description	Potential Creation (acres)	Existing Conditions
PL-AR-8	Anacostia River	Prince George's	38°52′11.07″N/ 76°52′42.82″W	Northeast of Forest Rd. and west of MD 704	0.70	This site consists of an open field located on the south side of Cattail Branch, a tributary of Beaverdam Run. This parcel has a wetland swale that bisects the site along the southern edge. The site currently exhibits a perched hydrology.
PL-AR- 21	Northwest Branch	Montgomery	38°58′28.82″N/ 77°06′11.33″W	South of the intersection of Hamilton Street and 40 th Avenue	0.95	This site is situated on the east side of an unnamed tributary of Northwest Branch. The existing bioretention pond could be expanded to include an area north of the pond that is currently a maintained open space. The bioretention pond appears to be at capacity for treating runoff of the adjacent parking lot as aerial photography shows the parking lot flooded at times.
PL-AR- 23	Northeast Branch	Prince George's	39°58′13.93"N/ 76°54′41.85"W	Southeast of the intersection of Kenilworth Avenue and Good Luck Road	1.42	This site consists of an abandoned parking lot located within the 100-year floodplain of Brier Ditch. The parking lot is flooded for most of the year due to groundwater seeps that flow into this area from the adjacent hillside. Common reed (<i>Phragmites</i> <i>australis</i>) is growing within the parking lot in several places.
PL-AR- 24	Northwest Branch	Prince George's	38°59′11.23″N/ 76°57′47.48″W	North of University Boulevard (MD 193), approximately 850 feet east of West Park Drive	2.13	This site is located within the 100-year floodplain of Northwest Branch of the Anacostia River. The site is currently being used as an archery range. Forested wetlands border the north and south sides of the site.
PL-RC-9	Rock Creek	Montgomery	39°04′02.00″N/ 77°06′12.10″W	West of Viers Mill Rd and southwest of Aspen Hill Rd., within "Parklawn Soccer Fields"	4.30	This site contains hydric soils and is adjacent to a large forested wetland. There is little elevation difference between the site and the forested wetland, so little grading would be necessary. A paved trail parallels the tree line along the southwest side of the site; this would need to be removed or relocated.
PL-RC- 74	Rock Creek	Montgomery	38°58′28.82″N/ 77°06′11.33″W	North of Oskaloosa Dr.	2.36	ICC RC-74. Potential exists at this site for stream restoration, wetland creation, wetland enhancement, riparian enhancement, and reforestation. Historically, the site hydrology was influenced by beavers and the floodplain was dominated by wetlands.

Table 18. Potential Wetland Mitigation Sites

Stream Mitigation Site Identification

The regulatory agencies target compensatory stream mitigation restoration projects to replace stream functions when feasible. In addition to stream channel improvements, mitigation measures for waterway impacts consider the size, stream order, and location of the stream to determine appropriate stream mitigation. Other mitigation measures such as removal of fish blockages, riparian buffer enhancements, and water quality improvements may be used at the agencies' discretion.

As for wetlands, the stream mitigation site-selection process focused on locating stream segments with the highest potential for restoration within the USGS-designated watershed impacted by the project corridor. This designation is represented by Hydrologic Unit Code (HUC) 02070010- Middle Potomac-Anacostia-Occoquan watershed within Montgomery and Prince George's counties. Under the State of Maryland watershed designations, the Purple Line project would impact 5,183 linear feet of intermittent and perennial streams and 0.09 acre of palustrine open water in the Rock Creek, Sligo Creek, Northwest Branch, Indian Creek, and Lower Beaverdam Creek sub-watersheds. However, mitigation for impacts to the 363 linear feet of ephemeral channels is not required by USACE or MDE, and is therefore, not included in the project estimate of required mitigation.

The twelve stream sites previously identified in the DEIS were narrowed down to 8 sites by removing sites that were entirely concrete-lined channels, and combining sites that were adjacent segments of stream. Since the Inter-County Connector (ICC) alignment crosses the same sub-watersheds as the Purple Line project, additional sites were identified from a list of ICC mitigation sites that were not carried forward for that project (SHA 2004). The list of potential mitigation sites for the ICC had been compiled in 2004 from published documents (previous mitigation site searches and watershed studies) and input from federal, state, and local agencies (SHA 2004). Emphasis was placed on first and second order streams, and potential mitigation sites were compiled in a database inventory (SHA 2004). The ICC mitigation database was revisited for potential Purple Line mitigation projects, and 21 stream mitigation sites that were located in the impacted watersheds but have not been pursued for ICC mitigation were considered for the Purple Line stream mitigation, for a total of 29 potential stream mitigation sites.

Evaluation of the potential mitigation sites has been performed through desktop analysis and on-site investigations. Potential stream mitigation sites were prioritized using the following criteria: bank erosion, floodplain condition, riparian vegetation, habitat and water quality, feasibility, additional benefits, and location.

A desktop assessment of site location was performed using GIS to determine 20% of the ranking score. Stream mitigation sites ranked high for location if they are close to the project alignment (less than 5 miles), located in the same sub-watersheds as the stream impacts, comprise headwater streams, and provide green infrastructure linkage.

The remaining 80% of the total stream ranking score was determined during a field visit. Stream sites that show severe bank erosion, are disconnected from the floodplain, or have poor existing in-stream habitat opportunities were scored high as potential restoration sites. The riparian vegetation criteria gives more points to sites located in urban or agricultural areas where additional riparian buffer could have significant water quality benefits, and sites that have an existing riparian forest will score low for riparian vegetation. Project feasibility was determined by construction access, and was rated on proximity to a public road. Sites within 500 feet or less of a public road scored the highest for feasibility. Additional points were added to sites that can provide benefits such as utility conflict resolution, fish passage restoration, or floodplain creation. All of these criteria (bank erosion, floodplain condition, riparian

vegetation, habitat and water quality, feasibility, and additional benefits) were evaluated through on-site observations during the field visit.

Each site was scored on both the field and desktop criteria, for a total of 100 points. The higher the total score, the more suitable the site is for potential stream mitigation. Site rankings may be further refined in the future to give preference to sites that can accommodate both stream and wetland mitigation at one location, or to sites that are located entirely on public property.

A total of seven sites were retained after the field investigations and are described in Table 19.

Site ID	Watershed	Sub- Watershed	County	Latitude/ Longitude	Location Description	Stream Length (Linear Ft)	Existing Conditions
AR-1	Anacostia	Lower Beaverdam Creek	Prince George's	38°55′42.43″N/ 76°53′39.36″W	South of MD 202 and east of US 50	300	This site consists of the mouth of Cattail Branch and its confluence with the mainstem of Lower Beaverdam Creek. Barriers to fish passage exist at both the box culvert under Landover Road and at the mouth of Cattail Branch, which is a concrete lined channel. A significant amount of channel and bank erosion is present at the confluence of Cattail Branch and Lower Beaverdam Creek.
AR-2, AR-3, AR-4, AR-8, AR-9	Anacostia	Lower Beaverdam Creek	Prince George's	38°52′11.07″N/ 76°52′42.82″W	East and West of the intersection Martin Luther King Jr. Highway	4,570	This site is associated with Cattail Branch, a tributary to Lower Beaverdam Creek. Several fish barriers exist along the corridor at road and utility crossings. Stream banks are vertical and eroding, particularly along park areas where there is little riparian buffer. Severe bank and channel erosion exists downstream of the culverts under Landover Road (AR- 2) and Barlowe Road (AR-9).
AR-21	Anacostia	Northwest Branch	Prince George's	38°56′58.20″N/ 76°57′06.55″W	South of Hamilton St., within Magruder Park	1000	This site is associated with an unnamed tributary of Northwest Branch. The stream channel exhibits some instability and moderate bank erosion due to historical straightening. Located within Magruder Park. Good opportunity for stream buffer reforestation.
AR-22	Anacostia	Lower Beaverdam Creek	Prince George's	38°56′10.33″N/ 76°54′16.42″W	Southwest of the intersection of Otis Street and Osborn Road	650	This site is associated with an unnamed tributary of Lower Beaverdam Creek. The channel is deeply incised and banks have severe erosion. Sewer infrastructure is exposed along the channel. The stream flows through an in-line stormwater pond along Otis Street, which is rapidly filling with sediment from upstream bank erosion.

Table 19. Potential Stream Mitigation Sites

Site ID	Watershed	Sub- Watershed	County	Latitude/ Longitude	Location Description	Stream Length (Linear Ft)	Existing Conditions
AR-23	Anacostia	Northeast Branch	Prince George's	39°58′13.93″N/ 76°54′41.85″W	Southeast of the intersection of Kenilworth Avenue and Good Luck Road	4,000	The mainstem of Brier Ditch is contained within a trapezoidal channel that has vertical unvegetated banks for most of its length. Some areas along the banks have been reinforced with concrete and stone, some of which, have fallen into the stream. Exposed sewer lines within the stream reach, exposed concrete pipes, and a fish blockage could all be restored and linked.
NW-49, NW-50	Anacostia	Northwest Branch	Mont- gomery	39°05′45.27″N/ 77°00′53.57″W	South of Stonegate Elem. and north of Bonifant Rd.	2,700	This site is associated with an unnamed tributary to Northwest Branch. The stream channel is disconnected from its floodplain and has bank stability conditions that are causing bank erosion, in-stream sedimentation, and loss of property. Based on 2003 data collected by SHA, the reach has poor habitat, a poor benthic community, and a poor fish community.
RC-74	Rock Creek	Rock Creek	Mont- gomery	38°58′28.82″N/ 77°06′11.33″W	Southeast of Redland Rd.	4106	Degraded channel with moderate bank erosion and fair instream habitat. Channel segment is located within a large floodplain corridor mostly vegetated by non-native grass species. Excellent opportunity to create forested wetlands connected to the stream channel.

Table19. Potential Stream Mitigation Sites (continued)

Results of Wetland and Stream Agency Field Reviews

Field reviews with the USACE and MDE were conducted on October 25, 2012 and November 28, 2012 to gain concurrence on the proposed wetland and stream mitigation sites. The materials distributed at the agency field reviews are included within Appendix F. Based on the comments from the USACE and MDE during the field review, some of the proposed wetland and stream mitigation sites were dropped from further consideration as detailed in the meeting minutes in Appendix E. Those wetland and mitigation sites moving forward are shown in Table 20. The potential mitigation sites total 6.05 acres of potential wetland mitigation and 16,560 linear feet of potential stream mitigation. The linear feet of potential stream mitigation does not factor potential mitigation credit for stormwater management (SWM) BMP opportunities associated with some sites.

Site Name	Site ID	Type of Mitigation	Potential Wetland Acreage	Potential Stream Length	Location	Watershed	Property Ownership
Cattail Branch	AR-2 AR-3 AR-4 AR-8 AR-9	Stream & BMP's		4,570 L.F.	Landover	Lower Beaverdam Creek	Public
	AR-8	Wetland	0.70 Acres				
Crabbs Branch	RC-74	Stream		5,360 L.F.	Pochvillo	Pock Crook	Public
	RC-74	Wetland	3.22 Acres		NUCKVIIIC	NUCK CIEEK	T UDIIC
Brier Ditch	AR-23	Stream & BMP's		4,000 L.F.	Riverdale	Northeast	Public/
	AR-23	Wetland	1.42 Acres			Branch	Private
Rolling Stone Tributary	NW-49 NW-50	Stream & BMP's		2,700 L.F.	Colesville	Northwest Branch	Public
Adelphi Manor Archery Range	AR-24	Wetland	2.13 Acres		Adelphi	Northwest Branch	Public
Total Mitigation Estimate:			7.47 Acres	16,630 L.F.			

Table 20.	Conceptual	Wetland and	d Stream	Mitigation	Sites
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4.1.8 Mitigation

MTA will mitigate project impacts to WUS, including wetlands, by complying with the Federal Compensatory Mitigation Rule (33 CFR Parts 325 and 40 CFR Part 230), as well as stipulations from federal and state resource agencies.

MTA will coordinate with the regulatory agencies to develop a project-wide compensatory mitigation strategy to offset impacts to wetlands and aquatic resources.

4.2 Short-Term Construction Effects

4.2.1 WUS and Wetlands

The following short-term effects have been preliminarily identified:

- An intermittent stream (WUS GB-2) located within the Columbia Country Club would be crossed during construction of the transitway.
- Approximately 101 linear feet of in-stream construction would occur within Rock Creek (WUS GB-6) to deconstruct, remove, and replace the existing bridge and bridge pier.
- Approximately 370 linear feet of stream diversions would result within the larger perennial streams, such as Northwest Branch (WUS 006) and Northeast Branch (WUS 018), to replace in-stream piers to widen existing bridges.
- Reconstruction of a vegetated stormwater management basin east of the intersection of East-West Highway and Veterans Parkway would affect 0.26 acre of a palustrine emergent wetland (W081) and 83 linear feet of an intermittent stream (WUS 082).

- Reconstruction of a vegetated stormwater management basin north of East-West Highway and west of Baltimore Washington Parkway would affect 0.09 acre of palustrine emergent wetland (W024) and 0.13 acre of palustrine forested wetland (W024), as well as 83 linear feet of an intermittent stream (WUS023).
- An impact of approximately 109 linear feet of an intermittent stream (WUS 038) would result north of Ellin Road to facilitate cleaning of existing culverts under Ellin Road and facilitate positive flow through the triple box culvert under the transitway south of Ellin Road.

4.2.2 Surface Water

Short term effects to surface waters would include physical disturbances or alterations to the ground surface over which water flows, accidental spills of construction materials, and sediment releases into the surface water that could affect aquatic life. Construction of the Glenridge Maintenance Facility could permanently affect up to 522 linear feet of streams associated with the Brier Ditch tributary system. The streams that currently flow within the proposed footprint of this Facility would be placed in closed drainage systems or relocated into adjacent culverts.

Short-term effects on designated scenic or wild streams would occur during construction when equipment is placed near stream banks or in-stream diversions are implemented during pier removal.

4.2.3 Floodplains

Short-term effects to the 100-year floodplains would occur during culvert and bridge construction, especially during the deconstruction, removal, and replacement of the existing Rock Creek bridge. Small negligible, approximately up to 6 inches, increases to the 100-year floodplain may result from the proposed configurations of the new culvert and bridge construction.

4.2.4 Groundwater and Hydrogeology

Construction of the Plymouth Street tunnel would have a short-term impact to localized groundwater resources as de-watering activities would be required to maintain a dry work zone. During construction, runoff would be directed to surface waters through sediment trapping and/or pumping facilities. Treatment of dewatering activities will be routed through filtering systems (dewatering basins, filter bags, portable sediment tanks, etc.) prior to discharge to surface waters.

4.2.5 Aquatic Biota and Habitat

Short-term impacts to aquatic biota and habitat resulting from project construction include physical disturbances or alterations to habitat, accidental spills either directly into water resources or indirectly through surface runoff, and sediment releases that could affect aquatic life. Earth-moving activities would expose soils that, if left in an unstable condition, could enter waterways during storms.

Increased sediment loads can destroy or damage fish spawning areas and macroinvertebrate habitat. An accidental sediment release in a stream can clog the respiratory organs of fish, macroinvertebrates, and the other members of their food web (Barrett 1995). Additional suspended sediment loads have also been shown to cause stream warming by reflecting radiant energy (CWP 2003). Many metal contaminants, bound to the small particles, are transported during accidental releases of sediment. Barrett (1995) found that the initial response to increased sedimentation due to construction was a reduction in numbers and species of fish and macroinvertebrates. This reduction in fish numbers in areas of siltation was generally reversed within 12 months of the cessation of construction activity. While sediment releases are possible

during construction, the potential for sediment related effects will be greatly minimized through the strict adherence to MDE approved sediment and erosion control plans.

MTA will provide for work area containment, use and storage of fuels and other potential contaminants, a spill management plan, and water quality and quantity controls to protect aquatic biota and habitat based on current regulations and project permit conditions, such as the project's MDE-approved plans for sediment and erosion control and stormwater management.

4.2.6 Avoidance and Minimization

MTA will minimize the area of disturbance to Maryland-designated wild and scenic rivers by clearly marking and fencing the work area and prohibiting activity outside the work area.

MTA will minimize the area of disturbance to Maryland-designated wild and scenic rivers by clearly marking and fencing the work area and prohibiting activity outside the work area. During construction, runoff will be directed to surface waters through stormwater management or treated as it is being infiltrated into the local groundwater through ESD stormwater facilities.

MTA will not undertake in-stream construction during state-mandated stream closure periods.

4.2.7 Mitigation

MTA will restore Sligo Creek approximately 180 feet upstream and 180 feet downstream of the project bridge to provide long-term benefits and enhance its inherent characteristics.

MTA will submit project plans to the MDNR for evaluation in compliance with the Maryland Scenic and Wild Rivers Act. MTA would provide mitigation if MDNR determines that the project would jeopardize the scenic value of the designated rivers.

MTA will perform hydraulic and hydrologic studies. If these studies find that the flood elevation would change, floodplain storage mitigation will be implemented, if required.

MTA will submit project plans to MDE for approval of structural evaluations, fill volumes, proposed grading elevations, structural flood-proofing, and flood protection measures in compliance with FEMA requirements, USDOT Order 5650.2, "Floodplain Management and Protection," and Executive Order 11988.

MTA will obtain applicable environmental permits for water resources.

MTA will develop an Erosion and Sediment Control Plan, in accordance with the Stormwater Management Act of 2007, which will specify proper slope and soil stabilization techniques, erosion and sediment controls, and stormwater management facilities.

MTA will restore and stabilize temporarily disturbed aquatic habitat at the end of construction according to a restoration plan developed in coordination with the USACE and MDE. The permits related to these activities, as well as the required MDE Waterway Construction permit, are intended to protect aquatic biota and water quality and ensure that the Preferred Alternative complies with federally-mandated water quality standards.

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Appendix A – List of Acronyms and Abbreviations

APPENDIX A

List of Acronyms and Abbreviations

ADA	Americans with Disabilities Act
BIBI	Benthic Index of Biotic Integrity
BMP	Best Management Practice
CBD	Central Business District
CDP	Census Designated Places
CLRP	Constrained Long Range Plan
COMAR	Code of Maryland Regulations
CWA	Clean Water Act
DC	Washington, DC
EPA	Environmental Protection Agency
ESD	Environmental Site Design
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Administration
FIBI	Fish Index of Biotic Integrity
FIRM	Federal Insurance Rate Maps
HUC	Hydrologic Unit Code
ICC	Inter-County Connector
LOD	Limit of Disturbance
LRT	Light Rail Transit
MGS	Maryland Geological Survey
MARC	Maryland Area Regional Commuter
MBSS	Maryland Biological Stream Survey
MCDEP	Montgomery County Department of Environmental Protection
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
M-NCPPC	Maryland-National Capital Parks and Planning Commission
MSHA	Maryland State Highway Administration
MSRA	Management Reauthorization Act
MTA	Maryland Transit Administration
MWCOG	Metropolitan Washington Council of Governments
NSDWR	National Secondary Drinking Water Regulations
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PFA	Priority Funding Areas
PGDER	Prince George Department of Environmental Resources
PHI	Physical Habitat Index
POW	Palustrine Open Water
RHAB	Rapid Bioassessment Protocols
SNE	Significant Nexus Evaluation

SSTC	Silver Spring Transit Center
SWM	Stormwater Management
TOD	Transit Oriented Development
TMDL	Total Maximum Daily Load
TNW	Traditional Navigable Waterway
UMD	University of Maryland
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMATA	Washington Metropolitan Area Transit Authority
WQL	Water Quality Limited
WRR	Watershed Resource Registry
WUS	Waters of the United States

Appendix B – Glossary/Terminology

APPENDIX B

Glossary/Terminology

Anadromous: pertaining to fish that spend a part of their life cycle in the sea and return to freshwater streams to spawn.

Anthropogenic: induced or altered by human activity.

Aquifer: a water bearing rock, rock formation, or group of rock formations.

At-grade: a junction at which two or more transport axes cross at the same level (or grade).

Below-grade: recessed below ground level.

BIBI: Benthic Index of Biotic Integrity. An index that compares the macroinvertebrate community within a given stream to reference macroinvertebrate communities in the least-impaired streams using a series of metrics.

Capital Crescent Trail: the existing paved trail between Bethesda and Georgetown. When the trail alongside the Purple Line is built, the Capital Crescent Trail will extend all the way from Silver Spring to Georgetown.

Catadromous fish: fish that live most of their lives in freshwater, but migrate to seawater to spawn. American eels are catadromous.

COMAR: Code of Maryland Regulations. The official compilation of all administrative regulations issued by agencies of the state of Maryland.

CWA: Clean Water Act. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

Conductivity: a measure of the ability of water to conduct an electric current. It is related to the type and concentrations of dissolved ions in the water.

Dissolved oxygen (DO): the amount of free (not chemically combined) oxygen dissolved in water, wastewater, or other liquid, usually expressed in milligrams per liter, parts per million, or percent of saturation.

Endangered: an organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.

Ephemeral stream: a stream with flowing water only during and for a short duration after precipitation events in a typical year. Groundwater is not a source of water for the stream.

Epifaunal : "epi" means surface, and "fauna" means animals. Thus, "epifaunal substrate" are structures in the stream (on the stream bed) that provide surfaces on which animals can live. In this case, the animals are aquatic invertebrates (such as aquatic insects) or benthic fish species. These insects live on or under cobbles, boulders, logs, and snags, and the many cracks and crevices found in these structures. In general, older decaying logs are better suited for insects to live on/in than newly fallen "green" logs and trees.

FEMA: Federal Emergency Management Agency. FEMA has ten regional offices, and two area offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet needs when major disasters occur.

BIBI: Benthic Index of Biotic Integrity. An index that compares macroinvertebrate communities within a given stream to reference fish communities in the least-impaired streams using a series of metrics.

FIBI: Fish Index of Biotic Integrity. An index that compares the fish community within a given stream to reference fish communities in the least-impaired streams using a series of metrics.

FIRM: Flood Insurance Rate Maps. Maps produced by the Federal Emergency Management Agency (FEMA) to determine the locations of flood risks and hazards.

Floodplain (100-year): the area adjacent to a stream that is on average inundated once a century.

Geographic information system (GIS): a computer system capable of storing and manipulating spatial data.

Groundwater: subsurface water and underground streams that can be collected with wells, or that flow naturally to the earth's surface through springs.

Groundwater recharge: increases in groundwater storage by natural conditions or by human activity. See also artificial recharge.

Georgetown Branch right-of-way: the land adjacent to the CSX railroad between Bethesda and Silver Spring (where the trail is today) that was dedicated to a future transit project.

Georgetown Branch interim trail: the crushed stone trail existing today in the Georgetown Branch right-of-way.

Headwater: is the furthest place in a stream from its estuary or confluence with another stream, as measured along the course of the stream.

Intermittent stream: streams that have flowing water during certain times of the year. Groundwater driven; runoff from rainfall or snowmelt is a supplemental source of water.

Limit of Disturbance: the boundary within which construction, materials storage, grading, landscaping, and related activities shall occur.

Maryland Area Regional Commuter: a regional/commuter rail system consisting of three lines in the Baltimore-Washington Metropolitan Area.

Macroinvertebrate: invertebrates visible to the naked eye, such as insect larvae and crayfish.

Maryland-National Capital Parks and Planning Commission: leaders who plan for orderly development and the protection of natural resources in Maryland's two suburban counties bordering the District of Columbia.

Maryland State Highway Administration: the state agency responsible for maintaining numbered Maryland highways outside of Baltimore City.

Maryland Transit Administration: the state-operated mass transit administration in Maryland; part of the Maryland Department of Transportation.

Maryland Department of Natural Resources Third Order Watersheds: statewide watershed designation using Strahler's (Strahler 1952 p. 1120) third order stream classification.

Metropolitan Washington Council of Governments: a regional organization of consisting of 21 local governments in the Washington Metropolitan Area, as well as members of the Maryland and Virginia state legislatures, the US Senate, and the US House of Representatives.

Metrorail: the rapid transit system in Washington, DC, and its surrounding suburbs.

Mitigation: efforts to reduce or compensate for adverse impacts.

National Environmental Policy Act: a United States environmental law that established a national policy promoting the enhancement of the environment; also established the President's Council on Environmental Quality (CEQ).

No Build: the baseline against which the environmental and community impacts of the Preferred Alternative are compared; consists of the transit service levels, highway networks, traffic volumes, and demographics forecasted for horizon year 2040.

Perennial streams: streams that flow year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow.

pH: the negative logarithm of the molar concentration of the hydrogen ion, or, more simply acidity.

Preferred Alternative: the build alternative that is studied in detail in the FEIS (this alternative is a modified/refined/updated version of the Locally Preferred Alternative).

Purple Line corridor: the general area between Bethesda and New Carrollton.

Relatively permanent: streams that flow year-round or have a continuous flow at least seasonally (typically three months).

Relocation: to move/change to a new place.

Right-of-way: legally granted access for the use of property.

Riprap: rock or other material with a specific mixture of sizes referred to as a "gradation," used to stabilize streambanks or riverbanks from erosion or to create habitat features in a stream.

Scenic and Wild River: a river that possesses outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value(s).

SNE: Significant Nexus Evaluation. A significant nexus evaluation (SNE) assesses the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs. As a matter of policy, not law, the USACE requires performing a SNE on all intermittent non-navigable (not perennial) tributaries and their adjacent wetlands, even if the tributary's flow may be relatively permanent.

Spawning: the depositing and fertilizing of eggs (or roe) by fish and other aquatic life.

Study area: the geographic extent that is examined to assess impacts.

TMDL: Total Maximum Daily Load. A regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

TNW: Traditional Navigable Waterway. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

Transit Center: a sheltered waiting area where multiple mass transportation routes converge; there are two on the alignment, the Silver Spring Transit Center and the Takoma/Langley Transit Center.

Turbidity: an optical measure of the clarity of water by light scattering from suspended and dissolved constituents in the water column.

Waters of the U.S.: all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate "wetlands"; All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters.

Wild and Scenic River: certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

WQL: Water Quality Limited Segment. Portions of streams that are considered impaired by analyzing a wide variety of water quality monitoring data, including chemical grab samples, in situ measurements, continuous measurements, and biological data. After listing a stream as a WQL in Category 5 of the Integrated Report, the state is required to prioritize each waterbody's need for TMDL development.

Wetlands: those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.
Appendix C – Wetland Function-Value Evaluation Form

Wetland Function-Value Evaluation Form

Total area of watland 23 4 Uuman mode?			and next of a wildlife comider?	V	an a Whatsiata dug. Al	Wetland I.D. $D - GBS$
acres	IS	s wetta	and part of a whenthe corridor?	_7		Latitude Longitude
Adjacent land use <u>Commercial</u> , forest, r	resid	entic	J Distance to nearest road	way or	r other development_ad	Prepared by: DWR Date 2-14-12
Dominant wetland systems present <u>PFO PSS</u> Contiguous undeveloped buffer zone present <u>N</u>						Wetland Impact: TypeArea
Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? $lower portion$					Evaluation based on:	
How many tributaries contribute to the wetland? Wildlife & vegetation diversity/abundance (see attached list)					Corps manual wetland delineation	
	Suita	abilit	y Rationale P	rinci	pal	
Function/Value	<u> </u>	N	(Reference #)* F	uncti	on(s)/Value(s) Co	omments
Groundwater Recharge/Discharge			7,8,9,10,13,15		only 6/14 qualifiers met,	but wetland is definitely
	\checkmark		1, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14, 15, 18		13/18	
Fish and Shellfish Habitat					no permanent aquatic	habitat
Sediment/Toxicant Retention	1		1,2,3,4,7,8,9,10,14,15,16	1	11/15	· · · · · · · · · · · · · · · · · · ·
Nutrient Removal			1, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14,		13/14	
Production Export	\checkmark		1,2,3,4,5,7,8,10,11,12,13	\bigvee	11/14	
Sediment/Shoreline Stabilization		\checkmark	3, 8, 9, 13, 15		5/15 - wetland does	not border assoc. water course
🖢 Wildlife Habitat	\checkmark		3,5,6,7,8,9,11,13,15,18,	\checkmark	13/21	
A Recreation	\checkmark		1,4,5,7,11,12	\checkmark	6/12	
Educational/Scientific Value	\checkmark		2,4,5,10,11,13,		6/16	
📩 Uniqueness/Heritage	\checkmark		1,5,6,7,8,10,11,12,13,14, 15,16,17,19,22,27		16/31	
Visual Quality/Aesthetics			1,2,3,4,5,8	\checkmark	6/12	
ES Endangered Species Habitat		/				
Other			•		95/151 of total quality	iers met of principal functions/
· ·					* D - C - L - 1	1 list of the sources

Notes:

*

Refer to backup list of numbered considerations.

	Ţ	Wet	tland Function-Va	alue	e Evaluation Form	
Total area of wetland $\frac{740}{acres}$ Human made? N	ر	s wet	land part of a wildlife corridor?_	Y	or a "habitat island"?N	Wetland I.D. W-60 Latitude Longitude
Adjacent land use residential, road, p)ane	rlin	<u><i>Q</i></u> Distance to nearest road	dway o	or other development adjacent	Prepared by: DWR Date 12-129/11
Dominant wetland systems presentPFO			Contiguous undevelop	ed buf	fer zone present <u>N</u>	Wetland Impact: TypeArea
Is the wetland a separate hydraulic system? \square		_ lf ı	not, where does the wetland lie in	the d	rainage basin?	Evaluation based on:
How many tributaries contribute to the wetland?	1		_Wildlife & vegetation diversity/	'abund	lance (see attached list)	Office Field Corps manual wetland delineation
Eurotics (Volus	Suit	abilit	ty Rationale	rinci	ipal	completed? Y N
		<u>1 N</u>	$(\text{Reference } \#)^{\star}$ I	unct	$\frac{10n(s)}{value(s)}$ Co	omments
Groundwater Recharge/Discharge					5/14	
Floodflow Alteration	/		1,4,5,6,7,8,9,10,11,13,	1	14/18	
Fish and Shellfish Habitat		1			wetland is terrestr	al habitat
Sediment/Toxicant Retention	\checkmark		1,4,7,8,9,10,12,14,15, 16	1	10/15	
Nutrient Removal	\checkmark		1,3,4,6,7,8,11,12,13	1	9/14	
Production Export	\checkmark		1,2,3,5,7,8,10,11,12, 13	\checkmark	10/14	
Sediment/Shoreline Stabilization	\checkmark		1,3,6,8,14		5/15	
• Wildlife Habitat			1,3,6,7,8,11,13,15, 18 19 20,21	\checkmark	12/21	
Recreation			4, 5, 7, 12		4/12	
🚝 Educational/Scientific Value	\checkmark		2,3,4,5,9,10,11,13,		8/16 - not a princ	cipal function, must be >50%
Tuniqueness/Heritage	\checkmark		1, 4, 5, 7, 8 , 10, 11, 12, 13, 14, 15, 16, 17, 1 9, 22, 27,	\checkmark	16/31	
Visual Quality/Aesthetics	\checkmark		1,2,3,4,6,8,9,	1	7/12	
ES Endangered Species Habitat		\checkmark			no ES known to oc	cur in welland
Other					only a small portion	of wetland resides within
Notes:					study area * Refer to bac	kup list of numbered considerations.

		We	tland Function-Va	lue	Evaluation Form	
Total area of wetland ~ 1.5 Human made?	1	Is wet	land part of a wildlife corridor?	N	or a "habitat island"? \forall	Wetland I.D. W-37, W-67
Adjacent land use rai road vesider	tial	0	ad Distance to nearest road	lwov (other development of discard	Latitude Longitude Prenared by: DUR Date 12-22-11
Dominant wetland systems present PEM/P	01)	1	Continuous undeveloped	iway (Wetland Impact:
Is the wetland a senarate hydraulia system?		LC.	Contiguous undeverope	54 041		TypeArea
How mony tributories contribute to the order 10	1	_ пл	not, where does the wetland lie in	the di	rainage basin? <u>UPPC</u>	Evaluation based on: Office Field
now many indutaries contribute to the wetland?	<u> </u>		_Wildlife & vegetation diversity/	abund	ance (see attached list)	Corps manual wetland delineation
Function/Value	Suit Y	abili N	ty Rationale P (Reference #)* F	rinci unct	pal ion(s)/Value(s) Co	omments
Groundwater Recharge/Discharge	/	<u> </u>	4, 7, 8, 9, 15, 16		6/14	
Floodflow Alteration	\checkmark		2,3,4,5,6,7,8,9,10,11,13, 15 16	1	13/18	
Fish and Shellfish Habitat	5		7, 9, 10, 17		4/17	
Sediment/Toxicant Retention			1,2,3,4,5,7,8,9,10,11,12	\checkmark	15/15	
Nutrient Removal	V		2, 3, 4, 5, 7, 9, 11, 12, 13, 14, 15	1	11/14	
Production Export	1		1,2,12		3/14	
Sediment/Shoreline Stabilization	V		3,4,6,8,12,13,15	e	7/15	
• Wildlife Habitat	\checkmark		3, 8, 1, 10, 11, 18, 19,		7/21	
Recreation		\checkmark	10,11,12,		3/12	
Educational/Scientific Value			9, 10, 12, 13,		4/16	
🜟 Uniqueness/Heritage			1,5,6,8,10,12,13,14,15, 16,17,19		12/31	
<₩≯ Visual Quality/Aesthetics	/		1,2,3,4,6,9,12	\int	7/12	
ES Endangered Species Habitat		\checkmark			no ES occur within	n wetland
Other					appears to be a	mitigation site

Notes:

* Refer to backup list of numbered considerations.

Appendix D – Wetland Determination Data Forms and Stream Features Field Sheets

Stream Features
Date: 11-30-11 Project Site: PUVOL UN WUS #. Wahl
Observer(s) B6-, F15
Stream Flow: Perennial: Intermittent Ephemeral Ephemeral
Gradient: 2170 Classification: PHSB5 Classification:
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X
Explain: MUMELIZCO
Channel Has (check all that apply):
OHWM E Wered clear, natural line impressed on the bank changes in character of soil changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition sediment deposition water staining the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Morphology: Avg. Channel Width <u>7.5'</u> Depth <u>4</u> Avg. Water Depth <u>0.5'</u>
Has stream morphometry been altered? <u>LIPS</u> Describe :
Habitat and Pollutants: Substrate (predominant type (s)):
Habitat Complexity (characterize):
Bank Erosion: Severe Moderate Minor
Describe: <u>Slumpinu</u>
Silt Deposition:
Pollutants (observation / potential sources): 10.000 0.00000000000000000000000000000
Stormwater Outfalls: 1 10 - 2

Other Environmentally-Sensitive S	pecies	Aquatic/V	Vildlife Diversity
Explain Findings:			6 1
		<u> </u>	
Biparian Zone:			1660 BAS
Development: <u></u>	mmercia	l	15 14
Riparian vegetation: F	orest	Shrubs	Herbs
Dominant Species: But	NOOD	s - 1 (950) - 1213 (971) S - 1	
		10	
Riparian Buffer Width:/	5	140	and Mark 12, each of the long
Approximate % Shading by W	oody Species:	15%0	
Notes:	AH)	nogi njevi tilevit	anna dia may s
			and the
said. Konfill vieweri liksa	1048	1997-9 1997-9	
			· · · · · · · ·
		a second	
			is early the mount of a summary.
			Softe 65

Stream Features Field Sheet
Date: 11-30-11 Project Site: Purple Line WUS #: Wg61
Observer(s) B6, HS
Stream Flow: Perennial: Intermittent Ephemeral
Gradient: 1% Classification: RAVB1/2
Channel Characteristics: Natural X Artificial (man-made) Manipulated (man-altere <u>d)</u>
Explain:
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width (0) Depth 5 Avg. Water Depth // Has stream morphometry been altered? 1/25 Describe :
(Married 7 col velor ran)
Substrate (predominant type (s)):
Habitat Complexity (characterize):
Bank Erosion: Severe Moderate Minor X
Describe:
Silt Deposition: MINOV
Pollutants (observation / potential sources): <u>fruit run d</u> ff
Stormwater Outfalls:

	sucrany Listen species		орамп Люаз <u></u>
Other Environme	ntally-Sensitive Species	Aquatic/W	ildlife Diversity
Explain F	indings:		<u>t</u> in the
	v		We P ²¹ true
Riparian Zone: Develo	pment: resilent	sal	- Top Right
Riparian vege	atation: Forest	Shrubs	Herbs
Dominant S	pecies: Juck wal	nut, bush	hiney sudelly
Ac	er rubrum	1	J.
Riparian Buffe	r Width: 100 /	, <u>1</u> 22,	10 - 10 1 1 - 10 - 1 - 10 - 10 - 10 - 1
	Shading by Woody Species:	50%	
Notos:			
NOTES:			
		7-14	
			stilundi 18 - And I an a Alm Standard (
			n an an an a' start a
	×		

Stream Features Field Sheet
Date: 7-12-02 Project Site: Purple Line WUS#: GP-2
Observer(s) $BG \rightarrow SW$
Stream Flow: Perennial:IntermittentEphemeral
Gradient: $< \%$ Classification: $R4565$
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain: likely manipulated during golf course construction
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris
Morphology: Avg. Channel Width <u>8</u> Depth <u>3.5</u> Avg. Water Depth <u>21</u> " Has stream morphometry been altered? <u>ye5</u> Describe: <u>culverted under</u> <u>trail 7 piped into pond to the south</u>
Habitat and Pollutants: Substrate (predominant type (s)): <u>Organi C</u>
Habitat Complexity (characterize): very low, lack of stable habitat
Bank Erosion: Severe Moderate Minor
Describe:
Silt Deposition:
Pollutants (observation / potential sources): none observed, but nutrient
loads probably excessive
Stormwater Outfalls: DON P

er Environmentally-Sensitive Species	Aqua	atic/Wildlife Dive	sity
Explain Findings			5 (<u>19</u> (\$) Years
			NI-612- 2010
Development: Colum	ibia Country (lub-golf	Course
Riparian vegetation: Forest	/ Shrubs	tenst Herationalitera	erbs
Dominant Species: Meine	ained lawn	ana an t	Jan I an ac
		i Administrative the design	analahatha mada
inarian Buffer Width: 10 (1) 4		1.010102.010101010	She wa T
provimete % Sheding by Weedy St	54		MMHQ
Network	recies. <u>~</u>		A STREET
Notes:		HAR FLORE LOOK	And
The Contract of the State of the State			
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n seperater			
is <u>na bha chteac</u> an an			

Stream Features Field Sheet
Date: 11-30-11 Project Site: Phyple like wus #: wgb3
Observer(s) Bb, HS
Stream Flow: Perennial: Intermittent Ephemeral Quice 6.211
Gradient: 41/0 Classification:
Channel Characteristics: Natural X Artificial (man-made) Manipulated (man-altered)
Explain:
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>3</u> Depth <u>4</u> Avg. Water Depth <u>2</u> "
Has stream morphometry been altered?
Channelized under bridge.
Habitat and Pollutants: Substrate (predominant type (s)): growel Sand
Habitat Complexity (characterize):
Habitat Complexity (characterize): <u>MMMal - leaf pocks</u>
Habitat Complexity (characterize):
Habitat Complexity (characterize):MMMal - leaf polls
Habitat Complexity (characterize): MMMal - leaf polls
Habitat Complexity (characterize):

Biological Habitat For (chech all that apply): Federally Listed appecies	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	1 (1)(***)
	51. POM E (12.
Riparian Zone: Development:	/ vegilentral
Riparian vegetation: Forest <u> </u>	Shrubs <u> </u>
Dominant Species: Box elder,	Bush honeysudde
	•
Riparian Buffer Width: 750'	al fairt faith prairies and start provide
Approximate % Shading by Woody Species:	80.%
Notes:	
1781 H. (M.) 1	

)
Stream Features Field Sheet	$(1 + 1) \in \mathbb{C}^{n}$, $f \in [1 + 1] \in \mathbb{C}^{n}$, $f \in \mathbb$
Date: 11-30-11 Project Site: PUVALE LINE	wus #: Waby
Observer(s) BG, HS	agai 11 yaa maga taas
Stream Flow: Perennial: Intermittent Ephemeral Gradient: Classification:	R45B3 4
Channel Characteristics: Natural Artificial (man-made)	_Manipulated (man-altered)
Explain:	
Channel Has (check all that apply):	
 OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris Discontinuous OHWM (explain): 	destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list):
Morphology: Avg. Channel Width <u>S</u> Depth <u>3</u>	Avg. Water Depth'
Has stream morphometry been altered? $\underbrace{\mathcal{N}_{\mathcal{D}}}$	Describe :
Habitat and Pollutants: Substrate (predominant type (s)): Grovel/Sand	,
Habitat Complexity (characterize):Mh.m.al	moderate_
undercut banks, not	wads
Bank Erosion: Severe Moderate	Minor
Describe: <u>Slumping</u>	
Silt Deposition: MOILeraile	
Pollutants (observation / potential sources):	
Stormwater Outfalls:	

Federally Listed species	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	and an and a start of the second s
	per l'an-
Riparian Zone: Development: <u>Regidential</u>	
Riparian vegetation: Forest	Shrubs <u> </u>
Dominant Species: Tully Poplar,	box elder, honey suddle
Riparian Buffer Width: 750°	lųt − s industry veneriai per industry.
Approximate % Shading by Woody Species:	SO /2
Notes:	
	- 126
*	
	atriat se a ratificante mana de la composition de la composition a
	and the second sec

Stream Features Field Sheet
Date: 7-10-D2 Project Site: Puple Line WUS#: GB-6
Observer(s) <u>5</u> . Williamon
Stream Flow: Perennial:IntermittentEphemeral <u>R2UB1</u>
Gradient: 1% Classification: R
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain: <u>straightened</u> under bridge w/ bridge pier in center Channel Has (check all that apply): Bed and Banks
OHWM Clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil thre presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>60</u> Depth <u>5</u> Avg. Water Depth <u>12-24</u> " Has stream morphometry been altered? <u>YES</u> Describe : <u>straightened</u>
Habitat and Pollutants: Substrate (predominant type (s)):
Habitat Complexity (characterize): deep pools, but Few areas with
<u>stable cover + riffle sequences - average</u> Bank Erosion: Severe Moderate Minor
Describe: Some areas are salore
Silt Deposition: heavy throughout
Pollutants (observation / potential sources): <u>stormwater runoff, sewer</u> leak likely
Stormwater Outfalls: none observed

	Sensitive Species	Aquatic/Wildlife Divers	tv
Explain Findir	ngs:		00
	1.800 P.1		2000 Contract
	A CONTRACTOR OF TENENDED		PS (15 db /
parian Zone: Developm	ent: parkland, hike	er/biler trail on	LB
Riparian vegetati	on: Forest	Shrubs	os V
Dominant Speci	es: <u>tuliotree</u> , green	ash. Am. elm. r	ed manle.
Am.	Juamore	(Vietabetist ihr)	
iparian Buffer Wi	dth: ~1000 ft in <-	hide area	line rab
pproximate % Sh	ading by Woody Species: ~//	9%	- V (
Notes:		Ren declara 2	- 4411. T
		meanlest, it is the termination	
atos o aceso. glic	na trela a katan kanda	an Balants ()	10 SH2
		terreing warte of atter intel fabric	1.00xx1 001
		(malaxin MV-Fit alor	
N.S. I. N			
			stollan bas istidst
	tourre	nts udda (0) earling	Habiter and Polluta Subplicite"(, autor
	Lower p	nts Le ut type (a): the standation of the	Habiter and Palluta Substrate"(, autor Habitet Complement
	Lower p and that does	nts hr at type (a) <u>a blue</u> the at type (a) sharacten <i>t</i> e) <u>die at 1</u> h	Habitat and Politita Substrate"(, autor Habitat Complexity I -
	Lower p San Land And And San Land And San Lands	nts Ir al type (a) <u>al Bary</u> State (a) <u>al Bary</u> State (a) <u>bary</u> State (a) <u>bary</u>	Habitar and Politita Subcrate"(, autom Habitat Complement
	Lower p South that for any south that any south that the south	nts Ir at type (a) shara tenzer Searce Searce	Habitar and Pallota Subplicts"(, autom Habitat Complume , 1 , 2000 complume , 2000 complete , 2000 complete , 2000 complete
	Lower Lower	nts In at type (a) <u>a b b b b</u> stratoutence) <u>de a p</u> Se and Se and Se and <u>se a</u>	Habitar and Pallota Subplicts (, and an Habitat Completion - - - - - -

			Wyb9
WEILAN	ID DETERMINATION DATA H	-ORM – Eastern Mo	untains and Piedmont
Project/Site: Purble Li	City	County: Monta	omen Sampling Date: 1-26-
Applicant/Owner: MTA			State: MOL Sampling Point: WITP8
Investigator(s): BG AT	Sec	tion Township Range:	
andform (billslops, torrase, ota);	-lood algun loogly	collef (concerve, convex, be	mal: NOTAR Signa (91): L
Subsection (Initistope, terrace, etc.).	LUCATI	eller (concave, convex, no	
Subregion (LRR or WILRA): <u>710 V</u>	Cod mark Gift 100		
			NWI classification:
Are climatic / hydrologic conditions or	the site typical for this time of year?	Yes <u>~</u> No	(If no, explain in Remarks.)
Are Vegetation, Soil,	or Hydrology significantly dist	urbed? No Are "Norma	al Circumstances" present? Yes 🖄 No
Are Vegetation, Soil,	or Hydrology naturally problem	matic? No (If needed,	explain any answers in Remarks.)
SUMMARY OF FINDINGS -	Attach site map showing sa	mpling point locati	ons, transects, important features, e
Hudrophytic Veretation Dresont?	V-V No		
Hydrophytic Vegetation Present?		is the Sampled Area	
Wetland Hydrology Present?		within a Wetiand?	Yes <u> </u>
Remarks:			
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)
	True Aquatic Plants	s (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide C	Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizosph	eres on Living Roots (C3)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Recent Iron Reduc	tion in Tilled Soils (C6)	Cravfish Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface	(C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in R	temarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)			Geomorphic Position (D2)
Inundation Visible on Aerial ima	agery (B7)	85¥ — II	Shallow Aquitard (D3)
Water-Stained Leaves (B9)			Microtopographic Relief (D4)
Aquatic Fauna (B13)	na la regina possi 1		FAC-Neutral Test (D5)
Field Observations:	Providence and the second	01	
Surface Water Present? Yes	No Depth (inches):	0.5	
Water Table Present? Yes	No Depth (inches):	D	×
Saturation Present? Yes (includes capillary fringe)	No Depth (inches):	Wetland	Hydrology Present? Yes No
Describe Recorded Data (stream ga	auge, monitoring well, aerial photos, p	previous inspections), if av	ailable:
Remarks:	- 20 Ger - 44		
		Dine Summe	

 $\mathbb{C}_{\mathbf{k}}$

VEGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling Point: WVV 87
the second secon	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	20	Species?	ACL	Number of Dominant Species
1. Tranvilles for our round	20	<u> </u>	PRUN	That Are OBL, FACW, or FAC: $- \frac{1}{7}$ (A)
2. Mer Viegunar	15	<u> </u>	PAC	Total Number of Dominant
3. Junis americana	<u>25</u>	1	FACW	Species Across All Strata: (B)
4		,		Barrowst of Dominant Species
5				That Are OBL FACW or FAC:
6		<u> </u>		
7			1.5.1.1	Prevalence Index worksheet:
8. and the second s	3	= <u>4</u> K		Total % Cover of: Multiply by:
	FD	= Total Cov		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:		- 10(a) CO		FACW species x 2 =
1. Centalanthus, or cillentalis	.30	Y	DDL	FAC species x 3 =
2 HOAN MORINAR	5	<u> </u>	FAC	FACIJ species x 4 =
2	- Simole	diar -		
3	Liber and			
4				(B)
5				Prevalence Index = B/A =
6	·			Hydrophytic Vegetation Indicators:
7				
8				
9				V 2 - Dominance Test is >50%
10.				3 - Prevalence Index is ≤3.01
Harb Stratum (Plat size:	35	= Total Cov	/er	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 trunda (25	Y	NBI	Problematic Hydrophytic Vegetation ¹ (Explain)
1. IN WOOD IN TRUIT	45		CAV.	ne de la contra de la contra contracto de la co
2. UNALL AMAGANACCA			PILW	¹ Indicators of hydric soil and wetland hydrology must
3. Kolyuonuun Santatum	<u>70</u>	<u> </u>	ODL	be present, unless disturbed or problematic.
4	ne -	0.155040530	and parts	Definitions of Four Vegetation Strata:
5	-0-	- train	yê li lê ci w	en
6	204- 25al-	10 per	R rol	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7. HORE and Read a first ty will be a set		6	the same	height
8 TOLES "I softward break from a second	1	ns. In	nation of the	Por sector and the sector sect
0				Sapling/Shrub - Woody plants, excluding vines, less
a				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb - All herbaceous (non-woody) plants, regardless
11	·	<u> </u>	——	of size, and woody plants less than 3.28 ft tall.
12				
	110	= Total Cov	/er	beight
Woody Vine Stratum (Plot size:)				
1				The second
2	_			the division of the second second
3.	e Densam	villian 2	กินชาติก แ-	Designed the provide the second statement and and
4				
5				Hydrophytic Vogetation
6.				Present? Yes No
		= Total Cov		N. N.
Pamarka: (Include photo numbers here or on a constate a				
remarks. (include photo numbers here of on a separate s	meet.)			

1.200

SOIL

4

Sampling Point: 10178-

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)				
Depth Matrix Redox Features				
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture Remarks		
0-6 108R4/2 90	7,54R416 10 CM	310		
10-12 MIYD 512 75	7 GYRULL 26 0 m	507		
		<u> </u>		
12- 100KD 00	+.54R46 40 C 0V	510		
<u> </u>				
	<u>M</u>			
¹ Type: C=Concentration D=Depletion RM=R	educed Matrix MS=Masked Sand Grains	² Location: PL=Pore Lining M=Motrix		
Hydric Soil indicators:		Indicators for Problematic Hydric Soils ³		
Histosol (A1)	Dark Surface (SZ)	2 am Music (Ado) (MLDA 447)		
Histic Eninedon (A2)	Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)		
Black Histic (A3)	This Dark Surface (S0) (MLRA 147, 149)			
Hydrogen Sulfide (A4)	Loamy Gloved Matrix (E2)	(IVILKA 147, 146) Diadmont Floodalaia Saila (F10)		
Stratified Lavers (A5)	Loaning Gleged Matrix (F2) Deploted Matrix (F2)			
2 cm Muck (A10) (I PP N)	Bodov Dark Surface (F6)	(IVILKA 130, 147)		
Depleted Below Dark Surface (A11)	Redox Dark Surface (F0)	Red Parent Material (TF2)		
Thick Dark Surface (A12)	Depleted Dark Suilace (F7)	Very Shallow Dark Surface (TF12)		
Sandy Mucky Mineral (S1) (LPP N	Redux Depressions (Fo)	Other (Explain in Remarks)		
Oundy Mideky Mineral (01) (ERK N,	IOH-Manganese Masses (F12) (LKK N,			
Sandy Gleved Matrix (S4)	Imbria Surface (E12) (ML BA 126 122)			
Sandy Bedox (S5)	Piedmont Electrologia Soile (E10) (ML DA 14)	ndicators of hydrophytic vegetation and		
Stripped Matrix (S6)		•) welland hydrology must be present,		
Restrictive Laver (if observed):		uniess disturbed or problematic.		
Time:				
Type:	_			
Depth (inches):		Hydric Soil Present? Yes No		
Remarks:				

Stream Features Field Sheet
Date: 7-9-62 Project Site: Purple Line WUS#: 68-9
Observer(s) $SW + BG$
Stream Flow: Perennial:IntermittentEphemeral
Gradient: <u>1%</u> Classification: <u>R4SB4</u>
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain:
Channel Ha's (check all that apply):
 OHWM clear, natural line impressed on the bank changes in character of soil thre presence of wrack line shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width Image: Cha
Habitat and Pollutants: Substrate (predominant type (s)): Habitat Complexity (characterize):
Bank Erosion: Severe Moderate Minor Minor
Describe: Undercut banks
Silt Deposition: heavy
Pollutants (observation / potential sources):
Stormwater Outfalls:

ther Environm	entally-Sensitive Species	Aquatic/Wildlife Diversity
Explain	Findinas:	
	·	and N. Leannachter Brasser S.
iparian Zon Dev	elopment: <u>vail line</u> /	emmercial
Riparian ve	egetation: Forest	Shrubs
Dominant	Species: boxelder Jan	anose, knotweed
 Pinarian But	ffer Width: ~ 70 ft	Let be sal banks
		36"/ Michael
Approximate	% Shading by Woody Species:	15 /0
Notes:	Contraction Contraction of the second	
	ter and a construction of the second	
	 Image in plant continues 	protection of the second se
		instruction to Mind explored
		national States and St
		Link II. (Is) any institution being under the

Stream Features Slizo Creek
Field Sheet
Date: 11-30-11 Project Site: furple Line WUS #: 003
Observer(s) Bb, HS
Stream Flow: Perennia <u>l:</u> Intermittent Ephemeral
Gradient: 21°20 Classification: RayB
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain: Channelized Hirongh CulV2A
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
Discontinuous OHWM (explain):
Morphology: 15' Depth 5' Avg. Water Depth 1' Has stream morphometry been altered? Mo Describe :
Habitat and Pollutants: Substrate (predominant type (s)): Cobble Stavel
Habitat Complexity (characterize): VIFILE (VUN COMPLEXES, leaf
packets-moderate
Bank Erosion: Severe Moderate Minor
Describe:
Silt Deposition:
Pollutants (observation / potential sources): YOUD FUNOFF
Stormwater Outfalls:

	Federally Listed species	Fish Spawn Areas
C	Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
	Explain Findings:	27 UNA
R	Riparian Zone: Development: <u>Plangumud</u>	Koadwary
	Riparian vegetation: Forest	Shrubs Herbs
	Dominant Species: Black Drust	, Chenn, red maple,
	willow Dak	
	Riparian Buffer Width: 10^{\prime}	ning od ter na saalit n
	Approximate % Shading by Woody Species:	50%
	Notes:	
	tion of the second s	

•

Stream Features Field Sheet
Date: 11-30-11 Project Site: Puple Line WUS #: 025
Observer(s) B6, HS
Stream Flow: Perennial: / Intermittent Ephemeral
Gradient: 11/1 Classification: ROUBI 2
Channel Characteristics: Natural X Artificial (man-made) Manipulated (man-altered)
Explain:
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition abrupt change in plant community water staining the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width 10 Depth 3 Avg. Water Depth 4/1
Has stream morphometry been altered? <u>Ves</u> Describe :
Habitat and Pollutants: Substrate (predominant type (s)): <u>Cobde Gravel Sund</u>
Habitat Complexity (characterize): Moderate viffle hun
Sequence woody dobris, Noots'
Bank Erosion: V Severe Minor Minor Minor
Describe: find aneas of SCENT
Silt Deposition:
Pollutants (observation / potential sources): Migh 90 DF trash M
Stream
Stormwater Outfalls:

 $\mathbb{P}_{A^{1}}$

	A
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	
	44 C 187
Riparian Zone: Development: <u>A Partment</u>	Complexes
Riparian vegetation: Forest	Shrubs Herbs
Dominant Species: red Made	tulio poplar. bush
LACTAR AND	
Moneyobata	ം പ്രകുറം നില്ലാക്കും ക്രിക്കും പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം പ്രക്ഷാം
Riparian Buffer Width: $20 - 50$	0 -21
Approximate % Shading by Woody Species:	05/2
Notes:	The AMERICAN STREET
	and the same and the same
 A descent of the second second	
	The statement of the statement state
	the second s
	en staf Complexite A promotesta et

NW Branch
Stream Features
Date: 12-9-11 Project Site: Pur Ole Line WUS #: 00 G
Observer(s) B5, Its
Stream Flow:
Perennia <u>l: / Intermittent Ephemeral</u>
Gradient: <u>L1²/6</u> Classification: <u>R2VB</u>
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain: Near Cullert
Channel Has (check all that apply): Bed and Banks
Донима
clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line
shelving Sediment sorting
leaf litter disturbed or washed away multiple observed or predicted flow events
sediment deposition abrupt change in plant community
the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width $25'$ Depth $5'$ Avg. Water Depth $6''$
Has stream morphometry been altered? <u>UCS</u> Describe: <u>Channelized</u> Near Culvert
Habitat and Pollutants: Substrate (predominant type (s)): Supp
Habitat Complexity (characterize): 102 to moderate - few deep
poorls, no clean riffles
Bank Erosion: Severe Moderate Minor X
Describe: Unvegetated areas
Silt Deposition: heavy near cultert
Pollutants (observation / potential sources): VOUD VUNOFF
Stormwater Outfalls: MMC

	iting Operator	Agus		5
Other Environmentally-Sens	ative Species	Aqua	tic/wildlife Diversity	
Explain Findings: _			LV-SLEAN-	100 al-
 Riparian Zone: Development: <u>/</u>	fields un	both Sid	les varrow	bou
Riparian vegetation:	Forest 🗡	Shrubs	Kerbs K	Hỹ in
Dominant Species:	multitlora	vose, fo	stuil, black	U
Sycam	one			thirth
Riparian Buffer Width: _	201	1 34	s (check all Bist _{s pal} ly) -	shia TT
Approximate % Shading	by Woody Species:	40%	internet and the second se	100
Notes:		2000 - 10 (10)	en organi of territori i sociji s	
	- Convines		the surface	
Strandon en		y and a second	the second secon	
			Patisticate (producticate bool 1)	ins) Bit
				On:

trub to Abal Brand
Stream Features Field Sheet
Date: 12-9-11 Project Site: Ryple Line wus #: 1007
Observer(s) B5, HS
Stream Flow: Perennial: X Intermittent Ephemeral
Gradient: <u>21%</u> Classification: <u>K2VB</u>
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-aitered) X Explain: Channelized its extre langth due to culter.
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris
Morphology: Avg. Channel Width Depth Avg. Water Depth
Has stream morphometry been altered? Describe :
Habitat and Pollutants: Substrate (predominant type (s)):
Habitat Complexity (characterize): [DV-/ACL OF dep pools,
Bank Erosion: Severe Moderate Minor
Describe: crossim concentrated below pipe
Silt Deposition: NEWM
Pollutants (observation / potential sources): VOUDSING MUNOFF
Stormwater Outfalls:

Biological Habitat For (check all that apply): Federally Listed species	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	Chamberts Comments
	woi I mta iP
Riparian Zone: Development: (2) Bault - drchen (Muse; OBouk - MD 193-
Riparian vegetation: Forest Shrul	bs Kerbs Kerbs buffer
Dominant Species: Iron wood, Tully	poplar, red maple,
box elder poison ivi	1, Japovese brome
Riparian Buffer Width: 20	Charge with the storage all that as ():
Approximate % Shading by Woody Species: 95	0/0
Notes:	P. P. Managarthan allowed and a
	 E.M. and S. and S
in an	An an ann an Anna Anna Anna Anna Anna A
	and distribution of a state
	 Association of the second secon

Stream Features
Date: 12-9-11 Project Site: PUME UNE WUS #:008
Observer(s) BG, ITS
Stream Flow: Perennial: Intermittent C Ephemeral QUCDU
Gradient: Classification: Classification:
Channel Characteristics: Manipulated (man-altered) Natural Artificial (man-made) Manipulated (man-altered) X Explain: Manipulated (man-altered)
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
Discontinuous OHWM (explain):
Avg. Channel Width $3,5'$ Depth $3'$ Avg. Water Depth $2''$
Has stream morphometry been altered? <u>Yes</u> Describe : Channelized to culvert
Habitat and Pollutants: Substrate (predominant type (s)): Gund Habitat Complexity (characterize): Image: Market to Shallow Haws
Bank Erosion: Severe Moderate Minor Minor
Describe: In lower healtes
Silt Deposition: Moderate
Pollutants (observation / potential sources): trush - roud hundf
Stormwater Outfalls:

Biological Habitat For (check all that apply): Federally Listed species	Fish Spawn Areas	
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity	
Explain Findings:	sti dd enwerder	
	Stream Flew:	
Riparian Zone: Development: DBunk - MD 193	3, R Bank. Critlet	Con
Riparian vegetation: Forest Shru	bs Herbs	
Dominant Species: <u>Shehn a Sh</u> ,	princess tree	
	THE CT II	
Riparian Buffer Width:	Channel Real Console - Williams (Channel Real Provider Street	
Approximate % Shading by Woody Species: $90^{2/3}$		
Notes:	pue a querrando as sello	
and the second s		
	en and Alexandra and Alexandra and Alexandra	
	a a redoe texto) vlixe a processide h	

Data 12-9-11 printer Printe line in 009
Date: V I Project Site: VVI/ VV WUS #: VV V
Observer(s)Bb_,HS
Stream Flow: Perennial: Intermittent Ephemeral
Gradient: 1% Classification: RUS34
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) K
Explain: Channelized and vip rap at top
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow ever sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width
Has stream morphometry been altered? Describe :
Habitat and Pollutants: Substrate (predominant type (s)):
Bank Erosion: Severe Moderate Minor _ X
Describe:
Silt Deposition:
Pollutants (observation / potential sources): pind effluent
Stormwater Outfalls: MML

Biological Habitat For (check all that apply): Federally Listed species	to de bloc Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	
	3.11.86.112
Riparian Zone: Development:	Conver Dtributary
Riparian vegetation: Forest	Shrubs <u>/</u> Herbs
Dominant Species: <u>back</u> wa	lant, sycumme
Riparian Buffer Width:35'	Charrent Here (check all that analy the
Approximate % Shading by Woody Species:	95%
Notes:	ne (and is the careform and in duty and (a [
per se anamèra 🛄	
	Habitet and Pollutants: Substate (pledom-samilype (.))
Z	Hahitat Complexity (characterizo)
	Palitics (H1 Machine Vitor) / polaritic sources
	Statussien Dattels

)	
5 🗩 _{1.0}				Maria	
WETLAND DETE	ERMINATION DATA FO	DRM – Eastern Mou	ntains and Piedmont	N	
Project/Site: PUPOLOLINO	city/C	ounty Montgom	end Sampling Date: 11-30 -	11	
Applicant/Owner: MTA	0ky/0		State: MD Sampling Point: WTP10-	-1	
nvestigator(s): B. (Da (n. 9.5 H. S) ca	TUP. Section	Townshin Range			
andform (billslope terrace etc.): P.X (Aulat	PA A A A A A S S A L A S S L A S S L A S S L A S S S S	of (concave, convex, non	a): Company, since 1912/1=4	0	
Subragion / PR or MI RA): MJ RA 148	Lat	long:			
Soil Man Unit Name: UVD/ 10 / Und - RU	450st - Charlena	In Com Max	Mail aloggification DEMIELLY		
Are climatic / hydrologic conditions on the site to	vnical for this time of year? V	in X No (f no evoluin in Pemerko)	<u> </u>	
	ypical for this time of year r			dept -	
Are Vegetation, Soil, or Hydrolo	gy significantly distur	beur Are Norman	valein environeuror in Romadua)	-	
	gy haturally problema	alic? (ii needed, e)	xplain any answers in Remarks.)		
SUMMARY OF FINDINGS – Attach	site map showing sam	pling point location	ns, transects, important features, etc	o.	
Hydrophytic Vegetation Present? Yes	X No			9	
Hydric Soil Present? Yes	X No	is the Sampled Area		-	
Wetland Hydrology Present? Yes	<u>No</u>	Within a Wetland		61	
Remarks:					
				5	
	a n				
IYDROLOGY					
Wetland Hydrology Indicators:		1	Secondary Indicators (minimum of two required)	2	
Primary Indicators (minimum of one is require	d; check all that apply)		Surface Soil Cracks (B6)		
Surface Water (A1)	True Aquatic Plants (I	B14)	Sparsely Vegetated Concave Surface (B8)	2	
Saturation (A3)	Hydrogen Sullide Odd	or (C1) es on Living Roots (C3)	Drainage Patterns (B10) Moss Trim Lines (B16) Drv-Season Water Table (C2)		
Water Marks (B1)	Presence of Reduced	I Iron (C4)			
Sediment Deposits (B2)	Recent Iron Reductio	n in Tilled Soils (C6)	Crayfish Burrows (C8)		
Drift Deposits (B3)	Thin Muck Surface (C	27)	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Other (Explain in Ren	narks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)			Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)			Shallow Aquitard (D3)		
Aquatic Fauna (B13)			Microtopographic Relief (D4) EAC-Neutral Test (D5)	c	
Field Observations:	and the second second			-	
Surface Water Present? Yes X	Depth (inches): 1	8			
Water Table Present? Yes K	Depth (inches):				
Saturation Present? Yes X No	o Depth (inches):	Wetland Hy	ydrology Present? Yes 🔼 No		
(includes capillary fringe)	itoring well aerial photos, pre	vious inspections) if avail	able		
	toning weil, denai photos, pre			2	
Remarks:	how when such			5 5 (5	
	0 1:1			6	
(reated wetla	nd Ste				
				20	

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	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2	C - HGBC - C	NG 12	Total Number of Dominant
3		Deltas ta or solt \$2	Species Across All Strata: (B)
4			Percent of Dominant Species 4
5			That Are OBL, FACW, or FAC: (A/B)
6			Prevalence index worksheet:
7	-		Total % Cover of: Multiply by:
B			OBL species x1=
Sanling/Shruh Stratum (Plot size:	81	Total Cover	FACW species x 2 =
1		igna gweide	FAC species x 3 =
2			FACU species x 4 =
3 491/1	and and real	18 F	UPL species x 5 =
We want the	nation in a		Column Totais: (A) (B)
5			
3.			Prevalence Index = B/A =
7.			Hydrophytic Vegetation Indicators:
8.			1 - Rapid Test for Hydrophytic Vegetation
9.			∕ 2 - Dominance Test is >50%
10			3 - Prevalence Index is ≤3.0 ¹
		Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size:)			Data in Remarks or on a separate sneet)
1. Tupha latitalia	100	Yes 002	
2. AR a superspectation in account		Mar Anna Station	The Annual State of the State o
3 card	205	nacht stellung in der	be present, unless disturbed or problematic.
 Ellouries cints a transformation 	•)	· 法按书 / 1 7 1 4	Definitions of Four Vegetation Strata:
5. <u>Ale alt based</u> attached	14575	on to charle to a	12 Martin 19
6 IS IS	3. 01/21/21/247	of an introduct that the	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
		Alter and the second	height.
B		Carry and the constraints	Sanling/Shrub - Woody plants, excluding vines, less
9			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10		·	
11			of size, and woody plants less than 3.28 ft tall.
12		algebra and all all a	Mandaudan Allunadiusing proster them 2.20 ft in
	<u> 190</u> =	Total Cover	height.
			The second secon
	14	180.000	the second se
2			$(a = a_1, a_2, a_3, a_4, a_5, a_7, a_7, a_7, a_7, a_7, a_7, a_7, a_7$
	175 D1271	and the second	And the second sec
r			Hydrophytic
e			Vegetation Present? Yes No.
ь. Ф

ø.

• P									٨	ARDI- 1
SOIL								Sa	ampling Point:	VV 1 10-1
Profile Desc	cription: (Describe	to the dep	th needed to docun	nent the	indicator of	or confir	m the absence	of indicato	rs.)	
Depth	Matrix		Redo	x Feature	s		. _			
(inches)	Color (moist)	%	Color (moist)	%	<u>Type'</u>	_Loc [*]	<u>Texture</u>		Remarks	-
2	21311	- 100					<u></u>	Muc	15	1. 15
3-10	5961	20	10YR516	<u> </u>		m	SIC	<u> </u>	1.45	
101-	5401	SD	10 YRS 6	Ð	\mathcal{C}	M	512			
<u> </u>	N (1						
	Г.			·					····	,
	····		·	·						
					- <u> </u>		21	Dana Linia		
Hydric Soil	Indicators:	Netion, RIVI-	-Reduced Matrix, Ma	5=IVIaske	o Sano Gra	ains.	Location: PL	.=Pore Linin ators for Pr	g, M=Matrix. oblematic Hyc	tric Soils ³
Histosol	I (A1)		Dark Surface	(\$7)			2	cm Muck (A		7)
Histic E	pipedon (A2)		Polyvalue Be	low Surfa	ace (S8) (M		7. 148) 0	oast Prairie	Redox (A16)	
Black H	listic (A3)		Thin Dark Su	Irface (S9) (MLRA 1	47, 148)	.,	(MLRA 14)	7, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye	d Matrix	(F2)		P	iedmont Flo	odplain Soils (I	F19)
Stratifie	d Layers (A5)		X Depleted Ma	trix (F3)				(MLRA 13)	6, 147)	
2 cm Mu	uck (A10) (LRR N)		Redox Dark S	Surface (I	F6)		Red Parent Material (TF2)			
Deplete	d Below Dark Surfac	æ (A11)	Depleted Dar	rk Surface	e (F7)		Very Shaliow Dark Surface (TF12)			
Thick Da	ark Surface (A12)		Redox Depre	essions (F	-8)		C	Other (Explain in Remarks)		
MIR	A 147 148)	LKK N,	Iron-Mangan	ese mass	ses (F12) (I	LKK N,				
Sandy C	Gleved Matrix (S4)		Umbric Surfa	•) ice (E13)	(MI RA 13	36. 122) ³ Indicators of hydrophytic vegetation and				
Sandy F	Redox (S5)		Piedmont Flo	odplain S	Soils (F19)	(MLRA 1	(48) w	etland hvdro	ploav must be i	present.
Stripped	d Matrix (S6)		—	·	(- /		, u	nless disturt	bed or problem	atic.
Restrictive	Layer (if observed)	:								
Type:									~	
Depth (inches):							Hydric Soil	Present?	Yes <u>×</u>	No
Remarks:										

Stream Features Field Sheet
Date: 12-9-11 Project Site: Prople Line, WUS #: 011
Observer(s) BG, HS
Stream Flow: Perennial: Intermittent X Ephemeral Gradient: Z Classification: RUSB34
Channel Characteristics:
Natural Artificial (man-made) Manipulated (man-altered) X
Explain: portons of the stream have been due out; Channel Has (check all that apply): A Bed and Banks
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris
Morphology:
Avg. Channel Width Depth Avg. Water Depth
Has stream morphometry been altered? <u> </u>
Habitat and Pollutants: Substrate (predominant type (s)): gravel [Sand Habitat Complexity (characterize): Very [w due to lack of Structure
Bank Erosion: Severe Moderate Minor
Describe:
Silt Deposition: MMor
Pollutants (observation / potential sources): Rond MNOFF
Stormwater Outfalls:

	ensitive Species	s	Aquati	c/Wildlife Diversity	Date 1
Explain Findings	s:				5.
G				WIBIN'N D	
Riparian Zone: Development	Man	torned 10	wn Ipa	whing lot	-
Riparian vegetation:	Forest	+	Shrubs	Herbs	d, redek – Q
Dominant Species:	SWee	t gun	n jelm	green	brie
Riparian Buffer Width	:_5'm	both	sides	Vignación de	
Approximate % Shadi	ing by Woody	Species:	35%		er an tr
Notes:	8-5-1-2 1		- 181-Å		
	lalk −s. V sr	nalis d N			
	(i en la pet				

and and and

Stream Features Field Sheet
Date: 12-9-11 Project Site: furple line wus #: D12 Observer(s)_BC, HS, AT
Stream Flow: Perennial: Intermittent Ephemeral RAVBILAY (rip rup)
Gradient: 1-5% Classification:
Channel Characteristics: Natural Artificial (man-made)Manipulated (man-altered)
Explain: Channelized along road
Channel Has (check all that apply):
ОНУМАЛЬНИКА И И И И И И И И И И И И И И И И И И
clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting
Image: Second
the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width 10' Depth 2.5' Avg. Water Depth 2"
Has stream morphometry been altered? <u>425</u> Describe : <u>Rip-ran</u>
placement
Habitat and Pollutants: Substrate (predominant type (s)):
Habitat Complexity (characterize): Moderate, deep pools, few
undercut banks - minnows observed
Bank Erosion: Severe Moderate Minor Minor
Describe: viprop Stabilization evident
Silt Deposition: Moderate
Pollutants (observation / potential sources): YON MND FF

Biological Habitat For (check all that apply): Federally Listed species	
Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity	
Explain Findings:	
Riparian Zone: Development: OBurk - Purt Branch PKWY DForeste	cd
Riparian vegetation: Forest Shrubs Herbs	
Dominant Species: <u>Sychmone</u> , <u>Green ash</u> , Nox elder,	1
giver maple, Spitemesh, Swamp Smartweed	-
Riparian Buffer Width: 250'	
Approximate % Shading by Woody Species: 95%	
Notes:	
for each and the constraint of the later.	
Bital states and states	
A server and a server and the server	
and a second	

Date: 11010	Project Site: 1 Write	<u>UNE</u> wus#: <u>013</u>
Observer(s) BK	, AT	
Stream Flow: Perennial:	_IntermittentEp	hemeral
Gradient: LI%	Class	ification: <u>R20B</u> K
Channel Characteristi Natural	cs: _ Artificial (man-made)	Manipulated (man-altere <u>d) ×</u>
Explain: Char	inelized wir	-p - rup
Channel Has (check a	II that apply): nks	
OHWM Clear, nation clear, nation clear, nation changes shelving vegetation leaf litter sediment water station the prese	ural line impressed on the bank in character of soil n matted down, bent, or absent disturbed or washed away deposition ining nce of litter and debris	 destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow ever abrupt change in plant community other (list):
Discontinuo	us OHWM (explain):	
Discontinuo Morphology: Avg. Channel Width Has stream morp	us OHWM (explain): 5 Depth phometry been altered? Man nM	Avg. Water Depth fesDescribe :
Discontinuo Morphology: Avg. Channel Width Has stream morp (Ive) Habitat and Pollutants	us OHWM (explain): <u>5</u> Depth phometry been altered? <u>Man nd</u>	Avg. Water Depth <u>2"</u> fes_Describe : <u>rp-mp</u>
Discontinuo Morphology: Avg. Channel Width Has stream morp (Ive) Habitat and Pollutants Substrate (predomina Habitat Complexity (c	us OHWM (explain): Depth phometry been altered? Man nd s: ant type (s)): characterize):	Avg. Water Depth <u>2"</u> fes_Describe : <u>rp-np</u> p
Discontinuo	us OHWM (explain): Depth phometry been altered? phometry been altered? phometry been altered? phometry been altered? 	Avg. Water Depth <u>2"</u> fes_Describe : <u>rp-np</u> p JM oderate Minor <u>×</u>
Discontinuo	us OHWM (explain): phometry been altered? min type (s)): SevereMo MiNov	Avg. Water Depth_2" fes_Describe : pderate Minor

ological Habitat For (check all that apply): Federally Listed species Fish Spawn Areas	
her Environmentally-Sensitive Species Aquatic/Wildlife Diversity	
Explain Findings:	
parian Zone: Development: <u>disturbed due to roadwing mantanan</u> Riparian vegetation: Forest <u>F</u> Shrubs <u>F</u> Herbs <u>K</u> Dominant Species: <u>AMCOSS Tree</u> , <u>NMWAY</u> Maple, <u>rubus</u> SA	C1 2.
Riparian Buffer Width: 35	
Approximate % Shading by Woody Species: 95%	
Notes:	

Stream Features
Field Sheet
Date: <u>[2] 11 / Project Site: 1 Mpre me WUS #: 100</u>
Observer(s) BUTHTS
Stream Flow: Perennial: Ephemeral
Gradient: <u>L1%</u> Classification: <u>K4SB</u> 1[2]
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) Explain:
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris
Morphology: Depth Depth Avg. Water Depth Depth Avg. Channel Width 5 Depth Press Avg. Water Depth Press Has stream morphometry been altered? Yess Describe :
Habitat and Pollutants: Substrate (predominant type (s)): <u>Grwel Sand</u> Habitat Complexity (characterize): <i>JW due to Shallow FlowS</i>
Bank Erosion: Severe Moderate Minor X Describe:
Silt Deposition: Moderate
Pollutants (observation / potential sources):
Stormwater Outfalls:

Federally Listed species	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	The Martine
Riparian Zone: Development:	in a filling and an and a second s
Riparian vegetation: Forest	Shrubs \mathcal{L} Herbs \mathcal{L}
Dominant Species: <u>00000 000000</u>	
Riparian Buffer Width:	
Approximate % Shading by Woody Species:	80%
Notes:	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
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dell'Attendi de 1989 de La companya de 1989 de 1 Antende de 1989	126 - Alina 20 - Alina
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Jale: 10 11	Project Site: Turple L	<u>We</u> wus#: <u>18</u>
Dbserver(s) <u>B</u> 5	HS	- 6 P - 7 7
Stream Flow: Perennia <u>l:</u> ×	_Intermittent Eph	emeral
Gradient: 1%	Classi	fication: $R^{2}AB/2$
Channel Characteristi Natural	ics: Artificial (man-made) MNCH ZeD	Manipulated (man-altered)
Channel Has (check a	I II that apply): nks	
OHWM clear, nat changes shelving vegetatio leaf litter sediment water sta the prese	tural line impressed on the bank in character of soil on matted down, bent, or absent disturbed or washed away t deposition ining ence of litter and debris	 destruction of terrestrial vegetation the presence of wrack line sediment sorting scour multiple observed or predicted flow events abrupt change in plant community other (list):
_		
Discontinuo	SS ¹	21
Discontinuo Morphology: Avg. Channel Width	bus OHWM (explain):	Avg. Water Depth 124
Discontinuc Morphology: Avg. Channel Width Has stream mor	pus OHWM (explain): 55^{l} Depth phometry been altered? 4^{l}	Avg. Water Depth <u>21</u> <u>15</u> Describe :
Discontinuc Morphology: Avg. Channel Width Has stream mor <u>Ma</u> Habitat and Pollutants Substrate (predomin	bus OHWM (explain): 55' Depth phometry been altered? 4 NEU 7 EU s: ant type (s)):Y/KV EU	Avg. Water Depth 1211 95 Describe :
Discontinuc Morphology: Avg. Channel Width Has stream mor <u>Mu</u> Habitat and Pollutants Substrate (predomin Habitat Complexity (o	bus OHWM (explain): 55' Depth phometry been altered? 4 Nellized s: ant type (s)): 5 3 3 3 3 3 3 3 3 3 3	P Avg. Water Depth 124 PS Describe : [Sand to nffle [pool Segu
Discontinuc Morphology: Avg. Channel Width Has stream mor <u>Morphology:</u> Avg. Channel Width Has stream mor <u>Muthal</u> Habitat and Pollutants Substrate (predomin Habitat Complexity (of Bank Erosion:	bus OHWM (explain): <u>55</u> Depth phometry been altered? <u>4</u> <u>4</u> <u>4</u> <u>5</u> ant type (s)): <u>6</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u>	Avg. Water Depth <u>124</u> <u>PS</u> Describe : <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u> <u>USAN</u>
Discontinuc Morphology: Avg. Channel Width Has stream mor <u>Morehology:</u> Avg. Channel Width Has stream mor <u>Ma</u> Habitat and Pollutants Substrate (predomin Habitat Complexity (of Bank Erosion: Describe:	bus OHWM (explain): <u>55</u> phometry been altered? <u>4</u> <u>4</u> <u>55</u> <u>55</u> <u>55</u> <u>6</u> <u>6</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u> <u>77</u>	2 Avg. 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Biological Habitat For (check all that apply): Federally Listed species Fish Spawn Areas	
Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity	
Explain Findings:	
Riparian Zone: Development: DBank trail, BBank over grown field	l
Riparian vegetation: Forest K Shrubs K Herbs K	
Dominant Species: porson ivy, sycanne, red maple,	
Biparian Buffer Width: 250	
Approximate % Shading by Woody Species: 4%	
Notes:	
an na Laise na bhan 1 Airte 1977 - Philippias a sa bh Chuattaith a stàithe nan 1980 na b	

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region
Production ON Price
Project/Site: POI DE CINO, City/County: 61040 Park, Sampling Date: 1-5-1
state: <u>Any</u> sampling Point: <u>WTPTT</u>
Section, Lownship, Range:
androrm (nillsiope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): 11 LK 7-148 Lat: Long: Datum:
oil Map Unit Name: <u>COMONIS-HATBORD-Urban</u> land <u>Complex</u> NWI classification: POW W PEM
ve climatic / hydrologic conditions on the site typical for this time of year? Yes No (if no, explain in Remarks.)
vre Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 🗶 No
ve Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc
Hydric Soli Present? Yes No
Wetland Hydrology Present? Yes <u>No</u> within a Wetland? Yes <u>No</u>
Remarks:
The second seco second second sec
YDROLOGY
Netland Hydrology Indicators: Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)
X Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8)
Mari Deposits (B15) (LRR U) Drainage Patterns (B10)
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of Reduced Iron (C4) Cravitish Burrows (C8)
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2)
Iron Deposiis (B5) Other (Explain in Remarks) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)
Field Observations:
Surface Water Present? Yes 🗸 No Depth (inches): 5
Water Table Present? Yes No Depth (inches):
Saturation Present? Yes X No Depth (inches): Wetland Hydrology Present? Yes No
(includes capillary fringe)
seconde Accorded Data (stream gauge, monitoring weil, actial photos, previous inspections), il available:
Remarks:
an must Fride a contral SWM A April
emargert trige avoura sur porta

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	Absolute Dominant Indicato	Dominance Test worksheet
<u>Tree Stratum</u> (Plot size:) 1	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	in here a second	Total Number of Dominant
		_ Species Across All Strata: (B)
		Percent of Dominant Species
		- That Are OBL, FACW, or FAC: 100 (A/B
		Prevalence index worksheet:
	alla alla anathr	- Total % Cover of: Multiply by:
•		- OBL species x1 =
50% of total cover	20% of total cover	FACW species x 2 =
apling/Shrub Stratum (Plot size:	20 % of total cover	- FAC species x 3 =
······································		FACU species x 4 =
		UPL species x 5 =
and the states of the states	and the states of the states o	Column Totals: (A) (B)
•		- Drawlake as is in the Diff.
•		
i		- Hydrophylic vegetation indicators:
•		- 2 - Dominance Test is >50%
·		-3 - Prevalence index is <3.0 ¹
	= Total Cover	Problematic Hydrophytic Venetation ¹ (Explain)
50% of total cover:	20% of total cover:	
Herb Stratum (Plot size:)	ou V	¹ indicators of hydric soil and wetland hydrology must
Typha latitylia	<u>18 7 OBL</u>	be present, unless disturbed or problematic.
2 JUAIUS ETHISIK	acz FAC	Definitions of Four Vegetation Strata:
Inicerce 10 ponica	15 FAC	Tree - Woody plants, excluding vines 3 in (7.6 cm) o
		more in diameter at breast height (DBH), regardless o
	C THE PROPERTY	- helght.
	Colored and colored at	Sapling/Shrub - Woody plants, excluding vines, less
·		than 3 in. DBH and greater than 3.28 ft (1 m) tail.
		 Herb – All herbaceous (non-woody) plants, regardless
1. 1. 1299 (t. 167 - 16) - 1677 Ma	<u> </u>	_ of size, and woody plants less than 3.28 ft tall.
0		- Woody vine - All woody vines greater than 3.28 ft in
1		height.
2	122	an ana an
and the start for the start of the start of the	h Total Cover	
SU% of total cover:	$\frac{1}{20\%}$ of total cover: $\frac{1}{20\%}$	- 7 and store and a state of the state
voody vine stratum (Piot size:)		
·		
	•• •• •	-
·		-
· <u> </u>		-
		- Hydrophytic
50% of total cover	= Total cover	Present? Yes <u>No</u> No
emarks: (If observed, list morphological adaptetions be		-
terrarites. In observed, list morphological adaptations be	iow).	
		(Å)

US Army Corps of Engineers

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Sampling Point: WTP 19-1

Profile Description: (Describe to the dep	th needed to document the	indicator or confirm	the absence of Indi	cators.)
Depth <u>Matrix</u>	Redox Feature	s		
(inches) Color (moist) %	Color (moist) %	Type ¹ Loc ²	Texture	Remarks
0-) 20431 100			Sil	
37 fill materia				
	·			······································
	·			······
		·		
		· · · · · · · · · · · · · · · · · · ·		······································
Hydric Soil Indicators: (Applicable to all	=Reduced Matrix, MS=Masker	d Sand Grains.	Location: PL=Po	re Lining, M=Matrix.
Histored (A1)	LKKS, UNIESS OLITETWISE NOT	ea.)	Indicators for Pro	blematic Hydric Solis':
Histic Enjandon (A2)	Polyvalue Below Surfa	ce (S8) (LRR S, T, U) 1 cm Muck (A	9) (LRR O)
Black Histic (A3)	Thin Dank Surface (S9	(LKR S, T, U)	2 cm Muck (A	10) (LRR S)
Hydrogen Sulfide (A4)	Loamy Gleved Matrix	(F1) (LKK O)	Reduced Verti	C (F18) (OUTSIDE MLRA 150A, B)
Stratified Layers (A5)	Depleted Matrix (E3)	(1 2)	Pleamont Plot	apiain Solis (F19) (LRK P, S, 1)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Surface (-6)	(MLRA 153)	
5 cm Mucky Minerai (A7) (LRR P, T, U)	Depleted Dark Surface	(F7)	Red Parent M	aterial (TF2)
Muck Presence (A8) (LRR U)	Redox Depressions (F	8)	Very Shallow	Dark Surface (TF12)
1 cm Muck (A9) (LRR P, T)	Mari (F10) (LRR U)		Other (Explain	in Remarks)
Depieted Below Dark Surface (A11)	Depleted Ochric (F11)	(MLRA 151)		
Thick Dark Surface (A12)	Iron-Manganese Mass	es (F12) (LRR O, P,	T) ³ Indicators of	hydrophytic vegetation and
Coast Praine Redox (A16) (MLRA 150/	A) Umbric Surface (F13)	(LRR P, T, U)	wetland hy	drology must be present,
Sandy Middly Milleral (SI) (LRR 0, S)	Delta Ochric (F17) (MI	.KA 151)	unless dist	urbed or problematic.
Sandy Redox (S5)	Reduced Vertic (F18) (Diedmont Floodplain S	(MLKA 150A, 150B)	0.4.)	
Stripped Matrix (S6)	Anomaious Bright Loa	my Solis (F19) (MILIKA 14	5A) 8 1/08 1530 1530)	
Dark Surface (S7) (LRR P, S, T, U)	, monizious prigit zou		A 145A, 155C, 155D)	
Destal-Alize Laure (27. 1				
Restrictive Layer (if observed):			T T	
Type:				
Type: Depth (Inches):			Hydric Soli Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:			Hydric Soli Preser	t? Yes No 🗸
Restrictive Layer (if observed): Type: Depth (inches): Remarks:			Hydric Soli Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:			Hydric Soli Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (Inches): Remarks: disturbed	Sons		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: disturbed	Stalls		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: distubed	Sons		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: distuded	SDIS		Hydric Soli Preser	t? Yes <u>No</u>
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: distuded	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: distubed	Son		Hydric Soll Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: distubed	Son		Hydric Soll Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: disturbed	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: Jistuted	SDIS		Hydric Soli Preser	t? Yes No
Restrictive Layer (frobserved): Type: Depth (inches): Remarks: Jistubed	SDIS		Hydric Soli Preser	17 Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: Jisturbad	SDIS		Hydric Soli Preser	17 Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: Jibtubbd	SDIS		Hydric Soli Preser	17 Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: Jistubad	Son		Hydric Soll Preser	17 Yes No
Restrictive Layer (frobserved): Type: Depth (Inches): Remarks: Jistubed	Son		Hydric Soll Preser	17 Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: Jistubed	Son		Hydric Soll Preser	17 Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks: Jistubad	SDIS		Hydric Soll Preser	17 Yes No
Restrictive Layer (Ir observed): Type: Depth (Inches): Remarks: Jistubed	SDIJ		Hydric Soll Preser	17 Yes No

Stream Features Field Sheet
Date: 5/24/13 Project Site: Purple Line/ WUS #: 23
Observer(s) 55 MD
Stream Flow: Perennial: Intermittent Ephemeral
Gradient: Classification: <u>K1>5-2</u> /4
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain:
Channel Has (check all that apply):
OHWM Clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris
Morphology: Avg. Channel Width <u>5</u> Depth <u>6</u> Avg. Water Depth <u>3</u> Has stream morphometry been altered? <u>Yes</u> Describe : <u>Concrete culvest</u>
Habitat and Pollutants: Substrate (predominant type (s)): <u>Sond</u> , <u>rip-rop</u>
Habitat Complexity (characterize): <u>Some c. Alcs and eeels</u>
Bank Erosion: Severe Moderate Minor Minor
Describe: < <u><51e</u> <u>stinch</u> <u>anadu</u>
Silt Deposition: yes, new bar formation in changel
Pollutants (observation / potential sources): <u>high way / marge mersts</u>
Stormwater Outfalls: yes, concrete culvest, fed by SWP

Fish Spawn Areas	
Aquatic/Wildlife Diversity	
Strubs Herbs	odjacer
Carex lurido, Benicara jopenica Microsteg, vm Vi m: right-30', left.60'	main
	Aquatic/Wildlife Diversity <u>Aquatic/Wildlife Diversity</u> <u>Shrubs</u> <u>Shrubs</u> <u>Herbs</u> <u>Korex lurido</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Microstia</u> , <u>un Vi</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Shrubs</u> <u>Joponico</u> <u>Store</u>

WETLAND	DETERMINATION	DATA FORM	- Atlantic and	Gulf Coastal	Plain Region

	Attainte and Guil Coastal Flain Region
Project/Site: PUSPLE Line / Fives obte Rd. Ci	ty/County: Riverdalc Sampling Date: 5/24/13
Appllcant/Owner: MTA	State: MD Sampling Point: W24-WTP
Investigator(s): 55, MD	ection Township Range: 173 Go, not
Landform (hillslope terrace etc.): dr. e DSSS1 and Lo	praticit (concerve conver none): (a office a / Since (4) < 19
Subragion (IRB of MIRA), MIRA 149A	
Sall Man Linit Alama: Change Day 1996 - Ulubra Lat	Long: Datum:
Are climatic / hydrologic conditions on the site typical for this time of year	Wil classification: FFO FAC
Are Vegetation Soil of Vegetation Site Site Site Site Site Site Site Site	(if no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dia	sturbed 2 Moral Circumstances" present? Yes V No
Are vegetation, Soli, or Hydrology naturally probl	ematic? $\mathcal{N}\mathcal{Q}$ (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	is the Sampled Area
Hydric Soil Present? Yes No	within a Wetland? Yes A No
Wetland Hydrology Present? Yes No	
but have since naturalized and manifes	basin. Soils have been disturbed in the past
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) Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B15)	(LRR U) Drainage Patterns (B10)
Saturation (A3) Hydrogen Sulfide Od	lor (C1) Moss Trim Lines (B16)
Water Marks (B1) Oxidized Rhizospher	res along Living Roots (C3) Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of Reduced	d Iron (C4) Crayfish Burrows (C8)
Drift Deposits (B3)Recent Iron Reduction	on in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (84) Thin Muck Surface (0	C7) Geomorphic Position (D2)
Inter (Explain in Rei	marks) Shallow Aquitard (D3)
Water-Stained Leaves (B9)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	~ 1 "
Water Table Present? Yes No Depth (inches):	6"
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes / No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos	s, previous inspections), if available:
Remarks:	· · · · · · · · · · · · · · · · · · ·
Photo # 6 Looking at wetlone	
	3

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: WH-LITPI

Absolute Dominant Indicator Dominance Test worksheet: 30 ft Tree Stratum (Plot size: % Cover Species? Status Number of Dominant Species 1 . 0 00 ORL That Are OBL, FACW, or FAC: (A)2 Tanur FACL Total Number of Dominant 3 011151 FAL Species Across All Strata: (B) 4 7 FACI Percent of Dominant Species 5 FA 5 00% (A/B) That Are OBL, FACW, or FAC: 6 0 1 7. Prevalence Index worksheet: Total % Cover of: 8. Multiply by: OBL species _____ x 1 = _____ 1.16 = Total Cover FACW species _____ x 2 = ____ 50% of total cover: 20% of total cover: 23,2 58 Sapling/Shrub Stratum (Plot size: 30 P1 FAC species x 3 =) Sach FACU species _____ x 4 = ____ 1. UPL species _____x5≠____ OVI. Column Totals: 3 ano ___ (A) _____ (B) FAC 4. 🖌 er 12a. FA Prevalence Index = B/A = 5 Onla ru Hydrophytic Vegetation Indicators: 3 6. f INVL 151 1 - Rapid Test for Hydrophytic Vegetation 7. 🔀 2 - Dominance Test is >50% 8. ___ 3 - Prevalence Index is ≤3.0¹ 40 = Total Cover Problematic Hydrophytic Vegetation' (Explain) 50% of total cover: 20% of total cover: o PI Herb Stratum (Plot size Indicators of hydric soil and wetland hydrology must 1. Correx c ... be present, unless disturbed or problematic. 2. 11, 10.0 Definitions of Four Vegetation Strata: 3. canahirin 5 £ Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or may 3 C.C. FAC more in diameter at breast height (DBH), regardless of 15 5 6 15tuco height. Fact FACL 6. Sapling/Shrub - Woody plants, excluding vines, less 7. than 3 in. DBH and greater than 3.28 ft (1 m) tall. 8. Herb - All herbaceous (non-woody) plants, regardless 9. of size, and woody plants less than 3.28 ft tall. 10 Woody vine - All woody vines greater than 3.28 ft in 11. height. 12. = Total Cover 9.6 50% of total cover: 20% of total cover: / Woody Vine Stratum (Plot size: 2 fl 1. Tourodo 20 2. 3. MARK Sh Gulina l 4. 5 Hydrophytic 45 = Total Cover Vegetation No Present? 50% of total cover: 225 20% of total cover: 9 Remarks: (If observed, list morphological adaptations below).

Sampling Point. 424-47P

Profile Description: (Describe to the dep	th needed to docur	nent the Ir	dicator	or confirm	the absence	of Indicators.)	
Depth <u>Matrix</u>	Redo	x Features					
(incnes) Color (moist) %	Color (moist)	%	Type'	Loc ²	Texture	Remarks	_
01/2 2.5m 2/1 100					SL	MUCKY MINGTON / and	-
15-10" 104F3/1 100			-		SL		
10-15"+ N 5/0 95	DYE4/4	$\overline{\prec}$	(AA.	< 1		-
	1011-10			1.0	<u> </u>		-
							_ [
						·	
V D 35- 0				<u> </u>		<u> </u>	-
		·			2		-
Hydric Soil Indicators: (Applicable to all	Reduced Matrix, Ma	S≃Masked	Sand Gr	ains.	*Location:	PL=Pore Lining, M=Matrix.	
Historol (A1)	Debaselus De		·u.)		indicators	for Problematic Hydric Solis":	
Histic Epipedon (A2)	Polyvalue Be	low Surfac	e (S8) (L	.RR S, T, I	J) 1 cm	Muck (A9) (LRR O)	
Black Histic (A3)	Inin Dark Su	Minace (59)	(LKK S,	1, 0)	2 cm	Muck (A10) (LRR S)	_
Hydrogen Sulfide (A4)		y Matrix (F1) (LKF 52)	(0)	Redu	ced Venic (F18) (outside MLRA 150A,	B)
Stratified Lavers (A5)	Denleted Ma	riv (F3)	-2)			nont Floodplain Solis (F19) (LRR P, S,	"
Organic Bodies (A6) (LRR P. T. U)	Redox Dark	Surface (F	6)				
5 cm Mucky Mineral (A7) (LRR P. T. U)	Depleted Dat	rk Surface	(F7)		Red P	Parent Material (TF2)	
Muck Presence (A8) (LRR U)	Redox Depre	essions (F8	3)		Verv	Shallow Dark Surface (TE12)	
1 cm Muck (A9) (LRR P, T)	Marl (F10) (L	.RR U)	,		Other	(Explain in Remarks)	
Depleted Below Dark Surface (A11)	Depleted Oc	hric (F11) (MLRA 1	51)	_		
Thick Dark Surface (A12)	Iron-Mangan	ese Masse	es (F12) (LRR O, P	,T) ³ Ind	cators of hydrophytic vegetation and	
Coast Prairie Redox (A16) (MLRA 150)	A) Umbric Surfa	ice (F13) (LRR P, 1	(U)	we	etland hydrology must be present,	
Sandy Mucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (ML	RA 151)		un	less disturbed or problematic.	
Sandy Gleyed Matrix (S4)	Reduced Ver	tic (F18) (I	MLRA 1	50A, 150B)		
Stripped Matrix (SS)	Piedmont Flo	odplain So	oils (F19)	(MLRA 1	49A)		
Dark Surface (S7) (LBB D B T U)	Anomalous E	sright Loan	ny Solls ((F20) (MLF	RA 149A, 153	C, 153D)	
Restrictive Laver (if observed):							
Type:							
Depth (inchec):							
Deptil (inclies).					Hydric So	Il Present? Yes X No	
Remarks:							

WETLAND DETERMINATION DATA	FORM -	- Atlantic and	Gulf Coastal	Plain Region
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	A I Oran – Allantic and Guli Goastal Flain Region
Project/Site: PUT plu Linc/ Fiverdolu Rd	_ City/County: Riverdale / PG Sampling Date: 5/24/13
Applicant/Owner: MTA	State: <u>MD</u> Sampling Point: <u>W24-WTP</u>
Investigator(s):SS, MD	Section, Township, Range:
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none); Concov (Slope (%); < [7]
Subregion (LRR or MLRA): MLRA 149A Lat:	
Soil Man Unit Name: Christians - Day over - 11 chan I	and called NIMI classification: PEMIA/C
Are climatic / hydrologic conditions on the site hydrol for this time of	
Are Vegetation	
Are Vegetation, soil, or hydrology significan	itiy disturbed ?/ O Are "Normal Circumstances" present? Yes // No
Are Vegetation, Soil, or Hydrology naturally	problematic? NO^{-1} (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showi	ng sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes No	- Is the Sampled Area
Wetland Hydrology Present? Yes No	within a wetland? Yes No
Remarks:	
Photo#8. Wetland is within Stur	in water Menophent Dis a at is dominated
h Ac is used:	
and ministra and have it.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	uy) Surface Soil Cracks (B6)
Surface Water (A1) Aquatic Fauna	(B13) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Mart Deposits (B15) (LRR U) Drainage Patterns (B10)
Z Saturation (A3) Hydrogen Sulfic	Je Odor (C1) Moss Trim Lines (B16)
Water Marks (B1) Oxidized Rhizo	spheres along Living Rools (C3) Dry-Season Water Table (C2)
Drift Deposits (B3)	duction in Tilled Soils (C6)
Algal Mat or Crust (B4) Thin Muck Surf	iace (C7) (Ce) (Ce) (Ce)
Iron Deposits (B5) Other (Explain	in Remarks) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes No 📈 Depth (inc	:hes):
Water Table Present? Yes No Depth (inc	:hes):
Saturation Present? Yes // No Depth (inc	hes): Wetland Hydrology Present? Yes No
(includes capillary finge) Describe Recorded Data (stream gauge, monitoring well, aerial p	hotos previous inspections) if available:
Province recorded bald (diream gauge, monitoring weil, acharp	
Remarks:	
	· · · ·
	-
	21

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

Sampling Point: WH-WTP 2

Tree Stratum (Plot size: 30	Absolute Dominant Indicator	Dominance Test worksheet:
1	% Cover Species? Status	Number of Dominant Species
2		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
		Species Across All Strata: (B)
P		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: (A/B)
b,		
7		Prevalence Index worksheet:
8		Total % Cover of:Multiply by:
2	= Total Cover	OBL species x 1 =
50% of total cover:	20% of total cover.	FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 30 ()	982 1	FAC species x 3 =
1	10/0	FACU species x 4 =
2		UPL species x 5 =
3		Column Totals: (A) (B)
4NONE		
5	· · · · · · · · · · · · · · · · · · ·	Prevalence index = B/A =
6		Hydrophytic Vegetation Indicators:
7		A 1 - Rapid Test for Hydrophytic Vegetation
8.		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.01
ECO/ astal	= Iotal Cover	Problematic Hydrophytic Vegetation ¹ (Explain)
SU% of total cover:	20% of total cover:	
Plane (Plot size:)	Mar 1	¹ Indicators of hydric soil and wetland hydrology must
1. Instantic sustantis	100 FACW	be present, unless disturbed or problematic.
2		Definitions of Four Vegetation Strata:
3		Tree - Moody plants, avaluding views 2 in (7.0 and a
4		more in diameter at breast height (DBH), regardless of
5		height.
6		Sapling/Shrub Woody plants evaluating views have
7		than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8		
9		of size, and woody plants less than 3.28 ft tall
10		or size, and woody plants less than 3.26 it fail.
11		Woody vine - All woody vines greater than 3.28 ft in
12.		neight.
50% of lotal actions		
Woody Vice Stratum (Diet einer 20)	20% of total cover:	
1 (PIOL SIZE: <u>50</u>)		
2		1
4		
5		Hydrophytic
	= Total Cover	Vegetation
50% of total cover	20% of total cover	Present? Yes No
Remarks: (If observed, list morphological adaptations belo	Nar)	
	, who is a second s	

1

ę

Sampling Point: <u>W84-WT</u>P2

Profile Dese	rlption: (Describe	to the dept	h needed to docum	ent the Ir	ndicator	or confirm	the absence of	Indicators.)
Depth	Matrix_		Redox	Features	;			
(inches)	Color (moist)		Color (moist)	%	_Туре'	Loc ²	Texture	Remarks
<u>q-19'</u>	JOYE 91	1 100					_54	
10-15	_1 5/0	95 1	OVR4/	5	C.	M	51	
		<u> </u>						
·	<u> </u>							
	<u> </u>							14 - C
		·				·		
1= 0.0								
Type: C=C	oncentration, D=De	pletion, RM=I	Reduced Matrix, MS	=Masked	Sand G	alns.	² Location: P	L=Pore Lining, M=Matrix.
nyone son	moleators: (Appli	cable to all L	.RRs, unless other	vise note	ed.)		Indicators fo	or Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Bel	ow Surfac	ce (S8) (I	LRR S, T, U	J) 1 cm Mu	ck (A9) (LRR O)
Histic E	Dipedon (A2)		Thin Dark Sur	face (S9)	(LRR S	, T, U)	2 cm Mu	ck (A10) (LRR S)
Black H	Istic (A3)		Loamy Mucky	Mineral (F1) (LRI	R O)	Reduced	Vertic (F18) (outside MLRA 150A,B)
Hydroge	en Suitide (A4)		Loamy Gleyer	d Matrix (I	F2)		Piedmon	t Floodplain Soils (F19) (LRR P, S, T)
Suame	J Layers (AD)		Depleted Material	rix (F3)			Anomalo	ous Bright Loamy Soils (F20)
Organic	boules (AD) (LKK)	P, I, U)	Redox Dark S	Surface (F	6)		(MLRA	153B)
5 cm Muck Br		(KKP, 1, 0)	Depleted Dan	< Surface	(F7)		Red Par	ent Material (TF2)
i cm Mu	ICK (AG) (I DP D T)	0)	Redox Depres		5)		Very Shi	allow Dark Surface (TF12)
Deplete	d Below Dark Surfa	ce (A11)		rio (E11)		641	Other (E	xplain in Remarks)
Thick D	ark Surface (A12)			iic (FTI) see Mace	(IVILKA I ee (F12)			or of hydrophytic ventation and
Coast P	rairie Redox (A16) (MLRA 150A) Umbric Surfa	- (F13) /	IRRP.	(ERR 0, F; T 11)	(I) Indical wetta	ad hydrology must be present
Sandy N	Aucky Mineral (S1)	(LRR O. S)	Delta Ochric ((F17) (MI	RA 151)	i, 0)	weua	s disturbed or problematic
Sandy (Sleyed Matrix (S4)	(=, =,	Reduced Ver	tic (F18) (MLRA 1	, 50A, 150B)	1	s distribed of problematic.
Sandy F	Redox (S5)		Piedmont Flo	odolain S	oils (F19) (MLRA 14	/ 49A)	
Stripped	Matrix (S6)		Anomalous B	right Loar	ny Soils	(F20) (MLF	RA 149A, 153C, 1	153D)
Dark Su	rface (S7) (LRR P,	S, T, U)	_	5		(*, (*****		
Restrictive	Layer (if observed):					1	
Type:								
Depth (in	ches):						Hydric Soll F	Irasanta Vas
Remarks:							I nyune sun P	
noniunts.								
						_		

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Purple Line / R. Verdale Rd City/County: PINESdo-12/PG Sampling Date: 5/24	113
Applicant/Owner: MTA State: MD Sampling PointW24-0	TP-
Investigator(s):S MDSection, Township, Range:	
Landform (hillslope, terrace, etc.): TCCCCCC Local relief (concave, convex, none); COONAN Slope (%);	1-2%
Subregion (LRR or MLRA): MLRA 149A	
Datum: Datum: Datum:	
Soli Map Unit Name: M/13Tlung-/OWNO W Dur Inve Corruptex NWI classification:	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed? Yes Are "Normal Circumstances" present? Yes No	
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features,	etc.
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes No	
Wetland Hydrology Present? Yes No within a Wetland? Yes No	
Remarks: - Arco significantly disturbed + centorns pill moterial due to Sw	·M·
basing construction.	
- Photo # 7	
HYDROLOGY	
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required)	ed)
Primary Indicators (minimum of one is required, check all that apply) Surface Soil Cracks (B6)	
Surface Water (A1) Aquatic Fauna (B13) Sparsely Venetated Concave Surface (E	(8)
High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10)	
Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16)	
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8)	
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9	
Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2)	
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)	
Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U)	
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches): 28	
Saturation Present? Yes No Depth (inches): Wettand Hydrology Present? Yes No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	
	1
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VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point:w 24-UTP 1

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	Abcoluto	Deminent	1	Gamping Point. N 2 V 1
Tree Stratum (Plot size: 30	% Cover	Species	Indicator	Dominance Test worksheet:
1. Platank glas hat 11		ODecles	Status	Number of Dominant Species
2 Taka al			+ ACW	That Are OBL, FACW, or FAC: (A)
2.00+0413 Niero-	<u> </u>		FACU	Total Number of Demisest
3. Marus alter	10	W	FACI1	Species Across All Strata:
4. UMUS MESIONA	5		FAC	
5. Salix nara	(2		ORI	Percent of Dominant Species
6. Populus Saltadas	20		Chi	That Are OBL, FACW, or FAC: 10 10 (A/B)
70' ALLANDE	20		<u> </u>	Providence Indexed to the
1. JUE TEUS ODGUSTIOS			FACW	Fievalence index worksheet:
8				Total % Cover of:Multiply by:
	63	= Total Co	ver	OBL species x 1 =
50% of total cover: 31	5 20% of	total cover	12.6	FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 3.0-	20/001	total cover	. <u>19. ě</u>	EAC species v 3 -
	1 -			
LONGER DO DOCKI	10		UPL	
2 Morus a ba	5		FALU	UPL species x 5 =
3. TANUS COLETUANO	2		UPL	Column Totals: (A) (B)
4. Bosh multiPlarin	~		FALL	
5. La suda al a ta SI	0		TACO	Prevalence Index = B/A =
E A L	X		tAC	Hydrophytic Vegetation Indicators:
acer requiredo	10		+4<	7 - Rapid Test for Hydrophytic Vegetation
8				
	89			3 - Prevalence Index is ≤3.0'
50% offetel environ 19	<u> </u>	- TOLAT CON		Problematic Hydrophytic Vegetation (Explain)
Horb Stratum (Distair 3 0	20% of	total cover	1-0	
(Plot size:)	1		100	Indicators of hydric soil and wetland hydrology much
1. testica ontensis	6	/	FACU	be present, unless disturbed or problematic
2. RUMEN CRESPUS	3	/	FAC	Definitions of Four Vagatation Strates
3. TUREUS Attus	#2	1	OBI	Sommer and the second strata:
4.			9.00	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
5				more in diameter at breast height (DBH), regardless of
J				height.
6				Sapling/Shrub Woody slasts systedians to
7				than 3 in, DBH and greater than 3 28 ft (1 m) tall
8		<u></u>		
9.				Herb - All herbaceous (non-woody) plants, regardless
10		·		of size, and woody plants less than 3.28 ft tall.
10				Woody vine - All woody vines grapter than 2 op a in
11				height.
12				- 10
	13.	- Total Co	/or	
50% of total actions	2004 -6		01	
Woody Vine Stratum (Dist size \$ 0	20% of	total cover	<u>a.o</u>	
	. /	-		
1 AFThenolisus quinquelo,	<u>a 69</u>		FAC	
2. Hoxicodinaran Indun	40		FAC	
3. Louisanin in Peaker	70	/	<u>A</u>	
4.			1210-	
5				
	17-	·		Hydrophytic
	<u>]/@</u> :	= Total Cov	/er	Vegetation
50% of total cover: 82	20% of	total cover	34	Present? Yes No No
Remarks: (If observed, list morphological adaptations belo	w)			
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Profile Description: (Describe to the depth needed to document the Indicator or confirm	the absence o	n indicators.)	
Liepth <u>Matrix Redox Features</u>	Tautura	D	
0-8 4 10 VF 4/1 100			<u>s</u>
	56.	WITH Ma	76512-1
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.	² Location: I	PL=Pore Lining, M=M	atrix.
History (A1)	Indicators f	or Problematic Hydr	ic Soils":
Histic Epipedon (A2)) 1 cm Me	uck (A9) (LRR O)	
Black Histic (A3)	∠ cm Mi Reduce	UCK (A1U) (LRK S) d Vertic (E18) (putcid	
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)	Piedmo	nt Floodplain Soils (F	19) /LRR P. S. TI
Stratified Layers (A5) Depleted Matrix (F3)	Anomal	ous Bright Loamy Sol	ls (F20)
Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6)	(MLR	A 153B)	
5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7)	Red Pa	rent Material (TF2)	
Muck Presence (A8) (LRR U) Redox Depressions (F8)	Very Sh	allow Dark Surface (1	'F12)
Depleted Below Dark Surface (A11) Mari (F10) (LKK 0)	Other (I	Explain in Remarks)	
Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O. P.	T) ³ Indica	ators of hydrophytic ve	retation and
Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U)	wetl	and hydrology must b	e present.
Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151)	unie	ss disturbed or proble	matic.
Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B)			
Samuy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14	9A)	(
Dark Surface (S7) (LRR P. S. T. II)	A 149A, 153C,	153D)	
Restrictive Laver (if absorved)			
Restrictive Layer (Houserved):	1		
Type:	Hydric Soil	Present? Yes	No
Type:	Hydric Soil	Present? Yes	No
Remarks: *: augur Febrsed by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Febrezed by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Febrszed by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Febused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Perlused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Febrezed by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Fedused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Felvsed by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Perused by fill at 8"	Hydric Soil	Present? Yes	<u> No </u>
Remarks: *: augur Perfused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: *: augur Febrezed by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>
Remarks: #: augur Febrezed by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>
Remarks: *: augur Febused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: #: augur Perused by fill at 8"	Hydric Soil	Present? Yes	No
Remarks: #: augur Pelused by fill at 8"	Hydric Soil	Present? Yes	<u> No </u>
Remarks: #: argur Febrezed by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>
Remarks: #: argur Febred by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>
Remarks: #: argur Fredriged by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>
Remarks: #: augur Febrezed by fill at 8"	Hydric Soll	Present? Yes	No
Type: <u>f.//</u> Depth (inches): <u>\$"</u> Remarks: #: augur Febused by fill at 8"	Hydric Soil	Present? Yes	No
Type: <u>f.//</u> Depth (inches): <u>\$"</u> Remarks: #: augur Febused by fill at 8"	Hydric Soil	Present? Yes	<u>No</u>

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region Project/Site: City/County: Applicant/Owner: State: Sampling Point: Investigator(s): 6 Section, Township, Range: Landform (hillslope, terrace, etc.): SWM Dona Local relief (concave, convex, none): _____ Slope (%) MI Subregion (LRR or MLRA): Lat: Lona: Datum: Soil Map Unit Name: NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.) No Are Vegelation , Soil ___, or Hydrology ___ _____significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation ___ __, Soil _____, or Hydrology ____ naturally problematic? (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No is the Sampled Area Hydric Soil Present? No within a Wetland? Wetland Hydrology Present? Yes Remarks: HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soli Cracks (B6) Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Mari Deposits (B15) (LRR U) Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16) Water Marks (B1) Oxidized Rhizospheres along Living Rools (C3) _ Dry-Season Water Table (C2) Sediment Deposits (B2) Presence of Reduced Iron (C4) _ Crayfish Burrows (C8) Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2) Iron Deposils (B5) Other (Explain in Remarks) Shallow Aquitard (D3) X Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) X Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U) **Field Observations:** Surface Water Present? Depth (inches Water Table Present? Depth (inches): Saturation Present? Depth (inches): Wetland Hydrology Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>% Cover</u>	Species?	<u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
Statte			Total Number of Dominant
		·	Species Across All Strata: (B)
			Percent of Dominant Species
		579 A94	
			Prevalence Index worksheet:
19.11.1	1.1497.525		OBI species
	= Total Cov	er	FACW species x2 =
20% of	total cover		FAC species x 3 =
60	Y	FA(W)	FACU species x 4 =
> 25	V	ORI	UPL species x 5 =
			Column Totals: (A) (B)
	·	<u> </u>	Prevalence Index = B/A =
· · · · · · · · · · · · · · · · · · ·			Hydrophytic Vegetation indicators:
			1/ Rapid Test for Hydrophytic Vegetation
	·,		2 - Dominance Test is >50%
- 06		<u> </u>	3 - Prevalence index is ≤3.0 ¹
15	= Total Cov	er 1-2	Problematic Hydrophytic Vegetation ¹ (Explain)
<u>⊅ ∕∕</u> 20% of	total cover:	11	- 2501-12-61-021-1221-1221-1-12-
25	Y	ORI	¹ Indicators of hydric soli and wetland hydrology must
		<u>-00</u>	Definitions of Four Vegetation Strate:
	States.	a The served.	Deminitoris of Four vegetation Strata.
- Propriet	dis an	she tina 🕐	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
<u></u>		2008 N.N.	helght.
		arasi or	
	14.42		than 3 in, DBH and greater than 3.28 ft (1 m) tall
······································	an a		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	an ann an	en al 2 2 de 19 Factoria de 19 Factoria de 19	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	1. 1. 200 1. 1. 200 1. 1. 200	6-15-246 d 111 (1000) 	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
	= Total Cov	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
	= Total Cov total cover	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
 	= Total Cov total cover;	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
<u>JS</u> 5 20% of	= Total Cover:	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
20% of	= Total Cov total cover	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
<u>J</u> <u>S</u> <u>5</u> 20% of	= Total Cov total cover;	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
20% of	= Total Cover:	er 5	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
20% of	Total Cover Total cover Total cover	er er	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Woedtation
	20% of <u>60</u> <u>20% of</u> <u>85</u> <u>85</u> <u>20% of</u> <u>85</u> <u>20% of</u> <u>85</u> <u>85</u> <u>20% of</u>	$= Total Cov 20% of total cover \frac{OD}{25} = Total Cov \frac{95}{20\%} = Total Cov \frac{S}{20\%} of total cover \frac{AS}{20\%} = Total Cover \frac{AS}{20\%} = Total Cover Co$	= Total Cover $= Total Cover$ $= 20% of total cover:$ $= 00 Y FAW DBL$ $= 00 Y DBL$

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US Army Corps of Engineers

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Impling Point WTP 25-/

SOIL						Sampling Point:
Profile Desci	ription: (Describe	to the depth	needed to document th	ne indicator or confirm	the absence of in	dicators.)
Depth	Matrix		Redox Featu	Jres		
(inches)	Color (moist)		Color (moist) %	Type'Loc ²	Texture	Remarks
0-2	104R413	100		N	S	
2-8	10VRULI	100		······································	61	
8×	InVAULA	150				
01	<u>1078712</u>	100 -			$\underline{\sim}$	
	·····	·				-
¹ Type: C=Co	ncentration, D=Dep	ietion, RM=Re	duced Matrix, MS=Masi	ked Sand Grains.	² Location: PL=	Pore Lining, M=Matrix,
Hydric Soll ir	ndicators: (Applic	abie to ali LR	Rs, unless otherwise r	noted.)	indicators for F	Problematic Hydric Solis ³ :
Histosol ((A1)		Polyvalue Below Su	rface (S8) (LRR S. T. U)	1 cm Muck	(A9) (I RR O)
Histic Epi	ipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)	2 cm Muck	(A10) (LRR S)
Black His	tic (A3)		Loamy Mucky Miner	al (F1) (LRR O)	Reduced V	ertic (F18) (outside MLRA 150A.B)
Hydroger	n Sulfide (A4)		Loamy Gleyed Matr	ix (F2)	Piedmont F	loodplain Soils (F19) (LRR P, S, T)
Stratified	Layers (A5)		Depieted Matrix (F3)	Anomaious	Bright Loamy Soils (F20)
Organic E	Bodies (A6) (LRR P	, T, U)	Redox Dark Surface	e (F6)	(MLRA 1	53B)
5 cm Muc	ky Minerai (A7) (LF	RR P, T, U)	Depleted Dark Surfa	ace (F7)	Red Parent	Materiai (TF2)
Muck Pre	sence (A8) (LRR U).	Redox Depressions	(F8)	Very Shallo	w Dark Surface (TF12)
	K (A9) (LRR P, T)		Mari (F10) (LRR U)		Other (Expl	ain in Remarks)
Depleted Thick Day	Surface (A12)	e (A11)	Depieted Ochric (F1	1) (MLRA 151)		
Coast Pre	irie Redov (A12)	1 PA 150A)	Iron-ivianganese ivia	(SSES (F12) (LRK O, P, 1) Indicators	of hydrophytic vegetation and
Sandy Mu	uckv Mineral (S1) (I	.RR 0. S)	Delta Ochric (F17) (MIRA 151)	weiland	nydrology must be present,
Sandy Gi	eyed Matrix (S4)		Reduced Vertic (F1)	B) (MLRA 150A 150B)	uness a	isturbed of problematic.
Sandy Re	edox (S5)	-	Piedmont Floodplair	Soils (F19) (MLRA 149	A)	
Stripped I	Matrix (S6)	•	Anomaious Bright L	oamy Soils (F20) (MLRA	149A. 153C. 153	D)
Dark Surf	ace (S7) (LRR P, S	, τ, U)			,,	-,
Restrictive La	ayer (if observed):					
Туре:			_			/
Depth (Inc)	nes):				Hydric Soil Pres	sent? Yes No
Remarks:						
			Λ	A		
			did	hall child		
			astr	rded Julis		
			MI	0		
			til m	atena		
						······································

Stream Features
Date: 12-9-11 Project Site: Purple Live WUS #: 30
Observer(s) BIF, HS
Stream Flow: Perennial: Intermittent Ephemeral
Gradient: <u>A10</u> Classification: <u>1000</u> Classification:
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain: VIP Vap
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>41</u> Depth <u>1</u> Avg. Water Depth <u>No Water</u> Has stream morphometry been altered? <u>425</u> Describe : <u>Straighteved</u> , filled Wip-np
Habitat and Pollutants: Substrate (predominant type (s)): <u>Mip Vap Sund</u> Habitat Complexity (characterize): <u>IOW</u> , <u>VIP Vap ID</u> flow S
Bank Erosion: SevereModerate Minor
Silt Deposition:
Pollutants (observation / potential sources): YOUD VUNDEF
Stormwater Outfalls:

too sold of Fish Spawn Areas
Aquatic/Wildlife Diversity
Objective (Hite Annual)
10 9 11 202
General Information Enternation
Shrubs <u> </u>
fulpopplar, black
willow spint a protocol of the protocol
Creminal Has (check all that apply):
30%
and all the main of the second s
Stronger see - une diplet to the
Sub-Male (mad.shinaed type (s)):
Statistics

Stream Features
Date: 12 9/11 Project Site: Purple Live WUS #: 032
Observer(s) B6, H3
Stream Flow: Perennial: Intermittent Ephemeral Gradient: 2°/0 Classification: RYSb2rvip-vcm0
Channel Characteristics:
Natural Artificial (man-made) Manipulated (man-altered)
Explain: VIP VOP
Channel Has (check all that apply):
OHWM actor gas upon W you of the one of other actor
clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events
Image: Sediment deposition Image: Sediment deposition Image: Sediment deposition Image: Sediment
the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>4</u> Depth <u>1</u> Avg. Water Depth <u>Mo Wafer</u>
Has stream morphometry been altered?
Has stream morphometry been altered? <u>4CS</u> Describe: Struightened w/ VIP-VDP flacement
Has stream morphometry been altered? <u>4CS</u> Describe : <u>Structured</u> <u>Whened</u> <u>Placement</u> Habitat and Pollutants: Substrate (predominant type (s)): <u>My vap w Saud</u>
Has stream morphometry been altered? <u>4CS</u> Describe : <u>Gtwisklened</u> <u>Wy-vop</u> <u>flacewent</u> Habitat and Pollutants: Substrate (predominant type (s)): <u>My vap w Saud</u> Habitat Complexity (characterize): <u>(w-1) w flavs</u> <u>Wull</u> d
Has stream morphometry been altered? <u>4CS</u> Describe : <u>Gtruichtened</u> <u>where</u> <u>placement</u> Habitat and Pollutants: Substrate (predominant type (s)): <u>Mprup wlSaud</u> Habitat Complexity (characterize): <u>(m-10w flows Wall of</u> <u>Malint</u>
Has stream morphometry been altered? 4CSDescribe : Gtrathered M.M.P. rop flacement Habitat and Pollutants: Substrate (predominant type (s)): M.P. rop w[Saud] Habitat Complexity (characterize): (m
Has stream morphometry been altered? 4CSDescribe : Gtrathered Mp-rap flacement Habitat and Pollutants: Substrate (predominant type (s)): Mp rap w[Smal Habitat Complexity (characterize): (m
Has stream morphometry been altered? <u>YCS</u> Describe : <u>Gtraighteed</u> <u>Wrp-vap</u> <u>flacewent</u> Habitat and Pollutants: Substrate (predominant type (s)): <u>Mrapw[Saud]</u> Habitat Complexity (characterize): <u>[ow-]ow flaws</u> <u>Wull of</u> <u>Multiple</u> Bank Erosion: <u>Severe</u> <u>Moderate</u> <u>Minor</u>] Describe: Silt Deposition: <u>MMM</u>
Has stream morphometry been altered? UCS_Describe: Ghrand Winder Stream Marken Stream Minor Machen Stream Marken Stream Minor Habitat and Pollutants: Substrate (predominant type (s)): Mf rup w[Saud Habitat Complexity (characterize): Image: Complexity (characterize): Image: Complexity (characterize): Habitat Complexity (characterize): Image: Complexity (characterize): Image: Complexity (characterize): Machen Machen Minor Image: Complexity (characterize): Bank Erosion: Severe Moderate Minor Describe: Image: Complexity (characterize): Image: Complexity (characterize): Silt Deposition: Mm Mm Pollutants (observation / potential sources): MWA Multiple

Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity Explain Findings:
Explain Findings: Riparian Zone: Development: <u>MMM</u> <u>forestel</u> <u>Mffer wid voad</u> Riparian vegetation: Forest <u>Shrubs X</u> Herbs <u>Herbs</u> <u>Dominant Species:</u> <u>BOY elder</u> , <u>sycumme</u> , <u>Moffe</u> , <u>Poison</u> <u>MY</u> , <u>Multiflam rost</u> Riparian Buffer Width: <u>BO'</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows ant and mto culvert that</u> <u>Convects to WJS 29</u>
Riparian Zone: Development: <u>Manner</u> <u>forested hulfer wid voad</u> Riparian vegetation: Forest <u>Shrubs X</u> Herbs <u>Herbs 1</u> Dominant Species: <u>BOY elder</u> <u>sycamme</u> , <u>Maple</u> , <u>poison</u> <u>My</u> , <u>Multiflarn post</u> Riparian Buffer Width: <u>Ad</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows at aud</u> <u>Ato aulvert that</u> <u>Convects to WJS 29</u>
Alparian Zone: Development: <u>NOMM</u> friested higher with road. Riparian vegetation: Forest <u>K</u> Shrubs <u>X</u> Herbs <u>F</u> Dominant Species: <u>BOY eld er</u> , <u>sqcamme</u> , <u>Maple</u> , <u>PUSM</u> <u>JMY</u> , <u>Multitlam rost</u> Riparian Buffer Width: <u>BO'</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows</u> <u>ant and <u>Ato culvert</u> <u>Hat</u> <u>Conveets</u> <u>to WUS 29</u></u>
Riparian vegetation: Forest Shrubs Herbs Dominant Species: DY elder , sycumme , Maple , prism TVY, Multiflion rost Riparian Buffer Width: D' Approximate % Shading by Woody Species: 90% Notes: flows out and not cultert that Convects To WJS 29
Dominant Species: <u>BOY elder</u> , <u>sycamme</u> , <u>Mofle</u> , <u>fo</u> 'sm <u>TVY</u> , <u>Multiflarn rost</u> Riparian Buffer Width: <u>AO'</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows out and into culvert that</u> <u>Converts to WUS 29</u>
<u>IVY</u> <u>Multition rost</u> Riparian Buffer Width: <u>Av</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows out and puto culvert that</u> <u>Converts to WUS 29</u>
Riparian Buffer Width: <u>Add</u> Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows out and into culvert that</u> <u>Convects to WVS 29</u>
Approximate % Shading by Woody Species: <u>90%</u> Notes: <u>flows out and into allocit that</u> <u>converts to WUS 29</u>
Notes: <u>flows out and into culvert that</u> <u>Converts to wissing</u>
Convects to WUS 29
Multiple on any service of the servi
Marchielegy: Ma
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Habitat and Polititanta:
Habitat and Politiants:
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Pottutanii (absimizirion / poteniizi murces)
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	W33
WETLAND DETERMINATION DATA FORM – Atlantic and	Gulf Coastal Plain Region
Project/Site: TWP E LIVE City/County:	Sampling Date: 12 5
Applicant/Owner:	_ State: MD Sampling Point: WN 33-
Investigator(s): Section, Township, Range:	
Landform (hillslope, terrace, etc.): SWM pwww Local relief (concave, conve	ex, none): CONCAVE Slope (%): 21
Subregion (LRR or MLRA): MLRA 148 Lat: Long	Datum:
Soil Map Unit Name: Uporthents, 0-65% Slopes	NWI classification: DEMIEV
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	(If no, evolution in Remarks)
Are Vegetation Soil or Hydrology significantly disturbed?	
Are Venetation Soil or Hydrology significantly distributed? Are Norm	t and the second s
are vegetation, 30 m, or Hydrology haturally problematic? (If needed	d, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point loca	tions, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampled Area Hydric Soll Present? Yes No within a Wetland? Wetland Hydrology Present? Yes No No	ra Yes <u>X</u> No
Remarks:	
HYDROLOGY	
Wattend Hudralanu Indiadana	
Primary Indicators (minimum of one is convict to the to be the to be	Secondary Indicators (minimum of two required)
Surface Water (A1)	Surface Soil Cracks (B6)
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)
X Saturation (A3) Hydrogen Sulfide Odor (C1)	Dramage Patterns (B10)
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3	Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5) Other (Explain in Remarks)	Shallow Aquitard (D3)
Linundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes <u>No</u> Depth (inches): <u>1</u> <u>United by (inches)</u>	
Sofurction Present? Yes No Depth (inches):	\sim
(includes capillary fringe)	d Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if a	available:
Demoder	
Remarks:	
PEM serves as swim pind	
a "na Grappi" a series and a s	
	1855 - 1955 - 1055 - 19

Tree Stratum (Biot elze:	Absolute Dominant Indicator	Dominance Test worksheet:
1)	% Cover Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant Species Across All Strata: (B)
		Percent of Dominant Species 100 (A/E
n na serie de la companya de la comp	AV 200 100 100 0000	Prevalence Index worksheet:
a an an international and a second	N 235 195 19	Total % Cover of: Multiply by:
Y die webstern 12 heb. 19	= Totai Cover	OBL species x 1 =
50% of total cover:	20% of total cover:	FACW species x 2 =
apling/Shrub Stratum (Plot size:)		FAC species x 3 =
•		FACU species x 4 =
		UPL species x 5 =
k		Column Totals: (A) (B)
		Prevalence Index = B/A =
·		Hydrophytic Vegetation Indicators:
7		
		_ 2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0 ¹
50% of total cover	= Total Cover	Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size:)	20 % of total cover	the state of the second s
Tupha atitalia	100 Y ARI	indicators of hydric soll and wetland hydrology must
JUNCUS ETTUSUS	8 FAW	Definitions of Four Vegetation Strata;
3		(LS) no toubu-
Hits Indt - 2 Min 2-20	end to a realizable	Ifee – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
5 Million and Formation	-171 - 181 -	height.
<u>, in the second many the second second</u>	-) 正常に相当る 2015年1月	Sapling/Shrub - Woody plants, excluding vines, less
65 (distribution (15)	la contrata de	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	- ee 100 ya	Herb - All berbaceous (pop-woody) plants, regarding
eta in Patro canatti ser 1 a		of size, and woody plants less than 3.28 ft tail.
0		Woody upp All woody vince greater than 2.00 ft in
1		height.
2		A Trace of a
104	108 = Total Cover	/
50% of total cover: 1 - 1	20% of total cover:	day and the second s
, , , , , , , , , , , , , , , , , , ,		
).	·	
·		
5		I hadness hashts
	= Total Cover	Vegetation
50% of total cover:	20% of total cover:	Present? Yes <u>No</u>
Remarks: (If observed, list morphological adaptations beio	w).	

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US Army Corps of Engineers

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Profile Description: (Describe to the dept	h needed to docume	ent the Inc	licator	or confirm	n the absence	of Indicators.)
Depth <u>Matrix</u>	Redox	Features					
(Inches) Color (moist) %	Color (moist)		Type'	_Loc ²	<u>Texture</u>		Remarks
<u>0-9</u> 109K972 100					SIC	_Root	lets
4- 2.5Y.512 8D	7.51R4/16	20 0	C	M	fsc		
					<u> </u>		
							<u> </u>
					<u> </u>		
¹ Type: C=Concentration, D=Depletion, RM=	Reduced Matrix MS=	Mackad S	and Gre	line	² l contion:		a bl-blatabe
Hydric Soll Indicators: (Applicable to all	LRRs. unless otherw	ise noted	.)	<u></u>		for Problemat	lg, m≕maurix. hic Hydric Solls ³ :
Histosoi (A1)	Polyvalue Reio	w Surface	. (\$8) (L)	PPS TI	i) 1 cm M		
Histic Epipedon (A2)	Thin Dark Surf	ace (S9) (1		τιν τιν	2 cm M		
Black Histlc (A3)	Loamy Mucky I	Mineral (F	1) (I RR	() ()	2 cm w	d Vertic (E18)	(outside MLRA 450A R)
Hydrogen Sulfide (A4)	Loamy Gleved	Matrix (F2	2)	•,	Reduct	nt Floodplain	Soils (F19) (I RR P S T)
Stratified Layers (A5)	X Depleted Matri	x (F3)	- /		Anoma	lous Bright Los	amy Soils (F20)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Su	inface (F6)			(MLR	A 153B)	
5 cm Mucky Mineral (A7) (LRR P, T, U)	Depleted Dark	Surface (F	=7)		Red Pa	rent Material (TF2)
Muck Presence (A8) (LRR U)	Redox Depress	sions (F8)			Very Si	nallow Dark Su	urface (TF12)
1 cm Muck (A9) (LRR P, T)	Marl (F10) (LR	RU)			Other (Expialn in Ren	narks)
Depleted Below Dark Surface (A11)	Depleted Ochri	c (F11) (M	ILRA 15	1)			
Thick Dark Surface (A12)	iron-Manganes	e Masses	(F12) (l	.RR 0, P,	T) ³ Indic	ators of hydrop	phytic vegetation and
Coast Praine Redox (A16) (MLRA 150A) Umbric Surface	e (F13) (LF	RR P, T,	U)	wetl	and hydrology	must be present,
Sandy Mucky Winteral (S1) (LRR U, S)	Deita Ochric (F	17) (MLR/	A 151)		unle	ss disturbed o	r problematic.
Sandy Redox (S5)	Reduced Vento	(F18) (MI doloio Seil	LKA 15	JA, 1508)	0.43		
Stripped Matrix (S6)	Anomalous Bri	abt Loamy	S (119) (Solle (5	(NILKA 14	19A)	452 D)	
Dark Surface (S7) (LRR P. S. T. U)		gni Loamy	SOIIS (F	20) (MER	A 149A, 153C,	1530)	
Restrictive Layer (if observed):					T		
Туре:							0.04
Depth (inches):					Hydria Sall	Bracopt2 V	× No
Remarks:					inyune son		a2 NO
ζ.							
							6

Stream Features Field Sheet
Date: 1 <u>29-11</u> Project Site: <u>furple line</u> WUS #: <u>34</u> Observer(s) <u>BG</u> , HS
Stream Flow: Perennial: Intermittent 2 Ephemeral
Gradient: 1 / 5 Classification: 1 / 1 / 5 2
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) <u>×</u>
Explain: Channelized - rip -rap in Stream
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>4,5</u> Depth <u>3</u> Avg. Water Depth <u>3</u>
Has stream morphometry been altered? <u>Yes</u> Describe : Strangutened
Habitat and Pollutants: Substrate (predominant type (s)): Sand np-rup Habitat Complexity (characterize): IbW - lack of Stuble habitat
Bank Erosion: Severe Moderate Minor Minor
Describe: Unvegetuted bunks
Silt Deposition: Moderate
Pollutants (observation / potential sources): <u>voud moth-1013</u>
Stormwater Outfalls:
Other Environmentally Paratitive Organization

Other Environmentally-Sensitive Species
Explain Findings:
Development: <u>MUMM</u>
Riparian vegetation: Forest
Dominant Species: <u>Sy Car</u>
block to cu
Riparian Buffer Width:5
Approximate % Shading by Woody S
Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region
Project/Site: EUCOLE LINE City/County MINTAINAGUA Sensitive Day 12-9-1
Applicant/Owner: MTA Sampling Point: WTP 35
Investigator(s):
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Stope (%): 1
Subregion (LRR or MLRA): MLRA 149A Lat: Long: Datum:
Soil Map Unit Name: Ssye-Urban land complex, OCC. Plooded NWI classification: PFD)E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No Is the Sampled Area Hydric Soil Present? Yes X No within a Wetland? Yes No Wetland Hydrology Present? Yes X No within a Wetland? Yes No
HYDROLOGY
Wettand Hydrology Indicators: Secondary Indicators (minimum of two required)
Surface Water (A1)
Field Observations:
Saturation Present? Yes / No Depth (inches): (2 Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
Floodplain wetland

	Spaciae?	Indicator	Dominance Test worksheet:
25	Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
25	1	FAC	Total Number of Dominant
	10010001		Species Across All Strata: (B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC:OO (A/B)
-w		1.000	Prevalence Index worksheet:
	Sector Income		Total % Cover of: Multiply by:
50			OBL species x1 =
	= I otal Cov	er ID	FACW species x 2 =
20% 01	total cover.		FAC species x 3 =
15	Y	FAC	FACU species x 4 =
15	V	EACh1	UPL species x 5 =
		211000	Column Totals: (A) (B)
			Prevalence index = B/A =
			Hydrophytic Vegetation Indicators:
			- Aapld Test for Hydrophytic Vegetation
			_ <u>✓</u> 2 - Dominance Test is >50%
30	Takal Ori		3 - Prevalence Index is ≤3.0 ¹
2004	= I Otal COV	er	Problematic Hydrophytic Vegetation ¹ (Explain)
<u>2</u> 20% of	total cover:		
.3n	Y	FACIN	Indicators of hydric soil and wetland hydrology must
5		FACIN	be present, unless disturbed or problematic.
-5-		PACW	Definitions of Four Vegetation Strata:
		TAL	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
			more in diameter at breast height (DBH), regardless of
1. 0a0 h	AND ANY N	0.95100	a det d'ada d'ann
	2	Care to the state	Sapling/Shrub – Woody plants, excluding vines, less
	- 10 - 120V		
			Herb - All herbaceous (non-woody) plants, regardless
			of size, and woody plants less than 3.28 ft tail.
			Woody vine - All woody vines greater than 3.28 ft in
			height.
LID		102	 [10] G. B. Barris, R. B. M. B.
	= Total Cov	er	1 -1 C7 4420 / 1811
20% of	total cover:	State Lies	
			Hydrophytic
	= Total Cov	er	Vegetation Present? Ves No
2004 ~	total cover:		
	<u>50</u> 20% of <u>15</u> <u>15</u> <u>30</u> <u>30</u> <u>5</u> <u>5</u> <u>5</u> <u>5</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u> <u>7</u>	$\frac{50}{20\% \text{ of total cover:}} = \text{Total Cov}$ $\frac{15}{15} \qquad \qquad$	$\frac{50}{20\% \text{ of total cover}} = \text{Total Cover} \frac{10}{20\% \text{ of total cover}} \frac{10}{15} = \text{Total Cover} \frac{10}{20\% \text{ of total cover}} = \frac{30}{20\% \text{ ot total cover}} = \frac{30}{20\% ot tota$

SOIL

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Sampling Point: WTP35-1

Thoma accomption. (Describe to the depi	in needed to document the indicator of continn) the absence of indicators.)
Depth Matrix	Redox Features	
(Inches) Color (moist) %	Color (moist) % Type Loc ²	Texture Remarks
1-2 107R412 100	C	Sil
2-8 1048412 70	7.5YR416 30 CM	61
St INVEND 105	750011 75 0 00	
<u> 01 101~112 05</u> .	F. 0 10 10 30 C 111	
		10
· · · · · · · · · · · · · · · · · · ·		
Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to all I	.RRs, unless otherwise noted.)	Indicators for Problematic Hydric Solls ³ :
Histosol (A1)	Polyvalue Below Surface (S8) (LRR S, T, U	J) 1 cm Muck (A9) (LRR O)
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR S, T, U)	2 cm Muck (A10) (LRR S)
Biack Histic (A3)	Loamy Mucky Mineral (F1) (LRR O)	Reduced Vertic (F18) (outside MLRA 150A, B)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Pledmont Floodplain Soils (F19) (LRR P, S, T)
Stratified Layers (A5)	Ҳ Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Surface (F6)	(MLRA 153B)
5 cm Mucky Mineral (A/) (LRR P, T, U)	Depleted Dark Surface (F7)	Red Parent Material (TF2)
Muck Presence (A8) (LRR U)	Redox Depressions (F8)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (444)	Mari (F10) (LRR U)	Other (Explain in Remarks)
Thick Dark Surface (A12)	Depieted Ochric (F11) (MLRA 151)	
Coast Prairie Redox (A16) (MLRA 150A	IIOI-Manganese Masses (F12) (LRR O, P,	1) Indicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1) (LRR O. S)	Deita Ochric (E17) (LRK P, 1, 0)	wetland hydrology must be present,
Sandy Gleved Matrix (S4)	Reduced Vertic (F18) (MLRA 150A 150B)	unless disturbed or problematic.
Sandy Redox (S5)	Piedmont Floodniain Soils (F19) (MLRA 14	04)
Stripped Matrix (S6)	Anomalous Bright Loamy Soils (F20) (MLR	
Dark Surface (S7) / BB D C T III		A 140A, 1000, 100D/
Dark Our lace (G/) (EKK F, S, I, U)		
Restrictive Layer (if observed):		
Restrictive Layer (if observed): Type:		
Restrictive Layer (if observed): Type: Depth (inches):		
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:	-	Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soll Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No
Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soli Present? Yes No

Date Obs Stre F Cha	e: 12.9.11 Project Site: furfle Live wus #: 36 server(s)
Stre F Cha	Beam Flow: Intermittent Ephemeral Bradient: Intermittent Ephemeral Gradient: Classification: R45bbc Annel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Shell M Manipulated (man-altered) X Explain: Shell M Manipulated (man-altered) X annel Has (check all that apply): Sed and Banks Manipulated (man-altered) X Bed and Banks OHWM destruction of terrestrial vegetation the presence of wrack line Shelving sediment sorting sediment sorting sediment sorting Vegetation matted down, bent, or absent scour multiple observed or predicted flow events Sediment deposition abrupt change in plant community other (list):
Cha I Cha	Gradient: Classification: R4SbX annel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Artificial (man-made) Manipulated (man-altered) X Explain: Artificial (man-made) Manipulated (man-altered) X annel Has (check all that apply): Bed and Banks OHWM Clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line sheiving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
Cha	Annel Characteristics: Natural Artificial (man-made) Manipulated (man-altered) X Explain: Artificial (man-made) Manipulated (man-altered) X Explain: Artificial (man-made) Art
Cha	Explain:
	OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
	the presence of litter and debris Discontinuous OHWM (explain):
Mor A	rphology: Avg. Channel Width 3,5' Depth 5' Avg. Water Depth ''
	Has stream morphometry been altered? <u>425</u> Describe :
Hab S H	Ditat and Pollutants: Substrate (predominant type (s)): Yip-yup Iabitat Complexity (characterize):
E	Bank Erosion: Severe Moderate Minor Kinor
۵	Describe:
S F	Silt Deposition: <u>MMW</u> Pollutants (observation / potential sources): <u>Powl MND</u>

ther Environmentally-Sensitive Species	Aquatic Mildlife Diversity
ner Environmentally-Sensitive Species	
Explain Findings:	13160
10	
parian Zone:	
Development: <u>5000</u>	bs mantained grass
Riparian vegetation: Forest	Shrubs X Herbs
Dominant Species: Sucle	- willow. Phraemites
and the second second	
	ntel Mas
	Enol
pproximate % Shading by Woody	Species: 00/0
Notes:	
	아이에서 아이에 가지 않는 것을 수 있다.
the first start was been apply	
	and the series of the series o

	140			W37
WETLAND DI	ETERMINATION DATA F	ORM – Atlantic and Gu	ulf Coastal Plain I	Region
Project/Site: Purple Line	The second states and the second states of the second states and the second states and the second states and the	City/County:	Sam	pling Date: 12/5/11
Applicant/Owner: MTA	e ou le regionne - noment - n	Charles in the second	State: MD Sam	Inling Point: WTP 37-1
Investigator(s): 66-, HS	4	Section Townshin Range		
Landform (hillslope, terrace, etc.):	ondolain	ocal reliet (concave, convex.	none): Cancal	P. Sloop (84): 41
Subrecion (I PR or MI PA); MI PA	1494	Local relier (concave, convex, i		
	change and canal	av acc landed		
	Than Tana Compi	ex, oce. +100ded	NWI classification	- 1200[10-
Are climatic / hydrologic conditions on the	e site typical for this time of yea	n? Yes <u>X</u> No (If no, explain in Remar	ks.)
Are Vegetation, Soil, or	-lydrology significantly of	disturbed? Are "Normal	Circumstances" preser	nt? Yes 🔀 No
Are Vegetation, Soil, or 1	-lydrology naturally prot	plematic? (If needed, e	xplain any answers in	Remarks.)
SUMMARY OF FINDINGS - A	ttach site map showing	sampling point locatio	ns, transects, im	portant features, etc.
	V			
Hydrophytic Vegetation Present?	Yes No	Is the Sampled Area		
Hydric Soll Present?	Yes <u>No</u>	within a Wetland?	Yes	No
Wetland Hydrology Present?	Yes No			
Remarks.				
21 - 1 - 1 MT - 1 GA				
HYDROLOGY				
Wetland Hydrology Indicators:	Parecept II	100	Secondary Indicators	(minimum of hus required)
Primary Indicators (minimum of one is	required: check all that apply)		Surface Soil Crac	(minimum of two required)
X Surface Water (A1)	Aquatic Fauna (B13	١-	Surrace Soli Grac	ns (DU)
High Water Table (A2)	Marl Deposite (P15)		Sparsely Vegetate	ed Concave Sunace (B6)
Saturation (A3)	War Deposits (B15)	(LKK U)	Drainage Patterns	(B10)
Water Marks (B1)	Ovidized Rhizospha	res along Living Roots (C3)	Moss min Lines (
Sediment Deposits (B2)	Presence of Reduce	ed iron (C4)	Cravfish Burrows	(C8)
Drift Deposits (B3)	Recent Iron Reducti	on in Tilled Soils (C6)	Saturation Visible	on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thin Muck Surface ((C7)	Geomorphic Posit	lion (D2)
Iron Deposits (B5)	Other (Explain in Re	emarks)	Shallow Aquitard	(D3)
Inundation Visible on Aerial Image	ry (B7)		FAC-Neutral Test	(D5)
Water-Stained Leaves (B9)			Sphagnum moss	(D8) (LRR T, U)
Field Observations:	, er i i tota i	-1		
Surface Water Present? Yes 2	No Depth (inches):	<u> </u>		
Water Table Present? Yes	No Depth (inches):			1
Saturation Present? Yes <u>2</u> (includes capillary fringe)	No Depth (inches):	Wetland H	lydrology Present?	Yes <u> </u>
Describe Recorded Data (stream gaug	e, monitoring well, aerial photos	s, previous inspections), if ava	ilable:	House the set
Remarks:				
				the second

	Absolute Deminsch Isstantes	
Tree Stratum (Plot size:	ADSOLUTE Dominant Indicator	Dominance Test worksheet:
1. A subscription make the state of the		Number of Dominant Species That Are OBL, FACW, or FAC:
2	in the second second second	Total Number of Dominant
3.	the second second second second second	Species Across All Strata:
4		and the second second second second
5		Percent of Dominant Species
6.		Inat Are OBL, FACW, or FAC: (A/B
7. He David and Date 2.	and the second permit	Prevalence Index worksheet:
8	a tak satura ana ana	Total % Cover of: Multiply by:
J		
	= Iotal Cover	FACW species v2=
50% of total cover:	20% of total cover:	FAC species
Sapling/Shrub Stratum (Plot size:		
1		
2	the second se	
3		Column Totals: (A) (B)
4		Prevalence Index - R/A -
5		
6		A Depid Test for United to 1 Miles to 1
7		- 1 - Rapid rest for Hydrophytic Vegetation
3		2 - Dominance Test is >50%
	- Tatal Osura	3 - Prevalence Index is ≤3.01
500/ of held an inter		Problematic Hydrophytic Vegetation ¹ (Explain)
Du% of total cover: _	20% of total cover:	and the second second second
Herb Stratum (Plot size:)	95 11 -11	¹ Indicators of hydric soll and wetland hydrology must
1. Privagnutes australly	FAW	be present, unless disturbed or problematic.
2. 20 10 4 GD SV.		Definitions of Four Vegetation Strata:
3. Junais ettusus	5 FACW	Tree - Moody plants, evaluding views 2 in /7 6 am) a
4. Rubus alleghennensis	2 FACU	more in diameter at breast height (DBH) regardless of
5)	and the second the state of	height.
6. (2.) (appendix) (0.) (appendix)	The second requirements and	Section (Chards Manufacture)
Contraction State and State and State	e saakopeniika ay	than 3 in, DBH and greater than 3 28 ft (1 m) tail
Los alugares volgares	decision of the second	
The second second second		Herb - All herbaceous (non-woody) plants, regardless
		or size, and woody plants less than 3.28 ft tall.
		Woody vine - All woody vines greater than 3.28 ft in
11		height.
12	<u></u>	the property of the second sec
	102 = Total Cover	
50% of total cover: _	20% of total cover:	(apart A the President
Noody Vine Stratum (Plot size:)	e register i de la secura	 Sustained a colored and constrained as a second seco
Fairent, entry	<i>V</i>	
L'anicera japonicas	10 Y FAR	20
<u> </u>		
·····		
T		
J	16	Hydrophytic
	= Total Cover	
50% of total cover:	20% of total cover:	Present res No
Remarks: (If observed, list morphological adaptations	below).	_L

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SOIL

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Sampling Point: WTP 37-1

	in needed to docum	ent the mo	dicator o	or confirm	the absence	of indicato	rs.)	
Depth <u>Matrix</u>	Redox	Features					_	
$\frac{(\text{incres})}{2} = \frac{254}{211} \frac{1}{100}$		<u></u>	Туре	Loc	Texture	1	Remarks	
<u> </u>	Lova all				TSU	<u>nsn</u>	10 0+ 0	rganics
4-12+ 2. SY412-80	JUYR 516	20	C	m	tsc.		·	
			<u> </u>			12		
			•					
9								
						•		
	Deduced Metrix, MO			•	7			
Hydric Soll Indicators: (Applicable to all I	RRs. unless other	≈iviasked c vise noted	Sand Gra	ins.	Location:	PL=Pore Li	ning, M=Matrix	Colle ³ .
Histosol (A1)	Polyvalue Bel	w Surface	··/ · (\$8) (1)	RSTU	l) 1 cm k			JUIS .
Histic Eplpedon (A2)	Thin Dark Sur	face (S9) (LRR S. 1	r. U)	2 cm N	luck (A3) (L	LRR S)	1
Black Histic (A3)	Loamy Mucky	Mineral (F	1) (LRR	0)	Reduc	ed Vertic (F	18) (outside N	ILRA 150A,B)
Hydrogen Sulfide (A4)	Loamy Gleyed	l Matrix (F2	2)		Piedm	ont Floodpla	in Soils (F19)	(LRR P, S, T)
Stratified Layers (A5)	V Depleted Matr	ix (F3)			Anoma	lous Bright	Loamy Solls (F	20)
Organic Bodies (A6) (LRR P, I, U)	Redox Dark S	urface (F6)) 		(MLF	RA 153B)	<u>95</u>	
Muck Presence (A8) (LRR II)	Depieted Dark	sione (FR)	-7)		Red Pi	arent Materi	8I (1F2) Sufface (TF1)	
1 cm Muck (A9) (LRR P, T)	Marl (F10) (LF	R U)			Other (Explain in F	(in ace (in i. Remarks)	2)
Depleted Below Dark Surface (A11)	Depleted Ochi	ric (F11) (N	ILRA 15	1)				
Thick Dark Surface (A12)	Iron-Mangane	se Masses	(F12) (I	.RR 0, P,	T) ³ Indic	ators of hyd	lrophytic veget	ation and
Coast Prairie Redox (A16) (MLRA 150A) Umbric Surfac	e (F13) (L	RR P, T,	U)	wet	and hydroid	ogy must be pr	esent,
Sandy Mucky Wineral (S1) (LRR O, S)	Delta Ochric (I	F17) (MLR	A 151) I DA 450	14 46001	unie	ess disturbe	d or problemai	ic.
Sandy Redox (S5)	Reduced Verti Piedmont Floo	no (Fio) (M Indiain Soil	LKA 150	MIRA 1/	94)			
Stripped Matrix (S6)	Anomalous Br	ight Loamy	/ Soils (F	20) (MLR	A 149A. 153C	153D)		
Dark Surface (S7) (LRR P, S, T, U)	_							
Restrictive Layer (if observed):							P.5	
Туре:							V	
Depth (Inches):					Hydric Soll	Present?	Yes	No
Remarks:								
								1
								17
								17
								Ø
								n ^e

	Field Sheet
۵	Date: 7-21-12 Project Site: PM/14 UNE WUS #: 0.00
C	Dbserver(s) B6, AT
9	Stream Flow: Perennial: Intermittent Ephemeral
	Gradient: <u>Z1%</u> Classification: <u>R45B4</u>
(Channel Characteristics: Natural Artificial (man-made)Manipulated (man-altered)
	Explain:
(Channel Has (check all that apply):
	OHWM Clear, natural line impressed on the bank Changes in character of soil shelving shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition sediment deposition water staining the presence of litter and debris Discontinuous OHWM (explain):
ſ	Morphology: Avg. Channel Width Depth Avg. Water Depth'
	Has stream morphometry been altered? Describe :
ł	Habitat and Pollutants: Substrate (predominant type (s)): Sand Fip-Fap
	Habitat Complexity (characterize): VWU 10W- NO WF-Fle
	Sequences '
	Bank Erosion? Severe Moderate Minor X
	Describe:
	Silt Deposition: Moderate
	Silt Deposition: <u>Modenate</u> Pollutants (observation / potential sources): <u>hash</u>

Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity	-
Explain Findings:	N. A. I. Maria	1142
	5.0 H H	1.12
Riparian Zone: Development: Dawk Roa	1 D- Rendentra	l
Riparian vegetation: Forest	Shrubs <u> </u>	1. 6
Dominant Species: Cutalph, Chevr	M. Julip puplar, pri	<u>ک</u>
My grupe une		n.d
Riparian Buffer Width: 351	in the later to the test of the second of the	ftte
Approximate % Shading by Woody Species:	95020	
Notes:		_
	in the	-
[20] M. K. S. Markett, J. S.		-
	daning the second	
r An an a start and a start and a start a		

Stream Features
Date: 7-18-12 Project Site: Purple Linewus #: 039
Observer(s) 60 AT
Stream Elow:
Perennial: Intermittent Ephemeral
Gradient: Classification:R45B4x
Channel Characteristics: Natural Artificial (man-made)Manipulated (man-altered)
Explain: Channelized along rond
Channel Has (check all that apply):
OHWM Clear, natural line impressed on the bank Changes in character of soil Changes in character of soi
vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris
Morphology:
Avg. Channel Width 1.5 Depth 2 Avg. Water Depth 1
Has stream morphometry been altered? <u>Les</u> Describe : [Mannelized along voud
Habitat and Pollutants: Substrate (predominant type (s)):
Habitat Complexity (characterize): 10W- Shallon) flow3-
10 Stuble habitat
Bank Erosion: Severe Moderate Minor Minor
Describe: evolute alme Sound Wall - undermini
Silt Deposition:
Pollutants (observation / potential sources): Mad MUNOFF, trush
Stormwater Outfalls:

Federally Listed species	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	$[a, b] = a^{-1} b^{-1} a^{-1} b^{-1} b^{-1$
	cased in the second
Development: Development:	in Road Blank Forest
Riparian vegetation: Forest	Shrubs Herbs
Dominant Species: <u>FIM</u> , <u>aND</u> W	- Morrol, red maple
Porsin NU, Japa	nese honey sudile
Riparian Buffer Width:	an, sije teda ju vladda ji sali termanar Si
Approximate % Shading by Woody Species: 94	5 h
Notes:	n ha mha ann an mar an ann an tartha an tartha
Landers and Land	± 10 ¹ t _b
an provide an annual	1-14-2-14-14-201-1-14-14-14-14-14-14-14-14-14-14-14-14-
Ange Winter Depth	Matti Armen Artik De T
	$eq:static_stat$
	and to tobulat many adds) entry and
	The state of the second second

	Stream Features
	Date: 8-15-07 Project Site: Purple Line WUS #: WUS 048
	Observer(s)
	Stream Flow: Perennial:IntermittentEphemeral
	Gradient: 1% Classification: R45B2 4x
	Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
	Explain: <u>upper portions</u> were straightened & rip-rapped Channel Has (check all that apply): Bed and Banks
	OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris Discontinuous OHWM (explain):
	Morphology: Avg. Channel Width <u>14</u> Depth <u>9</u> Avg. Water Depth <u>41</u> Has stream morphometry been altered? <u>Yes</u> Describe : <u>see above</u>
0	Habitat and Pollutants: Substrate (predominant type (s)): <u>rip-rap</u> upstream sand-gravel downstream Habitat Complexity (characterize): <u>low</u> , <u>shallow</u> flows, few riffles
	Bank Erosion: Severe Moderate Minor Minor
	Describe: <u>many unregetated</u> , tailing banks in upper portions
	Silt Deposition: <u>moderate</u>
8	Pollutants (observation / potential sources): <u>none apparent</u>
	Stormwater Outfalls: 1 (US)

Federally Listed species	Fish Spawn Areas
her Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	
parian Zone: Development: <u>mid-successiona</u>	1 forest
Riparian vegetation: Forest	Shrubs Herbs
Dominant Species: <u>Sweetgum</u> , red	maple mountain laurel poiss
IVY SIGN CL I II	tota an
Riparian Buffer Width: <u>>100 FF - both</u>	Dunks
Approximate % Shading by Woody Species:	<u> 90%</u>
Notes:	
Dist.	
	habits' community (characterer) and (characterer)
	eld provide and
The Skill Labor Commence of Laboration	

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Stream Features
Date: 4-21-11 Project Site: Proble Line, WUS#: 057
Observer(s) BUTHS
Stream Flow: Perennial: Intermittent Ephemeral
Gradient:Classification:
Channel Characteristics: Natural Artificial (man-made) // Manipulated (man-altered)
Explain: VIP-TOP Channel Mitween pp3
Channel Has (check all that apply):
OHWM destruction of terrestrial vegetation clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list): the presence of litter and debris
Discontinuous OHWM (explain):
Morphology: Avg. Channel Width <u>4.5'</u> Depth <u>4</u> Avg. Water Depth <u>6</u>
Has stream morphometry been altered? <u>JES</u> Describe :
Habitat and Pollutants: Substrate (predominant type (s)): Yip-rop Substrate Habitat Complexity (characterize): NML
Bank Erosion: Severe Moderate Minor K
Describe:
Silt Deposition: Minor
Pollutants (observation / potential sources): <u>JOUL</u> MINOFF
Stormwater Outfalls:

	Iso II shall Fish Spawn Areas
r Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	i dil commerci
	and a flow
rian Zone:	
Development: ////////////////////////////////////	
parian vegetation: Forest	Shrubs Herbs X
Dominant Species: <u>Ark55</u>	Contract of the second second
	2
arian Buffer Width:	Chamalata, (otaera ail that apoly).
oroximate % Shading by Woody Species:	R
otes:	nusd on the bases of the management of the bank
unipersonal and the second sec	filos to redoziar to respect to the
	fight Tagener Water
¢.	stational part of the
	(A) a predominant (a) s(v) function of a statistical statistica

	REILS	V	
Observer(s)	00/173		agruphi
Stream Flow: Perennial:	Intermittent	Ephemeral	
Gradient:		Classification:	The Prostant of the second
Channel Char Natural	acteristics: Artificial (man-ı	made) Manij	pulated (man-altere <u>d)</u>
Explain:	phemerul Con	ditim	10 To + P. War
Channel Has ((check all that apply): ad and Banks		iliuanan Buffer Width
	HWM Clear, natural line impressed on t changes in character of soil shelving vegetation matted down, bent, o leaf litter disturbed or washed av sediment deposition water staining the presence of litter and debris scontinuous OHWM (explain):	the bank destru the present sedime r absent scour vay multipl other (ction of terrestrial vegetation esence of wrack line ent sorting le observed or predicted flow events t change in plant community (list):
Morphology: Avg. Chanr Has stre Habitat and P Substrate (p	nel Width eam morphometry been alte <u>ALMC</u> vollutants: predominant type (s)):	Depth <u>3'</u> red? <u>Yes</u> Desc 193 WM	Avg. Water Depth ribe : <u>Straightened</u>
Morphology: Avg. Chann Has stre Habitat and P Substrate (p Habitat Corr	nel Width eam morphometry been alte ALM MD collutants: predominant type (s)): nplexity (characterize):	Depth <u>3'</u> red? <u>Yes</u> Desc 193 Wrd	Avg. Water Depth <u>b"</u> pribe : <u>Straightened</u>
Morphology: Avg. Chann Has stre Habitat and P Substrate (p Habitat Corr Bank Erosid	nel Width eam morphometry been alte <u>AUMC MD</u> collutants: predominant type (s)): nplexity (characterize): on:Severe	Depth <u>3'</u> red? <u>Yes</u> Desc 193 WW	Avg. Water Depth pribe : <u>Staightened</u>
Morphology: Avg. Chann Has stre Habitat and P Substrate (p Habitat Corr Bank Erosic Describe:	nel Width eam morphometry been alte <u>MMC</u> <u>MD</u> rollutants: predominant type (s)): nplexity (characterize): on:	Depth <u>3'</u> red? <u>Yes</u> Desc 193 Www JW	Avg. Water Depth pribe : <u>Straightened</u>
Morphology: Avg. Chann Has stre Habitat and P Substrate (p Habitat Corr Bank Erosic Describe: Silt Deposit	nel Width eam morphometry been alte <u>MMC</u> <u>MMC</u> collutants: predominant type (s)): nplexity (characterize): on: tion:	Depth <u>3'</u> red? <u>Yes</u> Desc 193 WM	Avg. Water Depth pribe : <u>Straightened</u>

Other Environmentally-Sepcitive Species	Aquatic/Wildlife Diversity
Explain Findings:	NAME OF A DESCRIPTION
Riparian Zone: WPS4 of vou Development: East of vou	2 - Forest (Road Jawn
Riparian vegetation: Forest X	Shrubs Herbs
Dominant Species: Box elder	, Silver nople, Japan
Acnopweed -	Explain
Riparian Buffer Width: 750'	in the stand of th
Approximate % Shading by Woody Species	100%
Notor: Unclear Labert	rel aprenno is prelensati
Notes: Utraction (Utraction of Flui	all in paida han be land
an prope the rice	NS VIOLEN VOID
may not go	allywhere.
li sin ha	
	La tra marine en transit en transit La tra marine en transit en transit La transition en transition Statute transitioner (1970)
	Inter-matrice of the contract of the contract of the inter- tended of the contract of the c
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	The matrix of the code of the code of the second on the formula for the code of the code o
	The manufact of the code of the second on the formula to the code of the code
	International filtracitations in The mean of filtracitations in and the mean of the code of the and the mean of the second of the second of the black and Politicarity Subor de (predominant type (second of the second of the second of t
	Little manne of the model of the code of the manne of the model of the code of
	Internation of the matrix of the code of the internation of the code of the co
	It is a manuted if the matrix of the mode of the matrix of the matrix of the mode of th
	It is an and the second of the code of
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			ODN Frater M	the sector of th	WSa
WETLA	ND DETERMIN	ATION DATA F	ORM – Eastern Mo	ountains and Piedmo	ont
Project/Site: Kurylo L	ine	City	County: 1/100 100	Nen Sampli	ing Date: <u>421</u>
Applicant/Owner: MTA	Matter Ball' South		0	State: MO Sam	pling Point: WT
Investigator(s): BG, HS		Sec	tion, Township, Range:		
andform (hillslope, terrace, etc.):	SeeD	Localr	elief (concave, convex, n	one): $(ON(OA))O$	Slope (%):
Subragion (I PR or MI PA): MIP	A 148 Lat	200011			Octum:
	C > Halland	ails fac	fladed	ADA(I -I 10 Al	PEDIE
	<u>> + FIGLOOID</u>	Sons, Trey.	TIDUELA		11010
Are climatic / hydrologic conditions	on the site typical fo	ir this time of year?	Yes <u>×</u> No	(if no, explain in Remarks	.)
Are Vegetation, Soil	, or Hydrology	significantly dist	urbed? Are "Norm	al Circumstances" present?	? Yes <u>×</u> No _
Are Vegetation, Soil	, or Hydrology	naturally probler	matic? (if needed	, explain any answers in Re	emarks.)
SUMMARY OF FINDINGS -	 Attach site m 	ap showing sa	mpling point locat	ions, transects, impo	ortant features,
	L				
Hydrophytic Vegetation Present?	Yes	_ No	is the Sampled Area		
Hydric Soil Present?	Yes	_ No	within a Wetland?	Yes <u>X</u> No	· · · · · · · · · · · · · · · · · · ·
Wetland Hydrology Present?	Yes	_ No			
Remarks:					
ومطبطا العبيب ومستعد والمستعد	- all all all				
HYDROLOGY					
Wetland Hydrology indicators:				Secondary indicators (m	inimum of two requir
Primary Indicators (minimum of or	ne is required; check	k all that apply)		Surface Soil Cracks	(B6)
Surface Water (A1)		True Aquatic Plants	s (B14)	Sparsely Vegetated	Concave Surface (B
High Water Table (A2)	Каластийн (1980) - 1987 Остор (1980) - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987 - 1987	Hydrogen Sulfide C)dor (C1)	Drainage Patterns (E	310)
Saturation (A3)	the strength	Oxidized Rhizosphe	eres on Living Roots (C3) Moss Trim Lines (B1	16)
_ <u>}</u> Water Marks (B1)		Presence of Reduc	ed iron (C4)	Dry-Season Water T	Table (C2)
Sediment Deposits (B2)		Recent Iron Reduct	tion in Tilled Soils (C6)	Crayfish Burrows (C	8)
	1.00	Other (Evaluin in D		Saturation Visible or	Dianta (D1)
Algar Mat of Crust (64)		Other (Explain in R	emarks)	Stunted of Stressed	
Inundation Visible on Aerial Ir	nagery (B7)			Shallow Aquitard (D)	3)
Water-Stained Leaves (B9)				Microtopographic Re	elief (D4)
Aquatic Fauna (B13)				FAC-Neutral Test (D	5)
Field Observations:					
Surface Water Present? Ye	s X No	Depth (inches): D			
Water Table Present? Ye	s 🔨 No	Depth (inches):	0		
Saturation Present? Ye	s X No	Depth (inches):	O Wetiand	Hydrology Present? Ye	s X No
(includes capillary fringe)				2 10 11	
Describe Recorded Data (stream	gauge, monitoring w	vell, aeriai photos, p	revious inspections), if a	vallable:	
	- 1. S 1	529 T	C 75.	- <u>n</u> = <u>-</u>	
Remarks:					
ت ۱۱ - ۱۱ کار					
n n Ar					
j,P j,P					

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species	7	na: pot
1. Frazinus pennsulvanicum	65	<u> </u>	FACW	That Are OBL, FACW, or FAC	:	(A)
3				Total Number of Dominant Species Across All Strata:	4	_ (B)
4. 				Percent of Dominant Species That Are OBL, FACW, or FAC	75	_ (A/B)
3		1	11.51.0	Prevalence index worksheet	•	Q 1851
			T. L. Sarreit	Total % Cover of:	Multiply by:	
5	<u> </u>			OBL species	x 1 =	
Sapling/Shrub Stratum (Plot size:			ver	FACW species	x 2 =	3
1. Liquidambor Sturbatlua	2	a benera	FAC	FAC species	x 3 =	e fi hur
2. Acer nearings	40	<u> </u>	FAC	FACU species	x 4 =	
3. Losa unultifloria	40	Y	FACU	UPL species	x 5 =	tin for
4 OV A3	po W S ANA	Sem 2		Column Totals:	(A)	(B)
5				Prevalence index = B/A	=	- Annak
7.				Hydrophytic Vegetation indi	cators:	
B.				1-Rapid Test for Hydrop	hytic Vegetation	
9.				2 - Dominance Test is >5	0%	
10				3 - Prevalence Index is ≤3	3.0 ¹	
	62	- Total Cov	ver	4 - Morphological Adapta data in Remarks or on	tions ¹ (Provide su a separate shee	upporting et)
Hero Stratum (Plot size:)	110	Y	NIT	Problematic Hydrophytic	Vegetation ¹ (Exp	lain)
FURNIE OCHICAIL	5		CALLAN	a sami fann nú e rainn	n, TRANSTONELL	LY HADY
Thinks CHTASUS	- 5	10190 - 2019 - 101 	TACH	¹ Indicators of hydric soil and w	vetland hydrology	v must
Thisis Arrence		11 1022/11/66	NT	be present, unless disturbed of	or problematic.	
Place and and Day Com.	10	and here the	(M(L)	Definitions of Four Vegetation	on Strata:	
practices providence cerc		ni abitan	PAR	Tree – Woody plants, excludir	na vines. 3 in. (7.	6 cm) or
the descention of the second sec		picch acro	1000	more in diameter at breast hei	ight (DBH), regar	dless of
1. 1. Athen there are to humans		(1.1) (1.1) (1.1)	- 11 C	height.		
			<u> </u>	Sapiing/Shrub – Woody plan	ts, excluding vine	es, less
10				than 3 in. DBH and greater the	an 3.28 ft (1 m) ta	all.
10				Herb – All herbaceous (non-w	voody) plants, reg	gardless
12	100			Woody vine - All woody vine	e greater than 3.	28 ft in
Noody Vine Stratum (Plot size:		= Total Cov	ver	height.	s greater than 5.	2010111
1 TOX GOLDANIN VALICANS	5	Y	FAC	the second second	Sec. sale	
				to v all mail		
3.				in the last set		
1.				1000 1000 1000 1000 1000 1000 1000 100		
5.				Hydrophytic		
3				Present? Yes	No	
	5	= Total Cov				
	\sim		101	1		

SOIL

Sampling Point: WTP 59-1

Frome Description: (Describe to the depth h	eeded to document the indicator or confirm	the absence of	of indicators.)	
Depth <u>Matrix</u>	Redox Features			
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture	Remarks	
0-12 104K411 95 7	51K314 5 C M	51		
		8		
	11			
			<u> </u>	
Type: C=Coricentration, D=Depletion, RM=Rec	luced Matrix, MS=Masked Sand Grains.	Location: PL=	Pore Lining, M=Matrix.	- 3
Histosol (A1)	Dark Surface (SZ)	indicat	ors for Problematic Hydric Sol	is":
Histosof (A1) Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MI RA 147	148) 2 c	m MUCK (A10) (MLKA 147)	
Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)		MLRA 147, 148)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Pie	dmont Floodplain Soils (F19)	
Stratified Layers (A5)	Depleted Matrix (F3)	(MLRA 136, 147)	
2 cm Muck (A10) (LRR N)	_ Redox Dark Surface (F6)	Re	d Parent Material (TF2)	
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	_ Depleted Dark Surface (F7)	Ver	ry Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1) (LRR N	iron-Manganese Masses (E12) (I PR N		ier (Explain in Remarks)	
MLRA 147, 148)	MLRA 136)			
MLRA 147, 148) Sandy Gleyed Matrix (S4)	MLRA 136) Umbric Surface (F13) (MLRA 136, 122)	³ Indic	ators of hydrophytic vegetation a	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)	MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we	ators of hydrophytic vegetation a tland hydrology must be present	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)	MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic.	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed):	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic.	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (incles):	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic.	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u>Ves</u> No _	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u>// No </u>	und
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u>/ No</u> No	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	ind
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u>V</u> No	und
MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u> </u>	und
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic.	und
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	ind
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present ess disturbed or problematic. resent? Yes <u>No</u> No	und
MLRA 147, 148)Sandy Gleyed Matrix (S4)	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic. resent? Yes <u> </u>	ind
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	und
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	ind
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic. resent? Yes <u>No</u> No	Ind
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5) Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) _ Umbric Surface (F13) (MLRA 136, 122) _ Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic. resent? Yes <u>No</u> No	und
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	ind
MLRA 147, 148)Sandy Gleyed Matrix (S4)Sandy Redox (S5)Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 14	³ Indic 8) we unl Hydric Soil P	ators of hydrophytic vegetation a tland hydrology must be present, ess disturbed or problematic.	Ind

V9. AND				A1 -		
roject/Site: 1000	une	ine fallers i an	City/County:	PO	Sampli	ng Date: <u>9-21-</u>
pplicant/Owner: <u>MTA</u>	1000 Hills				_ State: Sam	pling Point: UTP
vestigator(s): D5 H	5		Section, Towns	hip, Range:		
andform (hillslope, terrace, ef	tc.): Floodo	ain	Local relief (concav	/e, convex, nor	ne): Concave	Slope (%):
ubregion (LRR or MLRA): <u>M</u>	MRA 148 1	Lat:		Long:		Datum:
oil Map Unit Name:	mys & Hatb	oro, Codon	15-Hattooro-U	rban com	Plex NWI classification: _	PFOIE
re climatic / hydrologic condi	tions on the site ty	pical for this time	of year? Yes	. No	If no, explain in Remarks.)
re Vegetation, Soil	<u>/</u> , or Hydrolog	y signific	antly disturbed?	Are "Normal	Circumstances" present?	Yes
re Vegetation, Soil	, or Hydrolog	y natural	y problematic?	(if needed, e	explain any answers in Re	marks.)
	GS – Attach s	ite map show	ving sampling p	oint locatio	ons, transects, impo	rtant features, e
		<u>√</u>				
Hydrophytic Vegetation Pres	ent? Yes_	<u> </u>	ls the Sa	ampled Area	,	
Hydric Soil Present? Wetland Hydrology Present?	Yes_ Yes		within a	Wetland?	Yes <u> </u>	
Remarks:			= 5			
tomano.						
					· · · · · · · ·	
						22 2.1 32
TDROLUGT			Via Anth	1994	Casandan (Indiastava (mi	ningung of two yearsing
Primany Indicators (minimum	ors:	I shock all that as			Secondary Indicators (mi	nimum of two require
Surface Mater (A1)	or one is required		tio Dianto (D14)		Surface Soil Cracks	(DD) Canadaus Cuurfa da (DB
High Water Table (A2)		True Aqua	Sulfide Oder (C1)		Sparsely Vegetated	Concave Surface (B8
X Saturation (A3)		Ovidized F	Sunde Odor (CT)	a Roots (C3)	Moss Trim Lines (B1	6)
Water Marks (B1)		Presence	of Reduced Iron (C4)	ig 1(0013 (00)	Dry-Season Water T	able (C2)
X Sediment Deposits (B2)		Recent iro	n Reduction in Tilled	Soils (C6)	Cravfish Burrows (Cl	3)
L Drift Deposits (B3)		Thin Muck	Surface (C7)		Saturation Visible on	Aerial Imagery (C9)
Algal Mat or Crust (B4)		Other (Exp	plain in Remarks)		Stunted or Stressed	Plants (D1)
Iron Deposits (B5)		214 - 518			Geomorphic Position	(D2)
Inundation Visible on Ae	rial imagery (B7)				Shallow Aquitard (D3	3)
N /	B9)				Microtopographic Re	lief (D4)
X Water-Stained Leaves (I					FAC-Neutrai Test (D	5)
<u>X</u> Water-Stained Leaves (I Aquatic Fauna (B13)						144 I.
X Water-Stained Leaves (Aquatic Fauna (B13) Field Observations:		1.1.1.1.1.1		-		
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present?	Yes X No	Depth (in	ches):	_		
X_Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present?	Yes X No Yes No	Depth (in Depth (in	ches):	-		
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present?	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in	ches): ches): ches):	 Wetland F	lydrology Present? Ye	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	Yes X No Yes No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H	lydrology Present? Ye	s No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	Yes X No Yes No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye illable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No 'eam gauge, monit	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye illable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H eections), if ava	lydrology Present? Ye ilable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H - Wetland H ections), if ava	lydrology Present? Ye	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye illable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	Wetland H Wetland H ections), if ava	lydrology Present? Ye ilable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye	s <u> No </u>
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	- Wetland H ections), if ava	lydrology Present? Ye illable:	s <u>/</u> No
X Water-Stained Leaves (I Aquatic Fauna (B13) Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks:	Yes X No Yes No Yes No	Depth (in Depth (in Depth (in toring well, aerial	ches): ches): ches): photos, previous insp	Wetland H Wetland H ections), if ava	łydrology Present? Ye ilable:	s <u> No </u>

I

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Liquidante Concertation	<u>% Cover</u>	Species?	Status	Number of Dominant Species U
- Hundam Dav Stylingtma			FAU	That Are OBL, FACW, or FAC: (A)
- HARMUS PENNSY JUM CUM	- 10	1000	FAUN	Total Number of Dominant
LANDER AND	1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -	it lathe		Species Across Ali Strata: (B)
·				Persont of Deminent Species
				That Are OBL, FACW, or FAC: 50 (A/B)
		100		
10 15 No. 10 10 10 10 10		× 180	ne tra oran	Prevalence index worksheet:
a de la companya de la compa	<u>.</u>		- Alto	Total % Cover of: Multiply by:
Destination of the production	120	= Total Cov	/er	OBL species x 1 =
apling/Shrub Stratum (Plot size:)	in a linear	. 1		FACW species 10 x 2 = 140
Liquidumbar Styracifua	30	<u> </u>	FAC	FAC species $93 x_3 = 279$
LiAustrum Smense	30	Y	FACU	FACU species <u>93</u> x4= <u>332</u>
	Keldmid at	iter i		UPL species x 5 =
	and the second second	2		Column Totals: 246 (A) 751 (B)
				Prevalence Index = B/A = 3,05
				Hydrophytic Vegetation Indicators:
·				1 - Rapid Test for Hvdrophytic Vegetation
				2 - Dominance Test is >50%
·			Kap	$\frac{2}{3} = \frac{2}{3} = \frac{1}{3} = \frac{1}$
0		- 1 - 4	-	A Marsh standard Adaptations ¹ (Devide source state)
	60	= Total Cov	/er	data in Remarks or on a separate sheet)
erb Stratum (Plot size:)	ne	\vee	TACH	Problematic Hydrophytic Vegetation ¹ (Explain)
Allium Canadense	25		FACU	
LONICETIL IN DUMLA		4. 2	FAC	The second se
Mosa multiflora		Y	FACL	be present unless disturbed or problematic
Prunus Scrotina	5	THE L	FACI	Definitions of Four Vegetation Strate
Genin canadense	6	we have a	FACU	Definitions of Four vegetation Strata:
(83) 8 (3)(0)(0)(9000	n 85 -	51 S 11 (18)	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
100 million of a well when a well			177 Hallin	more in diameter at breast height (DBH), regardless of
 The second s second second seco		Million P	- 1947 B	neight.
SSER AND DEPENDENT OF STREET, S				Sapling/Shrub – Woody plants, excluding vines, less
CIX DESCRIPTION DESCRIPTION				than 3 in. DBH and greater than 3.28 ft (1 m) tail.
0				Herb - All berbaceous (non-woody) plants regardless
1				of size, and woody plants less than 3.28 ft tail.
2				
	50	= Total Cov	/er	Woody vine – All woody vines greater than 3.28 ft in beight
/oody Vine Stratum (Plot size:)	r	11	EAC	
Jon coannon valuans	0	9	FAL	
Partnenocions guingueto	IL B	<u> </u>	FACU	
Value a	Conserved -	d northerna	I Noise	the paper of the set of the first of the set
0	142			
				Hydrophytic
				Present? Yes No
		- Total Cas		
emarks: (include photo numbers here or on a separate	sneet.)			

Profile Description: (Descripts to the depth needed to document the indicator or confirm the absence of indicators.) Pacha Redox Features Trotal Texture Remarks	SOIL						Samplin	g Point:	NTP60-1
Depth Matrix Record (molal) Color (molal) Color (molal) Texture Remarks 0-0 10 Y R 4 1 9 7.5 Y R 4 1 0 2 10 Y R 4 1 0 3 Color (molal) Manganese Concerts in State 10 Y R 4 1 0 2 10 Y R 4 1 0 2 10 Y R 4 1 0 10 Y R 4 10 Y R 4 10 10 Y R 4 1	Profile Desc	ription: (Describe t	o the de	oth needed to document the in	dicator or confirm	n the absence	of indicators.)		
(Inclea) Color (moist) % Color (moist) % Troge Loc Texture Remarks (Incleas) Color (Moist) 7.5 Y(2 H) C MANGANOSE <	Depth	Matrix		Redox Features					
2.00 JUKK11 15 45YK41 U 5 C 514 Ut 7.5YK41 U 2 disturbed fill multiplication fill multiplication fill fill multiplication fill fill multiplication fill fill fill multiplication fill fill fill fill fill fill fill fil	(inches)	Color (moist)		<u>Color (moist)</u> %	Type ¹ Loc ²	Texture	Re	marks	
	0-0	109K411	95	7.5YR416 5	CM	514			
IDYRUID	(et	7.SYRIL	2	disturbed fill r	nuterial	C	manaria	ncer	marchine
Image: Section in the sectin the sectin the sectin the section in the section in		INVRUID	5				J	rac c	- TOWN N
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Soli Indicators: Indicators for Problematic Hydric Solis": 2 cm Muck (A10) (MLRA 147, 148) Histic (A3) Thin Dark Surface (S3) (MLRA 147, 148) Coast Frairie Redox (A16) Histic (A3) Thin Dark Surface (S3) (MLRA 147, 148) (MLRA 136, 147) Stratified Layers (A5) Loamy Gleyed Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F7) Very Shallow Dark Surface (T7) Thick Dark Surface (A11) Depleted Matrix (F3) Red Parent Material (TF2) Sandy Mucky Mineral (S1) (LRR N), Itor-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Redox (S5) Pledmont Floodplain Solis (F19) (MLRA 149) "andicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stratified Layer (If observed): Type: Hydric Soil Present? Yes X No Remarks: Matrix (Sa) Hydric Soil Present? Yes X No		10/10/11	<u> </u>						
Image: Section in the section in th									
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soli Indicators: Indicators for Problematic Hydric Solis ¹ : Indicators for Problematic Hydric Solis ¹ : Histic Epipedon (A2) Polyvalue Below Surface (S9) (MLRA 147, 148) Coast Praine Redox (A16) (MLRA 147) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Praine Redox (A16) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Pledmont Floodplain Solis (F19) Stratified Layers (A5) McRA 147, 148) Coast Surface (F1) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, "Iron-Manganese Masses (F12) (LRR N, Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Hydric Soli Present? Yes No No Remarks: Depth (Inches):									
'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ¹ : Histosol (A1)									
Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Second structure Image: Secon		· · · · · · · · · · · · · · · · · · ·					· <u>···</u> ····		
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ¹ : Histosol (A1)							·		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ² : Histosoi (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Pledmont Floodplain Soils (F19) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) 2 bepleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depresesions (F8) Other (Explain in Remarks) Sandy Moucky Mineral (S1) (LRR N, Inon-Manganese Masses (F12) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (flobserved): Type:									
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosoil (A1) Dark Surface (S7) _2 cm Muck (A10) (MLRA 147) Histosoil (A1) Dark Surface (S9) (MLRA 147, 148) Coast Prinie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 146) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Plefmont Floodplain Soils (F19) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 136, 147) Sandy Redox (S5) Pledmont Floodplain Soils (F19) (MLRA 148, 147, 148) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type: Pledmont Floodplain Soils (F19) (MLRA 148) No Bardy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 148) Hydric Soil Present? Yes No No Deptht (inches): Deptet Gobserved): Type									-
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Indicators for Problematic Hydric Soils ³ : Histosol (A1)									·
Type: Order Contention Depleted in the second state of the second				-Roduced Matrix MS-Masked	Cand Oraina	21			
Histos (A1)	Hydric Soil I	ndicators:		-Reduced Matrix, MS-Masked &	Sand Grains.	Location: PL	=Pore Lining, M=	viatrix.	a Salla ³
Inducts (37) Delta (37) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Solis (F19) Stratified Layers (A5) Depleted Matrix (F3) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F6) Red Parent Material (TF2) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Minera (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 146, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S6) Piedmont Floodplain Solis (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic. Type:	Histosol	(Δ1)		Dark Surface (S7)		nuica	am Music (AdO) (c oons :
Black Histic (A3) Toil Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 147, 148) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 136, 142) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type:	Histic Ep	ipedon (A2)		Polyvalue Below Surface	(S8) (MI RA 147	148) 2	on Muck (ATU) (N	(147)	
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Solis (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Red x Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type:	Black His	stic (A3)		Thin Dark Surface (S9) (MLRA 147, 148)	, 140) (1	(MI RA 147 148)	(A10)	
Stratified Layers (A5) Image: Depleted Matrix (F3) Image: Million Matrix (F3) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Type:	Hydroger	n Sulfide (A4)		Loamy Gleved Matrix (F)	2)	Pi	iedmont Floodplai	r n Soils (F1	9)
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type:	Stratified	Layers (A5)		L Depleted Matrix (F3)	-,		(MLRA 136, 147)		
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Redox Depressions (F8) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Pledmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Remarks:	2 cm Mu	ck (A10) (LRR N)		Redox Dark Surface (F6)	R	ed Parent Materia	, I (TF2)	
Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) Jandy Redox (S5) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed):	Depieted	Below Dark Surface	(A11)	Depieted Dark Surface (F7)	Ve	ery Shallow Dark	Surface (TI	F12)
	Thick Da	rk Surface (A12)		Redox Depressions (F8)		0	ther (Explain in Re	emarks)	
MLRA 147, 148) MLRA 136)	Sandy M	ucky Mineral (S1) (L	RR N,	iron-Manganese Masses	s (F12) (L RR N,				
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed):	MLRA	147, 148)		MLRA 136)					
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed):	Sandy Gl	leyed Matrix (S4)		Umbric Surface (F13) (M	ILRA 136, 122)	^a Indi	cators of hydroph	ytic vegeta	tion and
	Sandy Re	edox (S5)		Piedmont Floodplain Soi	ls (F19) (MLRA 1 4	18) w	etland hydrology r	nust be pre	esent,
Type:	Suripped	Matrix (56)		<u> </u>		ur	less disturbed or	problemati	C
Type:	Turner	ayer (il observed):							
Depth (inches): Hydric Soli Present? Yes No	Type:			5					
Remarks:	Depth (inc	hes):				Hydric Soii	Present? Yes	<u>X</u> M	No
	Remarks:								

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Stream Features Field Sheet	
Date: 4-26-11 Project Site: huple the WUS #: 62	
Observer(s) B(g-1 1=5 and the second se	
Stream Flow: Perennial: Intermittent Ephemeral	
Gradient: Classification:	
Channel Characteristics: Natural <u>(</u> Artificial (man-made) Manipulated (man-alter <u>ed)</u>	
Explain: flows from pipe under mo 410	
Channel Has (check all that apply):	
OHWM Implementation Implementation </td <td></td>	
Morphology: 2' Avg. Water Depth Avg. Channel Width 2' Depth 2' Has stream morphometry been altered? MO Describe :	
Habitat and Pollutants: Substrate (predominant type (s)): Shud / graved Habitat Complexity (characterize): MML	55
Bank Erosion: Severe Moderate Minor Minor	
Silt Deposition:	
Pollutants (observation / potential sources): road motify high	
Stormwater Outfalls:	

Biological Habitat For (check all that apply): $-a,a,\ldots,a_{g}=-b^{2}a_{g}-b^{2}a_{g}^{$ Federally Listed species Fish Spawn Areas and a property of 10 8718 Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity **Explain Findings:** 51 Riparian Zone: istrial Development: Da Riparian vegetation: Forest Shrubs Herbs ROMU Dominant Species: 0 spel In D. ethe 5 Riparian Buffer Width: Approximate % Shading by Woody Species: 750 7 Notes: * * *

	Stream Features Field Sheet
Date: 4-2	94-11 Project Site: Amply Line wus #: 63
Observer(s) B	5, HSIO allowateup A and a second a s
Stream Flow: Perennial:	Intermittent Ephemeral Bush 3 4
Gradient:	
Channel Chara Natural	Artificial (man-made) Manipulated (man-altered)
Explain: Y	10-rap placed within channel
Channel Has (check all that apply): and Banks
	WM clear, natural line impressed on the bank changes In character of soil shelving vegetation matted down, bent, or absent eaf litter disturbed or washed away sediment deposition water staining whe presence of litter and debris continuous OHWM (explain):
Morphology: Avg. Channe Has strea	el Width Depth Avg. Water Depth/ m morphometry been altered? ND Describe :
Habitat and Po Substrate (pre Habitat Comp	edominant type (s)): hp the sund
Bank Erosio	n: Severe Moderate Minor /
Describe:	
Silt Deposition	on: Mea.VI
Pollutants (o	bservation / potential sources): <u>Nowd</u> vunoft
Stormwater	Outfalls: <u>nulle</u>

$\vec{\beta} = \frac{p_{i+1}}{p_{i+1}} \vec{r} \cdot \vec{r}_i$ $\vec{\pi}_i = \vec{r}_i$	Other Environmentally-Sensi	tive Species	Aqua	tic/Wildlife Diversi	tv
	Explain Findings:	and a second second second second	and for the second of the second of		ui
		lâv	ente ^{r 17}	Inolli-Methel	Percental Plows
	Riparian Zone: Development:	hine	(19 - 17) (19 - 17)		A.S.
	Riparian vegetation:	Earoat X	0	e testa militarian	
	Dominant Species: _	LITU, LIS	Snrubs	TO RA	os
	1	,		(viente tett lie)	Chambel Not Parado
а а	Riparian Buffer Width:	7 S0'			
	Approximate % Shading) by Woody Species:	100%	เมษายาการ (1511) (1919)	and a second
	Notes:	n në toteriti esti ni në Nës tite deti .		and an	
	c	surras autores esté entitura	in El star el	nella foi di sua tana sua arkana ang baaranisa foi	land the second
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Stream Features Field Sheet	
Date: 4-24-11 Project Site: Pur NG	me wust: 64
Observer(s) BC, HS	
Stream Flow:	remailsoff clustered
Perennial: Intermittent Eph	emeral
Gradient: Classifi	ication: <u>K45B3</u> 4x
Channel Characteristics:	N.Y. Burnerste
Natural Artificial (man-made)	Manipulated (man-altered) 🖌
Explain: rip-ran placed WIY	Kun Channel
Channel Has (check all that apply):	
Bed and Banks	
ОНИМ	
clear, natural line impressed on the bank	destruction of terrestrial vegetation thre presence of wrack line
shelving	sediment sorting
leaf litter disturbed or washed away	scour multiple observed or predicted flow events
sediment deposition	abrupt change in plant community
the presence of litter and debris	
Discontinuous OHWM (evplain):	
W	
Morphology:	5
Avg. Channel Width Depth	Avg. Water Depth
Has stream morphometry been altered?	D Describe :
Habitat and Pollutants:	
Substrate (predominant type (s)): Sand	5.
Habitat Complexity (characterize):	
· · · · ·	
Bank Erosion: Severe Mod	derate Minor <u>×</u>
Describe:	
Silt Deposition:	
Pollutants (observation / potential sources):	nine
· · · · · · · · · · · · · · · · · · ·	
Stormwater Outfalls: ///////////////////////////////////	

State State

	Biological Habitat For (check all that apply): Federally Listed species Fish Spawn Areas	N.
$\sum_{i=1}^{n} \frac{\mathbf{H}_{i}}{\mathbf{H}_{i}} + e^{i\mathbf{H}_{i}} + e^{i\mathbf{H}_{i}}$	Other Environmentally-Sensitive Species Aquatic/Wildlife Diversity	1
	Explain Findings:	а л
	nactoria - materious - trenting	
	Riparian Zone: Development:	
	Riparian vegetation: Forest Shrubs Herbs	
	Dominant Species: TDRA, LITU, LIST	2
	Constitute (its (constraint to a couply)	8
	Riparian Buffer Width: 750 m R bunk; Road m left	
	Approximate % Shading by Woody Species: 50 %	T_{χ}
47	Notes:	
	Vage Work matted drawn information	
	Hard Tomar a Human and Tomar and Tomar Angle State (State State)	
2	Formas autor P-0, Nichne@Widel - Daph - Anti-WeienBeath	
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		VVVO
	INATION DATA FORM - Ea	stern wountains and Pledmont
Project/Site: <u>Purple</u> Me	City/County: _//	MM tyomen Sampling Date: 12 9111
Applicant/Owner:A	and the second	State: Sampling Point: WP 65
Investigator(s):	Section, Townshi	p, Range:
Landform (hillslope, terrace, etc.): Floodplai	1 Step Local relief (concave	, convex, none): (oncare Slope (%):
Subregion (I BB or MI BA): MLPA-148	at	Long:
Sail Man Linit Nama: Clanda - Udocus	and Codonis silt loc	D-3% NIMI classification PEO1E
Son Map Unit Name. Sterrey - Croures	toto , Cuttorites Sill 100	slopes
Are climatic / hydrologic conditions on the site typica	al for this time of year? Yes	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology _	significantly disturbed?	Are "Normal Circumstances" present? Yes <u>No</u> No
Are Vegetation, Soil, or Hydrology _	naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site	• map showing sampling po	int locations, transects, important features, etc.
Hydrophytic Vogstation Brocont?	< No.	
Hydric Soil Present? Yes	Is the Sam	npled Area
Wetland Hydrology Present? Yes	No within a W	Vetland? Yes <u>Y</u> No
Remarks:		
Fig. 2. E. The second state of the		
15 Planaph mattings 218 34		
HYDROLOGY		
Wetland Hydrology Indicators:	2.1	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: ch	neck all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	X Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled S	oils (C6) 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)
Iron Deposits (B5)		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B/)		Shallow Aquitard (D3)
Aquatic Fauna (B13)	e 31	Microtopographic Relier (D4)
Aqualic Faulta (B13)		
Surface Water Brocent2 Van A	Depth (inches):	
Water Table Present?	Depth (inches):	approximate the state of the state o
Saturation Present? Yes Vo	Depth (inches):	Watland Hydrology Brosont? Yes H
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitorir	ng well, aerial photos, previous inspec	ctions), if available:
Pamarka:	<u> </u>	
Nemarks.		
		~
		5.

é.

Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species
100		FAC	That Are OBL, FACW, or FAC: (A)
25		FACW	Total Number of Dominant U (B)
		1	Percent of Dominant Species 76
allen -			That Are OBL, FACW, or FAC: (A/B)
	-		Total % Cover of: Multiply by:
125		/er	OBL species x 1 =
50	Y	FACIL	FACW species x 2 =
			FACU species x 3 =
Nati., 111 (13)	1.83		UPL species x 5 =
entile en la co	16		Column Totals: (A) (B)
_			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			- Rapid Test for Hydrophytic Vegetation
			∠ 2 - Dominance Test is >50%
	=	-	3 - Prevalence Index is ≤3.0'
50	= Total Cov	/er	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
20	<u> </u>	NI	Problematic Hydrophytic Vegetation ¹ (Explain)
	in an unit	Friedman Ave	T (174) with Without (174)
	n jeria	<u>, e estañ</u>	be present, unless disturbed or problematic.
64 - 14 L	11 AT 114	_	Definitions of Four Vegetation Strata:
These restar	ni secolaria		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
	STR. In the	OVE LEN	more in diameter at breast height (DBH), regardless of height.
			Sapling/Shrub – Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardless
	0.4 8		Weedwales All weedwaless that 3.20 it tall.
20	= Total Co	ver	height.
	-	- 21 - 12 - 14	the set of the set of the set
196 a. 201.		dia na he	h shink the present shink and the statement of
		_	Hydrophytic
			Present? Yes No No
	25 125 50 20 20 	$\frac{00}{25} + \frac{1}{2}$ $\frac{1}{25} = \text{Total Cov}$ $\frac{50}{50} + \frac{1}{2}$ $\frac{50}{20} + \frac{1}{2}$ $\frac{1}{20} = \text{Total Cov}$ $\frac{1}{20} = \text{Total Cov}$ $\frac{1}{20} = \text{Total Cov}$	$\frac{00}{25} + \frac{1}{7}$ $\frac{1}{25} = Total Cover$ $\frac{50}{50} + \frac{7}{FACU}$ $\frac{50}{7} + \frac{7}{FACU}$ $\frac{50}{7} + \frac{7}{NI}$ $\frac{50}{7} + \frac{7}{NI}$ $\frac{50}{7} + \frac{7}{NI}$ $\frac{1}{7} + 1$

SOIL	S	0	IL	
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J. ..

Profile Description: (Describe to the depth	n needed to document the	indicator or confirm	n the absence o	of indicators.)
Depth <u>Matrix</u>	Redox Featur	es	-	
$\frac{(\text{inches})}{(1)} = \frac{\text{Color}(\text{moist})}{(1)} = \frac{\%}{(1)} = -\frac{1}{(1)}$	$\underline{Color(moist)}$ $\underline{\%}$	_ <u>Type'</u> <u>Loc</u>	<u>Texture</u>	Remarks
DIAT TUINY ~ 80	TOTRY6 20	CVA	SIC	
				i
			<u> </u>	
	·			
			·	
¹ Type: C=Concentration, D=Depletion, RM=F	Reduced Matrix, MS=Maske	ed Sand Grains.	² Location: PL=	Pore Lining, M=Matrix.
Hydric Soll Indicators:			Indicat	ors for Problematic Hydric Solis ³ :
Histosol (A1)	Dark Surface (S7)		2 c	m Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Below Surf	ace (S8) (MLRA 147,	148) Co	ast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S	9) (MLRA 147, 148)	((MLRA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix	(F2)	Pie	edmont Floodplain Soils (F19)
Stratified Layers (A5)	- <u>X</u> Depleted Matrix (F3)	· · · · · · · · · · · · · · · · · · ·		(MLRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Surface	(F6)	Re	d Parent Material (TF2)
Depleted Below Dark Surface (A11)	Depleted Dark Surfac	e (F7)	Ve	ry Shallow Dark Surface (TF12)
Sandy Mucky Minoral (S1) (LPP N	Redox Depressions (F8) con (E12) (L DD N	Ott	ner (Explain in Remarks)
MI RA 147 148)	Iron-Wanganese Mas	ses (F12) (LRR N,		
Sandy Gleved Matrix (S4)	Umbric Surface (E13)	(MI PA 136 122)	³ India	stors of hydrophytic vogotation and
Sandy Redox (S5)	Piedmont Floodplain	Soils (F19) (MI RA 14	18) we	fland hydrology must be present
Stripped Matrix (S6)			uni	less disturbed or problematic
Restrictive Layer (if observed):				
Туре:				
Depth (inches):			Hydric Soil F	Present? Yes No
Remarks:				
unable to touch	Soils due.	to Ser.	The	mertin
		10 000	fr	INW.
COLOV 3 ODANXIM	rated			
G.				

Date: 12-9-11 Project Site: <u>Phyple Line</u> WUS #: <u>bb</u>
Observer(s) 50, 11-2
Perennia <u>l: X</u> Intermittent Ephemeral
Gradient: <u>LIO/0</u> Classification: <u>R2UB</u> //2
Channel Characteristics: Natural Artificial (man-made) Manipulated (man-altered)
Explain:
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank destruction of terrestrial vegetation changes in character of soil the presence of wrack line shelving sediment sorting vegetation matted down, bent, or absent scour leaf litter disturbed or washed away multiple observed or predicted flow events sediment deposition abrupt change in plant community water staining other (list):
the presence of litter and debris
the presence of litter and debris Discontinuous OHWM (explain):
the presence of litter and debris Discontinuous OHWM (explain): Morphology: Avg. Channel Width 10' Depth 2' Avg. Water Depth 6''
the presence of litter and debris Discontinuous OHWM (explain): Morphology: Avg. Channel Width 10' Depth 4' Avg. Water Depth 6'' Has stream morphometry been altered? 1995 Describe : Mary
☐ the presence of litter and debris ☐ Discontinuous OHWM (explain): Morphology: Avg. Channel Width / Depth Avg. Water Depth Has stream morphometry been altered? <u>Mess</u> Describe : <u>May</u> Has stream morphometry been altered? <u>Mess</u> Describe : <u>May</u> Habitat and Pollutants: Substrate (predominant type (s)): <u>Graded JSan d</u>
Interpresence of litter and debris Image: Discontinuous OHWM (explain): Morphology: Avg. Channel Width // Depth Avg. Water Depth // Avg. Water Depth // Avg. Water Depth // Avg. Water Depth // Has stream morphometry been altered? Mess Describe : Mess Describe : Mess Me
☐ the presence of litter and debris ☐ Discontinuous OHWM (explain): Morphology: Avg. Channel Width 10 ' Depth Avg. Channel Width 10 ' Depth Avg. Water Depth Has stream morphometry been altered? Avg. Water Depth Has stream morphometry been altered? Morphology: Has stream morphometry been altered? Describe : Morphology: Habitat and Pollutants: Substrate (predominant type (s)): Morphology: Morphology: Morphology: Multiple:
Image: Interpresence of litter and debris Image:
Image: Intermediate interm
Image: Interpresence of litter and debris Image: Interpretent of the presence of litter and debris Image: Interpretent of the presence of litter and debris Morphology: Avg. Channel Width /0 Depth Avg. Water Depth /1 Avg. Water Depth

Biological Habitat For (check all that apply): Federally Listed species	- N-4142 - G 342462, #24	Fish Spawn Areas	
Other Environmentally-Sensitive Species	Aquat	ic/Wildlife Diversity	
Explain Findings:		- 1	
Riparian Zone:	Nexps	view level	
Biparian vegetation: Forest \checkmark	Shrubs X	Herbs 🖌	
Dominant Species: (green ush,	tulio po	solar red mars	
Buch honey such	English	N	
Riparian Buffer Width: 20'	Ţ	tradique of a fin chart point dans	
Approximate % Shading by Woody Species:	80%	a	
Notes:		antin a norma lat⊆a	
ti në shomi e ng			
" The state of the second seco			
		 to an internal set a 	
Project/Site: PUVDle L	ines	City/County:	Sampling Date: 1-26
---	--	---	--
Applicant/Owner: MTA	dimension to reader the second	Application interaction	State: MAD Sampling Point: WTP-
Investigator(s): BU AT		Section, Township, Range:	
Landform (hillslope, terrace, etc.):	SWM pond	Local relief (concave, convex,	none): CONCAVE Slope (%): 41
Subregion (LRR or MLRA): MLR	A 148 Lat:	Long:	Datum:
Soil Map Unit Name: ISSUP	Whan land come	lex Christianast	NWI classification: POW WIPERL
Are climatic / hydrologic conditions or	n the site typical for this time of ye	ar? Yes XNo	(If no. Explain in Remarks.)
Are Vegetation, Soil,	or Hydrology significantly	disturbed? Are "Norma	Circumstances" present? Yes No
Are Vegetation, Soil,	or Hydrology naturally pro	blematic? (If needed.)	explain any answers in Remarks.)
	Attach site man showing	compling point locatio	
COMMANY OF THE DINGS -	Attach site map showing	sampling point locatio	ons, transects, important features, et
Hydrophytic Vegetation Present?	Yes No	is the Sampled Area	
Hydric Soll Present?	Yes No	within a Wetland?	Yes No
Wetland Hydrology Present?	Yes No		
Nemarka.			
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)	Aqualic Fauna (81	3)	Sparsely Vegetated Concave Surface (B8)
K High Water Table (A2)	Marl Deposits (B15		Drainage Patterns (P10)
Katuration (A3)	Hydrogen Sulfide C	dor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	X Oxidized Rhizosph	eres along Living Roots (C3)	Dry-Season Water Table (C2)
	Bressnes of Podus	ed Iron (C4)	Cravitish Burrows (C8)
Sediment Deposits (B2)	FIGSENCE OF REULI		
Sediment Deposits (B2) Drift Deposits (B3)	Recent Iron Reduc	ion in Tilled Soils (C6)	Saturation Visible on Aerial Imageny (C9)
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Recent Iron Reduc	lion in Tilled Soils (C6) (C7)	Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	Recent Iron Reduct	lion in Tilled Soils (C6) (C7) emarks)	 Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
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Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Ima Water-Stained Leaves (B9)	Recent Iron Reduct Recent Iron Reduct Thin Muck Surface Other (Explain in R agery (B7)	(C7) emarks)	 Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Sphagnum moss (D8) (LRR T, U)
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tree Diversions (Diet -imat		Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) .	% Cover	Species? Status	Number of Dominant Species
1. Ntos 11. 2006	AN CONCEPTION			That Are OBL, FACW, or FAC:
2		DORONG	See no	Total Number of Demisert
3		1.5.4.6	No. 11 and	Species Across All Strate:
4	Provide States			
5.	and the second se			Percent of Dominant Species
6				That Are OBL, FACW, or FAC:
7	n fil Aussilignal staff		THE OWNER OF STREET	Prevalence Index worksheet:
0			a contra la secta por	Total % Cover of: Multiply by:
B				OBL species x 1 =
	- The second second	<i></i>	Total Cover	FACW species y 2 =
ingon in history of	50% of total cover:	_ 20% of t	total cover:	
Sapling/Shrub Stratum (Plot si	ize:)			
1				
2		GAL THE		
3				Column Totals: (A)
4				Description of Index - Diff.
5.				
6.		-		Hydrophytic Vegetation Indicators:
7.	<u></u>	0		1 - Rapid Test for Hydrophytic Vegetation
8	······································			2 - Dominance Test Is >50%
···			Table	3 - Prevalence Index is ≤3.0 ¹
	5004 -54-11	=	I OTAL COVER	Problematic Hydrophytic Vegetation ¹ (Explain
	DU% Of total cover:	_ 20% of t	total cover:	Pro 332 101 (5, 10000-05 500
Herp Stratum (Plot size:)	2	the 1	¹ Indicators of hydric soll and wetland hydrology m
1. physeura nash	ath Plan	2	- Hew	be present, unless disturbed or problematic.
2. WHANTATA a	ternitolla	35	1 Hay	Definitions of Four Vegetation Strata:
3. SCIPPUS C	ypernus	5.	FACW	Tree - Woody plants, excluding vines 3 in (7.6 c
4. JUNCUS	Vertusus.	50	Y FACW	more in diameter at breast height (DBH), regardle
5	STUD WHY IN		- I-alize of the Parko	height.
6	ka sense - P	Q1 1994	and the state of the state	Sapling/Shrub, Woody plants, avaluding vince
7.	4 Mill 200		A Low Street St	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8.	W W B		Contraction of the trace of the	Lang and the state of the state
9 (COV)	C C C C C C C C C C C C C C C C C C C			Herb – All herbaceous (non-woody) plants, regard
10				or size, and woody plants less than 3.20 it tail.
11				Woody vine - All woody vines greater than 3.28
10				height.
12		65	<u></u>	d where a where the
	LII E		Total Cover	
	50% of total cover: 760	20% of t	total cover: _17	the second se
Woody Vine Stratum (Plot size	ə:i (<u>1166000</u>) - İngili'i			ALC: N. TELEVISIES CONTRACTOR STREET, AND A STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, ST
1		<u> </u>		
2				
2				
2 3 4				
2 3 4 5.			<u> </u>	
2 3 4 5				Hydrophytic Veretation
2345			Total Cover	Hydrophytic Vegetation Present? Yes No

Glo,

Atlantic and Gulf Coastal Plain Region - Version 2.0

N

1.

Sampling Point: WTP 67-1

Profile Descripti	on: (Describe t	o the dept	h needed to docum	nent the li	ndicator	or confirm	n the absence	of Indicators.)
Depth	Matrix		Redo	x Features				
(inches)		<u>%</u> -	Color (moist)	_%	Type ¹	_Loc ²	Texture	Remarks
0-10 1	DIK3/2	15	7.518416	5	<u>_C</u>	PL	<u> </u>	
10-14+ 10	YR 3/2	90	7.5YR516	10	C	M	fsc	
	/		1					
				·				
				· · · · · · · · · · · · · · · · · · ·				
				·		. <u></u>		·
			• • • • •					D
¹ Type: C=Concer	ntration, D≈Depi	etion. RM≕	Reduced Matrix. MS	S=Masked	Sand Gr	ains	² Location:	PI = Pore Ining_M=Matrix
Hydric Soil Indic	ators: (Applica	ble to all L	RRs, unless other	wise note	ed.)		Indicators	for Problematic Hydric Soils ³ :
Histosol (A1)			Polyvalue Be	low Surfac	:e (S8) (L	.RR S. T. I	U) 1 cm λ	Auck (A9) (LRR O)
Histic Epiped	ion (A2)		Thin Dark Su	rface (S9)	(LRR S,	T, U)	2 cm M	Auck (A10) (LRR S)
Black Histic (A3)		Loamy Muck	y Mineral (F1) (LRF	20)	Reduc	ed Vertic (F18) (outside MLRA 150A,E
Hydrogen Su	lfide (A4)		Loamy Gleye	d Matrix (I	F2)		Pledm	ont Floodplain Soils (F19) (LRR P, S, T
Stratified Lay	ers (A5)	-	Depleted Mai	rix (F3)			Anoma	alous Bright Loamy Solls (F20)
5 cm Mucha	es (Ab) (LRR P, Minerel (A7) // P	1, U) B B 7 11	Redox Dark	Surface (F	б) (Г7)		(MLI	RA 153B)
Muck Precen		κr, I, U)	Depleted Dar	K SUMACE	(⊢7) 2)		Red P	arent Material (TF2)
1 cm Muck (A	(LRR P. T)		Nedox Depre	RR II))		Very S	(Evolais is Remarks)
Depleted Bel	ow Dark Surface	(A11)	Depleted Oct	nric (F11) (MLRA 1	51)		
Thick Dark Si	urface (A12)	• •	Iron-Mangan	ese Masse	es (F12) (LRR O, P	, T) ³ India	ators of hydrophytic vegetation and
Coast Prairie	Redox (A16) (M	LRA 150A)) Umbric Surfa	ce (F13) (LRR P, T	; U)	wet	land hydrology must be present,
Sandy Mucky	/ Mineral (S1) (L	RR O, S)	Delta Ochric	(F17) (ML	RA 151)		g unle	ess disturbed or problematic.
Sandy Gleye	d Matrix (S4)		Reduced Ver	tic (F18) (I	MLRA 15	0A, 150B)	
Sandy Redox	((80) dv (86)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	49A)	150.01
Dark Surface	(S7) (LRR P S	τ 11)		right Loan	ny Solis (F20) (IWL)	KA 149A, 153C	, 153D)
	(=.) (=	., _,						
Restrictive Layer	r (if observed):	· · · · · · · · · · · · · · · · · · ·				·		
Restrictive Layer Type:	r (if observed):							
Restrictive Layer Type: Depth (inches)	r (if observed): :		17				Hydric Soli	Present? Yes No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		2		11		Hydric Soli	Present? Yes <u>No</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		12		1)		Hydric Soli	Present? Yes <u>No</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		-		5 5		Hydric Soll	Present? Yes <u>No</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :				ц С		Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :				ι, ',		Hydric Soll	Present? Yes <u>No</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed):				5 7.		Hydric Soll	Present? Yes <u>No</u> <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): .:		-		и -		Hydric Soll	Present? Yes <u>No</u> <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :				ц с.		Hydric Soll	Present? Yes <u>No</u> <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		3		ν.		Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		3		т.		Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): ;						Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :				1		Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :				а		Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		2				Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed):):		2				Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		3				Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :		3				Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :						Hydric Soll	Present? Yes <u>No</u> <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :						Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :						Hydric Soll	Present? Yes <u>No</u> <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :						Hydric Soll	Present? Yes <u>No</u>
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): :						Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): ;						Hydric Soll	Present? Yes <u>V</u> No
Restrictive Layer Type: Depth (inches) Remarks:	r (if observed): ;						Hydric Soll	Present? Yes <u>No</u> <u>No</u>

30

Stream Features Field Sheet
Date: 3-13-2012 Project Site: Purple line WUS#: 68 Flags WUSSBOOT 711
Observer(s) A. Tatone, O. Rodgers
Stream Flow: Perennial:IntermittentEphemeral
Gradient: 3-52 Classification: <u>R45B</u> sand/gravel
Channel Characteristics: Natural Artificial (man-made)Manipulated (man-altered)
Explain: Both banks have armoring in places, lots of pipes, & a riser a bottom
Channel Has (check all that apply):
OHWM clear, natural line impressed on the bank changes in character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining water staining the presence of litter and debris
Morphology: Avg. Channel Width
Has stream morphometry been altered? <u>Yes</u> Describe : <u>kiser e bottom</u>
Habitat and Pollutants: Substrate (predominant type (s)): <u>Sand / gravel</u> Habitat Complexity (characterize): <u>Very</u> low, low flashy flow
Bank Erosion: Severe Moderate X Minor
Describe: <u>Major crosson</u>
Silt Deposition:
Pollutants (observation)/potential sources): pipe with continuous flower,
Stormwater Outfalls: 3

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region
Project/sile: Purple Line City/County College Park/PG sampling Date: 3/13/12
Applicant/Owner: MTA State: Sampling Point: WTP-69
Investigator(s): DR, AT, MN Section, Township, Range:
Landform (hillslope, terrace, etc.): 5/10/00 Swale Local reliei (concave, convex, none): Concave Slope (%):
Subregion (LRR or MLRA): MLRA-149a Lai: Long: Datum:
Soil Map Unit Name: Codoms > Hatboro soils, treg flooded NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain In Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampled Area Hydric Soil Present? Yes No within a Wetland? Wetland Hydrology Present? Yes No No Remarks: No No No
Ne actation routinely moused acts in wetland
HYDROLOGY
Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of and is required; sheely all that each)
Surface Water (A1)
High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10)
Saturation (A3)Hydrogen Sulfide Odor (C1)Moss Trim Lines (B16)
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aguitard (D3)
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)
Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T, U)
Field Observations:
Water Table Present? Yes No V Depth (inches):
Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No
(includes capillary fringe)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
receives runot from parking lot, which collects over fight soils
S S S S S S S S S S S S S S S S S S S

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AND	Absolute Dominant Indicator	Dominance Test worksheet:
ee Stralum (Plot size:)	% Cover Species? Status	Number of Dominant Species
		Total Number of Dominant
		Species Across All Strata: (B)
		Percent of Dominant Species
		That Are OBL, FACW, or FAC: (A/B
	and the set of the set	Prevalence Index worksheet:
	Real Real Provide State	Total % Cover of: Multiply by:
		OBL species x1 =
		FACW species x 2 =
50% of total cover:	20% of total cover:	FAC species x 3 =
plind/Shrub Straium (Piot size:)		FACU species x 4 =
s contra	Series - States	UPL species x 5 =
	the see ment recur	Column Totals: (A) (B)
		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
· · · · · · · · · · · · · · · · · · ·		1 - Rapid Test for Hydrophytic Vegetation
<u>1</u>		2 - Dominance Test is >50%
		- 3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover:	20% of total cover:	Content of States and States
erb Stratum (Plot size:)		Indicators of hydric soll and wetland hydrology must
		be present, unless disturbed of problematic.
Internet and the second second	HOUSE LEVEL	Demnitions of Four vegetation Strata:
BITH BOAT THE AND		Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of
		more in diameter at breast height (DBH), regardless of height
		The second state
		Sapling/Shrub – Woody plants, excluding vines, less
	Letter Street	
Later the Revealed		 Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
1.		 Woody vine – All woody vines greater than 3.28 ft in beight
)		
	- Total Cover	
50% of total cover:	20% of total cover	teres, and a per magnetice
loody Vine Stratum (Plot size:	20 % of total cover	1 By S will be been a court and a court and
		-
		-
		- I
·		- Arow
* <u></u>		- Hydrophytic WVV
	= I otal Cover	Present? Yes No
50% of total cover:	20% of total cover:	
emarks: (If observed, list morphological adaptations b	elow).	
1. 1. int doubt	aldo dua to	AALIAA
vegetation not identify	able due to n	rowing
vegetation not identifi	able due to n	rowing

Atlantic and Gulf Coastal Plain Region - Version 2.0

Sampling Point: WTP-69

Profile Description: (Des	cribe to the denti	needed to docum	ent the Indical	or or confirm	n the chaspes of	of Indiant and)	
Depth Ma	triv	Peday			in the absence t	of indicators.)	
(inches) Color (moi	<u>st) %</u>	Color (moist)	<u>%</u> Type	Loc ²	Texture	Remarks	
0-4 10483/	2 90	7.5484/6	10 0	M	Sid		
4-6 25V51	6	<u> </u>					
1 -17+ INVO #							
6-12: 101N3	/6	······			<u> </u>		
					<u> </u>		
······						•	
5							
						·····	
Hydric Soll Indicators: (A	Depretion, RM=	Required Matrix, MS	=Masked Sand	Grains.	*Location:	PL=Pore Lining, M=Matri	X.
Histosol (A1)	pprozbie to all E	Robusius Pal	wise noted.)			or Problematic Hydric :	Solls":
Histic Epipedon (A2)		Polyvalue Ben Thin Dark Sur	ow Surface (So) (LKK S, I, I S T II)	U)1 cm M	uck (A9) (LRR O)	
Black Histic (A3)		Loamy Mucky	Mineral (F1) (L	RR 0)	2 cm wi	ed Verfic (F18) (outside N	(I RA 150A B)
Hydrogen Sulfide (A4)		Loamy Gleyed	d Matrix (F2)		Piedmo	nt Floodplain Soils (F19)	(LRR P. S. T)
Stratified Layers (A5)		Depleted Matr	-ix (F3)		Anomai	ous Brighl Loamy Solls (F20)
Organic Bodies (A6) (L	RR P, T, U)	Kedox Dark S	urface (F6)		(MLR	A 153B)	
5 cm Mucky Mineral (A	7) (LRR P, T, U)	Depleted Dark	(Surface (F7)		Red Pa	rent Material (TF2)	
i cm Muck (A9) (L RR S	אד ט)	Redox Depres	ssions (F8)		Very Sh	allow Dark Surface (TF1	2)
Depleted Below Dark S	urface (A11)	Depleted Och	ric (F11) (MIR)	151)	Other (i	explain in Remarks)	
Thick Dark Surface (A1	2)	Iron-Mangane	se Masses (F1	2) (LRR O. P.	T) ³ Indica	ators of hydrophytic veriet	ation and
Coast Prairie Redox (A	16) (MLRA 150A)	Umbric Surfac	e (F13) (LRR F	ρ, Τ, U)	wetla	and hydrology must be pr	resent,
Sandy Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 15	1)	unle	ss dislurbed or problema	tic.
Sandy Gleyed Matrix (S	54)	Reduced Vert	Ic (F18) (MLRA	150A, 150B))		
Stripped Matrix (S6)		Pledmont Flox	odpiain Solls (F	19) (MLRA 14	49A)	(500)	
Dark Surface (S7) (I Br			Ight Fostul 201		(A 149A, 153C)	1530)	
	7 P. S. T. U)						
Restrictive Layer (If obser	ved):						
Restrictive Layer (If obser Type:	ved):						
Restrictive Layer (If obser Type: Depth (inches):	(P, S, T, U) ved):				Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	R P, S, T, U) ved):				Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	ved):				Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		ñ		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		ĥ		Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		а. С.		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		ĥ		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		3		Hydric Soli I	Present? Yes	No
Restrictive Layer (if obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		n.		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		ñ		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		n.		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		Ē.		Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):		с. С.		Hydric Soll I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (if obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (if obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	<u>No</u>
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	<u>No</u>
Restrictive Layer (If obser Type: Depth (inches): Remarks:	(P, S, T, U) ved):				Hydric Soli I	Present? Yes	No

US Army Corps of Engineers

Stream Features Field Sheet
Date: 3-13-2012 Project Site: puine WUS #: 71
Observer(s) A. Tatome, D. Rodgers
Stream Flow: Perennial:IntermittentEphemeralX
Gradient? 83 Classification: epheneral vip-rap/sand
Channel Characteristics: Natural Artificial (man-made) X Manipulated (man-altered)
Explain: drainage alongside roag
Channel Has (check all that apply):
OHWM Clear, natural line impressed on the bank changes in character of soil shelving shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining the presence of litter and debris Discontinuous OHWM (explain):
Morphology: Avg. Channel Width $\underline{4}^{\prime}$ Depth $\underline{2}^{\prime}$ Avg. Water Depth $\underline{1}^{\prime\prime}$ Has stream morphometry been altered? $\underline{75}$ Describe : $\underline{79}$
Habitat and Pollutants: Substrate (predominant type (s)): <u>rip-fap</u> /sand Habitat Complexity (characterize): <u>M</u> /A
Bank Erosion: Severe Moderate Minor X
Describe: None
Silt Deposition: Moderate sand on top of rip-rop/trash
Pollutants (observation / potential sources): rand runott prash
Stormwater Outfalls:

Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings: None	
1. A.	nua eter. Produka laista taka taka laista
Riparian Zone: Development: Rud R	ight bank, Forest left bank
Riparian vegetation: Forest	χ Shrubs χ Herbs χ
Dominant Species: <u>LT.ST</u>	PLOC, LOSA, birdersweet, ALRU
Riparian Buffer Width:	n <u>inser en son en sinder</u> (j. 1. ettersent over .
Approximate % Shading by Woody S	Species: 552
Notes: Steep Fip Tap wethod 72	Channel receives flow from & outfal & top
	entite et persone
	and the providence of the second second second second second

WETLAND DETERMINATION DA	TA FORM – Atlantic and Gulf Coastal Plain Region
Project/Site: PUSDO MC	City County Prime George'S Sandia Data 3-13-701
Applicant/Owner: M.TA	State: MD Sampling Date: UTP-72
Investigator(s): A. Tatone, D. Radgers	Section Township Pance: Sampling Point: WITF 12
Landform (hillslope, terrace, etc.): 5(000, 500.0	Local reliat (concerve approx approx) (AIA 110.) Since (11) 7/12
Subregion (LRR or MLRA): MLRA 199A	
Soil Man Unit Name: Christiana : Dawner - Urb	Datum:
Are climatic (hydrologic conditions on the site hydrol (on this high	Wil classification: MUCI
Are Vanelation	s or year? Yes No (If no, explain In Remarks.)
Are Vegetation, Soli, or Hydrology signific	cantily disturbed? No Are "Normal Circumstances" present? Yes V No No
Are vegetation, Soll, or Hydrology natura	Illy problematic? N_0 (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	wing sampling point locations, transects, important features, etc.
Hydrophytic Vegetalion Present? Yes No Hydric Soil Present? Yes X Wetland Hydrology Present? Yes X Remarks: No	Is the Sampled Area within a Wetland? Yes <u>X</u> No
 Statistical Application and a statistical statisti statistical statistical statistical statisticae statisticae st	
2007 1923	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Surface Water (A1)	<u>pply)</u> Surface Soll Cracks (B6)
X High Water Table (A2) Marl Deposite	s (B15) (I BB II) Drainage Datiants (B10)
Saluration (A3)	Iffide Odor (C1) Moss Trim Lines (B16)
Waler Marks (B1) Oxidized Rhiz	zospheres along Living Roots (C3) Dry-Season Water Table (C2)
Sediment Deposits (B2) Presence of F	Reduced Iron (C4) Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron F	Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Su	urface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	In m Remarks) Shallow Aquitard (D3)
X Water-Stained Leaves (B9)	
Field Observations:	
Surface Water Present? Yes No X Depth (in	nches):
Water Table Present? Yes X No Depth (ir	nches):
Saturation Present? Yes X No Depth (ir	nches): Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial	photos, previous inspections), if available:
	and the second se
Remarks:	
clayey soils restrict ground	water movement
leading to shallow water to	able
and the second s	
	·

ASSESSMENTE AF 36

Allantic and Gulf Coastal Plain Region - Version 2.0

	Absolute	Dominant	Indicator	Dominance Test worksheet:
(Plot size:)	% Cover	Species?	Status	Number of Dominant Species 7
L'andrubar studietting	2	V	FLC	THE ALE OBL, FACVE, OF FAC (A)
Catalpa zperiosa	is	Ý.	FAC	Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
		1 3	- CALLERS -	Prevalence Index worksheet:
1994 - 1995 Adams Attraction of Carde	and the	ligatio	n ship	Total % Cover of: Multiply by:
	28	= Total Cov	er	OBL species x 1 =
50% of total cover:	20% of	total cover	100000	FACW species x 2 =
apling/Shrub Stralum (Plot size:)			-	
ALET INDIUM	<u> </u>	<u> </u>	FAC	FACU species X 4 =
Liquidambar stylating	_ 30	<u> </u>	FAC	OPL species x 5 = Column Totais: (A) (B)
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - RapId Test for Hydrophytic Vegetation
· · · · · · · · · · · · · · · · · · ·			<u> </u>	2 - Dominance Test Is >50%
		<u></u>		3 - Prevalence Index is ≤3.0 ¹
50% of total cover	<u>56</u>	= Total Cov	/er	Problematic Hydrophytic Vegetation ¹ (Explain)
erb Siratum (Plot size:)	2078.01	total cover	·	
Calex 50	20	Y	in la	be present, upless disturbed or problematic.
Dicharthelisen acumination	10	Ý	PAC	Definitions of Four Vegetation Strata:
Ludivicia alternitatio	12	Y	FACW	ining (LA) in the sum?
Luxos effusus	I	- 1010 - 1914	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless o belobt
C TOTAL CONTRACTOR CONTRACTOR		agen vi an	in altrait	Sapling/Shrub - Woody plants, excluding vines, less
Salah Ing a salah sa	3	14:00	10000000000000000000000000000000000000	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
And the man				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
)				Woody vine – All woody vines greater than 3.28 ft in
2		=		
and the second second second second	43	= Total Cor	ver	and LICIA CLARKER STRATE
50% of total cover:	20% o	f total cover	:	
/oody Vine Stratum (Plot size:)	-	N N	FI.	A STATE OF THE REPORT OF THE ADDRESS
Loniera japonica		_ <u>_</u>	FAC	
		· · · · · · · · ·		
· · · · · · · · · · · · · · · · · · ·				
·		4.0.54		· · · · · · · · · · · · · · · · · · ·
·	5	= Total Co	ver	Vegetation
50% of total cover:	20% 0	f total cover		Present? Yes No
emarks: (If observed, list morphological adaptations be	elow).			

Atlantic and Gulf Coastal Plain Region - Version 2.0

Sampling Point: WTP-72

Profile Description: (Describe to the dept	h needed to docun	ient the Indica	ator or contirn	the absence of	indicators.)	
Depth Matrix	Redo	Features				
(inches) Color (moist) %	Color (moist)	<u>%</u> Ty	pelLoc ²		Remarks	
0-1127 104R612 85	7.5YR416	15 (m	C		
& No.2	10		1			
					•	
	· · · · · · · ·					
Hydric Soli Indicators: (Applicable to all I	Reduced Matrix, MS	Masked San	d Grains.	Location: PL	=Pore Lining, M=Matrix.	
Histosol (A1)	Dehawiya Dei	wise noted.)		indicators for	Problematic Hydric Solis":	
Histic Epipedon (A2)	Thin Dark Su	IOW BUILACE (S	0)(LKK 5, 1, 1 De t 11)) 1 cm Muc	k (A9) (LRR O)	
Black Histic (A3)	Loamy Mucky	Mineral (F1)		2 cm Muc Reduced	K (A10) (LKK 3) Vertic (E18) (outside MLPA 4	50 A (D)
Hydrogen Sulfide (A4)	Loamy Gleve	d Matrix (F2)	Link Of	Piedmont	Floodniain Soiis (F19) (LRR I	100A,B)
Stratified Layers (A5)	V Depieted Mat	rix (F3)		Anomalou	s Bright Loamy Soils (F20)	, 0, 1)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark S	Surface (F6)		(MLRA	153B)	
5 cm Mucky Mineral (A7) (LRR P, T, U)	Depieted Dark	k Surface (F7)		Red Pare	nt Material (TF2)	
Muck Presence (A8) (LRR U)	Redox Depre	ssions (FB)		Very Shal	low Dark Surface (TF12)	
Depieted Relaw Dark Surface (Add)	Marl (F10) (LI	RR U)		Other (Ex	plain in Remarks)	
Thick Dark Surface (A12)	Depieted Och	INC (F11) (MLR	(A 151)	T) 31	an affinite to the second of	
Coast Prairie Redox (A16) (MLRA 150A)	Umbric Surfa	re (F13) (I RR	PT II)	1) indicato	rs of hydrophytic vegetation a	nd
Sandy Mucky Mineral (S1) (LRR O, S)	Della Ochric ((F17) (MLRA 1	51)	unless	disturbed or problematic	
Sandy Gleyed Matrix (S4)	Reduced Veri	IC (F1B) (MLR	A 150A, 150B)	dilloss	alotarbea or problematic.	
Sandy Redox (S5)	Piedmont Flo	odplain Soils (F19) (MLRA 14	(9A)		
Stripped Matrix (S6)	Anomaious B	right Loamy So	oils (F20) (MLR	A 149A, 153C, 1	i3D)	
Bastristiva Lavar (If abcarvad)						
Type:						
Dapth (inches):					/	
Bemerke:				Hydric Soli Pr	esent? Yes V No	
Remarks:						
3						
	.×					
	ي ال					

Atlantic and Gulf Coastal Plain Region - Version 2.0

WETLAND DETERMINATION DATA	FORM - Atlantic and	Gulf Coastal	Plain Region
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Projecusite: Purple Line City/C	County: PG Sampling Date: 5-7-13
Applicant/Owner: MTA	State: MD Sampling Polnt: WITP-073
Investigatoria A. Talie D. Rodance Conti	Tausatia Dassa
Section Sectio	Sh, Township, Range.
Landrorm (hillslope, terrace, etc.):Local	reliel (concave, convex, none): <u>Cavea C</u> Slope (%): <u>1-28</u>
Subregion (LRR or MLRA): MUKA 197A Lat:	Long: Datum:
Soil Map Unit Name: Urban land w/ Constrant Downer	P ISSUE, OCC. TIOUNWI classification: PFOIA
Are climatic / hydrologic conditions on the site typical for this time of year?	/es K No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distu	ibed? Na Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problem	atic? No (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes <u>A</u> No
Remarks:	· · · · · · · · · · · · · · · · · · ·
Currently Commen	A AND A A
stand perched on day	
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)
X Surface Water (A1) Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B15) (LF	RU) X Drainage Patterns (B10)
X Saturation (A3) Hydrogen Sulfide Odor	(C1) Moss Trim Lines (B16)
Water Marks (B1) Oxidized Rhizospheres	along Living Rools (C3) Dry-Season Water Table (C2)
Sediment Deposils (B2) Presence of Reduced Ir	on (C4) Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron Reduction i	n Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5) Other (Explain in Rema	rks) X Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	, 111
Surface Water Present? Yes X No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes <u>No</u> Depth (inches):	Wetland Hydrology Present? Yes <u>/ No</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:
	2.0
Remarks:	
Small rivelots present in wortherd w	surface weiter
Structure is preserver in the order of	
	and see the
	a final second sec
	F 16

46

VEGETATION (Four Strata) - Use scientific nat	mes of pla	ants.		Sampling Point: WTP-73
Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Acer Sacchairmum	10	<u> </u>	FAC	That Are OBL, FACW, or FAC: (A)
2. JANK NUGA	ds .	<u> </u>	DRF	Total Number of Dominant
3. NCA FVDVDW	10	<u> </u>	FAC	Species Across All Strata: (B)
4. La tandar sperios	12		FACU	Percent of Dominant Species
5 1 Dode endour Listilare	10	7	TACIL	That Are OBL, FACW, or FAC: (A/B)
7 Sacudantan Ercaputan	-0	_7	FACU	Prevalence Index worksheet
8 Platanus accudentalis			FACIN	Total % Cover of: Multiply by:
	96	Total Ca	Friday	OBL species x 1 =
50% of total cover		total cover	192	FACW species x 2 =
Sapling/Shrub Stratum (Plot size:			·	FAC species x 3 =
1. Arer, mbruge	50	Y	FAC	FACU species x 4 =
2. Liquidambar, Salacitua	75	Y	FAC	UPL species x 5 =
3. Viburum dontation	7		FAC	Column Totals: (A) (B)
4. Catalon Tpeciosa	15		FACU	Provoloppo Index - R/A -
5. Umus americana	5		FACW	Hydrophytic Vegetation Indicators:
6				1- Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
8				$3 - Prevalence Index is \leq 3.0^1$
	122 =	= Total Cov	/er	Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover:	20% of	total cover	: 24.9	and product on the second s
Herb Stratum (Plot size:)	US	V	the	¹ Indicators of hydric soil and wetland hydrology must
2 Pro Musica 5	20		FAL	be present, unless disturbed or problematic.
3 Drive annipar aprovedure	12		TAC	Definitions of Four Vegetation Strata:
4. Acer popular	6		FAC	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Onneries gansmillis	-X-		FACIN	height.
6. Viburnom dentatum	<u>u</u>		FAC	and a second
7. Impatiens Carensis	3		FACW	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8				
9				of size, and woody plants less than 3.28 ft tall.
10				Woody yipp All woody incompany than 2.28 A in
11				height.
12				A Martin and the second second
a A int an interaction to a second s	101 =	= Total Cov	ver	
50% of total cover:	20% of	total cover	10.2	the second se
1 Toxico dand (an) (9 d: (and 5))	$\left(\right)$	V.	C10	
2 LOMAICONGS TO DENSICIA			TAC	
3 Loning			<u>rnc</u>	
4.				
5				
	13	= Total Co	ver	Hydrophytic Vegetation
50% of total cover:	20% of	total cover	2.6	Present? Yes <u>No</u>
Remarks: (If observed, list morphological adaptations belo	w).			I
21-LOOKING Past at INT	71215	72		
	10			2
				2
· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	

Sampling Point:	TP-073
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		•		ment the p	ioicator t	or committi	the absence	or indicators.	.)	
Depth (is shoc)	Matri	<u>x</u>	Redo	x Features	T		T			
$\overline{\Omega}$		<u> </u>			<u>Ivpe</u>		lexture		Remarks	<u> </u>
	LISTIL		1.5YN 710		<u> </u>	<u></u>	SCL			
5-125	INKOL	60	7.51164/6	40	<u> </u>	M	<u> </u>	Ward	re/	
								.1	6 a	9.6
									1	
·	· · · · · · · · · · · · · · · · · · ·					<u> </u>		1.63		
			·							÷.,
	<u> </u>					1	g e à			
¹ Type: C=C	Concentration, D=	Depletion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location:	PL≂Pore Llni	ng, M≃Matrix.	
Hydric Soil	Indicators: (Ap	plicable to all	LRRs, unless othe	rwise note	ed.)		Indicators	s for Problema	itic Hydric So	oils ⁹ :
Histoso	ol (A1)		Polyvalue B	elow Surfac	e (S8) (L	RR S, T, U	l) 1 cm	Muck (A9) (LR	R 0)	
Histic E	pipedon (A2)		Thin Dark S	urface (S9)	(LRR S,	T, U)	2 cm	Muck (A10) (LI	RRS)	
Black H	listic (A3)		Loamy Mucl	ky Mineral (F1) (LRR	0)	Redu	ced Vertic (F18) (outside Mi	LRA 150A,B)
Hydrog	en Sulfide (A4)	·	Coamy Gley	ed Matrix (I	F2)		Piedn	nont Floodplain	Soils (F19) (LRR P, S, T)
Stratifie	ed Layers (A5)		Depleted Mi	atrix (F3)			Anorr	alous Bright Lo	camy Soils (F	20)
- Organic	C BODIES (A6) (LR	к Р, 1, U)	Redox Dark	Surface (F	6) (57)		(ML	.RA 153B)	(750)	
Muck D	Presence (AR) /1 =	, (ERR, 1, U (R II)	Depleted Da	ALK OUTIBCE	(<i>Г /)</i> 3)		Ked	Shellow Deels	(TE40	\
1 cm M	uck (A9) (LRR P.	T)	Redox Depi Marl (F10) (ESSIONS (FO)		Very	Shallow Dark 3	marke))
Deplete	ed Below Dark Su	rface (A11)	Depleted Or	chric (F11)	MLRA 1	51)		(Explain in Ne	markay	
Thick D	ark Surface (A12	:)	Iron-Manga	nese Masse	es (F12) (LRR O. P.	T) ³ Ind	icators of hydro	ohvtic vegeta	ation and
Coast F	Prairie Redox (A1	6) (MLRA 150	A) Umbric Surf	ace (F13) (LRR P, T	, U)	W	etland hydrolog	y must be pre	esent,
Sandy	Mucky Mineral (S	1) (LRR O, S)	Delta Ochrid	: (F17) (ML	.RA 151)		ur	less disturbed	or problemati	с.
Sandy	Gleyed Matrix (S4	4)	Reduced Ve	ertlc (F18) (MLRA 15	60A, 150B)	-			
Sandy	Redox (S5)		Piedmont F	loodplain S	oils (F19)	(MLRA 14	19A)			
Strippe	d Matrix (S6)		Anomalous	Bright Loar	ny Soils (F20) (MLR	XA 149A. 153	C. 153D)		
							,	-,,		
Dark S	Unace (S/) (LRR	P, S, T, U)								
Restrictive	Layer (if observ	P, S, T, U) /ed):								<u>.</u>
Restrictive	Layer (if observ	P, S, T, U) ved):		3					×	
Restrictive Type: Depth (iii	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes _X	No
Restrictive Type: Depth (in Remarks:	nches):	P, S, T, U) /red):		3			Hydric So	Il Present?	Yes _X	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes _X	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):	-1	3			Hydric So	II Present?	Yes _X	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):					Hydric So	Il Present?	Yes _A	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes _X	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes _A	No
Dark S Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes X	<u>No</u>
Restrictive Type: Depth (in Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes X	<u>No</u>
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):		3			Hydric So	II Present?	Yes X	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	II Present?	Yes <u>X</u>	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes <u>X</u>	No
Derk S Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes <u>X</u>	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):		3			Hydric So	Il Present?	Yes <u>X</u>	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):		3			Hydric So	Il Present?	Yes _A	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):		3			Hydric So	Il Present?	Yes _A	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):		3			Hydric So	Il Present?	Yes A	No
Dark S Restrictive Type: Depth (in Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes X	<u>No</u>
Dark S Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) /ed):		3			Hydric So	Il Present?	Yes X	<u>No</u>
Legisland	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes X	<u>No</u>
Legisland	nches):	P, S, T, U) /ed):					Hydric So	Il Present?	Yes X	<u>No</u>
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes	<u>No</u>
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes X	<u>No</u>
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes _A	No
Restrictive Type: Depth (ii Remarks:	nches):	P, S, T, U) red):					Hydric So	Il Present?	Yes _	No

WETLAND DETERMINATION DATA FO	RM – Atlantic and Gulf Coastal Plain Region
Project/Site: PLUDP, LINE City	(County: Riverslale Pork/PG Sampling Date: 5/7/13
Applicable MTA	State: MD Sampling Point: 11)TP-75
Application Produce A Tatane	dia Trunchia Desert
Investigator(s): V. Koudors, A. Involue, Ser	ction, Township, Range:
Landform (hillslope, terrace, etc.): <u>SWM QUICN</u> Loc	cal relief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): MUKA 1991A Lat:	Long: Datum:
Soil Map Unit Name: Codenis - Matboro - Urban land	Complex, freq Hoods NWI classification: PENILA
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dis	turbed? No Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrologynaturally proble	matic? No (If needed, explain any answers in Remarks.)
	maling point locations, transacts, important features, atc
SUMMART OF FINDINGS – Attach site map showing s	ampling point locations, transects, important reatures, etc.
Hydrophytic Vegetation Present? Yes / No	to the Downlad Anna
Hydric Soil Present? Yes No	is the Sampled Area
Wetland Hydrology Present? Yes No	within a Wetland? Yes V No
Remarks:	
Vegetoted such cares Stommater num	off
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) Acuatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10)
Saturation (A3) Hydrogen Sulfide Odd	or (C1) Moss Trim Lines (B16)
Water Marks (B1) Oxidized Rhizosphere	es along Living Roots (C3) Dry-Season Water Table (C2)
Şediment Deposils (B2) Presence of Reduced	l Iron (C4) Crayfish Burrows (C8)
Drift Deposits (B3) Recent Iron Reductio	n in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C	C7) Ceomorphic Position (D2)
Iron Deposits (B5) Other (Explain in Ren	narks) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	- 11
Surface Water Present? Yes No Depth (inches):	<u> 45</u>
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	0 Wetland Hydrology Present? Yes No
(includes capillary fringe)	acovieus inspectinge) if quaitable:
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), il avaliable.
Pomorke:	
Refinitions.	
trash present	
Nava precip YTD	
and hours drive the	
raining an ing Delibretion	
Photo 25 - looking W	

Tree Stratum (Plot size:	Absolute Do % Cover St	minant Indicator	Dominance Test worksheet:
1			Number of Dominant Species That Are OBL, FACW, or FAC:
3			Total Number of Dominant 2 Species Across All Strata: (B)
j.			Percent of Dominant Species
			That Are OBL, FACW, or FAC: (A/B)
3 0000000000000000000000000000000			Multiply by:
	= Te	otal Cover	
50% of total cover:	20% of tota	al cover:	FAC.vv species X 2 =
Sapling/Shrub Stratum (Plot size:)			FAC species x 3 =
·			FACU species x 4 =
			UPL species x 5 =
3.		s	. Column Totals: (A) (B)
·			Prevalence Index = B/A =
)			A Depid Test for Understate Market Structure
7			Rapid Test for Hydrophytic Vegetation
3.			
		dal Cover	- 3 - Prevalence Index is ≤3.0'
50% of total cover	20% of tot	al cover:	Problematic Hydrophytic Vegetation' (Explain)
Herb Stratum (Plot size:	20 78 61 1013	ar cover	
I ILAIA (15 ATUSIS	5	NRI	Indicators of hydric soil and wetland hydrology must
Casor SD.	- 57 -		De present, uness disturbed of problemanc.
TANGERSON		- TIU	Definitions of Four vegetation Strata:
3. Imparens cegenoris		FACW	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
4. <u></u>			 more in diameter at breast height (DBH), regardless of height.
5 7			Sapting/Shrub – Woody plants, excluding vines, tess
3			 Herb – All herbaceous (non-woody) plants, regardless
9	ingan Millin a kalayanan sarayan yang ang ang ang ang ang ang ang ang ang		of size, and woody plants less than 3.28 ft tall.
11			- Woody vine - All woody vines greater than 3.28 ft in
12			_ height.
	65=T	otal Cover	
50% of total cover:	20% of tot	al cover: <u>1</u> 3	
Woody Vine Stratum (Plot size:)	0	V MAG	
1. 10x1 adenovor i aducans	<u> </u>	Y FAC	-
2. Lonicera japonica	Q	Y_FAC	-
3			_
4			_
5			- Hydrophytic
	19 = 1	iotal Cover	Vegetation
		-7 (L Des santo
50% of total cover:	20% of to	tal cover: <u> </u>	Present? Yes No
50% of total cover:	20% of to	tal cover: <u>)</u>	Present res No
50% of total cover:	20% of to Delow). ECT-ly SE as	D, species	s present more than likely hydrophytes
50% of total cover:	20% of to Delow). ECT-ly SE as	DN, SPECIES	5 present nore than likely hydrophytes
50% of total cover:	20% of to Delow). ECT-ly 52 as	tal cover: <u>).6</u> DN, species	5 present more than likely hydrophytes

Sampling Point: WTP-75

Deph Main Coder molitik Coder molitik Nural Texture Remarks Q-3 IDYR3/1 Ch 7.57R5/45 IO M St Impact of the standard sta		•		needed to docum		areator of com	initiate absence	or indicator only	3K
Lindings Code Code Letters Set [27] CVRS[4] SS gravel pressed gravel	Depth	Matrix		Redox	Features	101 Transla 1 - 22	- T-uture	,	Demontus
Q= D	$\bigcirc 8$ \square	403/1	90 .	7 5YR SIL	10			hund	remarks
A [2] 1017(55)7 33 7.57(85)8 50	9-17-10	10/11		1.3/10/10	<u>w</u> .			Durge	averant
Z.3.1/K5/8 50 "Type: CsConcentration. D=Deptetion, PM-Reduced Mattix, MS-Masted Sand Grains. * Accilics: PL=Pore Lining, M=Matrix Indicates for Problematic Hydric Boll*: Historic (A1) Historic (A1) Polyntic Below Surface (39) (LRR 8, 7, U) 2 cam Mack (A1) (LRR 0) Historic (A1) Learny Garyed Matrix (F2) 1 on Mack (A2) (LRR 6, 5, 7) Historic (A2) Learny Garyed Matrix (F2) Pelorant Floorphin Bolic (F1) (LRR 6, 5, 7) Organic Experison (A2) Learny Garyed Matrix (F2) Pelorant Floorphin Bolic (F1) (LRR 7, 5, 7) Organic Experison (A2) Depted Matrix (F2) Pelorant Floorphin Bolic (F1) (LRR 7, 5, 7) Organic Experison (A2) Red Floor Matrix (F2) Red Floor Matrix (F2) Organic Experison (A3) (LRR 7, 7, U) Depted Datrix Surface (F1) Red Floor Matrix (F2) Mack Mineal (A2) (LRR 7, 7, U) Depted Datrix Surface (F1) Red Floor Matrix (F2) Mack Mineal (A1) Matrix (F3) (LRR 6, 7, 1) Denote (F0) (RRR 15) The Common Surface (F1) Mack Mineal (A3) (LRR 7, 7) Depted Datrix Surface (F1) (LRR 6, 7, 7) Pelorant Floorphin Bolic (F1) Mack Mineal (A3) (LRR 6, 7) Matrix (F1) (LRR 6, 7) Denote (F1) (MLR 15) The Common Surface (F1) (LRR 6, 7) Sandry Macky Metrix (G3) (LRR 6, 5) Peloton	<u><u>s</u> 1<u>a</u>, <u>f</u></u>	EUDICIO						graver	preserv
Type: C:Concentration, D:Degretation, RM=Reduced Matrix, MS=Masked Sand Grains. 1; coration: PL=Pore Lining, M=Matrix: Histocol (A1) Histocol (A2) The Dark Surface (39) LLRR 8, T, U) 1 on Muck (A9) (LRR 0) Histocol (A2) The Dark Surface (39) LLRR 8, T, U) 2 on Muck (A10) (LRR 0, S) Histocol (A2) The Dark Surface (39) LLRR 8, T, U) 2 on Muck (A10) (LRR 0, S) Granic Bodie (A4) Loamy Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F2) 4 nonmolose Bright Joints 8 (F2) Granic Bodie (A4) (LRR P, T, U) Depleted Dark Surface (F1) Head Dark Surface (F12) 4 nonmolose Bright LAR 150A, B) Depleted Dark Surface (A2) Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F12) 4 nonmolose Bright Lark 151A, T) Crass Traine Redox (A1) (BR R, T, U) Depleted Dark Surface (F12) 4 nonmolose Bright Lark 151A, T) 1 non-Manganese Masses (F12) (LRR O, P, T) 1 non-Manganese Masses (F12) (LRR O, S, T) 1 non-Manganese Masses (F12) (LRR A, 153B) 1 non-Manganese Masses (F12) (LRR A, 153B) 1 non-Manganese Masses (F12) (LRR A, 153B) 1 non-Manganese Masses (F12) (LRR A, 148A, 153C, 153D) 1 non-Manganese Masses (F12) (LRR A, 153B) 1 non-Manganese Masses (F12) (LRR A, 148A, 153C, 153D) 1 non-Manganese Masses (F12) (MLR A 143A, 153C, 153D) 1 non-Manganese Masses (F12) (MLR A 143B, 153C, 153D) 1 non-Manganese Masses (F		<u>27125/8</u>							
Type: Coconcentration, D=Degretion, RM=Reduced Matrix, MS=Masked Sand Grains. ¹ Acoution: PuePore Lining, M=Matrix. Hidiosci (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 om Muck (A9) (LRR O) Hidiosci (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O, D) Stratified Layers (A5) Loany Gleyed Matrix (F2) Pedmont Floodpaine Solids (F1B) (LRR P, S, T) Stratified Layers (A6) Loany Gleyed Matrix (F2) Pedmont Floodpaine Solids (F1B) (LRR P, S, T) Stratified Layers (A6) Loany Gleyed Matrix (F2) Red Parent Malarfait (F2) Stratified Layers (A6) (LRR P, T, U) Red Depressions (F8) (MLR A153B) Depleted Defits Withce (F1) Red Depressions (F8) Wery Shallow Dark Surface (T12) I cm Muck (A6) (LRR P, T, U) Depleted Obrix (F11) (MLR A151) Depleted Below Wark Surface (A1) Depleted Obrix (F12) (MLR A150, 150) Stardy Meduk (S6) Predicentic (F16) (MLR A150A, 150, 150) Stardy Meduk (S6) Predice Matrix (S6) Reduced Veric (F16) (MLR A140A) <				-	. <u> </u>				<u> </u>
Type: C=Concentration, D=Depietton, RN=Reduced Matrix, MS=Masked Sand Grains. 1:coation: PL=Pore Lining, M=Matrix. Hydric Solit Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solie': Indicators for Problematic Hydric Solie': Histos (A)		·			. <u> </u>		<u> </u>	8	
*Type: CaConcentration, D-Depietion, RM=Reduced Matix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Solli Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators: for Problematic Hydric Solls?: Histic Epigedon (A2) Thin Dark Surface (Sol) (LRR S, T, U) 2 cm Muck (A9) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 2 cm Muck (A9) (LRR S) Stratified Layers (A3) Depieted Matrix (F2) Planet Floodpini Solit (F10) (MLRA 150A; B) S orn Mucky Mineral (A7) (LRR P, T, U) Depieted Dark Surface (F1) Rei Parent Material (F2) Y muck (A9) (LRR P, T) Depieted Dark Surface (F1) Rei Parent Material (F2) Y muck (A9) (LRR P, T) Mari (F10) (LRR U) Other (Explain in Remarks) Depieted Dark Surface (A1) Depieted Dark (C1) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (MLRA 150A) Inducts Sir (F10) (MLRA 150A) Sind Y Body Sir (F10) (MLRA 150A) Sandy Mucky Mineral (S1) (KR P, S, T, U) Reduced Varia (F10) (MLRA 150A) Sind Y Body Sir (F10) (MLRA 1450A) Sandy Rody C(S3) Peleted Dark (S10) Anomalous Bright Learny Solit (F20) (MLRA 145A) Sind Y Body Sir (F10) (MLRA 145A) Sandy Rody (S3) Peleter Matrix (S6) Anomalous Bright Learny Solit (F20) (ML								n 2	
Type: C=Concentration. Piceator:									1 ⁶
Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls?: Histoc Eppedon (A2) Thin Dark Sufface (S3) (LRR S, T, U) 1 cm Muck (A10) (LRR 0) Black Histic (A3) Learny Mucky Mineral (F1) (LRR 0) Reduced Vertic (F15) (outside MLRA 150A, B) Organic Bodies (A6) (LRR P, T, U) Depleded Dark Sufface (F7) Anomalous Bright Learny Sols (F20) Y muck Yells (A7) (LRR P, T, U) Depleded Dark Sufface (F7) Red Parent Mucket (T72) Yen Muck Yells (A7) (LRR P, T, U) Depleded Dark Sufface (F7) Red Parent Mucket (T72) Yen Muck Yells (RR P, T) Head Dark Sufface (F7) Red Parent Mucket (T72) Yen Muck Yells (RR P, T) Head Dark Sufface (F1) Other (Explain in Remarks) Depleded Dark Sufface (A12) Under Sufface (F13) (LRR P, T, U) Other (Explain in Remarks) Sandy Muck (M3) (LR P, T) Head Dark Sufface (F13) (LR P, T, U) Other (Explain in Remarks) Sandy Muck (Marka (S4) Reduced Vertic (F13) (LR A 150A, 150B) Note Head Dark Sufface (F13) (LR A 150A, 150B) Sandy Muck (S6) Reduced Vertic (F13) (LR A 150A, 150B) Muck Presence (S7) (LR A 7, S7, U) Sandy Muck (S6) Reduced Vertic (F13) (LR A 150A, 150B) Muck Presence (S7) (LR A 7, S7, U) Restrictive Layer (If obse	¹ Type: C=Concentr	ation. D≃Deple	tion. RM=R	Reduced Matrix, MS		Sand Grains.	² Location	PL=Pore Linin	n. M=Matrix.
Histic Epiperon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 m Muck (A10) (LRR P) Histic Epiperon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 m Muck (A10) (LRR P) Hydrogen Suffac (A4) Loamy Mucky Mineral (F1) (LRR P, S, T) Pedmont Floodphin Solis (F19) (NLR P, S, T) Stratified Layers (A5) Depleted Matrix (F2) Pedmont Floodphin Solis (F20) (MLR P, S, T) Organic Bodies (A6) (LRR P, T, U) Yefedor Dark Surface (F1) (MLR A 150A, B) S cm Mucky Mineral (A7) (LRR P, T, U) Pedied Dark Surface (F1) (WLR A 150A, B) Depleted Dark Surface (A1) Depleted Oak Surface (F1) Very Shallow Dark Surface (F1) 1 cm Muck (A9) (LRR P, T, U) Depleted Dark Surface (F1) Very Shallow Dark Surface (F1) Depleted Sels (VER P, T) Depleted Dark Surface (F1) Very Shallow Dark Surface (F1) D cast Prain's Redox (A16) (MLRA 150A) Umbric Surface (F1) (MLRA 151) Very Shallow Dark Surface (F1) Casat Prain's Redox (A16) (MLRA 150A) Umbric Surface (F1) (MLRA 150A, 150B) Indicators of hydrophylic vegetation and welland hydrophylic vegetation and welland hydrophylic vegetation and welland hydrophylic vegetation and set (F1) (MLRA 150A, 150B) Sandy Mucky (F1) Pedia Chrin (F1) (MLRA 150A, 150B) Indicators of hydrophylic vegetation and welland hydrophylic vegetation and welland hydrophylic vegetation and well	Hydric Soit Indicat	ors: (Applical	ble to all LI	RRs, unless other	vise note	d.)	Indicators	s for Problemat	ic Hydric Soils ³ :
Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Hydrogen Sulfide (A4) Learny Muck (Moreal (F1) (LRR O) Reduced Vertic (F16) (URR P, S, T) Stratified Layers (A5) Depleted Matrix (F2) Anormalous Bright Learny Solis (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F7) Red Part Muket/a (T2) S of Mucky Minerai (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Part Muket/a (T2) 1 cm Muck (A3) (LRR P, T, U) Depleted Dark Surface (F7) Red Part Muket/a (T2) 1 cm Muck (A3) (LRR P, T) Maria (F10) (LRR U) Red X Depressions (F8) Urery Shallow Dark Surface (T12) 1 cm Muck (A3) (LRR P, T) Maria (F10) (LRR U) Cobrect (F11) (MLRA 151) Thick Dark Surface (A12) 1 cm Muck (A3) (LRR P, T) Depleted Chric (F11) (MLRA 151) Thick Dark Surface (A12) Thom-Manganese Masses (F12) (LRR O, P, T) *indicator dark Muck (S1) (MLR A (S3)) Sandy Gleged Matrix (S4) Cark Surface (S11) (RR R P, S, T, U) Pelderod Infic (F11) (MLRA 150, 150) Sandy Gleged Matrix (S4) Anormalous Bright Learny Sols (F20) (MLRA 149A) Shipped Matrix (S4) Anormalous Bright Learny Sols (F20) (MLRA 149A, 153C, 153D) Dark Surface (S1) (LRR P, S, T, U) Depleted Chric (F13) (MLRA 150, S1) Hydric Soli Present? Yes _N	Histosol (A1)			Polyvalue Bel	ow Surface	e (S8) (LRR S, '	T, U) 1 cm	Muck (A9) (LRR	0)
Black Hills (A3)	Histic Epipedon	(A2)		Thin Dark Sur	face (S9)	(LRR S, T, U)	2 cm	Muck (A10) (LR	R S)
Hydrogen Sullide (A4)	Black Histic (A3	3)		Loamy Mucky	Mineral (I	-1) (LRR O)	Redu	ced Vertic (F18)	(outside MLRA 150A,B)
Corganic Boyles (Ab) (LRR P, T, U) Pepteled Dark Surface (F2) (MLRA 153(B) (MLRA 153(B)) (MLRA 153(B)) (MLRA 151) (MLRA 151) Core Mark Surface (F3) (MLRA 151) (MLRA 151) Core Management (Ab) (LRR P, T) Mark (F10) (LRR U) Redox Dark Surface (F12) (LRR O, P, T) Mark (F10) (LRR U) Core Straider Gene (Ab) (LRR A, 150A) Urbic Surface (F13) (LRR P, T, U) urles disturbed or problematic. Sandy Muddy Mineral (S1) (LRR O, S) Perfected Order (S1) (MLRA 150A) Urbic Surface (F13) (LRR A, 150A) Urbic Surface (F13) (MLRA 150A) (MLRA 150A) Urbic Surface (F13) (MLRA 150A) (MLRA 150A) Urbic Surface (F13) (MLRA 150A) (F13) (MLRA 150A) (F19) (MLRA 150A)	Hydrogen Sultion	3e (A4) s (A5)		Loamy Gleyed	1 Matrix (F	2)	Piedr	nont Floodplain	Solls (F19) (LRR P, S, T)
S cm Mucky Mineral (A7) (LRR P, T, U) Depided Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redx Depressions (F8) Ury Shalow Dark Surface (T12) Depided Below Dark Surface (A11) Depided Ochric (F11) (MLRA 151) Other (Explain in Remarks) Depided Below Dark Surface (A12) Iron-Musch Surface (A12) Iron-Musch Surface (A12) Iron-Musch Surface (A12) S andy Mucky Mineral (S1) (LRR 0, S) Debia Ochric (F17) (MLRA 150, 100) Indicators of hydrophydic veptation and welland hydrology must be present. unless disturbed or problematic. S andy Redx (S5) Piedmont Floodplain Solis (F19) (MLRA 149A) Anomalous Bright Learny Solis (F20) (MLRA 149A) S offorped Matrix (S6) Piedmont Floodplain Solis (F19) (MLRA 149A, 143A, 143C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (If observed): Type:	Organic Bodies	(A6) (LRR P.	T, U)	V Redox Dark S	urface (FR	5)	(ML	.RA 153B)	any 3009 (1 20)
Mukk Presence (A8) (LRR U) Redx Depressions (F8) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Inco-Manganese Masses (F12) (LRR O, P, T) "Indicators of hydrophylic vegetation and welland hydrology must be present unless disturbed or problematic Sandy Muky Mineral (S1) (LRR O, S) Debleted Delnic (F17) (MLRA 151) unless disturbed or problematic	5 cm Mucky Mi	neral (A7) (LRI	R P, T, U)	Depleted Dark	(Surface)	(F7)	Red I	Parent Material (TF2)
	Muck Presence	: (A8) (LRR U)		Redox Depres	ssions (F8)	Very	Shallow Dark Su	irface (TF12)
	1 cm Muck (A9) (LRR P, T)	144.4	Marl (F10) (LI	RR U)		Other	r (Explain in Ren	narks)
Coast Prairie Redox (A15) (MLRA 150A) Coast Prairie Redox (A15) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR 0, S) Sandy Redox (S5) Sandy Redox (S6) Defa Ochric (F17) (MLRA 151A) Piedmont Floodplain Soils (F19) (MLRA 149A) Stipped Matrix (S6) Dark Sufface (F3) (LRR P, S, T, U) Restrictive Layer (If observed): Type: Depth (inches): Remarks:	Thick Dark Sur	V Dark Surface face (A12)	(A11)	Depleted Och	пс (+11) (MLKA 151)	PT) ³ Ind	icators of hydror	hytic vegetation and
Sandy Mucky Mineral (S1) (LRR 0, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic. Sandy Gleyed Matrix (G4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Reduced X (S5) Sandy Reduce (S5) Piedmon Floodplain Solis (F19) (MLRA 149A) Stripped Matrix (S6) Anomatous Bright Learny Solis (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Larger (If observed): Type: Depth (inches): Depth (inches): Hydric Soll Present? Yes No Remarks:	Coast Prairie R	edox (A16) (M	LRA 150A)	Umbric Surfa	ce (F13) (I	LRR P. T. U)	, r, i) inu Wi	etland hydrology	must be present.
Sandy Gleyed Matrix (S4)Piedmont Floodplein Soils (F19) (MLRA 149A, 1503, 1508) Striped Matrix (S6)Anomalous Bright Learny Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): 	Sandy Mucky N	/ineral (S1) (LI	RR 0, S)	Delta Ochric ((F17) (MLI	RA 151)	ur	less disturbed o	r problematic.
Snrby Redxx (S5) Piedmoni Floodplain Solis (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Learny Solis (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (If observed): Type: Depth (Inches): Hydric Soli Present? Yes No Remarks:	Sandy Gleyed	Matrix (S4)		Reduced Ver	tic (F18) (I	MLRA 150A, 15	0B)		
Canopadous Bright Learny Soils (F20) (MLRA 149A, 153C, 153D) Anomalous Bright Learny Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (If observed): Depth (Inches): Hydric Soil Present? Yes No Remarks:	Sandy Redox (S5)		Piedmont Flo	odplain So	als (F19) (MLR/	\ 149A)		
	Stripped Matrix		TIN	Anomalous B	right Loam	1y Solls (F20) (N	ILRA 149A, 153	C, 153D) -	
Type:	Restrictive Laver		, , e,						
Depth (inches):		if observed):		· · · · ·					
Remarks:	Туре:	if observed):							1
	Type: Depth (inches):	if observed):					Hydric Sc	oll Present?	/es No
	Type: Depth (inches): Remarks:	if observed):			3		Hydric Sc	oll Present?	resNo
	Type: Depth (inches): Remarks:	if observed):				2	Hydric Sc	oll Present?	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric So	וו Present? א	Ves No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/es No
	Type: Depth (inches): Remarks:	if observed):				2	Hydric Sc	에 Present? ㆍ	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric So	에 Present? \	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	에 Present? ႃ	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	에 Present? ㆍ	/esNo
	Type: Depth (inches): Remarks:	if observed):			*	2	Hydric Sc	에 Present? ㆍ	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric So	וו Present? א	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric So	에 Present? ㆍ	/es No
	Type: Depth (inches): Remarks:	if observed):			*		Hydric Sc	에 Present? \	/es No
	Type: Depth (inches): Remarks:	if observed):				2	Hydric Sc	에 Present? \	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	Il Present?	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	에 Present? \	/es No
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	에 Present? \	/esNo
	Type: Depth (inches): Remarks:	if observed):					Hydric Sc	II Present?	/esNo
	Type: Depth (inches): Remarks:	if observed):			*		Hydric Sc	Il Present?	/es No

WETLAND DETERMINATION DATA FORM	Atlantic Gulf Coastal Plain I - Editors Mountains and Picturent
Privation Purchaline / Diver Rulad	the Cullere Pork Sameline Data 5/14/13
Applicant/Owner:MTA	State: MD_ Sampling Point: W079-WTP-1
Investigator(s): 55, DP, AC Section, 7	Fownship, Range:
Landform (billslope terrace etc.): NORESSION Local relief (concave convex none): (Oncave Sione (%): <)
Subsection (I DB or MI DA); MI & A 14/9A	
Subregion (LRR of MLRA). TOTAL Lat.	Long: Datum:
Soil Map Unit Name: Figures Co-Curbus Cond Complex, 0-37	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No (If no, explain in Remarks.) X
Are Vegetation, Soil, or Hydrology significantly disturbed	? N Are "Normal Circumstances" present? Yes <u>N</u> No
Are Vegetation, Soil, or Hydrology naturally problematic?	 N (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampli	ing point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No Is Hydric Soil Present? Yes X No wi Wetland Hydrology Present? Yes X No wi	the Sampled Area No
Remarks: (lose & depression with some herbaceous vesetat	in, Appears to be associated will do have site
due to prosene of bottles and other votuse, is well as cataly of wettand, but outlet is restricted/blocked due to be photo looking south at plot.	ern, causing under to pund in wetland.
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 (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres o	n Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iro	n (C4) Dry-Season Water Table (C2)
Drift Deposits (B3)	Tilled Solis (Co) Crayiish Burrows (Co)
Algal Mat or Crust (B4) Other (Explain in Remark	(s) 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:	
Surface Water Present? Yes No / Depth (inches):	11
Water Table Present? Yes No C Depth (inches): 715	
Saturation Present? Yes No C Depth (inches): 23	Wetland Hydrology Present? Yes <u>></u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previou	us inspections), if available:
Remarks:	
Shalow and procis during Mor & Apr	
SI, Delow and preup auring	
	and for some first of the second s

Atlantic Gulf Castal Main

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: W079-WTP7

		<u></u>	1 1 1	
	Absolute	Dominant	Indicator	Dominance lest worksheet:
$\frac{1 \text{ ree Stratum}}{\Lambda}$ (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1. ACRE YUDIUM	25		FAC_	That Are OBL, FACW, or FAC: (A)
2 Catalon SARLIOSA	40	Y	FACU	
a las i ar da Cilva	30		INC	Total Number of Dominant 9
3 Styluc. VIS	50	<u> </u>	+AC	Species Across All Strata: (B)
4. Wilking, americana	40	<u> </u>	FACW	
5 Province	14 0	/		Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				
7				Prevalence index worksheet:
The second s		1.00		Total % Cover of: Multiply by:
8				
2 1	135	= Total Cov	/er	
Sapling/Shrub Stratum (Plot size:)	and the second			FACW species x 2 =
1 Illarys a mericina	40	Ч	FACIAL	FAC species x3 =
Culling	25		FICOV	
2. Capalina Speciusa	3 3		FACU	
3. Silix ninna	5	'	OBL.	UPL species x 5 =
A deside	e		MACII	
4. Nuncus alun			FACU	Column Totals: (A) (B)
5.				and the second sec
6				Prevalence Index = B/A =
0				Hydrophytic Vegetation Indicators:
7				
8				- Y - Rapid Test for Hydrophytic Vegetation
0. <u> </u>				2 - Dominance Test is >50%
9				\sim 2. Dravalance Index is <2.0 ¹
10.				3 - Prevalence index is \$3.0
	86			4 - Morphological Adaptations ¹ (Provide supporting
Hart Startum (Blat size 30'		= Total Cov	ver	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	7	U I	F 1	Problematic Hydrophytic Vegetation ¹ (Evolution)
1. Allium vinente			FACU	
2 Cuta An Energia	3	- V	FACIL	1 M.C. MING & TRATE.
2			Theu	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				
The result suggestion and fair	The second	III OPCINIE	100000000000	Definitions of Four Vegetation Strata:
5				To Monthe sharts and states sizes 0 in (7.0 sec) as
6				I ree - vvoody plants, excluding vines, 3 in. (7.6 cm) or
7				hole in diameter at breast height (DBH), regardless of
·				neight.
8				Carling/Chrysh Weady plants evoluting vines less
9				then 2 in DBH and greater than 2 29 ft (1 m) tall
				than 5 m. DBH and greater than 5.20 it (1 m) tail.
10				Herb All berbaceous (non woody) plants, regardless
11. Direct Descention (of aire, and woody plants loss than 2.29 ft tall
10				of size, and woody plants less than 5.20 it tall.
12				Woody vine – All woody vines greater than 3.28 ft in
301	6	= Total Co	ver	beight
Woody Vine Stratum (Plot size:)				neight.
1 Toxingalain adam	7	Y	FAC.	
	26	ý	EAC	
2. Concern provision			TAC	and the second se
3.		1		
4				Hydrophytic
5				Vegetation
6				Present? Yes No
	27			
	<u></u>	= Total Co	ver	
Remarks: (Include photo numbers here or on a separate	sheet.)			
1				

Profile Desc	cription: (Describe	to the dept	h needed to docur	nent the i	indicator	or confirm	the absence	of indicators	;.)	
Depth	Matrix		Redo	x Feature	s					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-6	2.5432	90	10 m 4/6	0	C	M	Loam	Rootlets	resent	
6-15	10,00 6/2	60	109-119	30	<u> </u>	M	oid	6000	- sheaking	,
		. 05 .			·	·		Drawn	STICUMIN	,
	10 2 3 1	<u> </u>				1				
	0									
1	1.5								·····	
					·					
		·			2					
		·			·					
				-						
¹ Type: C=C	oncentration D=Dec	letion RM=	Reduced Matrix M	S=Masker	d Sand Gr	ains	² Location: PL	=Pore Lining	M=Matrix	
Hvdric Soil	Indicators:		reddoed matrix, m	0-111031(0)		uiii3.	Indica	tors for Pro	blematic Hvdric	Soils ³ :
Histoso	1/41)		Dark Surface	(97)			2	om Muck (A1		
Histosu	ninedon (A2)		Dark Surface	= (07) Now Surfa	ACO (59) /8		149)	onet Brairia E	0 (MLKA 147)	
	pipeuon (n2)		Thin Dark St	utaco /So	(00) (N	147 449	140) <u> </u>		149)	
Hvdroad	en Sulfide (AA)			anaue (39 ad Matriv	(F2)	·•/, 140)		iedmont Elec	dolaio Soile (E10	1)
Stratifie			N Depleted Ma	triv (E3)	(1 2)		- F		147)	"
0 m M			X Reday Dark	Surface /	-6)		P	od Parent M:	torial (TE2)	
Deplete	d Below Dark Surfac	e (A11)	Penleted Da	rk Surface	∍ (F7)			erv Shallow [)ark Surface (TF	12)
Thick D	ark Surface (A12)		Bedax Denre	essions (F	5 (F 7) 58)			ther (Explain	in Remarks)	12)
Sandy I	Mucky Mineral (S1) (I	LRR N.	Iron-Mangar	iese Mass	es (F12) (LRR N.	_ 0		in residunts)	
MLR	A 147. 148)		MLRA 13	6)						
Sandy (Gleved Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 13	6, 122)	³ Ind	cators of hyd	rophytic vegetat	ion and
Sandy f	Redox (S5)		Piedmont Flo	odplain S	Soils (F19)	(MLRA 14	8) w	etland hydrol	oay must be pre	sent.
Stripper	d Matrix (S6)				(,	•	ui	nless disturbe	ed or problematio	.
Restrictive	Layer (if observed)	:								
Type:	NONE									
Depth (in	nches): MA						Hydric Soil	Present?	Yes 🔨 N	0
Remarks:										
]										
1										

I

Atlantic Gulf Coastal Plain WETLAND DETERMINATION DATA FORM - ESSERTA Albument Predmont
Project/Site: Purche Line / Rund City County College Port Sampling Date: 5/14/13
Applicant/Owner: MTA State: Sampling Point: U) 79-1
Application Township Range:
Investigator(s)
Landform (nilisiope, terrace, etc.): Plat Local relief (concave, convex, none): 700°C Slope (%): Cr
Subregion (LRR or MLRA): MLCR-J11A Lat: Long: Datum:
Soil Map Unit Name: <u>Aquas co-wban land complex</u> NWI classification: <u>N/A</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? 👌 🛛 Are "Normal Circumstances" present? Yes 📩 No
Are Vegetation, Soil, or Hydrology naturally problematic? ${\cal N}$ (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, e
Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Hydric Soil Present? Yes No X No X No Yes No Yes Yes No Yes Yes
Remarks: ph#27-lucking Sat plot. Area appears to be old home site due to presence of uld refuse and catelyn, Huney Lawst.
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 (B14)Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)
Water Marks (B1) Presence of Reduced Iron (C4) Drv-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) 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)
Iron Deposits (B5) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)
Water-Stained Leaves (69) Microtopographic Relier (D4)
Field Observations:
Surface Water Present? Yes No X Depth (inches): NUNE
Water Table Present? Yes No \nearrow Depth (inches): $712''$
Saturation Present? Yes No 🗡 Depth (inches): >12" Wetland Hydrology Present? Yes No 🗡
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
No hydrologic indicators evident

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

Sampling Point: WO79-UTP-1

	Absoluto	Dominant	Indicator	Deminance Test worksheet:
Tree Stratum (Plot size:	Absolute % Cover	Species?	Status	Dominance lest worksneet:
1 Cledits trinchethus	40	<u> </u>	EAC	Number of Dominant Species
1. GRAITSTA TITACANT			The last	Inat Are OBL, FACW, of FAC: (A)
2. Lathipa Spelioja	15	212	TACU	Total Number of Dominant
3. Junlins night	10		UPL	Species Across All Strata: 7 (B)
4			~	and the second states and second states
				Percent of Dominant Species
5	_			That Are OBL, FACW, or FAC: (A/B)
6				Drevelan ee in deu warkele et.
7				Prevalence index worksneet:
8				Total % Cover of:Multiply by:
	- 26	TatalOa	0.01.5.1	OBL species x 1 =
Sanling/Shrub Stratum (Plot size:		= Total Cov	/er	FACW species $11 \times 2 = 22$
	A	Y	TACH	12 2/9
1. 1/0103 9(05	0		TACU	FAC species 100 $x_3 = 30$
2. 6 loditsin trinenations	5	1	FAC	FACU species $4 = 476$
3 Junicean muchin	5	Y	FACI	UPL species $13 \times 5 = 65$
Bular a water			TACUL	$\frac{1}{2} \frac{1}{2} \frac{1}$
4			rau.	Column Lotals: <u>Abb</u> (A) <u>Loc</u> (B)
5. Catalyn speciosn	3		FACU	3 60
6 Quercus nhellos	3		FAC	Prevalence Index = $B/A = 0.00$
	7		1	Hydrophytic Vegetation Indicators:
1. Divisingus Virginium			+AC	1 - Rapid Test for Hydrophytic Vegetation
8				
9				2 - Dominance Test is >50%
	_			3 - Prevalence Index is ≤3.0 ¹
10				4 - Morphological Adaptations ¹ (Provide supporting
2 1	Ja-	= Total Co	/er	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 30')	1.			
1. Glechome bedracen	80	Y	FACU	Problematic Hydrophytic Vegetation' (Explain)
	- 7	and the same has	CALL	The second se
2. Uran arona and			riun	¹ Indicators of hydric soil and wetland hydrology must
3. POU 5 D.	_ +		n/a	be present, unless disturbed or problematic.
4. Galum apprine	5		FACU	Definitions of Four Venstation Strates
E Alliesta vielad. In	ų		EA(1.)	Definitions of Four vegetation Strata:
D. A A A A A A A A A A A A A A A A A A A		-	Frice	Tree – Woody plants, excluding vines 3 in (7.6 cm) or
6. Arun maculatum			DPL	more in diameter at breast height (DBH) regardless of
7.				height.
0				
0			<u> </u>	Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				The Article Provide State of the State of th
11				Herb – All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
12				Mender wine All woods wines proster then 2,20 Å in
7.51	106	= Total Co	ver	woody vine - All woody vines greater than 3.26 ft in
Woody Vine Stratum (Plot size: 30')				neight.
1. Conicera joranica	50	Y	FAC	
			10.0	1.4.1 L
۲				
3				AND AND A DOMESTIC AND ADDRESS OF ADDRE
4.				4
			<u> </u>	Hydrophytic
J		·		Vegetation /
6				Present? Yes V No
	50-	= Total Co	ver	
Demovies (include chate numbers here or on a constate				
Remarks: (Include photo numbers here of on a separate	e sneet.)			
1 1 day we I I I	1	· 1.		atos non-hudrophatic URG.
Mosts 50/20 Test, but pres	ratence	Index	India	ares represented of the
	te a te	1 1	1 1	i all all amoste
Descarge of Gladitaia mant	- lile.	due to	plant	ing assoc. w/ our nomestry
Freserice or Oracion most	r y		11	ind
where then a result of	r hat	und Re	generat	וטייץ
		-)	

Profile Desc	ription: (Describe	to the dep	th needed to docum	nent the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix		Redo	x Features	5			
(inches)	<u>Color (moist)</u>	%	Color (moist)	%	<u>Type¹</u>	Loc ²	Texture	Remarks
0-7	10 m 211	00					Salo	
7-10	10 m 5 3	80	10 2 4/4	2	Ċ	M	Lonn	with Batting
	104211	15	1					Organic steenking
10-123	10 40612	80	10 m 5/6	20	C	M	Lonn	
			0 '					
						<u> </u>		
¹ Type: C=Co	oncentration, D=Dep	letion, RM	Reduced Matrix, MS	S=Masked	Sand Gr	ains.	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil I	indicators:						Indic	ators for Problematic Hydric Soils":
Histosol	(A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147	, 148) (Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	irface (S9)) (MLRA 1	47, 148)		(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		F	Piedmont Floodplain Soils (F19)
Stratified	l Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark	Surface (F	[;] 6)		F	Red Parent Material (TF2)
Depleted	Below Dark Surface	e (A11)	Depleted Date	rk Surface	(F7)		\	/ery Shallow Dark Surface (TF12)
Thick Da	ark Surface (A12)		Redox Depre	essions (Fi	8)			Other (Explain in Remarks)
Sandy N	lucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,		
MLRA	A 147, 148)		MLRA 13	6)		-		
Sandy G	leved Matrix (S4)		Umbric Surfa	, ice (F13) (MLRA 13	6, 122)	³ Inc	licators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odolain S	oils (F19)	(MLRA 1	48) v	vetland hydrology must be present
Stripped	Matrix (S6)			ioupiuni o	0.10 (1.10)	(,	inless disturbed or problematic
Restrictive I	aver (if observed):							
Type:	N a N	Г.						
Depth (in	() () ()	<u> </u>					Hudria Sai	
Remarks:	lilea).					_	Tiyune Sol	

WETLAND DETERMINATION DATA FO	Atlantic Gulf Costal Plain ORM - Execution and Riccingan
WETLAND DETERMINATION DATA FO Project/Site: <u>fumle line/MD 173</u> City/C Applicant/Owner: <u>MTA</u> Investigator(s): <u>S. Sipple, P. Radars A. Canska</u> Secti Landform (hillslope, terrace, etc.): <u>depression</u> Local rel Subregion (LRR or MLRA): <u>MLRA JU1A</u> Lat: Soil Map Unit Name: <u>Sassafras- urban Complex</u> , Are climatic / hydrologic conditions on the site typical for this time of year? <u>N</u> Are Vegetation, Soil, or Hydrology significantly distuit Are Vegetation, Soil, or Hydrology naturally problem SUMMARY OF FINDINGS – Attach site map showing same	DRM - Exercitive and Richmant County: College far/c/fG Sampling Date: $5/14/13$ State: M Sampling Point: $W80 - W7$ ion, Township, Range:
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Ph 28-Looking S-SE Slightly below and precip in Marp Apr 150. depression in powerline Row	Is the Sampled Area within a Wetland? Yes <u>No</u>
HYDROLOGY	
Wetland Hydrology Indicatore:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) ✓ Surface Water (A1) ✓ High Water Table (A2) ✓ Saturation (A3) ✓ Water Marks (B1) ✓ Sediment Deposits (B2) ✓ Algal Mat or Crust (B4) ✓ Iron Deposits (B5) ✓ Mater-Stained Leaves (B9) ✓ Aquatic Fauna (B13)	
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, presents:	Wetland Hydrology Present? Yes No evious inspections), if available:

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

Sampling Point: 080-WTP

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3.				Species Across All Strata: 5 (B)
1				
-				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:(UUU(A/B)
6		·		Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8				
		= Total Cov	/er	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2.				FACU species x 4 =
3				UPL species x 5 =
۵				Column Totals: (A) (B)
4				
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1/ Rapid Test for Hydrophytic Vegetation
8				
9.				
10				3 - Prevalence Index is ≤3.0'
10		- Total Ca		4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size:		- Total Co	vei	data in Remarks or on a separate sheet)
1 huncus attastas	25	Y	DRI	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Junicus entrest	20		OPL	
2. Junico germinano	17		100	¹ Indicators of hydric soil and wetland hydrology must
3. Corex umpinatorea			FRUN	be present, unless disturbed or problematic.
4. Carex SD,	95	<u> </u>	Na	Definitions of Four Vegetation Strata:
5. Eleocharis optusa	2	Ý_	OBL	
6. Rumex Crispus	5		FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7. Ludwigia palustris	8	Y	OBL	height.
8 Managarda				
· Fastura annia	5		FACIL	Sapling/Shrub – Woody plants, excluding vines, less
9. TESTACA PRODODIS		·	1/100	than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10. 0110000 SI		· — — — —	na	Herb - All herbaceous (non-woody) plants, regardless
11. Apocydum Cannadinum		·	FACU	of size, and woody plants less than 3.28 ft tall.
12				Must be store Allows a device a prostantian 0.20 file
	155	= Total Co	ver	woody vine – All woody vines greater than 3.28 it in
Woody Vine Stratum (Plot size:)				neight.
1				
2				
3.				
4	-	_		
E.				Hydrophytic
		•	,,	Vegetation Brocont2 Veg No
6				
		= Total Co	ver	
Remarks: (Include photo numbers here or on a separate	sheet.)			
Och Secon - many secies un	dentit	abe.		
ECON JUCCH WITH STORE			ſ	li inco colo
and illegent indicator sta	to ex	duded	tron	dominance care.
spears within the second state				
1				

(inches) 0-6 [1 6-12+ [1	Color (moist) SYR4/2	_%							
0-6-12+ (54R4/2		<u>Color (moist)</u>	%	Type ¹	Loc ²	Texture	Rem	arks .
6-12+ (95	7.5484/6	6	C	M	sil	rootlets are	Sout
	NVD /16	90	7 - 40 3/4	4	6		<	and hal and	010010
			//3 (K-)/1					- graver ex	eroive
- 254*		·							
24							·,		
Type: C=Conce	ntration, D=Depl ators:	etion, RM=	Reduced Matrix, MS	=Masked	Sand Gr	ains.	² Location: PL	-=Pore Lining, M=M	atrix. tic Hydric Soils ^{3,}
 Histosol (A1) Histic Epiped Black Histic (Hydrogen Su Stratified Lay 2 cm Muck (A) Depleted Bel Thick Dark S Sandy Muck MLRA 147 Sandy Gleye Sandy Redo: Stripped Mat 	lon (A2) (A3) ulfide (A4) vers (A5) A10) (LRR N) low Dark Surface urface (A12) y Mineral (S1) (L 7, 148) d Matrix (S4) x (S5) rix (S6) r (if observed):	ə (A11) RR N,	 Dark Surface Polyvalue Bel Thin Dark Surface Leamy Gleyee Depleted Mat Redox Dark S Depleted Dark Redox Depression Iron-Mangane MLRA 136 Piedmont Floor 	(S7) low Surfac fface (S9) d Matrix (F rix (F3) Surface (F1 k Surface ssions (F8 ese Masse S) ce (F13) (l odplain So	ce (S8) (N (MLRA 72) 6) (F7) 3) es (F12) (MLRA 1 3 oils (F19)	/ILRA 147, 147, 148) LRR N, 36, 122) (MLRA 14	148) 2 148) C P R V C ³ Ind 8) w u	cm Muck (A10) (MI coast Prairie Redox (MLRA 147, 148) Fiedmont Floodplain (MLRA 136, 147) Red Parent Material (ary Shallow Dark S Other (Explain in Ref icators of hydrophyti retland hydrology minless disturbed or p	(A16) Soils (F19) (TF2) urface (TF12) narks) ic vegetation and ust be present, roblematic.
Type: Depth (inches):						Hydric Soil	Present? Yes	No
Remarks:								1000	
Con	rpaded	sardı	y clay @	~ 16"					
		-							

199

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WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Project/Site: Puple Line/ MD 193 _____ City/County: <u>Callege fack/PG</u> Sampling Date: <u>5/14</u> ______ State: <u>MD</u> Sampling Point: <u>\NS</u> Applicant/Owner: Investigator(s): S. S. pole, D. Rodgers, A. Cromskan Section, Township, Range: Landform (hillslope, terrace, etc.): ante slope Local relief (concave, convex, none): Convex Slope (%): 2-5 Subregion (LRR or MLRA): MLRA 149A Lat: _____ Long: ____ Datum: Soil Map Unit Name: Sassafras-Urban land Complex, 0-5% slopes 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 _____, Soil _____, or Hydrology _____ significantly disturbed? 💫 🗸 Are "Normal Circumstances" present? Yes 🗾 No ___ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes _____ No ___ Is the Sampled Area Yes _____ No ____ Hydric Soil Present? Yes No V within a Wetland? Yes _____ No _ / Wetland Hydrology Present? Remarks: UPL meadow in powerline Row PNH29 looking S/SE @UPL, WOSO in back grand **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 (B14) ____ Sparsely Vegetated Concave Surface (B8) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Moss Trim Lines (B16) Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Dry-Season Water Table (C2) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ 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) ___ 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: Yes ____ No X Depth (inches): Now Surface Water Present? Yes _____ No \nearrow Depth (inches): $> ! \downarrow$ ' Water Table Present? Yes ____ No Y Depth (inches): > () ' Saturation Present? Wetland Hydrology Present? Yes _____ No ___ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No hydrologic indicators present

Sampling Point: 1080-UTP-1 VEGETATION (Four Strata) - Use scientific names of plants. Absolute Dominant Indicator **Dominance Test worksheet:** 301) Tree Stratum (Plot size: _ % Cover Species? Status Number of Dominant Species 1. _____ That Are OBL, FACW, or FAC: (A) 2. Total Number of Dominant THE PROPERTY AND A STREET 3. _____ Species Across All Strata: (B) Percent of Dominant Species 5._____ That Are OBL, FACW, or FAC: (A/B) ____ 6. Prevalence Index worksheet: 7. _____ Total % Cover of: Multiply by: 8. _____x1=_____ OBL species 301 ____) = Total Cover FACW species _____ x 2 = _____ Sapling/Shrub Stratum (Plot size: _ FAC species _____ x 3 = _____ 1. ---FACU species _____ x 4 = _____ 2. _____ UPL species _____ x 5 = _____ 3. TVDK Column Totals: (A) (B) 4. _____ _____ _____ 5. Prevalence Index = B/A = ____ 6._____ Hydrophytic Vegetation Indicators: _____ 7 1 - Rapid Test for Hydrophytic Vegetation 8. 2 - Dominance Test is >50% _____ 9. ___ 3 - Prevalence Index is ≤3.0¹ 10. 4 - Morphological Adaptations¹ (Provide supporting = Total Cover data in Remarks or on a separate sheet) 30' Herb Stratum (Plot size:) Problematic Hydrophytic Vegetation¹ (Explain) 1 Anthoxianther aderation 70 FACU 10 HPURCHINIA CAREVICA 2. ____ ¹Indicators of hydric soil and wetland hydrology must 3. Holaus anatus 35 FACU be present, unless disturbed or problematic. 6 4. Danunculuk SP. na **Definitions of Four Vegetation Strata:** 15 5. Pyrus cullerymm DPL Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 6. 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 3.28 ft (1 m) tall. 10. ______ Herb - All herbaceous (non-woody) plants, regardless 11._____ of size, and woody plants less than 3.28 ft tall. 12._____ Woody vine - All woody vines greater than 3.28 ft in 36 = Total Cover height. Woody Vine Stratum (Plot size: 30)) 1. _____ 2. _____ 3. _____ A/DNE _____ 4. Hydrophytic 5. _____ Vegetation Yes Present? 6. = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: W080-UTP/

Profile Description: (Describe to the depth needed to document the indicator or confirm	n the absence of indicators.)
Depth <u>Matrix Redox Features</u>	
(inches) <u>Color (moist)</u> <u>%</u> <u>Color (moist)</u> <u>%</u> <u>Type'</u> <u>Loc</u> ²	Texture Remarks
	L Many Fine voorlets
S-1a+ 10 YR 5/6 100	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
	Indicators for Problematic Hydric Soils":
Histosol (A1) Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLKA 147, Black Histic (A3) Thin Dark Surface (S9) (A4 PA 147, 149)	(MI DA 147, 148)
Hydrogen Sulfide (A4) Loamy Gleved Matrix (F2)	(MERA 147, 140) Piedmont Floodolain Soils (F19)
Stratified Layers (A5) Depleted Matrix (F3)	(MLRA 136, 147)
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)	Red Parent Material (TF2)
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)	Very Shallow Dark Surface (TF12)
Thick Dark Surface (A12) Redox Depressions (F8)	Other (Explain in Remarks)
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N,	
MLRA 147, 148) MLRA 136)	3
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)	Indicators of hydrophytic vegetation and
Stripped Matrix (S6)	 Wetland hydrology must be present, upless disturbed or problematic
Chipped Matrix (00) Restrictive Laver /if observed):	unless disturbed of problematic.
I NESUIGUYE LAVELUI QUSELVEUI.	
Type:	
Type:	Hudria Sail Bragant2 Vac
Type:	Hydric Soil Present? Yes No
Type:	Hydric Soil Present? Yes No
Type:	Hydric Soil Present? Yes No
Type:NUv2 Depth (inches): Remarks:	Hydric Soil Present? Yes No
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Type: NUNQ Depth (inches): Remarks:	Hydric Soil Present? Yes No
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Type:Dopth (inches):	Hydric Soil Present? Yes No
Type:	Hydric Soil Present? Yes No

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Applicant/Owner: <u>MTA</u> State: <u>MD</u> Sampling Point:	5/24/13
Applicant/Owner: <u>MTA</u> State: <u>NLD</u> . Sampling PoInt:	WAT-LAPI
investigator(s):Section, Township, Range:	
Landform (hillslope, terrace, etc.): 5105MWD LS bis Acocal relief (concave, convex, none): Slop	e (%): <u>< </u>
Subregion (LRR or MLRA): MURA 149A Lat: Long: Da	tum:
Soil Map Unit Name: Udor therts/Christiang-Downer-Urban and NWI classification: PEM	IAC.
Are climatic / hydrologic conditions on the site typical for this time of year? Yes // No // (If no explain in Remarks)	
Are Vegetation Soil or Hydrology significantly disturbed? Ma Are "Normal Circumstances" present? Yes	No
	NO
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important for	eatures, etc.
Hydrophytic Vegetation Present? Yes <u>X</u> No Is the Sampled Area	- 11
Hydric Soil Present? Yes <u>Ves</u> No within a Wetland? Yes I No	
Welland Hydrology Present? Yes <u>Ves</u> No	-
Soil is assumed hydric due to hydrolegic and vegetative Storm water basin closed of by fence so sail samples	were
unable to by token.	
IYDROLOGY	
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) Aquatic Fauna (B13) Sparsely Vegetated Concave	Surface (B8)
High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10)	
Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16)	
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)	,
Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8)	
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial In	nagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2)	
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)	
Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR 1	r, U)
Field Observations:	
Surface Water Present? Yes <u>V</u> No Depth (inches): <u>V</u>	
Water Table Present? Yes No V Depth (inches): N/A	_
Saturation Present? Yes No Depth (inches)://4 Wetland Hydrology Present? Yes	_ No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Surface water was observed from outside fenced area, Soil samples/	vits .
whe not taken due to lack of access they saturation al links	mple tenela
were not able to be assessed	TAPE PROOF
	1000
	1

US Army Corps of Engineers

Atlantic and Gulf Coastal Plain Region - Version 2.0

VEGETATION (Four Strata) – Use scientific na	ames of pla	ints.		Sampling Point: WR1-WTP
301	Absolute	Dominant	Indicator	Dominance Test worksheet:
1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species (A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
4 <u>NONES</u>				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Providence Index workshoets
7				Tetal & Cover et Mulliolulur
8				OPL species v1 =
	=	Total Cov	er	
50% of total cover:	20% of t	otal cover:		FAC opening $x_2 = $
Sapling/Shrub Stratum (Plot size:)	6		- 1	
1. Acar reardo			FAC	
2. ALER MASTUM		<u>/</u>	<u>FAC</u>	$x_{0} = $
3	,			
4				Prevalence Index = B/A =
5	,			Hydrophytic Vegetation Indicators:
6				1 - Rapid Test for Hydrophytic Vegetation
7				✓ 2 - Dominance Test is >50%
8				3 - Prevalence Index is ≤3.0 ³
	10 =	Total Cov	er	Problematic Hydrophytic Vegetation (Explain)
50% of total cover:	20% of I	total cover:	2	
Herb Stratum (Plot size:)			-	¹ Indicators of hydric soil and wetland hydrology must
1. Typha Look, Polur	100	\square	OFL	be present, unless disturbed or problematic.
2		10081		Definitions of Four Vegetation Strata:
3				Tree - Moody plants, excluding vines, 3 in (7.6 cm) or
4			1.1	more in diameter at breast height (DBH), regardless of
5 <u>no constato en con</u>			1.00	height.
6				Sapling/Shrub - Woody plants, excluding vines, less
7				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8				Herb - All berbaceous (non-woody) plants, regardless
_9				of size, and woody plants less than 3.28 ft tall.
10				Weady ying All weady video greater than 2.39.8 in
11				height.
12		-		
	1ee	= Total Cov	/er	
50% of total cover: 5	0 20% of	total cover	20	
Woody Vine Stratum (Plot size: <u>3 み</u>)				Chiefer Sector and an and the sector of a
1				×
2				
3				8
4				
5				Hydrophytic
	;	= Total Co	ver	Vegetation /
50% of total cover:	20% of	total cover	120	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow).			<i>k</i>

SOI	L
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Profile Desc	rlption: (Describe	to the depth n	eeded to docur	nent the li	ndicator	or confirm	the absence of	of indicators.)
Depth	Matrix		Redo	x Features	;			
(inches)	Color (moist)	%(Color (moist)	%	Туре'	Loc ²	Texture	Remarks
	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·					
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		·						
Turner CreCe				·				
Hydric Soil I	ndicators: (Applic	able to all I BE	uced Matrix, M	S=Masked	Sand Gr	ains.	"Location:	PL=Pore Lining, M=Matrix.
Listoool			is, unless offie				Indicators 1	for Problematic Hydric Solls":
HIS(OSOL	(A1) Vineden (A2)	-	Polyvalue Be	elow Surfac	ce (S8) (L	RR S, T, U))1 cm M	uck (A9) (LRR O)
nistic cj Black Hi	npedon (A2) stic (A2)	-	Thin Dark Su	Intace (S9)	(LRR S,	T, U)	2 cm M	uck (A10) (LRR S)
Hydrone	n Sulfide (AA)	-	_ Loamy Muck	y Mineral ((F1) (LRR	0)	Reduce	d Vertic (F18) (outside MLRA 150A,B)
Stratifier	l evers (A5)	-	_ Loarny Greye	eu Matrix (I	FZ)			ont Floodplain Soils (F19) (LRR P, S, T)
Organic	Bodies (A6) (LRR P.	т. ну 👘	Depicied Wa Redox Dark	Surface (E	6)			A 452D
5 cm Mu	cky Mineral (A7) (LF	RP. T. U)	Depleted Da	rk Surface	(F7)		(INILA Red De	rent Material (TE2)
Muck Pr	esence (A8) (LRR U)	Redox Depre	essions (F	3)		Very St	nellow Derk Surface (TE12)
1 cm Mu	ck (A9) (LRR P, T)	· –	Mari (F10) (L	.RR U)	-)		Other (Explain in Remarks)
Depleted	Below Dark Surface	≘(A11) _	Depleted Oc	hric (F11)	(MLRA 1	51)		
Thick Da	urk Surface (A12)	-	Iron-Mangan	ese Masse	es (F12) (LRR O, P,	T) ^a lndica	ators of hydrophytic vegetation and
Coast Pr	airie Redox (A16) (N	1LRA 150A) _	Umbric Surfa	ace (F13) (LRR P, T	, U)	wetl	and hydrology must be present,
Sandy N	lucky Mineral (S1) (L	.RR 0, S) _	_ Delta Ochric	(F17) (ML	RA 151)		unle	ss disturbed or problematic.
Sandy G	leyed Matrix (S4)	-	Reduced Ve	rtic (F18) (MLRA 15	0A, 150B)		
Sandy R	edox (S5)	-	Piedmont Fl	oodplain S	oils (F19)	(MLRA 14	9A)	
Stripped	Matnx (S6)		Anomalous I	Bright Loar	ny Soils (F20) (MLR/	A 149A, 153C,	153D)
Dark Sul	Tace (S/) (LRR P, S	i, Τ, U)						
Time	ayer (nobserveu):							
Depth (in	shae):		-					
Deptil (Int			-				Hydric Soll	Present? Yes No
Centarks.				,		,		
Sal.	Somples	12000	s to	20 10	oke-	n 6a	362466	5 FOIM WSTON
			A 4 4		1	day		to obising of
25512	was to	encer	1. A 24	urec	h	9		pue sence e
stord	in ansta	Ford	land	dry	tic	VIGO	et the	1
	- 3		- cyase	5 /		5	(L)	
							_	

Stream Features Field Sheet
Date: 5/34/15 Project Site: Purple Line WUS #: 82
Observer(s) <u>55</u> , MD
Stream Flow: Perennial: Ephemeral Gradient: Classification: R45B2
Channel Characteristics:
Natural Artificial (man-made) Manipulated (man-altered)
Explain: rip-rap 1, red out flow por SWM and
Channel Has (check all that apply):
OHWM
Morphology: Avg. Channel Width $\underline{3}'$ Depth $\underline{2}'$ Avg. Water Depth $\underline{3}''$ Has stream morphometry been altered? $\underline{\sqrt{25}}$ Describe : $\underline{\Gamma} = \underline{\Gamma} = $
Habitat and Pollutants: Substrate (predominant type (s)): <u> アノデートの</u> ア
Habitat Complexity (characterize): Only 1, p-rip habitat Complexity (characterize):
Bank Erosion: Severe Moderate Minor /
Describe: <u>no house</u> energies
Silt Deposition: No
Pollutants (observation / potential sources): <u>frach</u> , Nighway
Stormwater Outfalls: ort-forl of SWM pend

Biological Habitat For (check all that apply): Federally Listed species	Fish Spawn Areas
Other Environmentally-Sensitive Species	Aquatic/Wildlife Diversity
Explain Findings:	
······	
Riparian Zone: Development: Poods of	and to stream
Riparian vegetation: Forest	Shrubs Herbs
Dominant Species: Acar negunde	, Taxine dendren sparcons,
Partmenpersus quing	infolio, Peltman Virginico
Riparian Buffer Width: 750 84	
Approximate % Shading by Woody Species:	30%
Notes:	

WETLAND DETERMINATION DAT	A FORM - Eastern Mountains and Pindmont New W1/5/2
PLUDIA LINA	fl -
Project/Site:	City/County: Sampling Date:
Applicant/Owner: MICA	State: Sampling Point:
Investigator(s):	Section, Township, Range:
Landform (hillsiope, terrace, etc.): <u>Theodop Idan</u> Loc	cal relief (concave, convex, none): <u>Convex</u> Slope (%):
Subregion (LRR or MLRA): MLKA Lat:	Datum:
Soil Map Unit Name: <u>MPISTIONIA-VOWVLEY-UNDAN VANA COMPLEX</u> NWI classification: <u>UPL</u>	
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Nemarks.	and an
 Jour Providence Bonderson R 	
No. 10 Physics 1, 100 (1997) 1997 (1997)	
Renardor of the territorian to Second	post of ment of the
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) High Water Table (A2) High Water Table (A2) Saturation (A3) Oxidized Rhizo Water Marks (B1) Presence of Re Sediment Deposits (B2) Recent Iron Re Drift Deposits (B3) Thin Muck Surf Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	Iants (B14)
Surface Water Present? Yes No Depth (inches): 0,5 Water Table Present? Yes No Depth (inches): 0 Saturation Present? Yes No Depth (inches): 0 (includes capillary fringe) Yes No Depth (inches): 0 Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Wetland Hydrology Present? Yes No	
Permetter	12.
Hemarks: black drain pipe flows into a -the confluence of these Sedimentation; in which v Soit sits on top of v	nother chuncial Channel two channel has significand rectation has stabilized.
1987 9 19	

Eastern Mountains and Piedmont - Interim Version

US Army Corps of Engineers

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Minister ContractionA (100) DATA (100階) - Electrical Menutality 2016 Produce

EGETATION (Five Strata) – Use scientific na	ames of	plants.		Sampling Point: UIP-L
Tree Stratum (Plot size:	Absolute	Dominant	Indicator	Dominance Test worksheet:
1. Lirindendrom tulipitera	S Cover		FACU	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
3.	ab jeveant.			Total Number of Dominant 4 Species Across All Strata; (B)
4	and and a	<u>1</u>	and sail	Percent of Dominant Species 75
6				That Are OBL, FACW, of FAC: (A/B)
7 BAY COMMON THE LEADED BOARD A				Prevalence Index worksheet:
Senling Stratum (Dist size)	_5	= Total Co	ver	Total % Cover of: Multiply by:
1				
2	-			FACW species x 2 =
3	Activation D			
4	and the second of			
5				Column Totals: (A) (B)
6		8		Prevalence Index = B/A =
	1	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (Plot size:)	5	- 10(8) 00		1 - Rapid Test for Hydrophytic Vegetation
1. Liguidaniour styragtua	- d		FAC	2 - Dominance Test is >50%
2	0			3 - Prevalence Index is ≤3.0 ¹
4			1 BER	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. S. Set all Louis bendy av geener		Ta Englis	(our make a	Problematic Hydrophytic Vegetation ¹ (Explain)
6. THE construct agentation	- 012	nabO abn	the colline	TTTT TANK AND TANK AN
7. JUB BERLICHT FLOM (ED)ED.	al group in	o as lender	an reason	¹ Indicators of hydric soil and wetland hydrology must
- On Ster on Water State (02)	2	= Total Co	ver	be present, unless disturbed or problematic.
Herb Stratum (Plot size:)	16	n an built	2 101 IIIna	Definitions of Five Vegetation Strata:
1. Jupha latitolia	D	A LOT CONT	ORL	Tree - Woody plants, excluding woody vines,
2. Polygonum Sugritatum	50	_Y	ORL	approximately 20 ft (6 m) or more in height and 3 in. (7 6 cm) or larger in diameter at breast height (DBH)
3. UPEYSIA VIVAINCO	20	1.1	FACEN	(1.0 only of larger in thanieter at breast height (DBH).
4. Caver cuniter	50	<u> </u>	OBL	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7 6 cm) DBH
6				an other strengthened
8.	1			Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
9		635		Herb - All herbaceous (non-woody) plants, including
10	1		Statistics of the	herbaceous vines, regardless of size, and woody
11.	oliongeni a	Lowerts Str	artic phones	3 ft (1 m) in height.
12.				
	135	= Total Co	Vor	woody vine - All woody vines, regardless of height.
Woody Vine Stratum (Plot size:)	20	100100		
1. Lonicera japinica	30	<u> </u>	FAC	
2			·	
3			140 M	
4	,			Hydrophytic
5		1.85		Present? Yes No
	30	= Total Co	ver	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators) Matrix Death Matrix Death /ul>	SOIL		Sampling Point: UTP-1
Depth Matrix Redox Features Inchest 5. Out (most) 5. Type Inchest I	Profile Description: (Describe to the depth	needed to document the indicator or confirm	the absence of indicators.)
D JUKAT2 Just Trip Tag BL Return of the state of	Depth <u>Matrix</u> (inches) <u>Color (moist)</u> %	Redox Features Color (moist) % Type ¹ Loc ²	Texture Remarks
Dt KEXUSAU Luce to right factors Image: C-Concentration, D-Depletion, RM-Reduced Matrix, MS-Masked Sand Grains. *Location: PL-Pore Lining, M-Matrix. Hydric Solil Inflactors: Inflactors: Inflactors: Hittool (A1) Dark Surface (S7) -2 cm Muck (A10) (MLRA 147, 148) Biack Hitto: (A3) Polyvalue Below Surface (S9) (MLRA 147, 144) (MLRA 147, 148) Straffiel Layns (A5) Depleted Matrix (F2) (MLRA 147, 148) Straffiel Layns (A5) Depleted Matrix (F2) (MLRA 147, 148) Straffiel Layns (A5) Depleted Batrix (F2) (MLRA 147, 148) Straffiel Layns (A5) Depleted Batrix (F2) Other (Explain In Remarks) Straffiel Layns (A5) Umbris Surface (F12) Other (Explain In Remarks) Sandy Mucky Mineral (S1) (LIRR N, MLRA 143, 143) Intor-Manganese Masses (F12) (LIRR N, MLRA 143, 143) Indicators of hydrologybuic vegetation and wetand hydrologybuic vegetation. Type: Depth Solid F12) Hydric Soli Present? Yes No X Depth (Inches): Hydric Soli Present? Yes No X	<u>b-8</u> 104K313 100		
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Linkin, M-Matrix. Hydric Soll indicators: Indicators for Problematic Hydric Solls': Hitstos (C1) Dark Surface (S7) Hitstos (C1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Casal Frainin Redox (A10) Black Hiels (A3) Thin Dark Surface (S9) (MLRA 147, 148) 2 start Hiels (A3) Dapheted Matrix (F3) 2 cm Muck (A10) (MLRA 147, 148) Depleted Matrix (F3) 2 cm Muck Surface (A11) Depleted Matrix (F3) 2 cm Muck Surface (A11) Depleted Dark Surface (F1) 2 band Hield (A11) Depleted Dark Surface (F1) 3 sandy Redox (S1) MLRA 143) Sandy Redox (S1) MLRA 143) Sandy Redox (S1) Umbric Surface (F13) (MLRA 148, 122) Shardy Redox (S1) Umbric Surface (F13) (MLRA 148) Stripped Matrix (S6) Umbric Surface (F13) (MLRA 148) Retrictive Layer (Irbaserved): Type: Type: Depted In Remarks) Bardy Reday (Irbaser) Hedmont Floodplain Solls (F19) (MLRA 148) Retrictive Layer (Irbaserved): Pledmont Floodplain Solls (F19) (MLRA 148) Type: Depleted	81_ Retusal_	due to rip rap	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix, Hydric Soll Indicators: Indicators: Indicators: Indicators for Problematic Hydric Solls?: Histocol (A1) Dark Surface (S3) (MLRA 147, 148) Coast Praine Rodox (A16) Back Histic (A3) Thin Dark Surface (S3) (MLRA 147, 148) Coast Praine Rodox (A16) Yeatfied Layers (A5) Depleted Matrix (F2) Pledmont Floodplan Solis (F19) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F7) Very Shallow Dark Surface (T12) Thick Dark Surface (A12) Redox Dark Surface (F12) Red Parent Maaria((TF2) Sandy Mucky Mineral (S1) (LRR N, InorManganees Masses (F12) (LRR N, Other (Explain in Remarks) MLRA 147, 148) Untrivis Surface (F13) (MLRA 145, 122) *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S4) Untrivis Surface (F13) (MLRA 148) *uetant hydrology must be present, unless disturbed or problemate. Type: Depleted Dark Surface (F13) (MLRA 148) *holicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problemate. Restrictive Layer (if observed): Type: Hydric Soll Present? Yes No Type: Depleted			
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils?: Hitste Epideoin (A2) — Dark Surface (S3) (MLRA 147, 148)			
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Histosol (A1)			
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ?Location: PL=Pore Lining, M=Matrix, Indicators for Problematic Hydric Solls': 2 cm Muck (A10) (MLRA 147) Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histosol (A1) Dark Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histo (A3) Thin Dark Surface (S8) (MLRA 147, 148) (MLRA 147, 148) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Solis (F19) Depleted Matrix (F2) Piedmont Floodplain Solis (F19) MLRA 147, 148) Stratified Bolvo Dark Surface (A12) Redx Dark Surface (F7) Wery Shallow Dark Surface (TF12) Depleted Matrix (F2) Ward Natria (S1) (LRR N, Inorthangaese Masses (F12) (LRR N, MLRA 136, 147) Sandy Macky Mineral (S1) (LRR N, Inorthas Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophydic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy RedX (S5) Pledmont Floodplain Solis (F19) (MLRA 148) Wetland hydrology must be present, unless disturbed or problematic. Type: Depleted Matrix (S6) Hydric Soil Present? Yes No Remarks: No No No			
Type: C-Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Soll Indicators: Indicators: Indicators for Problematic Hydric Solls? Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Coast Parise Redox (A16) Black Histic (A3) Thin Dark Surface (S8) (MLRA 147, 148) Coast Parise Redox (A16) MLRA 147, 149) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 147, 148) Pledmont Floodplain Soils (F19) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parier Material (TF2) Red Parier Material (TF2) Sandy Muck Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbris Surface (F13) (MLRA 146, 122) *Indicators of hydrophytic vegatation and wetland hydrology must be present, unless disturbed or problematic. Type: Depleted Matrix (S6) Pledmont Floodplain Soils (F19) (MLRA 148) *Indicators of hydrophytic vegatation and wetland hydrology must be present, unless disturbed or problematic. Type: Deph (inches): Hydric Soil Present? Yes No Remarks: Hydric Soil Present? Yes No			
Type: C-Concentration, D-Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soll Indicators: Indicators for Problematic Hydric Solls?: Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Black Histo (A3) Thin Dark Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Straffed Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Solis (F19) Straffed Layers (A5) Depleted Matrix (F3) (MLRA 147, 148) Straffed Balow Dark Surface (A11) Depleted Dark Surface (F6) Red Parent Matrial (TF2) Depleted Balow Dark Surface (A12) Redox Darperssions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 146, 126, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Type: Deph (Inches): Pledmont Floodplain Solis (F19) (MLRA 148, 148) No Remarks: Hydric Soil Present? Yes No No			
Histosol (A1)	¹ Type: C=Concentration, D=Depletion, RM=R	educed Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
Histic Epipedon (A2) Dolvolus Bolow Surface (SB) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (SB) (MLRA 147, 148) Coast Prairie Redox (A16) Hydrogen Suffde (A4) Learry Gleved Matrix (F2) Pieldemont Floodplain Solis (F19) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A12) Redox Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Redox (S5) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydroophytic vegetation and wetland hydroophytic vegetation and wetland hydroophytic vegetation and wetland hydroophytic vegetation and unless disturbed or problematic. Type:	Histosol (A1)	Dark Surface (S7)	Indicators for Problematic Hydric Soils ³ :
Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148) Hydrogen Sulfide (A4) Learny Gleyed Matrix (F2) Piedmont Floodplain Solis (F19) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Solis (F19) Depleted Matrix (F2) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Redox (S5) Piedmont Floodplain Solis (F19) (MLRA 148) ³ Indicetors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If observed): Type: Hydric Soil Present? Yes No Remarks: No No No No	Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MLRA 147.	2 cm Muck (A10) (MLRA 147) 148) Coast Prairie Redox (A16)
Imploring Sufficie (A4) Imploring Cleved Matrix (F2) Pledmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A12) Redox Depressions (F6) Other (Explain in Remarks) Trick Dark Surface (A12) Redox Depressions (F6) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, MLRA 136) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Other (Explain in Remarks) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If Observed): Type:	Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)	(MLRA 147, 148)
Control Carlos (AG) C	Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)
	2 cm Muck (A10) (LRR N)	Depleted Matrix (F3) Reday Dark Surface (F6)	(MLRA 136, 147)
Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Minerai (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MIRA 136) Sandy Redox (S5) Piedmont Floodplain Solis (F19) (MLRA 148) Surfape Matrix (S6) Piedmont Floodplain Solis (F19) (MLRA 148) valiand hydrology must be present, unless disturbed or problematic. Type: Depth (inches): Remarks: Hydric Soil Present? Yes No	Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Red Parent Material (TF2)
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) Restrictive Layer (if observed): runless disturbed or problematic. Type:	Thick Dark Surface (A12)	Redox Depressions (F8)	Other (Explain in Remarks)
Sandy Gleyed Matrix (S4) Unbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Pledmont Floodplain Soils (F19) (MLRA 148) Restrictive Layer (if observed): Type: Depth (inches): Remarks: Hydric Soil Present? Yes No	Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	Iron-Manganese Masses (F12) (LRR N, MI RA 136)	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed):	Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	³ Indicators of hydrophytic vegetation and
	Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 14	8) wetland hydrology must be present,
Type:	Stripped Matrix (S6)		unless disturbed or problematic.
Depth (inches): No K	Type:		
Remarks:	Depth (inches):	_	Hydric Soil Present? Ver
	Remarks:		
	20		
			а 1

• ***	Kemore
	DATA FORM – Eastern Mountains and Piedmont
Project/Site:	City/County: Montgomery Sampling Date: 10-9-11
Applicant/Owner:	State: MD Sampling Point: UTP-2
nvestigator(s): DO DIKAL HOPARSAS	Section, Township, Range:
andform (hillslope, terrace, etc.): + local ain	Local relief (concave, convex, none): <i>NovLe</i> Slope (%):
Subregion (LRR or MLRA): MLKA 198 Lat:	Long: Datum:
Soil Map Unit Name: Brinklow-Blocktown Ch	annery sit locun NWI classification: upland
are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes <u></u> No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	ficantly disturbed? Are "Normal Circumstances" present? Yes X
Are Vegetation . Soil . or Hydrology natur	ally problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	owing sampling point locations, transects, important features, etc.
Hudronhutia Vagatatian Dragant2	$\mathbf{\mathbf{\nabla}}$
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	is the Sampled Area within a Wetland? Yes No
Remarks:	
n devinen versien bie bie het versien versienen versien	
IYDROLOGY	
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 Aqu	uatic Plants (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydroge	n Sulfide Odor (C1)
Saturation (A3) Oxidized	Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presenc	e of Reduced Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent T	ck Surface (C7) Saturation Visible on Aerial Imageny (C9)
Algal Mat or Crust (B4) Other (E	Explain in Remarks) 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:	
Surface Water Present? Yes No Surface Water Present?	inches):
Water Table Present? Yes No Septh (inches): /
Saturation Present? Yes <u>No</u> Depth (inches): Wetland Hydrology Present? Yes No _/
Describe Recorded Data (stream gauge, monitoring well, aeria	al photos, previous inspections), if available:
26 - Mar 10 - 1	
Remarks:	
- stream is incused	a has likely undernihed
the historiusal	the all terms and a second second state of the second second
The ingertiting	Sellin 16 carso
and a bus been v	nanipulated by guit cavise
- and a man - the	are increased deland placed in
maintuneunch -The	nos remanded centris france.
() NOPA	

8

Absolute	Dominar	nt Indicator	Dominance Test worksheet:
	<u>Species</u>	FACU	Number of Dominant Species 1 That Are OBL, FACW, or FAC: 1
30	Y	FAC	· · · · · · · · · · · · · · · · · · ·
	-		Total Number of Dominant U Species Across All Strata: U
	-		Demust (D. 1) (D. 1)
			That Are OBL, FACW, or FAC:
			Prevalence index worksheet:
	1254) 19952	i ya shinu	Iotal % Cover of:Multiply by:
90	= Total Co	ver	OBL species x 1 =
ED	V	TALI	FACW species x 2 =
	_1	Price	FAC species x 3 =
haromz? en	tert f	and former t	FACU species x 4 =
and a product	200		UPL species x 5 =
			Column Totals: (A) (B
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
	a		3 - Prevalence Index is ≤3.0 ¹
50	= Total Co	ver	4 - Morphological Adaptations ¹ (Provide supportin data in Remarks or on a separate sheet)
50,	Y	FACY	Problematic Hydrophytic Vegetation ¹ (Explain)
!	APE ship	Enitituce:	1. At the other state of the state of the
<u>(</u>) wat si	AD E DAU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	C - INCOME	Area beau	Definitions of Four Vegetation Strata:
- 1000 - 1-10-1.	of apt		Tree - Woody plants, excluding vince, 2 in (7.6 cm)
	1701	No. a Mr	more in diameter at breast height (DBH), regardless of height
	ATRINE.	1.0234148	PER LA DESCRIPTION OF A
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
	10	<u> </u>	
			of size, and woody plants less than 3.28 ft tall.
50 =			Woody vine - All woody vines greater than 3.28 ft in
			height.
1		1.4.7.19. 419	Ref 1
	. E	ne atom	A Distance in the second
alt, _{e a} lta		1	TW TOTT STATE R TOTAL TOTAL
			,
	i i i i i i i i i i i i i i i i i i i	23	Hydrophytic Vogetation
			vegetation
			Present? Yes No
	% Cover <u>40</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>30</u> <u>3</u>	$\frac{\% \text{ Cover}}{30} \frac{\text{Species}}{40}$	$\frac{\% \text{ Cover } \text{ Species? } \text{ Status}}{\text{FACM}}$ $\frac{\% \text{ Cover } \text{ Species? } \text{ Status}}{\text{FACM}}$ $\frac{\% \text{ Cover } \text{ FACM}}{\text{FAC}}$ $\frac{30}{7} \text{ FAC}$ $\frac{90}{7} = \text{Total Cover}$ $\frac{50}{7} \frac{9}{7} \text{ FACM}$ $\frac{50}{7} \frac{9}{7} \text{ FACM}$ $\frac{50}{7} \frac{9}{7} \text{ FACM}$ $\frac{50}{7} \frac{9}{7} \text{ FACM}$

6

ra					×	C. A.	
DIL					S	ampling Point: _	UTP-
rofile Description: (Describe to the de	epth needed to docur	nent the indica	tor or confirm	m the absen	ice of indicat	ors.)	
Depth <u>Matrix</u>	_ <u>Redo</u>	x Features	1				
Increasi Color (moist) %	Color (moist)		e' Loc'	<u>Texture</u>	10.0512	Remarks	
0-10-104K310- 101	2			-511	100		(B)
				·			
		·					
			0				
		·					
						54 	
						<u>.</u>	
Vine: C=Concentration D=Dopletion Bi				21 11			
vdric Soil Indicators	WI-Reduced Watrix, Wa	S=Masked Sand	Grains.	Location:	PL=Pore Linii	ng, M=Matrix.	
Histosol (A1)	Dark Surface	(07)		110			ric 30115 :
Histic Epipedon (A2)	Daix Surface	(37) Iow Surface (SS	MI DA 447	4.40)	2 cm Muck (A10) (MLRA 147	()
Black Histic (A3)	Thin Dark Su	rface (SQ) /MI E) (WERA 147, 08 147 149)	, 140)		REDOX (A16)	
Hydrogen Sulfide (A4)	Loamy Gleve	d Matrix (F2)	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Piedmont El	odolaio Soile /E	10)
Stratified Layers (A5)	Depleted Mat	rix (F3)				6 147	19)
_ 2 cm Muck (A10) (LRR N)	Redox Dark S	Surface (F6)			Red Parent I	Material (TF2)	
_ Depleted Below Dark Surface (A11)	Depleted Dar	k Surface (F7)			Very Shallov	/ Dark Surface (1	(F12)
_ Thick Dark Surface (A12)	Redox Depre	ssions (F8)			Other (Expla	in in Remarks)	,
_ Sandy Mucky Mineral (S1) (LRR N,	Iron-Mangan	ese Masses (F1	2) (LRR N,				
MLRA 147, 148)	MLRA 13	6)					
_ Sandy Gleyed Matrix (S4)	Umbric Surfa	ce (F13) (MLR /	136, 122)	3	ndicators of h	ydrophytic veget	ation and
_ Sandy Redox (S5)	Piedmont Flo	odplain Soils (F	19) (MLRA 1 4	48)	wetland hydr	ology must be p	resent,
_ Stripped Matrix (S6)					unless distur	bed or problema	tic.
estrictive Layer (if observed):							
Туре:				- C			,
Depth (inches):				Hydric S	oll Present?	Yes	No K
emarks:							
			8				

WE	TLAND	DETERM	INATION DATA F	ORM – Eastern Mo	ountains and P	liedmont
Project/Site: PUrp	le Li	al	City	County Silver Sor	na/Mont.	Sampling Date: 3-2-12
aplicant/Ourser MTP	+	State and	City	County: Onvo Opt	Sun ADT	Sampling Date. <u>JTD-</u>
pplicativowner. <u>VIC-1</u>	100 20 6	Dn	1		_ State:	
ivestigator(s):	1405	PKC	rage Sec	tion, Township, Range: _	A Lair	
andform (hillslope, terrace, e	etc.). <u>+1</u>	odolar	Local re	elief (concave, convex, n	one): <u>(enve</u>	X Slope (%):
ubregion (LRR or MLRA):	MLRA -:	<u>148</u> L	at:	Long:	and the	Datum:
oil Map Unit Name:	lanis	silt lo	am, 0-3% 51	ADRS	NWI classifi	Cation: 1101 AND
re elimetic / budrelegic cond	litiona on th		I for this time of your	Yan Na		
we climatic / hydrologic cond	iuons on u	e site typica	in for this time of year?	res NO	(IT no, explain in F	kemarks.)
Are vegetation, Soil _	, or l	-lydrology	significantly dist	urbed? Are "Norm	al Circumstances"	present? Yes No
Are Vegetation, Soil _	, or l	-lydrology	naturally probler	natic? (If needed,	explain any answe	ers in Remarks.)
SUMMARY OF FINDIN	GS - A	tach site	map showing sa	mpling point locati	ions, transects	s, important features, etc
Hydrophytic Vegetation Pre	sent?	Yes	No X		and the second second	A MARKEN CALLER AND A MARKEN AND A MARKEN AND A MARKAN AND
Hydric Soil Present?		Yes	No X	Is the Sampled Area		
Wetland Hydrology Present	?	Yes	No	within a Wetland?	Yes	
Remarks:	at an area	-7		a and a second		
-yoolioolbr						
	it far Hyde					and the second sec
Contraction of Contraction			1	and the second second		
IYDROLOGY						A REAL OF
Wetland Hydrology Indica	tors:	uni nisu		State and the second second	Secondary Indic	ators (minimum of two required)
Primary Indicators (minimur	n of one is	required: ch	eck all that apply)		Surface Soil	Cracks (B6)
Surface Water (A1)		_	True Aquatic Plants	s (B14)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2)		int lo conce	Hydrogen Sulfide O	dor (C1)	Drainage Pa	atterns (B10)
Saturation (A3)		ALL SAMPS	Oxidized Rhizosphe	eres on Living Roots (C3)	Moss Trim L	ines (B16)
Water Marks (B1)		Incational	Presence of Reduce	ed Iron (C4)	Dry-Season	Water Table (C2)
Sediment Deposits (B2)		_ Recent Iron Reduct	ion in Tilled Soils (C6)	Crayfish Bu	rrows (C8)
Drift Deposits (B3)		dente di n) -	Thin Muck Surface	(C7)	Saturation V	/isible on Aerial Imagery (C9) 🍈
Algai Mat or Crust (B4)		2	Other (Explain in Re	emarks)	Stunted or S	Stressed Plants (D1)
Iron Deposits (B5)					Geomorphic	Position (D2)
Inundation Visible on A	erial Image	ry (B7)			Shallow Aqu	uitard (D3)
Water-Stained Leaves	(B9)				Microtopogr	aphic Relief (D4)
Aquatic Fauna (B13)	t it also de	the birt we	10		FAC-Neutra	I Test (D5)
Field Observations:			/			
Surface Water Present?	Yes	No 🔨	Depth (inches):	the second se		
Water Table Present?	Yes _	No 🖂	_ Depth (inches):			Assessed and a second second
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland	Hydrology Prese	nt? Yes No
Describe Recorded Data (sl	ream gaug	e, monitorin	g well, aerial photos, p	revious inspections), if av	vailable:	
Remarks:		the second second	Caroline Car			

	Absolute	Dominant	Indicator	Dominance Test worksheet:
ee Stratum (Plot size:	ADSUILLE % Cover	Species?	Statue	Dominance lest worksneet:
Olitation (1 lot size)	100000	V	EACL	Number of Dominant Species
FILLIANUS UNCASETURUS	- 20-		AUM	That Are OBL, FACW, or FAC: (A)
LICIDAL JOHON TUIPITUA	25	<u> </u>	FACU	T-t-l N-mh-m (D-min-mt
Aror noriodo	10.	Teller Inc.	FAC	Species Agrees All Strate:
Education () Qaavanul aster		1/	CACL	Species Across All Strata: (B)
The must be mist Maria.	12.	_7	FALW	Percent of Dominant Species 57
	1			Prevalence index worksheet:
AND STREET, AND IN COMPARING MUCH INCOMES IN THE OWNER	0 36C	ALC: NOTE: N	An epission (Cash	Total % Cover of: Multiply by:
Colored and State and the printing of the	76	T 1 10	NT PERSONAL PARTY	OBL species x 1 =
pling/Chrub Stratum (Blat size)		= Total Co	ver	EACW species $\overline{60}$ $x_2 = 100$
plind/Shrub Stratum (Plot size:)	110	V	TACIL	TACW species <u>00</u> x2- <u>000</u>
Lonicera Tactoria	_ 40_	_1_	FAUL	FAC species 30 x 3 = -290
Lindra penzola	5		FACW	FACU species $\underline{\&} \underline{\&} \underline{\&} \underline{\&} \underline{\&} \underline{\&} \underline{\&} \underline{\&} $
100 m m			al plant Prove	
And an and a second sec	Carls Long and a Carlan	Ma .		
	125		201.04	Column Totals: $AP (A) (B)$
				Prevalence Index = $B/A = 3.16$
				Hydrophytic Vegetation Indicators
			00	A Destit to the state of the state
		.	1.2	2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 ¹
	- 45	- Total Co		4 - Morphological Adaptations ¹ (Provide supporting
erb Stratum (Plot size:)		- 10(a) 00	461	data in Remarks or on a separate sheet)
Rapinguilars Figure	10	Y	FAC *	Problematic Hydrophytic Vegetation ¹ (Explain)
Citra go filloria	- 970	-	FACIL	Characteria (Laterateria)
1 JUNIA NOACACIA	_ 20		FACU	¹ Indiastors of hudric coil and watland hudrology must
	1.173	1) 10002560	nes nonime	he present unless disturbed or problematic
	A CONTRACTOR	1.7月11月	1. FTTT (172597)	be present, unless disturbed of problematic.
14-37 人の1179権への時間は2014-11	Insection	11.1.5100	10.50136	Definitions of Four Vegetation Strata:
			A	
	and a second second			i ree - Woody plants, excluding vines, 3 in. (7.6 cm) of
		1 configures	Access of the second	height
A second se				
and and an anall				Sapling/Shrub - Woody plants, excluding vines, less
a faith and hand an ended				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				in the second second second second
				Herb - All herbaceous (non-woody) plants, regardless
The second se				of size, and woody plants less than 3.28 ft tall.
•	- <u>a</u> A			Woody vine - All woody vines greater than 3.28 ft in
	80	= Total Co	ver	height.
pody Vine Stratum (Plot size:)	12		EAR	the state of the s
Milera apphilli	10	_ <u>Y</u> _	TAC	n for any stay structure of the
UTIS SO JU	a		N/A	
<u>v + j +</u>	{	Allow an own		and an annual as a start of the start of the
	and the second second			And the second sec
24				
				Hydrophytic
				Vegetation
				Present res NO
	12	= Total Co	ver	
marks: (Include photo numbers here or on a senara	te sheet)		· · · · · · · · · · · · · · · · · · ·	1
emanos. (include proto numbers here of on a separa	ite sneet.)			
	1			
mante 50/20 rule ind	icator	but f	TN	3.0
MEDIS SUJOG TWIC THE		5001		
+ - indicator status to	sken to	m 199	6 list	
T - INVICATOR STUNDS 10		(.).	U 0.01	

SOIL

Sampling Point: VTP-3

0012		Sampling Foint.	
Profile Description: (Describe to the depth needed to document the indicator or con	firm the absence	of indicators.)	
Depth Matrix Redox Features			
(inches) Color (moist) % Color (moist) % Type ¹ Loc ²	Texture	Remarks	
1-10 104R313 100	Sich		
10-19+1,34K4161W	- 50	course frig.	
		· · · · · · · · · · · · · · · · · · ·	
		45.1	0
		<u> </u>	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.	² Location: PL	=Pore Lining, M=Matrix.	
Hydric Soil Indicators:	Indica	tors for Problematic Hv	dric Soils ³ :
Histosol (A1) Dark Surface (S7)	2	cm Muck (A10) (MLPA 1	17)
Histic Eninedon (A2)	<u> </u>	ant Brairia Baday (A46)	
Black Histic (A3)	o\		
Ludes can Sulfide (A4)	o)	(MLKA 147, 148)	-
Hydrogen Suinde (A4) Loamy Gleyed Matrix (F2)	P	edmont Floodplain Soils (F19)
Stratified Layers (A5) Depleted Matrix (F3)		(MLRA 136, 147)	
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)	R	ed Parent Material (TF2)	
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)	V	ery Shailow Dark Surface	(TF12)
Thick Dark Surface (A12) Redox Depressions (F8)	0	ther (Explain in Remarks)	
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N,	,		
MLRA 147, 148) MLRA 136)			
Sandy Gleved Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)) ³ Indi	cators of hydrophytic year	etation and
Sandy Redox (S5) Piedmont Floodnlain Soils (F19) /MLRA	, A 148) w	etland hydrology must be	precent
Stripped Matrix (S6)		less disturbed or problem	present,
Stripped Matrix (S6)	u	aless disturbed or problem	natic.
Stripped Matrix (S6) Restrictive Layer (if observed):	u	aless disturbed or problem	natic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type:		nless disturbed or problem	natic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soil	Present? Yes	
	Hydric Soil	Present? Yes	
	Hydric Soil	Present? Yes	
	Hydric Soil	Present? Yes	
	Hydric Soil	Present? Yes	
	Hydric Soil	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soii	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soii	Present? Yes	
	Hydric Soii	Present? Yes	
	Hydric Soii	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soii	Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:	Hydric Soii	Present? Yes	
	Hydric Soii	Present? Yes	
	Hydric Soii	Present? Yes	
	Hydric Soii	Present? Yes	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Purple Line City/County: Silver Spring/	Mont. Sampling Date: 3/2/12
Applicant/Owner: MTA State:	Sampling Point: UTP-4
Investigator(s): DR, HS Section, Township, Range:	
Landform (hillslope, terrace, etc.): <u>floodplain edge</u> Local relief (concave, convex, none):	onvex Siope (%):
Subregion (LRR or MLRA): Lat: Long:	Datum:
Soil Map Unit Name: Codorus silt loan, 0-3 % slopes NM	I classification: woland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, ex	plain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly disturbed? No Are "Normal Circums	stances" present? Yes Vo No
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain a	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, tra	ansects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	is the Sampled Area within a Wetland? Yes No
Remarks:	 and a cold de caledar per los sites de contentant. Elles o
· strain? all activiting earlies the dispute-t.	e a sea seas seasan le se mos compost se

HYDROLOGY

Wetland Hydrology Indicate	ors:			-	Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is rec	uired; che	eck all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)		_	_ True Aquatic Plants (B14)		Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)		200	_ Hydrogen Sulfide Odor (C	1)	Drainage Patterns (B10)
Saturation (A3)			_ Oxidized Rhizospheres or	Living Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)		4	Presence of Reduced iron	a (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)		82-8 G <u>-</u> 1	_ Recent Iron Reduction in	Tilled Soils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)		1.41	_ Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)			_ Other (Explain in Remarks	s)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)					Geomorphic Position (D2)
Inundation Visible on Aer	rial Imagery	(B7)			Shallow Aquitard (D3)
Water-Stained Leaves (E	39)				Microtopographic Relief (D4)
Aquatic Fauna (B13)					FAC-Neutral Test (D5)
Field Observations:			a state a		
Surface Water Present?	Yes	_ No	Depth (inches):		
Water Table Present?	Yes	No	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland	Hydrology Present? Yes No
Describe Recorded Data (stre	eam gauge,	nonitoring	well, aerial photos, previous	s inspections), if av	ailable:
Remarks:		A. State	8.V-1		
	1000	. 1.	en	A	
No	hydro	indu	cators observed	2	
	- /				

% cover 70 40 50 30 5 195 15 10	<u>Species?</u> <u>Y</u> <u>Y</u> <u></u>	Status FACW FACW FAC FAC FAC FACU FACU FACU FACU FACU FA	Number of Dominant Species 6 (A) Total Number of Dominant 7 (B) Percent of Dominant Species 8.6 (A/B) Prevalence Index worksheet: 7 (A/B) OBL species x 1 = 7 FACW species x 2 = 7 FAC species x 3 = 7 FACU species x 4 = 7
70 40 50 30 5 195 15 10 10	<u>Y</u> <u>Y</u> = Total Cov <u>Y</u>	FACW FACW FAC FAC FACU FACU FACU FACU FACU FACU	That Are OBL, FACW, or FAC: 6 (A) Total Number of Dominant 7 (B) Percent of Dominant Species 7 (B) Percent of Dominant Species 86 (A/B) Prevalence Index worksheet: 86 (A/B) Prevalence Index worksheet: 96 (A/B) OBL species x1 = 96 FACW species x2 = 96 FAC species x3 = 96 FACU species x4 = 100
40 50 50 5 195 195 10	Y 	FACW FAC FAC TACU FACU FACU FACU FACU	Total Number of Dominant 7 (B) Percent of Dominant Species 86 (A/B) Prevalence Index worksheet: 86 (A/B) Prevalence Index worksheet: 96 (A/B) OBL species x1 = 96 FACW species x2 = 96 FAC species x3 = 96 FACU species x4 = 100
50 30 5 195 15 10	 = Total Cov 	FAC FAC FACU FACU FACU FACU FACU	Total Number of Dominant (B) Species Across All Strata: (B) Percent of Dominant Species (B) That Are OBL, FACW, or FAC: (B) Prevalence Index worksheet: (A/B) Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 =
30 5 195 15 5 10	= Total Cov	FAC TACU TACU FACU FACU FACU FACU	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>Prevalence Index worksheet:</u> <u>Total % Cover of:</u> Multiply by: OBL species x1 = FACW species x2 = FAC species x3 = FACU species x4 =
5 195 15 10	= Total Cov 	FACU FACU FACU FACU FACU	Percent of Dominant Species 26 (A/B) That Are OBL, FACW, or FAC: 26 (A/B) Prevalence Index worksheet:
-5 	= Total Cov	FACU FACU FACU FACU	That Are OBL, FACW, or FAC:
195 15 5 10	= Total Cov 	FACU FACU FACU FAC	Prevalence Index worksheet:
195 15 10	= Total Cov 	FACU FACU FACU FAC	Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 =
195 15 10	= Total Cov 	FACU FACU FACU FAC	OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 =
15	<u> </u>	FACU FACU FAC	FACW species x 2 = FAC species x 3 = FACU species x 4 =
15 10	 	FACU FACU FAC	FAC species x 3 = FACU species x 4 =
<u>5</u> 10	<u> </u>	FACU FAC	FACU species x 4 =
	<u> </u>	FAC	
	_/	Inc	
			Column Totale: (A) (B)
		1.1	
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence index is \$3.0
30	= Totai Co	/er	data in Remarks or on a separate sheet)
70	4	FAC*	Problematic Hydrophytic Vegetation ¹ (Explain)
	L R. Blan	R atiality 4	1.1 States Water states when the second
		able rance	¹ Indicators of hydric soil and wetland hydrology must
e4.ecu	MARKEN CO	andst mill	be present, unless disturbed or problematic.
inii.	and player	Alla cama	Definitions of Four Vegetation Strata:
CONTRACTOR OF	neether as t	and the	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
	17.37 - 43	nue (p. n.a.)	more in diameter at breast height (DBH), regardless of height.
	and most in	1995 (1997) 16	Sanling/Shrub - Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tail.
			Herb - All berbaceous (non-woody) plants, regardless
			of size, and woody plants less than 3.28 ft tall.
70		4 May 6	Woody vine - All woody vines greater than 3.28 ft in
	= Total Co	/er	height. do the function of the second second
40	Y	FAC	na _{second} olivites cari filozoof encañ seco
W 1 1 1		THE PARTY IN	C
	mur ll v	a an an a faile	
	1.10	2 <u>111111111111111111111111111111111111</u>	when the start of the second second second second
			Hydrophytic
			Vegetation
110		A	Present? Yes <u>V</u> No
40	= Total Co	/er	
heet.)			• • • • • • • • • • • • • • • • • • • •
1	<i>c</i> 1. 1		
~ 1991	b list		
1000	1		
i	<u>30</u> <u>70</u> <u>70</u> <u>70</u> <u>40</u> <u>40</u> heet.)	$30 = Total Cov$ $70 \qquad Y$ $-70 \qquad -70$ $-70 = Total Cov$ $40 \qquad -7$ $-70 = Total Cov$ $40 \qquad -7$ $-70 = Total Cov$ heet.) $-70 = Total Cov$	$30 = \text{Total Cover}$ $70 Y FAC^{*}$ $70 Total Cover$ $70 = \text{Total Cover}$ $40 Y FAC$

SOIL

Sampling Point: UTP-4

Profile Desc	ription: (Describe f	to the depth r	needed to docum	nent the indi	icator c	or confirm	the absence	of indicator	rs.)	
Depth	Matrix		Redox	<u> Features</u>						
(inches)	Color (moist)	%	Color (moist)	<u>%</u> T	vpe ¹	Loc ²	Texture		Remarks	
0-2	104R3/3	100					loam	rootle	its through	ighout
2-6	7.54R'4/6	100					15	filln	raterial	J 200
6-12+	7.548416	100					<	11		
		100								1
		<u> </u>	<u> </u>							
	8									
		<u> </u>	L.1							
										<u> </u>
	<u> </u>									
<u> </u>										
¹ Type: C=Cc	ncentration, D=Depl	etion, RM=Re	duced Matrix, MS	-Masked Sa	and Gra	ins.	² Location: PL	-Pore Lining	. M=Matrix.	
Hydric Soii i	ndicators:	ê d					indica	ators for Pro	biematic Hy	dric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A	10) (MLRA 14	7)
Histic Ep	ipedon (A2)		Polyvalue Bel	low Surface ((S8) (M	LRA 147,	148) C	oast Prairie	Redox (A16)	
Black His	stic (A3)	_	Thin Dark Su	rface (S9) (M	ILRA 14	47, 148)	· —	(MLRA 147	′, 148)	
Hydroge	n Sulfide (A4)	-	Loamy Gleye	d Matrix (F2))		P	iedmont Floo	odplain Soils (F19)
Stratified	Layers (A5)	-	Depleted Mat	rix (F3)				(MLRA 136	i, 147)	
2 cm Mu	ck (A10) (L RR N)	-	Redox Dark S	Surface (F6)			– R	led Parent M	aterial (TF2)	
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface (F	7)		v	ery Shailow	Dark Surface	(TF12)
Thick Da	rk Surface (A12)	-	Redox Depre	ssions (F8)			0	ther (Explain	n in Remarks)	
Sandy M	ucky Mineral (S1) (L	.RR N,	Iron-Mangane	ese Masses ((F12) (L	.RR N,				
MLRA	147, 148)		MLRA 136	6)						
Sandy G	leyed Matrix (S4)	-	Umbric Surfa	ce (F13) (ML	.RA 136	5, 122)	³ Ind	icators of hy	drophytic vege	tation and
Sandy R	edox (S5)	-	Piedmont Flo	odpiain Soils	; (F19) (MLRA 14	8) w	etland hydro	logy must be	present,
Stripped	Matrix (S6)		_				u	nless disturb	ed or problem	atic.
Restrictive L	ayer (if observed):									
Type:		<	-							
Depth (inc	hes):		_				Hydric Soli	Present?	Yes	No
Remarks:							I			
									1	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site:	Purolo line	City/County:	ollege Park/PG	Sampling Date: 2-2-12
Applicant/Owner:	nta -	Antonia and Antonia and	State: MD	Sampling Point: VTP-5
Investigator(s): H.	Spagnis D. Rookers	Section, Townsh	ip, Range:	
Landform (hillslope,	terrace, etc.): <u>gentle slope</u>	Local relief (concave	e, convex, none): <u>CONVE</u>	X Slope (%):
Subregion (LRR or N	MLRA): MLRA-148 Lat:		Long:	Datum:
Soil Map Unit Name:	: Codenis > Hatboro	spils, treg. Flood	Rd NWI classifi	cation: UPLAND
Are climatic / hydrold	ogic conditions on the site typical for th	his time of year? Yes	No (If no, explain in F	Remarks.)
Are Vegetation	, Soil, or Hydrology	significantly disturbed? No	Are "Normal Circumstances"	present? Yes No
Are Vegetation	, Soil, or Hydrology	naturally problematic? No	(If needed, explain any answe	ers in Remarks.)
SUMMARY OF	FINDINGS – Attach site map	showing sampling po	oint locations, transect	s, important features, etc.

Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	is the Sampled Area within a Wetland? Yes <u>No</u>
Remarks:	
Storman in mana many hispagoolivit	
and the second s	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary indicators (minimum of two required)
Primary Indicators (minimum of one is required; che	ck all that apply)	Surface Soil Cracks (B6)
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) 	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living F Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Sol Thin Muck Surface (C7) Other (Explain in Remarks)	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) ils (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:		· · · · · · · · · · · · · · · · · · ·
Surface Water Present? Yes No Water Table Present? Yes No	Depth (inches):	0.00 (1.5.8) (1.5.80) (1.6.9) (1.6.9)
Saturation Present? Yes No	Depth (inches):	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspect	ions), if available:
Remarks:	And a	Classification (Classification) (Classification) (Classification)

VEGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling Point: UTP-5
in Particular Samaline Dates 1. Contact	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	% Cover	Species?	Status	Number of Dominant Species
1. Inquidambas styrade iva	40		FAC	That Are OBL, FACW, or FAC: (A)
2. KNINUS SCATAG	-		FACU	Total Number of Dominant
3. KODINIA DOCUDENTA	a	_1	FAUL	Species Across All Strata: (B)
4. TOSIS GRANDING.	12		FALL	Percent of Dominant Species
5. Traxinus pany vacrucan	2	1 19.2. 1	FALW	That Are OBL, FACW, or FAC: (A/B)
6		A.375 T.8	To art i	Prevalence index worksheet:
7				Total % Cover of: Multiply by:
8	(00)			OBI species x1=
Sanling/Shrub Stratum (Plot size:	100	= Total Co	ver	FACW species x2=
1 RCK/A MILHI DOVIA	40	Y	FACIL	FAC species x 3 =
2 Davie tuctucius	3		FACIL	FACIL species x4 =
2. Frank a whiteli	10	inar (FACIL	
s. the cut co	10	10.04	- Incu	Column Totals: (A) (B)
4. U. Ner COS SI			<u>nja</u>	
5V				Prevalence index = B/A =
6	·		·	Hydrophytic Vegetation indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8	·		·	2 - Dominance Test is >50%
9				3 - Prevalence index is ≤3.0 ¹
10	ar			4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size:	25	= Total Co	ver	data in Remarks or on a separate sheet)
1/2/0 thank heroriera	ID.	Y	FAICU	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Allion VINIALS	5	Y	FACU	The conception of the sequence of the second s
3. The second second	·	Succes N		¹ Indicators of hydric soil and wetland hydrology must
4. (5) 51 and 1 million (5) (5)	604 70 Page	New Stewart	1.567.581	be present, unless disturbed or problematic.
5 (S.C. PART CHAPTING TO A	(10	(61) 516-1	- A	Definitions of Four vegetation Strata:
6. Contried without 180	Crick Della	r et festiob	in In He	Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
7. Partnesson Venit on American magnetic		(52) nos	Sm23	more in diameter at breast height (DBH), regardless of
8		5.10-21-5	track i Rom	
9				Sapling/Shrub – Woody plants, excluding vines, less
10				
11.				Herb – All herbaceous (non-woody) plants, regardless
12.			-0e	of size, and woody plants less than 3.28 ft tail.
	16	= Total Co	ver	Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	-0	14		height.
1. Lohi cora japinka	XU_	_Y	FAC	the state of the s
2. Clastrus rebiculatus	10		UPL	A set of the set of
3	dim in	S North at	Welling the	The start man and have been the
4				
5				Hydrophytic Vegetation
6			<u> </u>	Present? Yes No V
	90	= Total Co	ver	
Remarks: (include photo numbers here or on a separate s	sheet.)			
	,			
S				

Sampling Point:

Profile Description: (Describe to the dept	h needed to docu	ment the indicato	or confirn	n the absenc	e of indicators.)	
Depth <u>Matrix</u>	Redo	x Features	1 2	-		
$(10 \text{ color (mbist)}) = \frac{1}{6}$	Color (moist)	<u>% Type</u>	Loc		Rema	rks
00 100				D.	<u> </u>	
0147 1.54125 16 100	-	·	100 B	S	States	
					18 - SÇ	
	1	8 X.				
						C.
· _ · · · _ · · _ · _ · _ · · _ ·						
		•				
¹ Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, M	S=Masked Sand G	rains.	² Location: F	L=Pore Lining, M=Mat	rix.
Hydric Soli Indicators:				Indi	cators for Problemation	c Hydric Soils':
Listic Frieder (A2)	Dark Surface	e (S7)			2 cm Muck (A10) (MLF	RA 147)
Histic Epipedon (A2) Black Histic (A3)	Polyvalue Be	elow Surface (S8) (MLKA 147, 147 149)	148)	Coast Prairie Redox (A	(16)
Hydrogen Sulfide (A4)	Loamy Gleve	ed Matrix (F2)	147, 140)		Piedmont Floodplain S	oils (F19)
Stratified Layers (A5)	Depleted Ma	trix (F3)		3	(MLRA 136, 147)	
2 cm Muck (A10) (LRR N)	Redox Dark	Surface (F6)		_	Red Parent Material (T	F2)
Depleted Below Dark Surface (A11)	Depleted Da	rk Surface (F7)			Very Shallow Dark Sur	face (TF12)
Sandy Mucky Mineral (S1) (I BB N	Redox Depre	essions (Fo) Lese Masses (F12)	(I RR N		Other (Explain in Rema	arks)
MLRA 147, 148)	MLRA 13	16)	(ERREI)			
Sandy Gleyed Matrix (S4)	Umbric Surfa	, ace (F13) (MLRA 1	36, 122)	³ In	dicators of hydrophytic	vegetation and
Sandy Redox (S5)	Piedmont Flo	oodplain Soile (E19	MIDA 1/	19)	wetland bydrology mus	t be present
		bodpiairi Solis (i Ta		10)	welland nyurology mus	a be present,
Stripped Matrix (S6)				,	unless disturbed or pro	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed):					unless disturbed or pro	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches):				Hydric So	unless disturbed or pro	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:) (IIIERA 1-	Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:) (IIIERA 1-	Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			//////	Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			//////	Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			/(Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:			/(Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	Il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	Il Present? Yes	blematic.
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	Il Present? Yes	
Stripped Matrix (S6) Restrictive Layer (if observed): Type: Depth (inches): Remarks:				Hydric So	Il Present? Yes	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Puple Line	City/County:	lege Park/PG	Sampling Date: 3-2-
Applicant/Owner:	ingen under Bilder under name	State: MI	Sampling Point: VTP-6
Investigator(s): DR > HS	Section, Township,	Range:	
Landform (hillslope, terrace, etc.): <u>flet</u>	Local relief (concave, c	onvex, none):	∧/ℓ × Slope (%):
Subregion (LRR or MLRA): MLRA - 148 Lat:		_ong:	Datum:
Soil Map Unit Name: Codorus - Hatboro - Utbr	an land comple	2X NWi clas	ssification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes No	o (If no, explain	in Remarks.)
Are Vegetation, Soil, or Hydrology signifi	cantly disturbed? No A	re "Normal Circumstance	es" present? Yes 📈 No
Are Vegetation, Soil, or Hydrology natura	ally problematic? No (if	needed, explain any an	swers in Remarks.)
SUMMARY OF FINDINGS - Attach site map sho	wing sampling poin	t locations. transe	ects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	Is the Sampied Area within a Wetland?	Yes	No 🖌
Remarks:	Provider Sel	 		and the second second

HYDROLOGY

Wetland Hydrology Indicato	rs:			Secondary Indicators (minimum of two required)
Primary Indicators (minimum c	of one is required; chec	k ali that apply)	The	Surface Soil Cracks (B6)
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aeri Water-Stained Leaves (B5) Aquatic Fauna (B13) 	al Imagery (B7)	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living I Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled So Thin Muck Surface (C7) Other (Explain in Remarks)	Roots (C3) bils (C6)	Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	The star Paul sector to be a	and an end of the second se		
Surface Water Present?	Yes No 🗙	Depth (inches):		
Water Table Present?			5	
Trater rabie reserve:		Depth (Inches):	5.	
Saturation Present? (includes capiliary fringe)	Yes No _X	Depth (inches):	Wetiand H	ydrology Present? Yes No
Saturation Present? (includes capillary fringe) Describe Recorded Data (stree	Yes No	Depth (inches):	Wetiand H tions), if avai	ydrology Present? Yes No
Saturation Present? (includes capillary fringe) Describe Recorded Data (stree Remarks:	Yes No	Depth (inches):	Wetiand H tions), if avai	ydrology Present? Yes No
Saturation Present? (includes capillary fringe) Describe Recorded Data (streated Remarks:	Yes No	Depth (inches): Depth (inches): well, aerial photos, previous inspec	Wetland H tions), if avai	ydrology Present? Yes No
Saturation Present? (includes capillary fringe) Describe Recorded Data (streation of the second seco	Yes No	Depth (inches): Depth (inches): well, aerial photos, previous inspec	Wetland H tions), if avai	ydrology Present? Yes No

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UTP-6

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1. 200 Like only and only and the state		-	-	That Are OBL, FACW, or FAC: (A)
2	17 M/ 47	1.160.01		Total Number of Dominant
3		witali in	1011	Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5			1.000	That Are OBL, FACW, or FAC: (A/B)
6	a strand a		The second secon	Provolance index worksheet
7	<u> </u>		del anno	Tetal % Cover of:
-8C CCC	Sector Contraction	. pelota O	Sn 7500år	
4. april 10 and 10	ar in selli	= Total Cov	/er	
Sapling/Shrub Stratum (Plot size:)	10	V	EAC	FACW species $10 \times 2 = 370$
1. THU NEGUNO.	10		EAC	FAC species 10 $x_3 = \frac{10}{160}$
2. VIGNIGEORIDON SMUNICITIVU.	$\cdot \frac{0}{10}$	<u> </u>	FAC	FACU species $\underline{40}$ x 4 = $\underline{100}$
3. TYIX TOUS VERNO Y WORKER	. 10	4	FAUN	
4	and Gard Dr		10 miles	Column Totals: 140 (A) 150 (B)
5			-	Prevalence index = $B/A = 3.2$
6	• 			Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Veretation
8				2 - Dominance Test is >50%
9			<i></i>	3 - Prevalence index is < 3.01
10				4 - Morphological Adaptations ¹ (Provide supporting
	25	= Total Co	ver	data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)	15	V	TACH	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Allorn Vineau	as-		FAUL	The second s
2. Kanuculais Ticaria	- 10-	25.1 Reput	EACT	¹ Indicators of hydric soil and wetland hydrology must
3. aster sp.	à	in sha a	na	be present, unless disturbed or problematic.
4. Thistlo sp.	-5-	100 80 (Bikle	nla	Definitions of Four Vegetation Strata:
5. milnistegion unineum	40	<u> </u>	FAIC	
6. Schedonoms pratensis	15	T ni soliali.	FACU	more in diameter at breast height (DBH), regardless of
7. Col vergine big A gold for the South and the South		it for the	n Stude Sam	height.
8. (FC) Phate benefit to be that		a danan 1	taringer (1.47	Sanling/Chaub Weedy plants evoluting visco loss
9				than 3 in, DBH and greater than 3.28 ft (1 m) tall.
10.				the second
11.				Herb – All herbaceous (non-woody) plants, regardless
12.			-x	of size, and woody plants less than 0.20 it tail.
	97	= Total Co	ver	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)	05		[]oral au	neight.
1. Contact japonia	a)	<u> </u>	FAC	
2 all all for a set gala by I back	1W 1		and my sta	The CALL COLLEGE AND STREAM COLLEGE AND A
3.	- mond.	Mine al	the barrent	has address to the month of the set of the
4.				
5.			10 - 10ý	Hydrophytic Vegetation
6.	_			Present? Yes No No
	25	= Total Co	ver	
Remarks: (include photo numbers here or on a separate	sheet.)			
	[].	0-		
meets 50/20 rule	, but	P.⊥.	25.0	
		2		
* = takon from 19	796 li.	st		
		- •		1. B

Sampling Point: UTP-6

	still needed to document the indicator of commit	ine absence of indicators.)
Depth Matrix	Redox Features	
(inches) Color (moist) %	<u>Color (moist)</u> % <u>Type'</u> Loc ²	Texture Remarks
0-3 104K43, 100		<u>SII</u>
3-8 104181345	INKS16 2 C M	<u>SI</u>
X-14710URST3 XI	INVRUID 20 CM	51
		-
¹ Type: C=Concentration, D=Depletion, RM	=Reduced Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MLRA 147,	148) Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)	(MLRA 147, 148)
Hydrogen Sullide (A4)	Loamy Gleyed Matrix (F2)	Pledmont Floodplain Solis (F19)
2 cm Muck (A10) (LBB N)	Depleted Matrix (F3) Redox Dark Surface (E6)	(MILKA 130, 147) Red Barent Material (TE2)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Very Shallow Dark Surface (TE12)
Thick Dark Surface (A12)	Redox Depressions (F8)	Other (Explain in Remarks)
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,	
MLRA 147, 148)	MLRA 136)	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	³ Indicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 14	wetland hydrology must be present,
Stripped Matrix (S6)		unless disturbed or problematic.
Restrictive Layer (if observed):		
Restrictive Layer (if observed): Type:		/
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Restrictive Layer (if observed): Type: Depth (inches): Remarks:		Hydric Soil Present? Yes No

Appendix E – Agency Field Review Meeting Minutes and Maps

MEETING MINUTES



2988 Solomons Island Road Edgewater, MD 21037 410-956-9000 410-956-0566 (Fax)

Date:May 17, 2012To:Maria Teresi– USACE
Laura Burge- USACE
Laura Shively- USACE
Erica Schmidt- USACE
Steve Hurt- MDE
John Nichols- NMF
Adam Tatone- CRI
Steve Morsberger- CRI
Bridgette Garner- CRIFrom:Bridgette Garner

Subject: Purple Line Jurisdictional Determination (JD)

The attendees met at the Meadowbrook Local Park parking lot in Chevy Chase, Maryland at 9:30 a.m. on May 8, 2012 to review the western segment of the Purple Line project. The attendees met at the parking lot adjacent to the Glenridge Facility on May 9, 2012 to review the eastern segment of the Purple Line project. The purpose of this meeting was to review flagged waters of the U.S., including wetlands within the Preferred Alternative in order to obtain a jurisdictional determination (JD) for the project and discuss resource agency concerns. A total of 41 numbered waters of the U.S., including wetlands, were reviewed. The general context of the issues discussed for each area is summarized below.

WUS GB-1	This waterway was accepted as flagged by the agencies. The headwall of a tributary to the mainstem of Coquelin Run is located just outside of the LOD. This headwall was surveyed in the field and MDE and USACE requested that it be shown on the map. WUS GB-1 flows south under the trail and eventually into Coquelin Run.
WUS GB-2	This waterway was accepted as flagged.
WUS GB-3	This waterway was accepted as flagged. The stream designation was changed from a perennial stream to an intermittent stream.
WUS GB-4	This waterway was accepted as flagged.
WUS GB-6	This waterway was accepted as flagged.
Wetland 065	This wetland was accepted as flagged.
Wetland GB-8	This wetland was accepted as flagged.

- WUS 066 This waterway was accepted as flagged.
- **WUS GB-9** This waterway was accepted as flagged.
- WUS 003 This waterway was accepted as flagged. Steve Morsberger inquired whether or not the relocation of Sligo Creek north of Wayne Avenue could serve as suitable compensatory stream mitigation. Steve Hurt commented that the relocation of Sligo Creek is necessary to comply with required bridge hydraulics and does not necessarily agree that stream relocation could be included as stream mitigation because the channel appeared to be relatively stable and would likely include removal of some large trees that currently provide stability and other resource benefits. Mr. Hurt indicated that the Purple Line team should provide the concept designs of stream relocation to the resource agencies sooner than later for their review and comment. The review team noted recent stream construction associated with sewer rehabilitation work located on the downstream side of the Wayne Avenue crossing.
- WUS 005 This waterway was accepted as flagged by the agencies. The LOD in this area extends approximately 200 feet south of Piney Branch Road to include a section of the stream that is being proposed for stream restoration. CRI inquired whether or not the restoration of that segment could count towards compensatory mitigation for impacts to waters of the U.S. The channel on the downstream end of the culvert at Piney Branch Road has scoured more than three (3) feet below the culvert invert elevation and could pose as a fish blockage to upstream resources. The review team agreed that fish resources should be investigated in Long Branch to evaluate the significance of the culvert blockage on fish passage. It was also noted that additional improvements to stream stability and function may be warranted depending on the biological resources found in Long Branch. Steve Hurt recommended bringing USFWS and MDNR to this section of the stream for review as potential stream mitigation.
- **WUS 057** This waterway was accepted as flagged.
- WUS 008 This waterway was accepted as flagged.
- WUS 009 This waterway was accepted as flagged.
- WUS 006 This waterway was accepted as flagged.
- WUS 007 This waterway was accepted as flagged.
- Wetland 060 This wetland was accepted as flagged.
- WUS 058 The ephemeral section of the stream was considered non-jurisdictional by the USACE and MDE and the intermittent designation was changed to ephemeral west of the park access road. This was also the case to the east of the access road, where the intermittent stream designation was changed to ephemeral and the ephemeral channel was considered non-jurisdictional. The wetland flagged as part of this system was accepted as flagged.

Page 3 of 4

- Wetland 059 This wetland was accepted as flagged.
- WUS 011 This waterway was accepted as flagged, but the designation of perennial was changed to intermittent.
- Wetland 10 This wetland was considered non-jurisdictional by the USACE and MDE as it was created in uplands to serve as storm water management (SWM) for the campus and does not have a perennial flow into the adjacent waterway (WUS 011).
- WUS 012 This waterway was accepted as flagged. John Nichols commented that the Preferred Alternative should try and avoid any impacts to the buffer, which is currently in maintained grass and forest, of the tributary to Paint Branch. Mr. Nichols also commented that any stormwater management associated with this portion of the project should not be directly discharged into this tributary.
- WUS 016 This waterway was accepted as flagged.
- Wetland 019 This wetland was accepted as flagged. This wetland serves as SWM for the park and is created in uplands but has a perennial connection to Northeast Branch via a pipe.
- WUS 018 This waterway was accepted as flagged.
- WUS 062 This waterway was accepted as flagged.
- Wetland 025 The wetland was not considered jurisdictional by the USACE and MDE due its creation within uplands and lack of perennial flow to the stream (WUS 026) north of MD 410.
- WUS 026 This waterway was accepted as flagged.
- WUS 030 This waterway was accepted as flagged. John Nichols commented that the LOD associated with the Glenridge yard and shop should avoid impacting this stream. Bridgette Garner explained that the engineers are currently working to avoid and minimize impacts to this waterway. Mr. Nichols further recommended that the stream maintain a buffer and that the current LOD be moved to the top of slope.
- Wetland 33 This wetland was considered non jurisdictional by the USACE and MDE as it was created uplands and does not have a perennial connection to WUS 032.
- WUS 032 This waterway was accepted as flagged.
- WUS 064 This waterway was accepted as flagged.
- WUS 063 This waterway was accepted as flagged. However, the ephemeral designation was changed to intermittent.
- WUS 048 This waterway is the extension of WUS 30. All comments discussed above pertain to this section of the waterway as well.
- WUS 071 This waterway was accepted as flagged.

Wetland 072	This wetland was accepted as flagged.
WUS 034	This waterway was accepted as flagged.
Wetland 035	This wetland was accepted as flagged.
WUS 036	This waterway was accepted as flagged.
Wetland 037	This wetland was accepted as flagged.
Wetland 067	This wetland was accepted as flagged.

These minutes represent the general context and content of items and issues discussed during field review on May 8th and 9th, 2012. Should anyone have any revisions or need any clarifications on the minutes, please provide your revisions and comments by April 25, 2012. After that date, this draft will be considered final. Thank you. Feel free to contact me at (443) 837-2145 or <u>bridgetteg@coastal-resources.net</u>.











	Ephemeral stream	Upland test plot			
	Intermittent stream	Wetland Test Plot			
	Perennial stream	 Flag Point 			
	Open water				
		- Feet			
200	300	400			

Waterway WUS GB-4 WUS GB 4-1b WUS GB 4-1a

WUS GB 4-2b WUS GB 4-3b WUS GB 4-3a

WUS GB 4-4a WUS GB 4-4b WUS GB 4-5b WUS GB 4-7b WUS GB 4-7b WUS GB 4-7b WUS GB 4-7a

W Coquelin Terr



Purple Line Wetland Delineation Map

Montgomery County, MD Revised September 2012

SHEET 4 of 19



Jones Bridge Rd













Purple Line Wetland Delineation Map

Montgomery County, MD Revised September 2012

SHEET 6 of 19

















Prince George's County, MD Revised September 2012

101F

18

10

Index Map

2 Of 2 1 inch = 1.5 miles

SHEET 12 of 19

50

0

LOD		Ephemeral stream	•	Upland test plot
Forested wetland		Intermittent stream	\oplus	Wetland Test Plot
Emergent wetland		Perennial stream	•	Flag Point
Scrub-shrub wetland		Open water		
			F ee	≥t V
0 100	200	300	400	




12-056 012-05

wus012-0 s012-042a









	Ephemeral stream	 Upland test plot
	Intermittent stream	Wetland Test Plot
	Perennial stream	Flag Point
	Open water	
		Feet
200	300	400



-11-12 18 M	Purple Line Wetland Delineation Map
15 16 17	Prince George's County, MD Revised September 2012
2 of 2 1 inch = 1 mile	SHEET 16 of 19



	Ephemeral stream	 Upland test plot
	Intermittent stream	Wetland Test Plot
	Perennial stream	Flag Point
	Open water	
		Feet
200	300	400



	Ephemeral stream	Upland test plot
	Intermittent stream	Wetland Test Plot
	Perennial stream	Flag Point
	Open water	4
		Feet
200	300	400



Purple Index Map 2 of 2 1 inch = 1.5 miles 10

Revised September 2012

SHEET 18 of 19



		Feet	
200	300	400	

Flag Point

•

Perennial stream



		Feet	
200	300	400	



MEETING MINUTES

MEETING SUBJECT:	Purple Line Agency Field Review II		
MEETING DATE, TIME:	July 30, 2013 at 9:00 a.m.		
MEETING LOCATION:	Glenridge Shopping Center in Prince George's County, MD		
ATTENDEES:	Maria Teresi - USACE Nick Ozburn - USACE Emily Dolbin - MDE Bridgette Garner - CRI Adam Tatone - CRI		
PREPARED BY:	Adam Tatone		

The attendees met in the northwest corner of the Glenridge Shopping Center parking lot in Hyattsville, Maryland at 9:00 a.m. on July 30, 2013 to review additional areas within the eastern portion of the Purple Line project. The purpose of this meeting was to review additional flagged waters of the U.S., including wetlands, within the Preferred Alternative in order to obtain an approved jurisdictional determination (JD) for the project and discuss resource agency concerns. A total of 12 numbered waters of the U.S., including wetlands, were reviewed. The general context of the issues discussed for each area is summarized below.

Wetland 074	This wetland was accepted as flagged.
Wetland 080	This wetland was accepted as flagged.
Wetland 079	This wetland was accepted as flagged.
Wetland 077	This wetland was considered non-jurisdictional by the USACE and MDE as it was created as a result of compaction from the clearing of this previously forested parcel.
Wetland 078	This wetland was considered non-jurisdictional by the USACE and MDE as it was created as a result of compaction from the clearing of this previously forested parcel.
WUS 018	This waterway was accepted as flagged.
Wetland 075	This wetland was accepted as flagged.
Wetland 024	This wetland was accepted as flagged.
WUS 023	This waterway was accepted as flagged.



WUS 082 This waterway was accepted as flagged.

- Wetland 081This wetland was accepted as flagged. An area east of Wetland 081 was questioned as
being a wetland, but further investigation found a leaking water main was providing
the hydrology for this area. Therefore, the USACE and MDE did not consider this
area to meet the wetland criteria.
- Wetland 074 This wetland was accepted as flagged.







	Δ,
100 200	6









	Fe
100	200



2013

Flag point

SHEET 7 OF 8



Appendix F – Mitigation Agency Field Review Packages



Purple Line Project Potential Wetland and Stream Mitigation Sites Agency Field Review

<u>Agenda</u>

Meeting Objective: To provide an overview of potential wetland and stream mitigation sites.

October 25, 2012

- Meet at Home Depot Parking Lot (4700 Cherry Hill Rd, College Park, MD) at 9:00 AM
 - Review of Agenda
 - Project Status
- 1. <u>Cattail Branch</u> Wetland and Stream Mitigation Site
- 2. <u>Magruder Park</u> Wetland and Stream Mitigation Site
- 3. <u>Little Falls Branch</u> Optional Stream Mitigation Site
- 4. Pit stop for Lunch and/or bathroom
- 5. Parklawn Local Park Wetland Mitigation Site
- 6. <u>Crabbs Branch</u> Wetland and Stream Mitigation Site with Riparian Buffer Enhancement Opportunities
- 7. <u>Rolling Stone Tributary</u> Stream Mitigation Site
- Wrap-up and Discussion of Purple Line Mitigation Sites for Conceptual Package
- > Discuss dates/need for tour of privately owned parcels.

Purple Line Project						
	Potential Wetland and Stream Mitigation Sites					
Site Name	Site ID	Type of Mitigation	Site size (acres and/or L.F.)	Location	Watershed	Property Ownership
Cattail Branch	AR-2 AR-3 AR-4 AR-8 AR-9	Stream	4,500 L.F.	Landover	Beaverdam Creek	Public
	AR-8	Wetland	0.70 Acres			
Magruder Park	AR-21 AR-21	Stream Wetland	950 L.F. 0.95 Acres	Hyattsville	Northwest Branch	Public
Little Falls Branch	PR-1	Stream	850 L.F.	Bethesda	Potomac River	Public
Parklawn Local Park	RC-9	Wetland	4.37 Acres	Rockville	Rock Creek	Public
Crabbs	RC-74	Stream	5,360 L.F.	Derwood	Pock Crook	Public
Branch	RC-74	Wetland	3.22 Acres	Derwood	NOCK CIEEK	FUDIIC
Rolling Stone Tributary	NW-49 NW-50	Stream	2,700 L.F.	Colesville	Northwest Branch	Public



Purple Line Project Potential Stream and Wetland Mitigation Site on Cattail Branch (AR-2, AR-3, AR-4, AR-8, AR-9)

Existing Conditions Summary

Location Information			
County:	Prince George's		
Watershed:	<u>Beaverdam Creek</u>		
Coordinates:	<u>38°52'11.07"N / 76°52'42.82</u>	W USGS Quad: Washington East and	
		Lanham	
Location:	East and West of the interse	<u>ction of Martin Luther King Jr. Hwy and</u>	
	<u>Greenleaf Rd, Landover, MD</u>	<u>)</u>	
Property Ownership:	Public (Maryland-National Ca	apital Park and Planning)	
Constraints:	Utilities		
Site Conditions			
Parcel Area:	<u>77.03 Ac</u>	Existing Land Use: Forest, Parkland	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential, Commercial	
Drainage Area:	<u>1,792 Ac</u>		
Habitat Location:	Contiguous to wetland/upland forest, 25 to 100 Acres		
Mapped Soils:	Issue-urban land complex; Christiana-Downer-Urban land complex; Zekiah		
	and Issue soils; Zekiah-urba	n land complex; Christiana-Downer complex	
Mapped Wetlands:	NWI and DNR wetlands mapped on site		
Green Infrastructure:	Not located adjacent to Green Infrastructure		

This wetland creation and stream restoration site is located east and west of the intersection of Martin Luther King Jr. Highway and Green Leaf Rd. This site is associated with Cattail Branch, a tributary of Beaverdam Run. The stream corridor is forested (the downstream end is within the Kentland Park area), with adjacent residential and commercial development. Several fish barriers exist along the corridor at road and utility crossings. Stream banks are vertical and eroding, particularly along park areas where there is little riparian buffer. Severe bank and channel erosion exists downstream of the culverts under Landover Rd (AR-2) and Barlowe Rd (AR-9). An open field located at the end of E. Forest Rd currently exhibits a perched hydrology suitable for wetland creation.

Summary of Opportunities

- Stream Restoration Approximately 4,570 Linear Feet
- Wetland Creation Approximately 0.70 Acres

Restoration Objectives

- Stream Stabilization and Floodplain Reconnection, Protection of Utilities and Park Assets
- Fish Passage
- Wetland Creation

- Installation of in-stream structures and bank grading to improve channel stability, reduce sediment loading, provide floodplain connection, and improve in-stream habitat
- Provide fish passage over barriers and through culverts to allow unrestricted access through the 1.8 miles of forested, natural stream corridor owned by M-NCPPC
- Minor grading/compaction and wetland planting in the field at the end of E. Forest Rd.





2" Contours

AR-8

100 Feet

50

Cattail Branch

October 2012

Purple Line Project Potential Wetland and Stream Mitigation Site at Unnamed Tributary of Northwest Branch (AR-21)

Existing Conditions Summary

Location Information		
County:	Prince George's	
Watershed:	Northwest Branch	
Coordinates:	<u>38°56'58.20"N / 76°57'06.55"</u>	W USGS Quad: Washington East
Location:	South of the intersection of H	amilton St. and 40 th Ave., Hyattsville, MD
Property Ownership:	Public (Maryland-National Capital Park and Planning, City of Hyattsville)	
Constraints:	Utilities, Ball Fields	
Site Conditions		
Parcel Area:	<u>17.78 Ac</u>	Existing Land Use: Forest
Landscape Position:	Stream Valley	Adjacent Land Use: Recreational, Residential
Drainage Area:	<u>256 Ac</u>	
Habitat Location:	Contiguous to wetland/upland forest, 25 to 100 Acres	
Mapped Soils:	Cordorus and Hatboro soils; Cordorus-Hatboro-Urban land complex	
Mapped Wetlands:	NWI and DNR wetlands mapped on site	
Green Infrastructure:	Located within Gap and Corridor Green Infrastructure	

This site is located south of the intersection of Hamilton St and 40th Ave, within Magruder Park. This site is associated within an unnamed tributary of Northwest Branch. The stream flows through a forested corridor adjacent to recreational fields associated with Magruder Park. The stream channel exhibits some instability and moderate bank erosion due to historical straightening. An open area on the north side of an existing bioretention area appears suitable for wetland creation.

Summary of Opportunities

- Stream Restoration Approximately 950 Linear Feet
- Wetland Creation Approximately 0.95 Acres

Restoration Objectives

- Wetland Creation
- Stream Stabilization
- Habitat improvement
- Floodplain Reconnection

- Minimal grading to north of bioretention area to create wetlands
- Planform adjustment to return the channel to a meandering stream
- Bank grading to improve floodplain connectivity and reduce sediment loading
- Installation of in-stream structures to improve channel stability, protect existing utilities, and improve in-stream habitat





Potential Stream Sites

- Streams

2" Contours



Potential Wetland Sites

DNR/NWI Wetlands

Hydric Soils



ASSOCIATED SITE ID: Purple Line Potential Mitigation Sites

Magruder Park

October 2012

AR-21

Purple Line Project Potential Stream Mitigation Site on Little Falls Branch (PR-1)

Existing Conditions Summary

Location Information			
County:	<u>Montgomery</u>		
Watershed:	Potomac River		
Coordinates:	38°58'28.82"N / 77°06'11.33"	W USGS Quad:	Washington West
Location:	Southwest of the intersection of Bradley Blvd. and Little Falls Pkwy.,		
	<u>Bethesda, MD</u>		
Property Ownership:	Public (Maryland-National Capital Park and Planning)		
Constraints:	None		
Site Conditions			
Parcel Area:	<u>35.4 Ac</u>	Existing Land Use:	Forest, Recreational
Landscape Position:	Stream Valley	Adjacent Land Use:	<u>Residential</u>
Drainage Area:	<u>320 Ac</u>		
Habitat Location:	Contiguous to wetland/upland forest, 25 to 100 Acres		
Mapped Soils:	Brinklow-Blocktown channery silt loams; Gaila silt loam; Glenelg-urban land		
	<u>complex</u>		
Mapped Wetlands:	NWI and DNR wetlands mapped on site		
Green Infrastructure:	Not located adjacent to Green Infrastructure		

This stream site is located southwest of the intersection of Bradley Boulevard and Little Falls Parkway. The site is associated with Little Falls Branch, a tributary of the Potomac River. The stream corridor is forested, with nearby residential development and a recreational foot path (Capital Crescent Trail).

Summary of Opportunities

• Stream Restoration – Approximately 850 Linear Feet

Restoration Objectives

- Reconnect the stream to the floodplain
- Reduce bank erosion and in-stream sedimentation
- Enhance habitat conditions and the benthic and fish communities

- Installation of in-stream structures and bank grading to improve channel stability, reduce sediment loading, and provide floodplain connection
- Installation of woody debris and other types of in-stream cover and gravel channel material to enhance the benthic and fish habitats and communities



2" Contours

1 in = 100 feet 100 50

October 2012

PR-1

200 Feet

Purple Line Project Potential Wetland Mitigation Site at Parklawn Local Park (RC-9)

Existing Conditions Summary

Location Information			
County:	Montgomery		
Watershed:	Rock Creek		
Coordinates:	<u>39°04'02.00"N / 77°06</u>	5'12.10"W USGS Quad: Rockville	
Location:	Southwest of Veirs Mi	II Rd approximately 700 feet southeast of Aspen Hill	
	<u>Rd, Rockville, MD</u>		
Property Ownership:	Public (Maryland-Nati	Public (Maryland-National Capital Park and Planning)	
Constraints:	Rock Creek Trail bike path on southwest side of soccer field		
Site Conditions			
Parcel Area:	<u>79.19 Ac</u>	Existing Land Use: Soccer Field	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential	
Drainage Area:	<u>36.7 sq. mi.</u>		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Elsinboro silt loam		
Mapped Wetlands:	NWI and DNR wetlands mapped within southwest corner of site		
Green Infrastructure:	Located within Hub Green Infrastructure		

This wetland site is located along the southwest side of Veirs Mill Rd approximately 700 feet south east of Aspen Hill Rd. The open area of the parcel contains soccer fields within Parklawn Local Park on the north side of Rock Creek Trail, a paved hiker/biker trail. The area is situated topographically low and is slightly higher than the elevation of the mainstem of Rock Creek. Dominant canopy vegetation within the adjacent forests includes red maple, tuliptree, and American sycamore.

Summary of Opportunities

• Wetland Creation - Approximately 4.37 acres

Restoration Objectives

- Wetland Creation
- Floodplain Reforestation

- Minor grading to extend intercept groundwater
- Reforestation within floodplain of Rock Creek
- Wetland education
- Community outreach



Purple Line Project Potential Stream and Wetland Mitigation Site on Crabbs Branch (RC-74)

Existing Conditions Summary

Location Information			
County:	Montgomery	Watershed: Rock Creek	
Coordinates:	38°58'28.82"N / 77°06'11.33"	<u><i>N</i></u> USGS Quad: <u>Rockville</u>	
Location:	Southeast of the intersection of Redland Rd and Crabbs Branch Way,		
	Derwood, MD		
Property Ownership:	Public (Maryland-National Capital Park and Planning)		
Constraints:	Utilities		
Site Conditions			
Parcel Area:	<u>80.44 Ac</u>	Existing Land Use: Forest, Field	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential	
Drainage Area:	<u>1,152 Ac</u>		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Hatboro silt loam; Glenelg silt loam; Glenville silt loam; Brinklow-Blocktowr channery silt loams		
Mapped Wetlands:	NWI and DNR wetlands mapped on site		
Green Infrastructure:	Hub and Gap Green Infrastructure located on site		

This stream and wetland restoration site is located southeast of the intersection of Redland Rd and Crabbs Branch Way. The site is associated with Crabbs Branch, a tributary of Rock Creek. The existing hydrology and morphology of Crabbs Branch at RC-74 has been heavily influenced by anthropogenic structures such as the Crabbs Branch Regional Stormwater Pond and buried infrastructure that crosses the stream channel within the RC-74 study area. The stream channel alignment has been altered and the stream bed hardened at most utility crossings. The channel is laterally unstable as it is still adjusting to historic impacts. Channel incision is draining/has drained the wetlands. Several areas exist where existing wetlands can be extended. Riparian vegetation is dominated by invasive reed canarygrass which prevents forest from naturally regenerating on the site, and contributes to bank instability and high sediment loading.

Summary of Opportunities

- Stream Restoration Approximately 5,360 Linear Feet
- Wetland Restoration Approximately 3.22 acres

Restoration Objectives

- Bank Stabilization
- Floodplain Reforestation
- Wetland Restoration and Enhancement
- Non-native Invasive Species Control
- Improvement of In-Stream and Riparian Habitat

- Minor grading to extend existing wetlands and enhancement with wetland plantings
- Vernal pool creation within the floodplain
- Removal of reed canarygrass and installation of riparian plantings
- Planform adjustment involving channel realignment and the construction of an appropriately sized channel cross section
- Installation of in-stream structures to provide channel stability and habitat diversity



Purple Line Project Potential Stream Mitigation Site at Unnamed Tributary of Northwest Branch (NW-49, NW-50)

Existing Conditions Summary

Location Information			
County:	<u>Montgomery</u>		
Watershed:	Northwest Branch		
Coordinates:	<u>39°05'45.27"N / 77°00'53.5</u>	7"W USGS Quad: Kensington	
Location:	North of the intersection of	Bonifant Rd. and Notley Rd., Silver Spring MD	
Property Ownership:	Public (Maryland Park and Planning)		
Constraints:	<u>Utilities</u>		
Site Conditions			
Parcel Area:	<u>25.71 Ac</u>	Existing Land Use: Forest and Open Space	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential	
Drainage Area:	<u>256 Ac</u>		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Hatboro silt loam; Glenville silt loam; Brinklow Blocktown channery silt		
	loams; Glenelg silt loam; Gaila silt loam		
Mapped Wetlands:	NWI and DNR wetlands mapped on site		
Green Infrastructure:	Gap Green Infrastructure adjacent to site		

This site is located north of the intersection of Bonifant Rd and Notley Rd, and is associated with an unnamed tributary of Northwest Branch. The stream corridor is forested, with nearby residential development, and a recreational pool within the upper part of the reach. The stream channel is disconnected from its floodplain and has far bank stability conditions that are causing bank erosion, instream sedimentation, and loss of property. Based on 2003 data collected by SHA, the reach has poor habitat, a poor benthic community, and a poor fish community.

Summary of Opportunities

• Stream Restoration – Approximately 2,700 Linear Feet

Restoration Objectives

- Reconnecting the stream to the floodplain
- Reducing bank erosion and in-stream sedimentation
- Enhancing the riparian buffer
- Resolving utility conflicts
- Enhancing the habitat conditions and the benthic and fish communities

- Floodplain creation to provide energy dissipation of erosive flood flows, reduce erosive shear stresses, reduce channel incision, and increase infiltration and groundwater recharge
- Bank stabilization to provide energy dissipation of erosive flood flows, reduce erosive shear stresses, and reduce bank erosion and in-stream sedimentation
- Riparian buffer plantings
- Installation of in-stream structures to protect exposed utilities
- Installation of woody debris and other types of in-stream cover and gravel channel material to enhance the benthic and fish habitats and communities





Purple Line Project Potential Wetland and Stream Mitigation Sites Agency Field Review 2

<u>Agenda</u>

Meeting Objective: To provide an overview of potential wetland and stream mitigation sites.

November 28, 2012

- Meet at Home Depot Parking Lot (4700 Cherry Hill Rd, College Park, MD) at 9:00 AM
 - Review of Agenda
 - Project Status
- 1. <u>Beaverdam Creek</u> Stream Mitigation Site
- 2. <u>Otis Street</u> Stream Mitigation Site
- 3. <u>Brier Ditch</u> Wetland and Stream Mitigation Site
- 4. Pit stop for Lunch and/or bathroom
- 5. <u>Paint Branch</u> Optional Stream Mitigation Site
- 6. <u>Adelphi Manor Archery Range</u> Wetland and Stream Mitigation Site
- 7. <u>Bel Pre Creek</u> Optional Wetland and Stream Mitigation Site
- > Wrap-up and Discussion of Purple Line Mitigation Sites for Conceptual Package
| Purple Line Project | | | | | | |
|---|---------|-----------------------|----------------------------------|--------------|---------------------|-----------------------|
| Potential Wetland and Stream Mitigation Sites | | | | | | |
| Site Name | Site ID | Type of
Mitigation | Site size
(acres and/or L.F.) | Location | Watershed | Property
Ownership |
| Beaverdam
Creek | AR-1 | Stream | 400 L.F. | Landover | Beaverdam
Creek | Private |
| Otis Street | AR-22 | Stream | 658 L.F. | Landover | Beaverdam
Creek | Public/Private |
| Brier Ditch | AR-23 | Stream | 4,200 L.F. | Riverdale | Northeast | Public/Private |
| | | Wetland | 1.42 Ac. | | Branch | |
| Paint Branch | PB-93 | Stream | 5,900 L.F. | College Park | Northeast
Branch | Public/Private |
| Adelphi Manor
Archery Range | AR-24 | Wetland | 2.13 Ac. | Adelphi | Northwest
Branch | Public |
| Bel Pre Creek | AR-102 | Stream | 1,500 L.F. | Glenmont | Northwest | |
| | | Wetland | 2.79 Ac. | | Branch | Public/Private |



Purple Line Project Potential Stream Mitigation Site on Beaverdam Creek (AR-1)

Existing Conditions Summary

Location Information			
County:	Prince George's		
Watershed:	Beaverdam Creek		
Coordinates:	<u>38°55'42.43"N / 76°53</u>	3'39.36"W USGS Quad: Washington East	
Location:	Northwest of the inter	section of Pinebrook Ave and Country Club Rd,	
	Landover, MD		
Property Ownership:	Private (Washington N	Metro Area Transportation Authority)	
Constraints:	Utilities (overhead pov	<u>wer line)</u>	
Site Conditions			
Parcel Area:	<u>19.41 Ac</u>	Existing Land Use: Forest	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential, Industria	
Drainage Area:	<u>4,608 Ac</u>		
Habitat Location:	Contiguous to wetland/upland forest, 25 to 100 Acres		
Mapped Soils:	Zekiah and Issue soils		
Mapped Wetlands:	DNR and NWI wetlands mapped on site		
Green Infrastructure:	Not located adjacent to Green Infrastructure		

This site is located northwest of the intersection of Pinebrook Ave. and Country Club Rd. This site is associated with Beaverdam Creek at the confluence with Cattail Branch, is mostly forested, and has adjacent residential and commercial development. Barriers to fish passage exist at both the box culvert under Landover Road and at the mouth of Cattail Branch, which is a concrete-lined channel reach. There is also a significant amount of channel and bank erosion at the confluence of Cattail Branch and Beaverdam Creek.

Summary of Opportunities

• Stream Restoration – Approximately 400 Linear Feet

Restoration Objectives

- Stream Stabilization
- Fish Passage

- Installation of in-stream structures and bank grading to improve channel stability
- Installation of structures to provide fish passage



Purple Line Project Potential Stream Mitigation Site on Unnamed Tributary of Beaverdam Creek (AR-22)

Existing Conditions Summary

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Prince George's		
Beaverdam Creek		
38°56'10.33"N / 76°54'16.42"	W USGS Quad: Washington East	
Southwest of the intersection of Otis Street, and Osborn Road, Landover,		
MD		
Public and Private		
<u>Utilities</u>		
<u>16.04 Acres</u>	Existing Land Use: Forest	
Stream Valley	Adjacent Land Use: Residential	
<u>64 Acres</u>		
Contiguous to wetland/upland forest 25-100 Acres		
Issue-Urban land complex; Christina-Downer complex; Christina-Downer-		
Urban land complex		
No NWI or DNR wetlands mapped on site		
Not located adjacent to Green Infrastructure		
	Prince George's Beaverdam Creek 38°56'10.33"N / 76°54'16.42" Southwest of the intersection MD Public and Private Utilities 16.04 Acres Stream Valley 64 Acres Contiguous to wetland/upland Issue-Urban land complex; C Urban land complex No NWI or DNR wetlands ma Not located adjacent to Gree	

This potential stream mitigation site is located southwest of the intersection of Otis Street and Osborn Road. This site is associated with an unnamed tributary of Beaverdam Creek, which drains into the Anacostia River. The stream corridor is forested, with adjacent residential development. The stream is a headwater channel that begins from surface drainage and a culvert near the apartment complex at 65th Avenue. The channel is deeply incised and banks have severe erosion. Sewer infrastructure (manholes) is exposed along the channel. The stream flows through an in-line stormwater pond along Otis Street, which is rapidly filling with sediment from upstream bank erosion.

Summary of Opportunities

• Stream Restoration – Approximately 650 Linear Feet

Restoration Objectives

• Stream Stabilization

Restoration Concept

• Installation of in-stream structures and bank grading to improve channel stability, reduce sediment loading, protect existing utilities, and improve in-stream habitat



Purple Line Project Potential Wetland and Stream Mitigation Site on Brier Ditch (AR-23)

Existing Conditions Summary

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Location Information				
County:	Prince George's			
Watershed:	Brier Ditch			
Coordinates:	<u>39°58'13.93"N / 76°54'41.85'</u>	W USGS Quad:	Washington East	
Location:	Southeast of the intersection	of Kenilworth Avenue	, and Good Luck Road,	
	<u>Riverdale, MD</u>			
Property Ownership:	Public and Private			
Constraints:	<u>Unknown</u>			
Site Conditions				
Parcel Area:	<u>46.39 Acres</u>	Existing Land Use:	<u>Forested</u>	
Landscape Position:	<u>Stream Valley.</u>	Adjacent Land Use:	Commercial, Residential	
	Topographically Intermediate		Institutional	
Drainage Area (wetland):	9.68 Acres			
Drainage Area (stream):	<u>2,688 Acres</u>			
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres			
Mapped Soils:	Codorus-Hatboro-Urban land complex; Zekiah and Issue soils; Sassafras			
	sandy loam; Russett-Christia	na complex; Issue-Url	pan land complex	
Mapped Wetlands:	NWI and MDNR wetlands mapped along a portion of site			
Green Infrastructure:	Located within a Green Infrastructure Corridor and Gap			

This mitigation site is located southeast of the intersection of Kenilworth Avenue and Good Luck Road. The site is associated with Brier Ditch, a tributary of the Anacostia River. The stream corridor is forested with adjacent commercial and residential development. Two schools are also adjacent to the stream reach. An abandoned parking lot within the 100-year floodplain remains wet for most of the year due to groundwater seeps in the adjacent hillside and runoff. The site presents multiple mitigation opportunities for the Purple Line project. Opportunities include wetland creation at the abandoned parking lot, and stream restoration/stabilization in Brier Ditch.

Summary of Opportunities

- Wetland Creation 1.42 Acres
- Stream Restoration 4,000 Linear Feet

Restoration Objectives

- Flood Flow Alteration enhancing floodplain connection and storage of flood waters
- Groundwater Recharge increased retention time will allow for surface water infiltration
- Sediment/Toxicant Retention sediment storage with connected floodplain
- Nutrient Removal nutrient uptake/assimilation in floodplain and wetlands
- Stream Stabilization

- Removal of pavement to create a floodplain wetland fed by groundwater seeps and runoff
- Installation of in-stream structures and bank grading to improve channel stability, reduce sediment loading, protect existing utilities, and improve in-stream habitat



Purple Line Project Potential Stream Mitigation Site on Paint Branch (PB-93)

Existing Conditions Summary

Location Information			
County:	Prince Georges		
Watershed:	Paint Branch		
Coordinates:	38°59'20.65"N / 76°56'01.05	W USGS Quad:	Washington East
Location:	Southeast of the intersection of Baltimore Avenue, and Paint Branch		
	Parkway, College Park, MD		
Property Ownership:	Public and Private		
Constraints:	<u>Utilities</u>		
Site Conditions			
Parcel Area:	140.53 Acres	Existing Land Use:	Forest, Parkland
Landscape Position:	Stream Valley	Adjacent Land Use:	Residential, Commercial
Drainage Area:	20,032 Acres		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Fallsington-Urban land complex; Cordorus and Hatboro soils; Codorus-		
	Hatboro-Urban land complex	; Urban land-Sassafra	<u>ss complex</u>
Mapped Wetlands:	Both NWI and DNR wetlands mapped on site		
Green Infrastructure:	Located adjacent to Hub, Gap, and Corridor Green Infrastructure		

This potential stream mitigation site is located southeast of the intersection of Baltimore Avenue and Paint Branch Parkway. This site is associated with Paint Branch, a tributary of the Anacostia River. The stream corridor is forested (the upstream section is within the Paint Branch Stream Valley Park), with adjacent residential and commercial development. The channel is wide through this section and has large sediment bars. Some of the bars are stabilizing as new bankfull floodplains, but the stream is still transporting a tremendous amount of sediment in this reach.

Summary of Opportunities

• Stream Restoration – Approximately 5,900 Linear Feet

Restoration Objectives

• Stream Stabilization and Sediment Reduction

Restoration Concept

• Installation of in-stream structures and bank grading to improve channel stability, reduce sediment loading, protect existing utilities, and improve in-stream habitat



Purple Line Project Potential Wetland Mitigation Site at Adelphi Manor Archery Range (AR-24)

Existing Conditions Summary

Location Information			
County:	Prince George's		
Watershed:	Northwest Branch		
Coordinates:	<u>38°59'11.23"N / 76°57'47.48"W</u> USGS Quad: <u>Washington East</u>		
Location:	North of University Boulevard (MD 193), approximately 850 feet east of West		
	Park Drive, Riverdale, MD		
Property Ownership:	Public		
Constraints:	Park Property		
Site Conditions			
Parcel Area:	6.66 Acres Existing Land Use: Park, Forested		
Landscape Position:	Topographically Intermediate Adjacent Land Use: Commercial, Residential,		
	Forested		
Drainage Area:	28.6 square miles		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Codorus-Hatboro-Urban land complex, frequently flooded		
Mapped Wetlands:	NWI and MDNR wetlands mapped along north and east sides of site		
Green Infrastructure:	Located within a Green Infrastructure Corridor		

This wetland mitigation site is located north of University Boulevard (MD 193) and approximately 850 feet east of West Park Drive. The site is within the 100-year floodplain of the Northwest Branch of the Anacostia River. The stream corridor is forested with adjacent commercial and residential development. Currently the site is used as an archery range. Forested wetlands border the north and east sides of the site.

Summary of Opportunities

• Wetland Creation – Approximately 2.13 Acres

Restoration Objectives

- Flood Flow Alteration enhancing floodplain connection and storage of flood waters
- Groundwater Recharge increased retention time will allow for surface water infiltration
- Sediment/Toxicant Retention sediment storage with connected floodplain
- Nutrient Removal nutrient uptake/assimilation in floodplain and wetlands
- Stream Stabilization

- Ditch plugging to increase retention
- Minimal grading to intercept groundwater
- Removal of parking lot to reduce impervious surface



Purple Line Project Potential Wetland and Stream Mitigation Site on Bel Pre Creek (AR-102)

Existing Conditions Summary

Location Information			
County:	<u>Montgomery</u>		
Watershed:	Northwest Branch		
Coordinates:	<u>39°04'13.59"N / 77°01'50.34</u>	W USGS Quad: Kensington	
Location:	Confluence of Bel Pre Creek	and Northwest Branch, north of intersection of	
	Randolph Road and Kemp M	<u> 1ill Road, Glenmont, MD</u>	
Property Ownership:	Public (Maryland-National Capital Park and Planning) and Private		
	(Winchester Homes)		
Constraints:	Future development plans		
Site Conditions			
Parcel Area:	<u>107.56 Acres</u>	Existing Land Use: Forest, Open Land	
Landscape Position:	Stream Valley	Adjacent Land Use: Residential, Forested	
Drainage Area:	2,880 Acres		
Habitat Location:	Contiguous to wetland/upland forest > 100 Acres		
Mapped Soils:	Hatboro silt loam; Brinklow-Blocktown channery silt loams		
Mapped Wetlands:	NWI and MDNR wetlands mapped on site		
Green Infrastructure:	Hub and Gap Green Infrastructure adjacent to site		

AR-102 is located on Bel Pre Creek at the confluence with Northwest Branch, north of the intersection of Randolph Road and Kemp Mill Road. The 2,880 acre drainage area upstream of the reach is approximately 37% impervious. AR-102 has poor bank stability, is disconnected from the floodplain, and has a primarily forested riparian area. Based on 2002 data collected by MDEP, the reach has good habitat, a fair benthic community, and a fair fish community. The site presents multiple mitigation opportunities for the Purple Line project. Opportunities include wetland creation north of the stream (dependent on future development plans) and stream restoration/stabilization on Bel Pre Creek.

Summary of Opportunities

- Wetland Creation Approximately 2.79 Acres
- Stream Restoration Approximately 1,500 Linear Feet

Restoration Objectives

- Flood Flow Alteration enhancing floodplain connection and storage of flood waters
- Reconnecting the stream to the floodplain
- Reducing bank erosion and in-stream sedimentation
- Enhancing the riparian buffer
- Enhancing the habitat conditions and the benthic and fish communities

- Minimal grading and the plugging of a ditch on the east side to create a floodplain wetland
- Floodplain creation to provide energy dissipation of erosive flood flows, reduce erosive shear stresses, reduce channel incision, and increase infiltration and groundwater recharge
- Bank stabilization to provide energy dissipation of erosive flood flows, reduce erosive shear stresses, and reduce bank erosion and in-stream sedimentation
- Riparian buffer plantings
- Installation of woody debris and other types of in-stream cover and gravel channel material to enhance the benthic and fish habitats and communities



ASSOCIATED SITE ID: Purple Line Potential Mitigation Sites

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Bel Pre Creek

AR-102

November 2012