Appendix C. Environmental Compliance

C-1: U.S. Fish and Wildlife Service Coordination Act Report

C-2: U.S. Fish and Wildlife Service Planning Aid Report

C-3: Endangered Species Act Determination

C-4: Nationwide Permit #27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities

C-5: Clean Air Act General Air Quality Conformity Analysis

C-6: Agency Coordination

C-1: U.S. Fish and Wildlife Service Coordination Act Report

Fish and Wildlife Coordination Act Report

on

Anacostia Watershed Restoration, Prince Georges County, Maryland: Ecosystem Restoration Feasibility Study and Integrated Environmental Assessment

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U.S. Fish and Wildlife Service

September 2016

INTRODUCTION

This constitutes the U.S. Fish and Wildlife Service (Service) Coordination Report on the Anacostia Watershed Restoration Ecosystem Restoration Feasibility Study and Integrated Environmental Assessment conducted by the U.S. Army Corps of Engineers (USACE) in Prince Georges County, Maryland (USACE 2016). It is submitted in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat 401, as amended; 16 U.S.C. et seq.) and Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1513 et seq.). The present report summarizes information on biological resources and project impacts, and provides the Service's official position on the tentatively selected plan (TSP) described in the USACE (2016) report.

PROJECT DESCRIPTION

USACE (2016) presented alternatives for aquatic ecosystem restoration within the Anacostia Watershed (Figure 1) in Prince Georges County (USACE 2015a; Figure 2). It presented a TSP and an integrated environmental assessment including a draft Finding of No Significant Impact. The study was based on the USACE (2010) Anacostia Restoration Plan and a report synopsis that investigated Anacostia Watershed aquatic ecosystem restoration opportunities within Prince Georges County (USACE 2015a). The TSP will restore approximately 6.9 miles of in-stream habitat on six stream reaches: Northwest Branch (Site 3), Sligo Creek (Site 9), Northwest Branch (Riggs Road, Site 13), Indian Creek (Site 11), Paint Branch (Site 5), and Northeast Branch (Calvert Road, Site 15). It will also restore 4.3 miles of fish passage through removal of fish

blockages on Northwest Branch and Sligo Creek. The removal of these blockages is estimated to increase the access of river herring to historical spawning grounds from approximately 20 percent to 83 percent on Northwest Branch and from 10 percent to 90 percent on Northeast Branch. The increased access is predicted to result in increases in river herring populations.

The Service has assisted in the evaluation of alternatives through its Planning Aid Report (PAR; Pinkney and Davis 2015). It described the results of an on-site geomorphic investigation of two candidate reaches: Paint Branch (Site 5, 1.2 miles), and Little Paint Branch (Site 12; 0.8 miles). In addition, the PAR summarized available information on fish passage; recreational use of the candidate reaches including the potential for recreational fishing; and provided a listing of game fish species and bird species within the watershed.

FISH AND WILDLIFE RESOURCES WITHOUT THE PROJECT

The Anacostia Watershed (Figure 1) has a drainage area of about 176 square miles. It consists of 14 primary subwatersheds and the tidal river. The tributaries flow through Montgomery and Prince Georges County. The main tributaries, the Northwest and Northeast Branch, meet in Bladensburg, Maryland to form the tidal river which flows about 8.4 miles to the mouth at the Potomac River.

Ecological problems within the watershed are summarized in USACE (2010). These include "lack of stormwater management; loss and degradation of forest, wetland, stream, and riparian

habitat; pollution from nutrients, chemical contaminants, sediment, and trash; and loss of species diversity."

Biological resources within the watershed are summarized in USACE (2010) and by Metropolitan Washington Council of Governments (MWCOG 2008). According to USACE (2010), 93 fish species have been tabulated. MWCOG (2008) has produced watershed maps that indicate the biological conditions for fish and macroinvertebrates within the subwatersheds. In general, poor and fair conditions are common. According to Report Synopses for the Prince Georges and Montgomery County portions of the watershed (USACE 2015a, b), MDE (2012) stated that approximately 95% of stream miles in the watershed have poor to very poor ratings for fish and/or benthic macroinvertebrates. Causes include poor water quality, altered hydrology, and degraded in-stream habitat. Beginning in 1991, some fish blockages within the watershed have been removed. Anadromous fish runs, however, are limited by about 120-130 remaining fish blockages (USACE 2010).

The Anacostia Watershed provides wildlife habitat for migratory birds, mammals, reptiles, and amphibians. Bird species strongly affiliated with stream and riparian habitats include the Kentucky warbler (*Geothlypis formosa*), Acadian flycatcher (*Empidonax virescens*), willow flycatcher (*Empidonax traillii*), woodcock (*Scolopax minor*), prothonotary warbler (*Protonotaria citrea*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), wood duck (*Aix sponsa*), marsh wren (*Cistothorus palustris*), mallard (*Anas platyrhnchos*), and red-shouldered hawk (*Buteo lineatus*). Additional bird species affiliated with mature forests include wood thrush (*Hylocichla mustelina*), red-eyed vireo (*Vireo olivaceus*), northern parula (*Setophaga*

americana), yellow warbler (*Setophaga petechia*), Cooper's hawk (*Accipiter cooperii*), and barred owl (*Strix varia*). The eBird data base was searched (7/8/2015) to identify birding hotspots within the Anacostia Watershed. These are areas visited by experienced birders who keep species lists. For example, Bladensburg Waterfront Park located in Prince Georges County near the upper boundary of the tidal Anacostia includes a listing of 134 bird species. In addition to most of the above-listed species, the formerly-endangered bald eagle (*Haliaeetus leucocephalus*) was observed.

The Anacostia Watershed Society maintains lists of birds, amphibians, and reptiles within the watershed (http://www.anacostiaws.org/news/blog/wildlife-watershed). Currently, there are 233 bird species, 61 amphibian and reptile species, and 35 species of mammals. These lists are reproduced in Pinkney and Davis (2015) and include the conservation status of the species as defined by Maryland Department of Natural Resources and the District Department of Energy and Environment. Information on federally listed species is provided in the next section.

THREATENED AND ENDANGERED SPECIES

There is one federally listed threatened species in the Anacostia Watershed, the Northern long-eared bat (*Myotis septentrionalis*) based on a search of the Service's Information for Planning and Conservation (IPaC) data base (USFWS 2015). The Northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat,

especially throughout the Northeast U.S. where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. CBFO Supervisor LaRouche prepared a "*Not Likely to Adversely Affect"* letter (Appendix A) that describes USFWS concerns about the proposed project:

> "This project is within the range of the northern long-eared bat, a federally listed threatened species. The northern long-eared bat is a temperate, insectivorous migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Since the forest clearing for this proposed project is minimal, and there are no current records of northern long-eared bats in the project vicinity, this project as proposed is "not likely to adversely affect" the northern long-eared bat, therefore, there are no time of year restrictions on forest clearing."

A field survey yielded the existence of Kenk's amphipod (*Stygobromus kenki*) within the Anacostia watershed at one location on Northwest Branch in Montgomery County. This location is not within or near the candidate stream reaches (A. Moser, personal communication, 2015). In conclusion, the Service agrees with the USACE (2016) statement that the recommended plan will not have an adverse impact on any threatened or endangered species or their critical habitat.

FUTURE CONDITIONS WITHOUT THE PROJECT

Without the project and additional work addressing water quality in the watershed, conditions in these stream sections are unlikely to improve. Many problems in the Anacostia Watershed contribute to the poor ratings of streams for fish and benthic macroinvertebrates. Stream restoration projects can help stabilize hydrology, reduce erosion, decrease the loadings of sediments and nutrients, and increase in-stream habitat heterogeneity (Stranko et al. 2011).

Improvements in small reaches of urban streams alone, however, are unlikely to lead to marked improvements in biological conditions (Bernhardt and Palmer 2011; Stranko et al. 2011). A more comprehensive watershed-wide approach is needed that includes measures to reduce the volume of stormwater flow off impervious surfaces and the loadings of contaminants contained therein (Frazer 2005). Such efforts are ongoing. Thus, the current project should be viewed as contributing to the multi-jurisdictional efforts to improve habitat and water quality and reduce sediment and nutrient loadings within the watershed. Ultimately these efforts are likely to improve the biological resources within the stream corridors. In addition, without the removal of the fish blockages, populations of river herring in the stream reaches are unlikely to increase.

BIOLOGICAL EFFECTS OF THE PROJECT

The primary positive effects of the TSP are to improve in-stream habitat in the stream reaches and open access of river herring to an additional 4.3 stream miles through removal of fish blockages. Stream restoration projects may have temporary negative impacts on riparian habitat. However, once completed, these projects will result in improved riparian and in-stream habitat. Crucially, however, until the stressors in the watershed are addressed, water quality and biological lift in all of the stream segments is severely limited. If the streams are reconnected to their floodplains, lateral instability is reduced, and bedform diversity is improved, the subsequent reduction in sediment and nutrients will result in at least partial water quality and biological lift in areas where tolerant species already exist. These tolerant species will be able to inhabit the stream reaches, even if more intolerant species cannot.

ENVIRONMENTAL EDUCATION

All of the stream reaches have the potential to serve as living classrooms for educating students of any age. Signage and kiosks can explain to the public the reason for the project and whether it has been successful through before and after photographs of habitat and/or presentation of monitoring data. Local watershed groups such as the Anacostia Watershed Society provide opportunities for citizens to conduct activities such as water quality monitoring, trail maintenance, and invasive plant removal. The Anacostia Watershed is frequented by birders who document their observations in the eBird data base, and several of the stream reach sites may be suitable locations for birding.

CONCLUSION

The Service supports the proposed project as described in (USACE 2016) in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat 401, as amended; 16 U.S.C. et seq.) and Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1513 et seq.).

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FIGURES

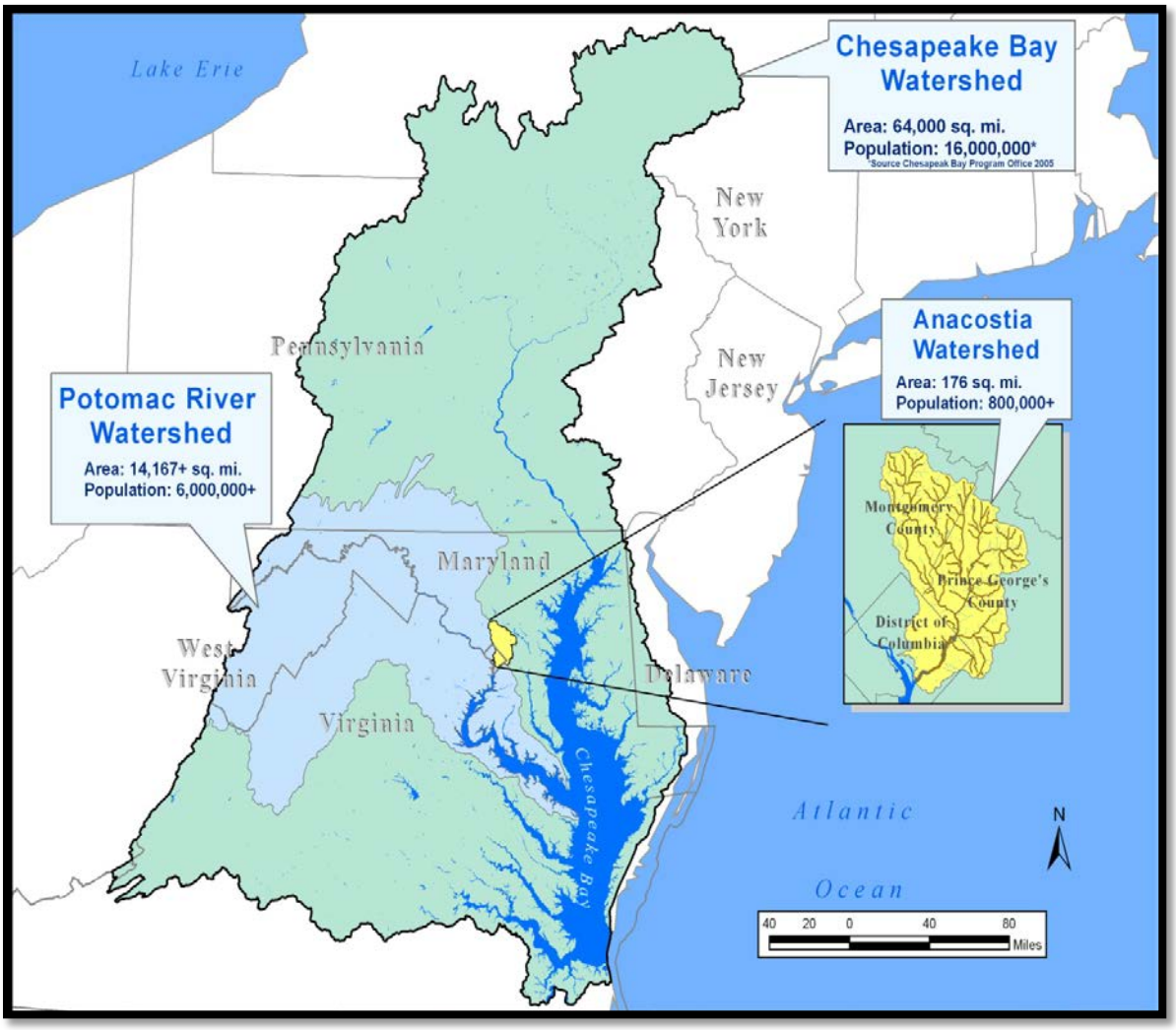

Figure 1. Anacostia watershed in relation to the Potomac and Chesapeake Bay watersheds (from ACOE 2015b).

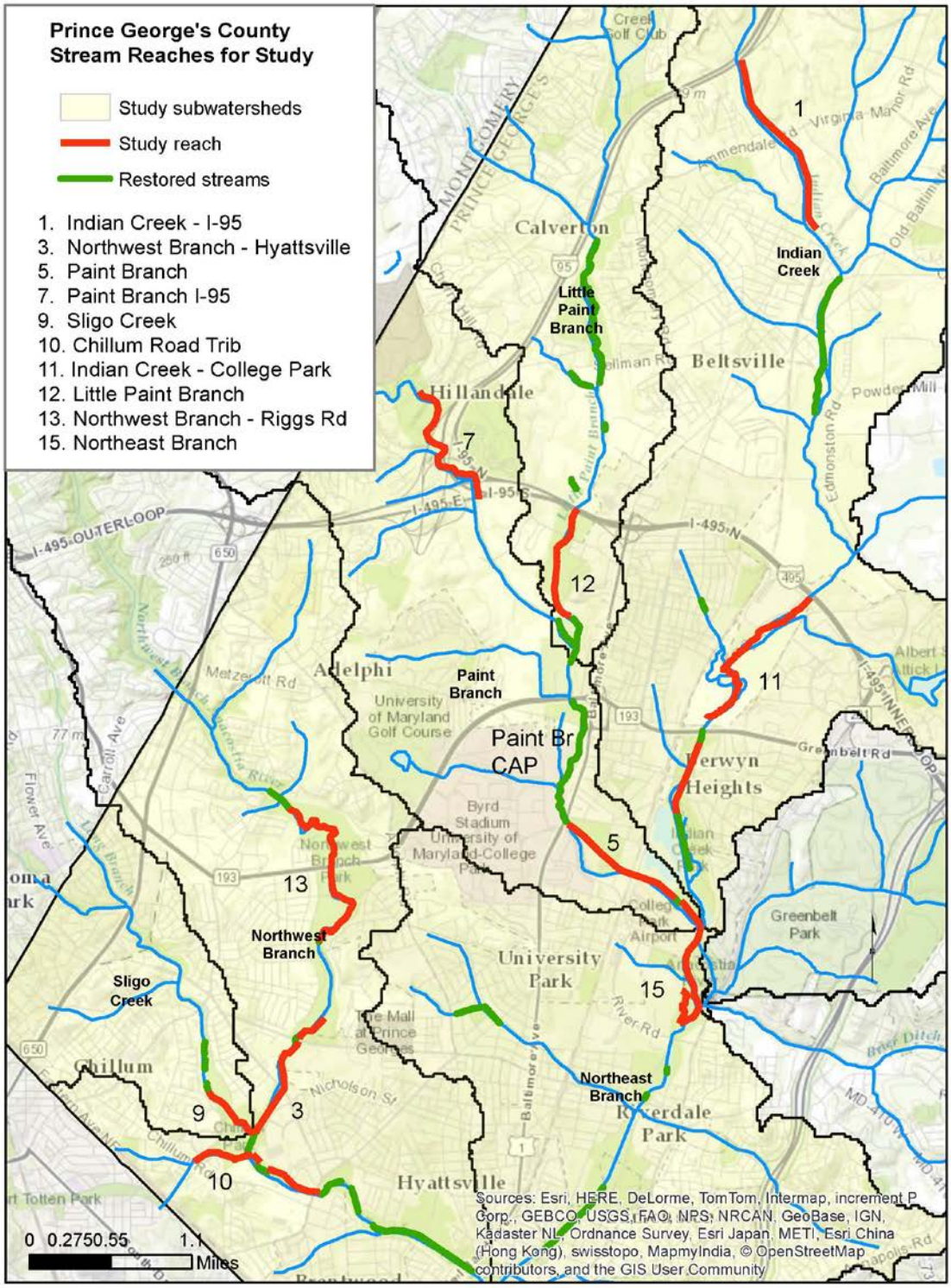

Figure 2. Prince Georges County stream reaches under evaluation for stream restoration (from ACOE 2015). Function-based Rapid Stream Assessment was conducted on Paint Branch (Site #5), and Little Paint Branch (Site #12).

APPENDIX A

Endangered Species Letter from Genevieve LaRouche to Fred Pinkney 11/2/2015

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

November 2, 2015

Fred Pinkney, Ph.D.
Senior Biologist
Environmental Contaminants Program
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

RE: "Not Likely to Adversely Affect" northern long-eared bat determination; Anacostia IPaC Database Results for Anacostia Watershed Restoration Studies in Montgomery and Prince George's Counties in Maryland

Dear Dr. Pinkney:

The U.S. Fish and Wildlife Service (Service) has reviewed your project information from the Service's Information for Planning and Conservation (IPaC) online system dated July 7, 2015. The Service has evaluated the potential effects of this project to the threatened northern long-eared bat (*Myotis septentrionalis*). The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The purpose of this proposed project is to conduct feasibility studies of aquatic ecosystem restoration needs and opportunities within the Anacostia Watershed in Montgomery and Prince George's Counties in Maryland.

This project is within the range of the northern long-eared bat, a federally listed threatened species. The northern long-eared bat is a temperate, insectivorous migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Since the forest clearing for this proposed project is minimal, and there are no current records of northern long-eared bats in the project vicinity, this project as proposed is "not likely to adversely affect" the northern long-eared bat, therefore, there are no time of year restrictions on forest clearing.

Except for occasional transient individuals, no other Federal proposed or listed endangered or threatened species under our jurisdiction are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. This Endangered Species Act determination does not exempt this project from obtaining all permits and approvals that may be required by other State or Federal agencies.
If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche
Supervisor

C-2: U.S. Fish and Wildlife Service Planning Aid Report

Evaluation of Stream Restoration Sites in Anacostia River Tributaries in Montgomery County and Prince Georges County, Maryland: Planning Aid Report
FINAL REPORT
CBFO-C15-01

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December 2015

ABSTRACT

The Baltimore District, U.S. Army Corps of Engineers (USACE) is conducting feasibility studies of aquatic ecosystem restoration needs and opportunities within the Anacostia Watershed in Montgomery County and Prince Georges County, Maryland. These studies build on the USACE Anacostia Restoration Plan completed in 2010. Report synopses for investigation of aquatic ecosystem restoration opportunities within the Corps mission were developed for the Anacostia Watershed of each county. For Montgomery County, the proposed project area includes seven candidate stream reaches in four sub-watersheds: Paint Branch, Little Paint Branch, Sligo Creek, and Northwest Branch. For Prince Georges County, the proposed project area includes ten candidate stream reaches within six subwatersheds: Indian Creek, Little Paint Branch, Paint Branch, Northwest Branch, Northeast Branch, and Sligo Creek. The Report Synopses identify problems and opportunities, planning goals and objectives, with a focus on stream restoration in candidate reaches. Selection of the reaches for restoration is scheduled to occur in late 2015 or early 2016. The U.S. Fish and Wildlife Service Chesapeake Bay Field Office (CBFO) is working with USACE on evaluating the environmental benefits to fish and wildlife resources from the proposed projects. Here we present a Planning Aid Report (PAR) consisting of: 1) an analysis of available information on fishing, potential for anadromous fish migration, and educational use of all candidate stream reaches of interest in both counties; 2) a Function-based Rapid Stream Assessment of the following stream reaches assigned to USFWS by USACE: Montgomery County—Sligo Creek (Site #12; 0.7 miles), Prince Georges County—Paint Branch (Site #5, 1.2 miles), and Little Paint Branch (0.8 miles). The Sligo Creek stream reach in Montgomery County (Site #12) includes portions of an unnamed tributary and the mainstem Sligo Creek. The unnamed tributary and mainstem were assessed separately for this site.

Based on a map provided by Jorge Montero of the Anacostia Watershed Society, three of the candidate reaches (all in Prince Georges County) have documented recreational fishing: Paint Branch (PG#5), Northeast Branch (PG Site #15), and Northeast Branch-Riggs Road (PG Site #13) Survey data from Montgomery County Department of the Environment showed that the following game species were collected from four of the seven candidate reaches: American eel, sunfish sp., redbreasted sunfish, green sunfish, bluegill, pumpkinseed, brown bullhead, smallmouth and largemouth bass. Survey data from Prince Georges County were obtained from a search of the Maryland Department of Natural Resources Maryland Biological Stream Survey data base. The following game species were collected from four of the ten candidate reaches: green and redbreasted sunfish, bluegill, largemouth and smallmouth bass, striped bass, fallfish, white sucker, American eel, yellow bullhead. The other candidate reaches in each county were not sampled.

The historical range of anadromous fish migration generally follows the line between Montgomery and Prince Georges County. It is important to recognize these historical limits of anadromous fish migration in evaluating the benefits of removing stream blockages. Therefore, removal of stream blockages in or near the candidate Montgomery County stream reaches would not benefit anadromous fish which would not migrate that

far in any case. Removal of any blockages in or near all of the candidate stream reaches in Prince Georges County would be within the area of historic anadromous fish migration and would potentially benefit those species if there was an increase in blockage-free stream miles.

All of the candidate stream reaches have the potential to serve as living classrooms for educating students of all ages. Signage and kiosks can explain to the public the reason for the project and whether it has been successful through before and after photographs of habitat or monitoring data. Local watershed groups such as the Anacostia Watershed Society (AWS) provide opportunities for citizens to conduct activities such as water quality monitoring, trail maintenance, and invasive plant removal. The Anacostia Watershed is frequented by birders who document their observations in the eBird data base, and several of the stream reach sites may be suitable locations for birding. AWS maintains lists of reported amphibian, reptile, bird, and mammal species within the watershed.

Based on results of the Function-based Rapid Stream Assessment of the three assigned reaches, in Montgomery County Sligo Creek tributary has the potential for the most functional lift, and therefore has the highest priority, followed by Sligo Creek mainstem. In Prince Georges County, Paint Branch has the highest priority, followed by Little Paint Branch. Overall for both counties Sligo Creek tributary has the highest priority, followed by Sligo Creek mainstem, Paint Branch, and Little Paint Branch, Paint Branch, and Little Paint Branch. Until the stressors in the watershed are addressed, water quality and biological lift in all of the stream segments is severely limited. However, if the streams are reconnected to their floodplains, lateral instability is reduced, and bedform diversity is improved, the subsequent reduction in sediment and nutrients will result in at least partial water quality and biological lift in areas where tolerant species already exist. These tolerant species will be able to inhabit the stream reaches, even if more intolerant species cannot.

ACKNOWLEDGMENTS

We thank Ray Li for assistance in the field. This project was funded by the Baltimore District, U.S. Army Corps of Engineers. We appreciate the help of Chris Spaur and Andrew Roach of the Baltimore District.

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TABLE OF CONTENTS

LIST OF TABLES

.

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

Federal agencies have been working with state and local agencies for decades on the restoration of the Anacostia Watershed. The US Environmental Protection Agency designated the Anacostia River as one of three Regions of Concern for toxic contamination in the Chesapeake Bay. The U.S. Fish and Wildlife Service (Service) Chesapeake Bay Field Office (CBFO) has conducted studies aimed at documenting the magnitude and effects of toxic chemical impacts in the tidal river. These included studies of the concentrations of toxic chemicals in fish tissues, the prevalence of tumors in brown bullhead catfish, the bioaccumulation of contaminants in deployed clams, and toxicity of ambient waters to larval fish. In coordination with state and local agencies, the National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency have worked to reduce the flow of pollutants into the watershed.

Biological resources within the watershed are summarized in USACE (2010) and by Metropolitan Washington Council of Governments (Galli et al. 2010). According to Galli et al.2010), 50 fish species have been documented within the watershed since 2008 (Table 1). Galli et al. produced watershed maps that indicate the biological conditions for fish and macroinvertebrates within the subwatersheds. In general, poor and fair conditions are common. MDE (2012) stated that approximately 95% of stream miles in the watershed have poor to very poor ratings for fish and/or benthic macroinvertebrates. Causes include poor water quality, altered hydrology, and degraded in-stream habitat. Beginning in 1991, some fish blockages within the watershed have been removed. Anadromous fish runs, however, may be limited by about 120-130 remaining fish blockages (USACE 2010).

CBFO biologists have also provided support on numerous restoration projects through multiple partnerships. This includes reviewing the U.S. Army Corps of Engineers (USACE 2010) Anacostia Restoration Plan, commenting on monitoring protocols proposed by the Metropolitan Washington Council of Governments, and serving on the Anacostia Watershed Toxics Alliance, and the Leadership Council for a Cleaner Anacostia. CBFO also conducted stream restoration projects within the watershed, including the 1.8 mile Watt's Branch project (completed in 2011), which reduced bank erosion by an estimated 1500 tons per year.

Many Federal Agencies have promoted efforts to increase recreation within the watershed. The National Park Service helped obtain funding for a riverside trail along the Anacostia. Fourteen federal agencies have collaborated with local and private partners in the Urban Waters Federal Partnership Anacostia Pilot to improve water quality, aid underprivileged communities, and encourage urban residents to enjoy the natural resources of the Anacostia River.

The Baltimore District, U.S. Army Corps of Engineers (USACE) is conducting feasibility studies of aquatic ecosystem restoration needs and opportunities within the Anacostia Watershed in Montgomery County and Prince Georges County, Maryland. These studies build on the USACE (2010) Anacostia Restoration Plan. Report synopses for

investigation of aquatic ecosystem restoration opportunities within the Corps mission were developed for the Anacostia Watershed of each county (USACE 2015a, b). For Montgomery County, the proposed project area includes seven candidate stream reaches in four sub-watersheds: Paint Branch, Little Paint Branch, Sligo Creek, and Northwest Branch (Figure 1). For Prince Georges County, the proposed project area includes ten candidate stream reaches within six subwatersheds: Indian Creek, Little Paint Branch, Paint Branch, Northwest Branch, Northeast Branch, and Sligo Creek (Figure 2). The Report Synopses identify problems and opportunities, planning goals and objectives, with a focus on stream restoration in candidate reaches. Selection of the reaches for restoration is scheduled to occur in late 2015 or early 2016 (USACE 2015a, b).

CBFO is working with USACE on evaluating the environmental benefits to fish and wildlife resources from the proposed projects. Here we present a Planning Aid Report (PAR) consisting of: 1) an analysis of available information on fishing, potential for anadromous fish migration, and educational use of all candidate stream reaches of interest in both counties; 2) a Function-based Rapid Stream Assessment of the following stream reaches: Montgomery County—Sligo Creek (Site Mont #12; 0.7 miles), Prince Georges County—Paint Branch (Site PG #5, 1.2 miles) and Little Paint Branch (Site PG#12, 0.8 miles). These particular reaches were assigned to USFWS by USACE.

METHODS

Study Area

The study area for the project consists of seven stream reaches in Montgomery County (Figure 1) and ten reaches in Prince Georges County (Figure 2) being evaluated for stream restoration. These stream reaches were evaluated for their use as recreational fishing areas, the potential for anadromous fish migration, and the overall potential for environmental educational activities. As noted above, a subset of these reaches: Montgomery County—Sligo Creek (Site Mont #12; 0.7 miles), Prince Georges County—Paint Branch (Site PG#5, 1.2 miles), and Little Paint Branch (Site PG#12; 0.8 miles) were evaluated using the Function-based Rapid Stream Assessment.

Data and document analysis

<u>Fishing, Anadromous Fish Migration, and Education</u>

Documents and data were obtained through contacts with the Counties, Maryland Department of Natural Resources, Metropolitan Washington Council of Governments, the Interstate Commission for the Potomac River basin, and the Anacostia Watershed Society.

Function-based Rapid Stream Assessment methodology

Assessment of the stream segments consisted of four steps:

1. Reach-scale function-based rapid stream assessment

2. Restoration potential
3. Potential lift
4. Restoration priority

The function-based rapid stream assessment methodology was developed based on the Stream Functions Pyramid Framework (SFPF) (Harman et. al. 2012), which focuses on the hierarchical relationship of stream functions to determine the overall functional condition of a stream reach. The function-based rapid stream assessment methodology evaluates aspects of the stream functions identified in the SFPF. Hydrologic (level 1), hydraulic (level 2), geomorphic (level 3), physicochemical (level 4), and biologic (level 5) functions are evaluated, however, in order to remain a rapid methodology, only parameters that are critical to understanding stream processes are evaluated (Starr et.al. 2015). For the purpose of this study, the methodology included two parts: watershed assessment and rapid stream assessment. The watershed assessment identifies potential constraints and stressors that may influence the stream segment (and potential restoration), and was completed based on information provided by USACE (2015a,b). For the purposes of this study the rapid function-based assessment methodology was used to rapidly determine existing function-based stream conditions and the potential function-based uplift due to restoration for each stream segment identified by USACE. The stream segments are split into stream reaches according to existing conditions, and reaches were numbered starting at the upstream limit of the stream segment. The methodology uses a rating system of Functioning (F), Functioning-At-Risk (FAR) and Not Functioning (NF). Detailed information about the methodology can be found in the document: FINAL DRAFT – Function-Based Rapid Stream Assessment Methodology (Starr et. al. 2015).

Restoration potential determines the highest level of restoration that can be achieved, given the watershed conditions, function-based assessment results, and known stressors and constraints. It identifies the highest pyramid level that a stream segment can achieve after restoration.

Potential lift determines how much lift a reach can achieve after restoration. It is based on the existing function-based stream conditions of each assessment parameter, as determined by the rapid methodology. Each stream reach was ranked using a rating system of maximum, moderate, and low. Flood plain connectivity is particularly important when determining potential lift because it is an easy to measure, lower level function (level 2 - hydraulics) which influences many of the other levels. For example, if a stream is not connected to its flood plain, there can be reduced groundwater recharge from stream flow and subsequent decreases in riparian condition, increase in erosion and sedimentation due to changes in stream energy, and lower in-stream species diversity (Harman et. al. 2012). Therefore, if flood plain connectivity is not functioning, many other parameters cannot be functioning. If the flood plain connectivity is NF, the potential lift is maximum. If the flood plain connectivity is FAR, and any other parameter is NF, the potential lift is moderate. Low potential lift is when all categories are F or FAR, or a combination thereof.

Lastly, stream segments were prioritized numerically, with the stream segments with the most potential lift ranked as the highest priority. It is an expression of the amount of change in functional lift from existing conditions that can occur in a stream segment, if the segment is restored to its maximum restoration potential. Therefore, stream segments can have the same restoration potential, but still be prioritized differently due to differences in their existing conditions and in the amount of potential lift that can occur. The priority is based on the stream segment with the most potential uplift and is based only on results from the function-based rapid stream assessment. Restoration feasibility, based on constraints such as access, infrastructure, and cost, was not evaluated as part of this study due to lack of information, but should be considered by USACE in the final prioritization of stream segments.

RESULTS AND INTERPRETATION

Recreational fishing in the candidate stream reaches

According to Galli et al. (2010) there are 50 currently reported fish species in the Anacostia watershed (Table 1). Game fish are defined as fish pursued by recreational fishermen. Within the Anacostia watershed, the list of game fish includes several sunfish species (e.g. bluegill, pumpkinseed), largemouth bass, carp, American and hickory shad, blueback herring, alewife, white perch, yellow perch, channel catfish, brown bullhead, and snakehead. The natural resources specialist from the Anacostia Watershed Society, Jorge A. Bogantes Montero, was contacted to identify recreational fishing locations in Prince Georges and Montgomery counties, MD. As an expert in recreational fishing hotspots in the Anacostia watershed, Montero pinpointed 10 locations in the two counties where recreational fishing currently occurs (Figure 3). From the map, it is apparent that fishing may be occurring in three candidate reaches in Prince Georges County: Paint Branch (PG#5), Northeast Branch (PG Site #15), and Northeast Branch-Riggs Road (PG Site #13) (Figure 2).

Survey data from Montgomery County Department of the Environment showed that the following game species were collected from four of the seven candidate reaches: American eel, sunfish sp., redbreasted sunfish, green sunfish, bluegill, pumpkinseed, brown bullhead, smallmouth and largemouth bass (Table 2).Survey data from Prince Georges County was obtained from a search of the Maryland Department of Natural Resources Maryland Biological Stream Survey data base. The following game species were collected from four candidate reaches: green and redbreasted sunfish, bluegill, largemouth and smallmouth bass, striped bass, fallfish, white sucker, American eel, yellow bullhead (Table 3).

Potential for anadromous fish migration

From a fisheries perspective, the watershed has historically provided important spawning and nursery habitat for the catadromous American eel, and anadromous alewife, American shad, Atlantic sturgeon, striped bass, and blueback herring. All of these are fish species of conservation concern in the Service's Northeast Region. White perch, not a

species of conservation concern, have also spawned in the watershed. The Service supports efforts to remove stream blockages within the watershed, opening up greater habitat for anadromous and catadromous fish. Other stream restoration work, such as bank stabilization and addition of in-stream habitat, benefit fish and wildlife resources by enhancing habitat for benthic invertebrates—the base of the riparian food chain.

The Anacostia watershed spans two physiographic regions—the coastal plain and the piedmont. The division between these regions is the fall line. USACE (2010) includes a map titled the "Historical Range of Anadromous Fish" (Figure 4). The map shows a "fall zone" which approximates the Montgomery County-Prince Georges County line as the upper limits of historical range of anadromous fish. The potential spawning ranges of river herring and white perch (a smaller area) are indicated in the map. The information contained in this map was confirmed by Jim Cummins, Interstate Commission for the Potomac River Basin, in a personal communication.

It is important to recognize these historical limits of anadromous fish migration in evaluating the benefits of removing stream blockages. Therefore, removal of stream blockages in or near the candidate Montgomery County stream reaches would not benefit anadromous fish which would not migrate that far in any case. Removal of any blockages in or near all of the candidate stream reaches in Prince Georges County would be within the area of historic anadromous fish migration and would potentially benefit those species if there was an increase in blockage-free stream miles.

Environmental education

All of the stream reaches have the potential to serve as living classrooms for educating students of all ages. Signage and kiosks can explain to the public the reason for the project and whether it has been successful through before and after photographs of habitat or monitoring data. Local watershed groups such as the Anacostia Watershed Society provide opportunities for citizens to conduct activities such as water quality monitoring, trail maintenance, and invasive plant removal.

The streams and trails within the watershed provide many opportunities for the public to view and photograph wildlife. According to USACE (2015b), "Bird species strongly affiliated with stream and riparian habitats include the Kentucky warbler (*Geothlypis formosa*), Acadian flycatcher (*Empidonax virescens*), willow flycatcher (*Empidonax traillii*), woodcock (*Scolopax minor*), prothonotary warbler (*Protonotaria citrea*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), wood duck (*Aix sponsa*), marsh wren (*Cistothorus palustris*), mallard (*Anas platyrhnchos*), and red-shouldered hawk (*Buteo lineatus*). Additional bird species affiliated with mature forests include wood thrush (*Hylocichla mustelina*), red-eyed vireo (*Vireo olivaceus*), northern parula (*Setophaga americana*), yellow warbler (*Setophaga petechia*), Cooper's hawk (*Accipiter cooperii*), and barred owl (*Strix varia*)."

The eBird data base was searched (7/8/2015) to identify birding hotspots within the Anacostia Watershed. These are areas visited by experienced birders who keep species

lists. For example, Bladensburg Waterfront Park located in Prince Georges County near the upper boundary of the tidal Anacostia includes a listing of 134 bird species. In addition to most of the above-listed species, the formerly-endangered bald eagle (*Haliaeetus leucocephalus*) was observed.

The Anacostia Watershed Society maintains lists of birds, amphibians, and reptiles within the watershed (http://www.anacostiaws.org/news/blog/wildlife-watershed). Currently, there are 233 bird species, 61 amphibian and reptile species, and 35 species of mammals. These lists (Appendix A) include the conservation status of the species as defined by Maryland Department of Natural Resources and the District Department of Energy and Environment. Information on threatened and endangered species is provided in the Fish and Wildlife Coordination Act Report (Pinkney et al. 2015) and a "*Not Likely to Adversely Affect*" letter from USFWS Field Supervisor LaRoucheis reproduced here as Appendix B.

Function-based Rapid Stream Assessment results

Approximately 2.7 miles of the three stream reaches assigned by USACE were assessed using the Function-based Rapid Stream Assessment methodology. Each stream segment was divided into reaches based on existing conditions, with a total of 33 reaches. Seventeen function-based parameters were assessed for each reach. Channel evolution trend, overall function-based condition, restoration potential and potential lift were determined for each reach (Table 4). Each stream segment was then prioritized for restoration. All raw data sheets are provided in Appendix C. Further discussion on the stream segment prioritization is found in the conclusions and recommendations portion of this report.

In order to fully predict restoration potential, both watershed and site-level conditions, stressors, and constraints of a stream segment must be assessed. Site-level conditions are determined in the field using the Function-based Rapid Stream Assessment methodology, and are the primary driver when determining restoration potential. However, watershed information, particularly regarding water quality, is crucial in making a complete prediction of potential. Therefore, because limited water quality and watershed characteristic data were provided, particularly for Paint Branch and Little Paint Branch in Prince George's County, the restoration potential could not be fully determined for any of the stream segments. Visual observations of water quality and nutrients (level 4 – physicochemical) were determined using the methodology, however, without additional information CBFO can only confidently predict that the highest fully functioning level achieved by restoration for the stream segments is level 3 – geomorphology. If water quality is an issue in these watersheds, and it can be improved, the stream segments should be fully functioning to level 5 – biology. However, that cannot be determined at this time due to lack of available data.

Sligo Creek mainstem (Montgomery)

A total of ten stream reaches were assessed in the Sligo Creek mainstem. The majority (93 percent) of the stream segment's overall function-based condition is

currently FAR, and 7 percent is NF. Therefore the overall function-based condition for the stream segment is FAR, with restoration potential to fully functional up to level 3 – geomorphology (Table 4). Moderate lift can be achieved in approximately 40 percent, while 31 percent of the stream segment has low potential lift and 29 percent has maximum potential lift (Table 4). Floodplain connectivity and bedform diversity are both influencing the ratings for this stream, and the channel evolution trend for the majority of the reach indicates that the segment is trending towards NF. Therefore, without intervention the stream will continue to degrade.

Sligo Creek tributary (Montgomery)

A total of seven stream reaches were assessed in the Sligo Creek tributary. The overall function-based condition for the stream is FAR. Fifty-four percent of the stream was FAR, while 46 percent was NF. The channel evolution trend for the majority of the reach indicates that the segment is trending towards NF. Therefore, without intervention the stream will continue to degrade. However, maximum lift can be achieved in 54 percent of the stream, with the remainder achieving moderate lift (Table 4).

Floodplain connectivity is a major contributing factor to the ratings of this stream. The segment begins at a culvert, and the subsequent high velocities from that, as well as numerous areas of concentrated flow entering the stream throughout the floodplain are lowering the level of the bed and causing the stream to become incised. The floodplain flows are also causing numerous headcuts at the upstream portion of the reach. If the headcuts are not addressed, they will further contribute to the vertical and lateral instability, and therefore increase sediment and nutrient inputs to the stream.

Paint Branch (Prince Georges)

A total of 9 nine stream reaches were assessed in Paint Branch. The overall function-based condition for the stream is FAR. Eighty-four percent of the stream was FAR, while 16 percent was NF. Maximum lift can be achieved in 16 percent of the stream, while moderate lift can be achieved in 40 percent. The remaining 44 percent has low potential lift. In many places, the stream is attempting to rebuild its floodplain, and reduce its width/depth ratio through bar development and other deposition. This is reflected in the channel evolutionary trend of FAR (trend toward F) for most of the stream segment (Table 4).

Little Paint Branch (Prince Georges)

A total of 7 stream reaches were assessed in Little Paint Branch. All reaches in the stream segment have an overall function-based rating of FAR, therefore the overall function-based condition for the stream is FAR. The majority of the stream can achieve moderate lift (74 percent). Maximum lift can be achieved in 5

percent of the stream, while low lift can be achieved in 21 percent. As with Paint Branch, the channel evolutionary trend of the majority of Little Paint Branch is a trend toward F. The stream is attempting to regain a stable pattern and profile through the deposition of gravel and though point bar formation. However, the stream is still in adjustment, and bedform diversity is poor throughout most of the reaches (Table 4).

CONCLUSIONS AND PRIORITIZATION

Recreational Fishing, Stream Blockage Analysis, and Environmental Education

Montgomery County

Based on the maps provided by Jorge Montero of the Anacostia Watershed Society, there is no evidence that recreational fishing is occurring within the candidate reaches (Figure 3). Survey data from Montgomery County Department of the Environment showed that the following game species were collected from four of the seven candidate reaches: American eel, sunfish sp., redbreasted sunfish, green sunfish, bluegill, pumpkinseed, brown bullhead, smallmouth and largemouth bass. The historical range of anadromous fish migration generally follows the line between Montgomery and Prince Georges County. It is important to recognize these historical limits of anadromous fish migration in evaluating the benefits of removing stream blockages. Therefore, removal of stream blockages in or near the candidate Montgomery County stream reaches would not benefit anadromous fish which would not migrate that far in any case.

Prince Georges County

Based on the maps provided by Jorge Montero of the Anacostia Watershed Society recreational fishing may be occurring in three of the candidate reaches in Prince Georges County: Paint Branch (PG#5), Northeast Branch (PG Site #15), and Northeast Branch-Riggs Road (PG Site #13). Survey data from Prince Georges County was obtained from a search of the Maryland Department of Natural Resources Maryland Biological Stream Survey data base. The following game species were collected from four candidate reaches: green and redbreasted sunfish, bluegill, largemouth and smallmouth bass, striped bass, fallfish, white sucker, American eel, and yellow bullhead.

The historical range of anadromous fish migration generally follows the line between Montgomery and Prince Georges County. It is important to recognize these historical limits of anadromous fish migration in evaluating the benefits of removing stream blockages. Therefore, removal of stream blockages in or near the candidate Montgomery County stream reaches would not benefit anadromous fish which would not migrate that far in any case. Removal of any blockages in or near all of the candidate stream reaches in Prince Georges County would be within the area of historic anadromous fish migration and would potentially benefit those species if there was an increase in blockage-free stream miles.

Both Counties

All of the candidate stream reaches have the potential to serve as living classrooms for educating students of all ages. Signage and kiosks can explain to the public the reason for the project and whether it has been successful through before and after photographs of habitat or monitoring data. Local watershed groups such as the Anacostia Watershed Society provide opportunities for citizens to conduct activities such as water quality monitoring, trail maintenance, and invasive plant removal. The Anacostia Watershed is frequented by birders who document their observations in the eBird data base, and several of the stream reach sites may be suitable locations for birding.

Function-Based Rapid Stream Assessment

Although all stream segments assessed currently have a restoration potential up to level 3 – geomorphology, based on results of the Function-based Rapid Stream Assessment, in Montgomery County Sligo Creek tributary has the potential for the most functional lift, and therefore has the highest priority, followed by Sligo Creek mainstem. In Prince Georges County, Paint Branch has the highest priority, followed by Little Paint Branch. Overall for both counties Sligo Creek tributary has the highest priority, followed by Sligo Creek mainstem, Paint Branch, and Little Paint Branch (Table 4).

Floodplain connectivity (level 2- hydraulics) and bedform diversity (level 3 – geomorphology) are the main contributors to impairment in all of the stream segments. Floodplain connectivity represents the vertical stability of the stream. All of the stream segments are incised to some degree, likely as a result of urbanization, which increases runoff and therefore contributes to channel enlargement. Increases in the stream power can cause headcuts as well, as was observed especially in Sligo Creek tributary and mainstem. In addition, floodplain connectivity plays a key role in sediment transport and nutrient reduction. Also, diverse bedform, particularly in the form of pools (both pool-to-pool spacing and pool depth variability), plays a significant role in both dissipating energy and creating habitat diversity. Although the stream segments have these constraints, all of the streams have the restoration potential to achieve fully functioning levels up to level 3 – geomorphology with proper stream restoration techniques.

As stated in the "Methodology" section of this report, because of limited water quality and watershed information CBFO can currently only determine study stream segments' maximum restoration potential to be level 3 – geomorphology. For the stream segments to become fully functioning up to level 5 - biology, more detailed analysis into which parameters are limiting lift will have to be conducted. Tolerant aquatic species were observed in all of the stream segments during the rapid assessment (Appendix A and Table 3). Therefore, assessment results indicate that at the minimum, tolerant species have the *potential* to exist in all of the study streams. However, increase in the density of existing tolerant species, or future colonization by intolerant species, will depend on whether the limiting factor for aquatic species is water quality (level 4- physicochemical) or bedform diversity (from level 3 –geomorphology). Assessment results indicate a system wide need for habitat improvements in all stream segments (Table 3). As

indicated above, bedform diversity improvements can create habitat to potentially support aquatic species. However, due to lack of background watershed and water quality information, and due to the rapid, visual-based format of the assessment, the results of this study cannot determine if water quality is also limiting biological lift and species presence in the stream segments.

However, if USACE determines, through additional water quality information or analysis, that the water quality in the stream segments is either not a contributing factor, or is impaired and can be improved, all of the segments should be able to achieve lift in level 4 – physicochemical and level 5 – biology to F, and therefore have restoration potential to level 5.

Ultimately, until the stressors in the watershed are addressed, water quality and biological lift in all of the stream segments is severely limited. However, if the streams are reconnected to their floodplains, lateral instability is reduced, and bedform diversity is improved, the subsequent reduction in sediment and nutrients will result in at least partial water quality and biological lift in areas where tolerant species already exist. These tolerant species will be able to inhabit the stream reaches, even if more intolerant species cannot.

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TABLES

Species	Origin	Status	Collected or expected (1898-2000)
1. Alewife	N	M	H,●
2. American eel	N	M/R	H,●
3. American shad	N	M	H,●
4. Atlantic needlefish	N	M	P,●
5. Atlantic silverside	N	R	
6. Atlantic sturgeon	N	M	P
7. Banded killifish	N	R	H,●
8. Bay anchovy	N	R	P,●
9. Black crappie	N	R	H,●
10. Blueback herring	N	M	H,●
11. Bluegill sunfish	IP	R	H,●
12. Bluntnose minnow	N	R	H,●
13. Bridle shiner	N	R	P,●
14. Brown bullhead	N	R	H,●
15. Chain pickerel	N	R	P
16. Channel catfish	IP	R	H,●
17. Common carp	I	R	H,●
18. Common shiner	N	R	H,●
19. Creek chubsucker	N	R	P,●
20. Eastern mosquitofish	N	R	P,●
21. Eastern mudminnow	N	R	P,●
22. Eastern silvery minnow	N	R	H,●
23. Gizzard shad	N	R	P,●
24. Golden redhorse	N	R	P,●
25. Golden shiner	N	R	P,●
26. Goldfish	I	R	H,●
27. Green sunfish	N	R	H,●
28. Hickory shad	N	M	H,●
29. Inland silverside	N	R	P,●
30. Largemouth bass	I	R	H,●
31. Longear sunfish	N	R	H,●
32. Longnose gar	N	R	H,●
33. Menhaden	N	M	H,●
34. Mummichog	N	R	H,●
35. Pumpkinseed sunfish	N	R	H,●
36. Quillback sucker	N	R	P,●
37. Redbreast sunfish	N	R	H,●
38. River chub	N	R	P
39. Sea lamprey	N	M	P,●
40. Shorthead redhorse	N	R	P,●
41. Shortnose sturgeon	N	M	P
42. Smallmouth bass	I	R	P,●
43. Snakehead	I	R	P,●
44. Spotfin shiner	N	R	H,●
45. Spottail shiner	N	R	H,●
46. Striped bass	N	R	H,●
47. Summer Flounder	N	R	P,•
48. Swallowtail shiner	N	R	H,●
49. Tessellated darter	N	R	P,●
50. Walleye	IP	R	P,●
51. White crappie	N	R	P,●
52. White perch	N	R	H,●
53. White sucker	N	R	P,•
54. Yellow bullhead	N	R	P,●
55. Yellow perch	N	R	H,●

Table 1. Provisional list of Anacostia River fish species (reproduced from Galli et al. 2010). N = native; I = introduced; IP = probably introduced; R = resident; M = migratory; M/R = migratory/resident;H= historical presence documented; P = probable historical presence; ●= collected since 1988

Station	Date	Species	Total	Stream Reach #
LPLP101	7/7/2004	American eel	7	Mont #1
LPLP101	8/13/2009	American eel	6	Mont #1
LPLP101	7/7/2004	Bluegill	1	Mont #1
LPLP101	7/7/2004	Redbreast sunfish	1	Mont #1
LPLP101	8/13/2009	Sunfish sp.	1	Mont #1
LPLP204	7/1/1996	American Eel	8	Mont #2
LPLP204	7/21/2004	American eel	9	Mont #2
LPLP205	7/1/1996	American Eel	5	Mont #2
LPLP205	9/26/2003	American eel	13	Mont #2
LPLP205	7/21/2004	American eel	10	Mont #2
LPLP205	8/11/2009	American eel	16	Mont #2
LPLP209	8/10/2011	American eel	15	Mont #2
LPLP205	9/26/2003	Bluegill	14	Mont #2
LPLP205	7/21/2004	Bluegill	4	Mont #2
LPLP205	8/11/2009	Bluegill	1	Mont #2
LPLP205	9/26/2003	Brown bullhead	12	Mont #2
LPLP205	7/21/2004	Brown bullhead	2	Mont #2
LPLP205	8/10/2011	Brown bullhead	1	Mont #2
LPLP205	8/10/2011	Green Sunfish	1	Mont #2
LPLP205	7/1/1996	Pumpkinseed	1	Mont #2
LPLP205	7/21/2004	Redbreast sunfish	1	Mont #2
LPLP205	8/11/2009	Redbreast sunfish	2	Mont #2
LPLP205	7/21/2004	Smallmouth bass	1	Mont #2
NWBP203	6/5/1995	Bluegill	5	Mont #3
NWBP203	6/5/1995	Brown Bullhead	1	Mont #3
NWBP203	6/5/1995	Redbreast Sunfish	7	Mont #3
NWBP203	7/10/2001	Redbreast Sunfish	10	Mont #3
NWBP205	7/23/2004	Bluegill	1	Mont #3
NWBP205	8/24/2009	Bluegill	3	Mont #3

Table 2. Game fish collected by Montgomery County Department of the Environment sampling stations within the Montgomery County candidate stream reaches. See Figure 1 for stream reach locations.

Station	Date	Species	Total	Stream Reach #
NWBP205	10/3/2011	Green Sunfish	1	Mont #3
NWBP205	8/24/2009	Largemouth bass	11	Mont #3
NWBP205	8/24/2009	Pumpkinseed	4	Mont #3
NWBP205	6/6/1995	Redbreast Sunfish	7	Mont #3
NWBP205	6/29/2001	Redbreast Sunfish	2	Mont #3
NWBP205	6/6/2002	Redbreast sunfish	2	Mont #3
NWBP205	7/23/2004	Redbreast sunfish	10	Mont #3
NWBP205	8/24/2009	Redbreast sunfish	32	Mont #3
NWBP205	10/3/2011	Redbreast sunfish	3	Mont #3
NWLT101	6/20/2002	Bluegill	1	Mont #3
NWNW407A	8/4/1999	American Eel	2	Mont #3
NWNW407A	8/29/2001	American Eel	2	Mont #3
NWNW407A	10/9/2003	American eel	2	Mont #3
NWNW407A	8/4/1999	Bluegill	15	Mont #3
NWNW407A	8/29/2001	Bluegill	4	Mont #3
NWNW407A	6/26/2002	Bluegill	9	Mont #3
NWNW407A	10/9/2003	Bluegill	6	Mont #3
NWNW407A	10/9/2003	Brown bullhead	1	Mont #3
NWNW407A	8/29/2001	Green Sunfish	1	Mont #3
NWNW407A	6/26/2002	Largemouth bass	2	Mont #3
NWNW407A	6/22/2007	Largemouth bass	2	Mont #3
NWNW407A	8/29/2001	Pumpkinseed	1	Mont #3
NWNW407A	6/26/2002	Pumpkinseed	4	Mont #3
NWNW407A	10/9/2003	Pumpkinseed	1	Mont #3
NWNW407A	8/4/1999	Redbreast Sunfish	25	Mont #3
NWNW407A	8/29/2001	Redbreast Sunfish	16	Mont #3
NWNW407A	6/26/2002	Redbreast sunfish	11	Mont #3
NWNW407A	10/9/2003	Redbreast sunfish	6	Mont #3
NWNW407A	6/22/2007	Redbreast sunfish	2	Mont #3

Table 2 (continued). Game fish collected by Montgomery County Department of the Environment sampling stations within the Montgomery County candidate stream reaches. See Figure 1 for stream reach locations.

Station	Year	Species	Total	Stream Reach #
ANAC-117-R	2004	American eel	6	PG#1
ANAC-302-X	2000	Pumpkinseed	5	PG#3
ANAC-302-X	2000	Common carp	1	PG#3
ANAC-302-X	2000	White sucker	100	PG#3
ANAC-302-X	2000	Yellow bullhead	20	PG#3
ANAC-302-X	2000	Smallmouth bass	1	PG#3
ANAC-302-X	2000	Striped bass	4	PG#3
ANAC-302-X	2000	Bluegill	2	PG#3
ANAC-302-X	2000	American eel	42	PG#3
ANAC-302-X	2000	Redbreast sunfish	132	PG#3
ANAC-302-X	2000	Green sunfish	1	PG#3
ANAC-302-X	2000	Largemouth bass	1s	PG#3
ANAC-208-R	2004	American eel	18	PG#7
ANAC-208-R	2004	Fallfish	49	PG#7
ANAC-208-R	2004	Largemouth bass	6	PG#7
ANAC-208-R	2004	Green sunfish	2	PG#7
ANAC-208-R	2004	Bluegill	1	PG#7
ANAC-304-R	2004	White sucker	27	PG#13
ANAC-304-R	2004	Green sunfish	7	PG#13
ANAC-304-R	2004	American eel	61	PG#13
ANAC-304-R	2004	Bluegill	6	PG#13
ANAC-304-R	2004	Yellow bullhead	1	PG#13

Table 3. Game fish survey data collected by Maryland Biological Stream Survey from stations within the Prince Georges County candidate stream reaches. See Figure 2 for stream reach locations.

Anacostia Watershed Study															
			Level 1 - Hydrology	Level 2 - Hydraulics	Level 3 - Geomorphology			Level 4 - Physicochemical	Level 5 - Biology	Channel Evolution Trend	Overall Function-Based Condition	Restoration Potential	Potential Lift	Stream Segment Priority
			Assessment Parameter	Assessment Parameter	Assessment Parameters			Assessment Parameter	Assessment Parameter					
			Runoff	Floodplain Connectivity (Vertical Stability)	Riparian Vegetation	Lateral Stability	Bedform Diversity	Water Quality and Nutrients	Biology					
Stream Segment ID	**Reach**	**Length, approximate (ft)**												
Sligo Creek	**1**	**108**	NF	FAR	FAR	F	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Low	2
	2	**268**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	3	**120**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	4	**370**	NF	NF	FAR	FAR	FAR	FAR	FAR	NF	FAR	3	Maximum	
	5	**298**	NF	FAR	FAR	F	FAR	NF	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
	6	**376**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Low	
	7	**208**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	8	**160**	NF	NF	FAR	FAR	NF	FAR	NF	FAR (TREND TOWARD NF)	NF	3	Maximum	
	9	**132**	NF	NF	FAR	NF	FAR	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Maximum	
	10	**230**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Low	
Sligo Creek Tributary	**1**	**50**	NF	NF	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD NF)	NF	3	Maximum	1
	2	**166**	NF	NF	FAR	NF	NF	FAR	FAR	FAR (TREND TOWARD NF)	NF	3	Maximum	
	3	**126**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	4	**30**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
	5	**220**	NF	NF	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	NF	3	Maximum	
	6	**160**	NF	F	FAR	F	NF	FAR	FAR	F	FAR	3	Moderate	
	7	**50**	NF	FAR	FAR	F	NF	FAR	NF	F	FAR	3	Moderate	
Paint Branch	**1**	**600**	NF	NF	FAR	FAR	NF	FAR	F	F	NF	3	Maximum	3
	2	**264**	NF	FAR	FAR	NF	NF	FAR	F	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	3	**410**	NF	NF	FAR	FAR	NF	FAR	FAR	F	NF	3	Maximum	
	4	**1250**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Low	
	5	**1850**	NF	FAR	NF	FAR	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
	6	**726**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Low	
	7	**275**	NF	FAR	FAR	F	FAR	FAR	F	F	FAR	3	Low	
	8	**610**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Low	
	9	**440**	NF	FAR	F	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
Little Paint Branch	**1**	**900**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	4
	2	**995**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
	3	**1083**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD NF)	FAR	3	Moderate	
	4	**110**	NF	FAR	FAR	FAR	NF	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Moderate	
	5	**188**	NF	NF	FAR	FAR	FAR	FAR	FAR	NF	FAR	3	Maximum	
	6	**440**	NF	FAR	FAR	F	FAR	FAR	FAR	FAR (TREND TOWARD F)	FAR	3	Low	
	7	**443**	NF	FAR	FAR	FAR	FAR	FAR	FAR	FAR (TREND TOWRD F)	FAR	3	Low	

Table 4. Function-based Rapid Stream Assessment results.

FIGURES

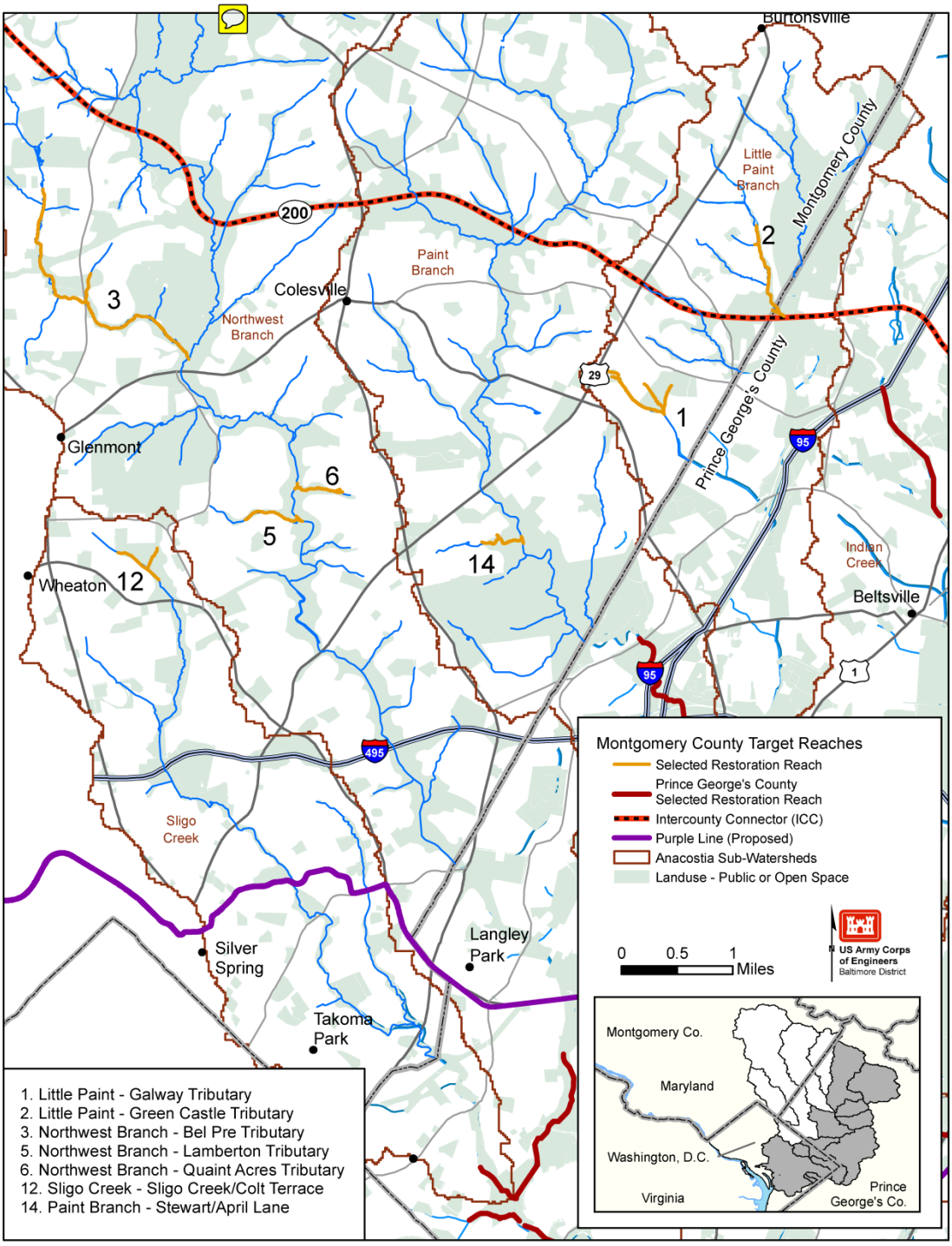


Figure 1. Montgomery County stream reaches under evaluation for stream restoration. Function-based Rapid Stream Assessment was conducted on Sligo Creek (Site #12).

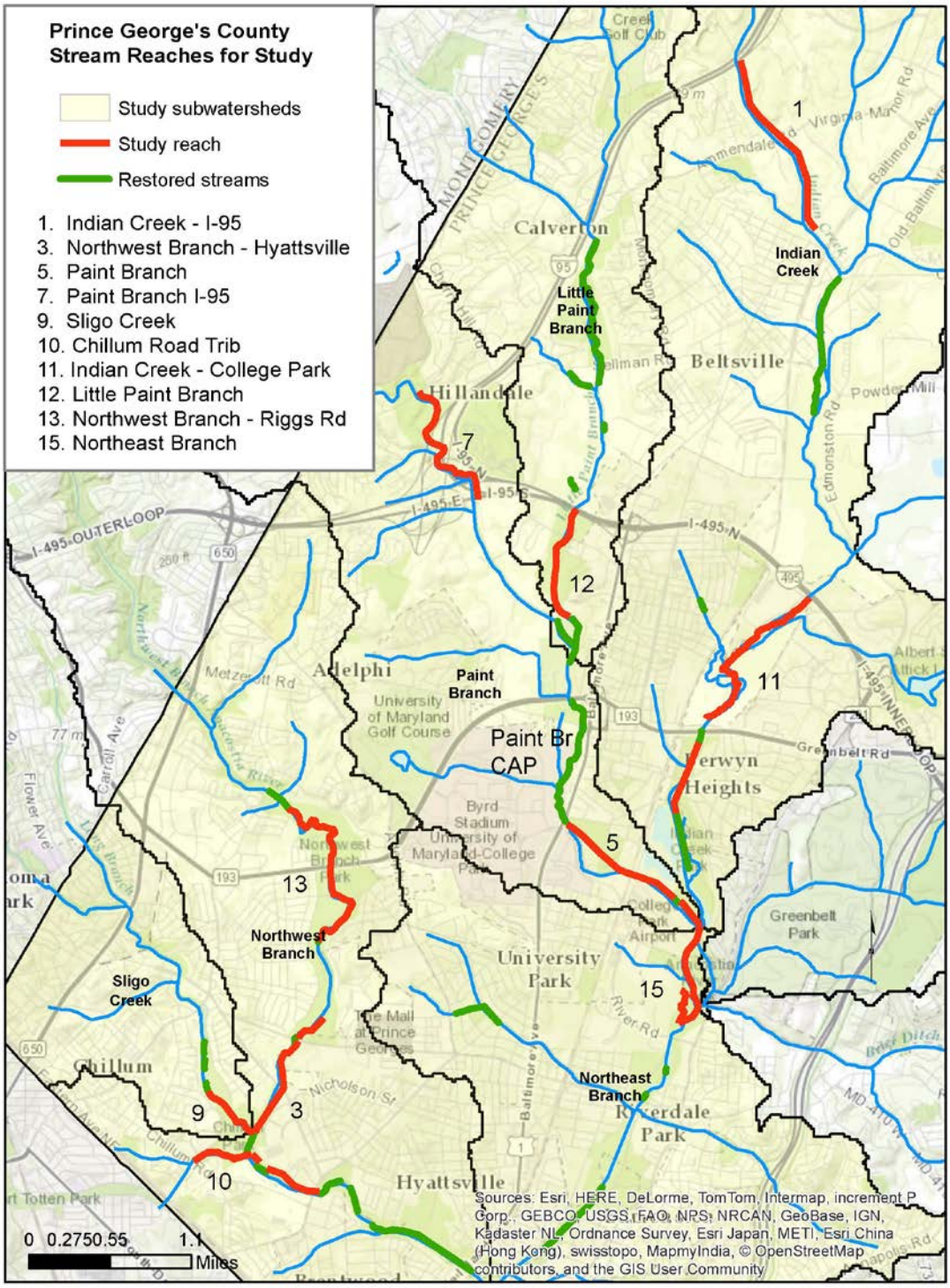


Figure 2. Prince Georges County stream reaches under evaluation for stream restoration. Function-based Rapid Stream Assessment was conducted on Paint Branch (Site #5), and Little Paint Branch (Site #12).

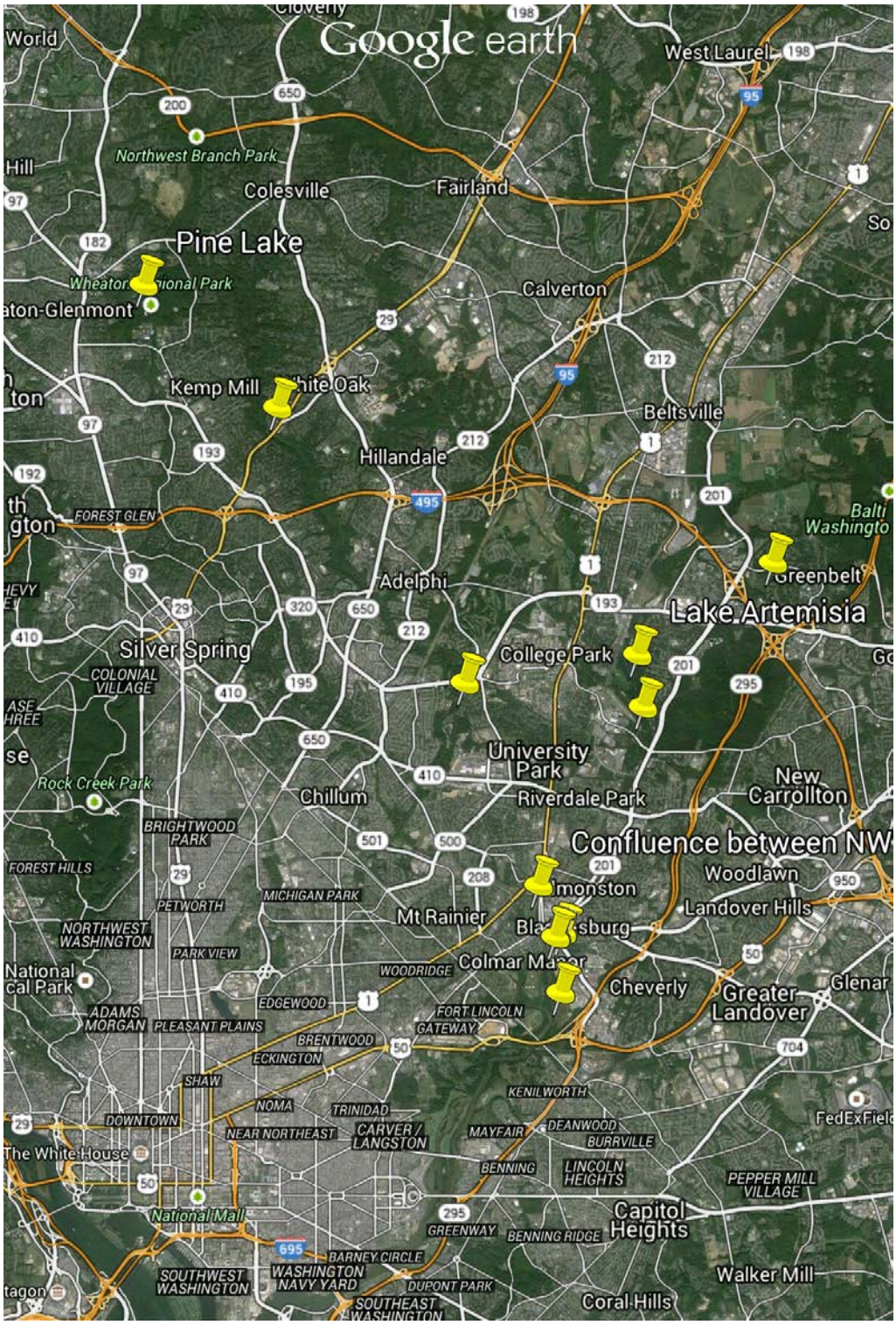


Figure 3. Map of recreational fishing locations in Montgomery and Prince Georges Counties (Jorge Montero, Anacostia Watershed Society, personal communication).

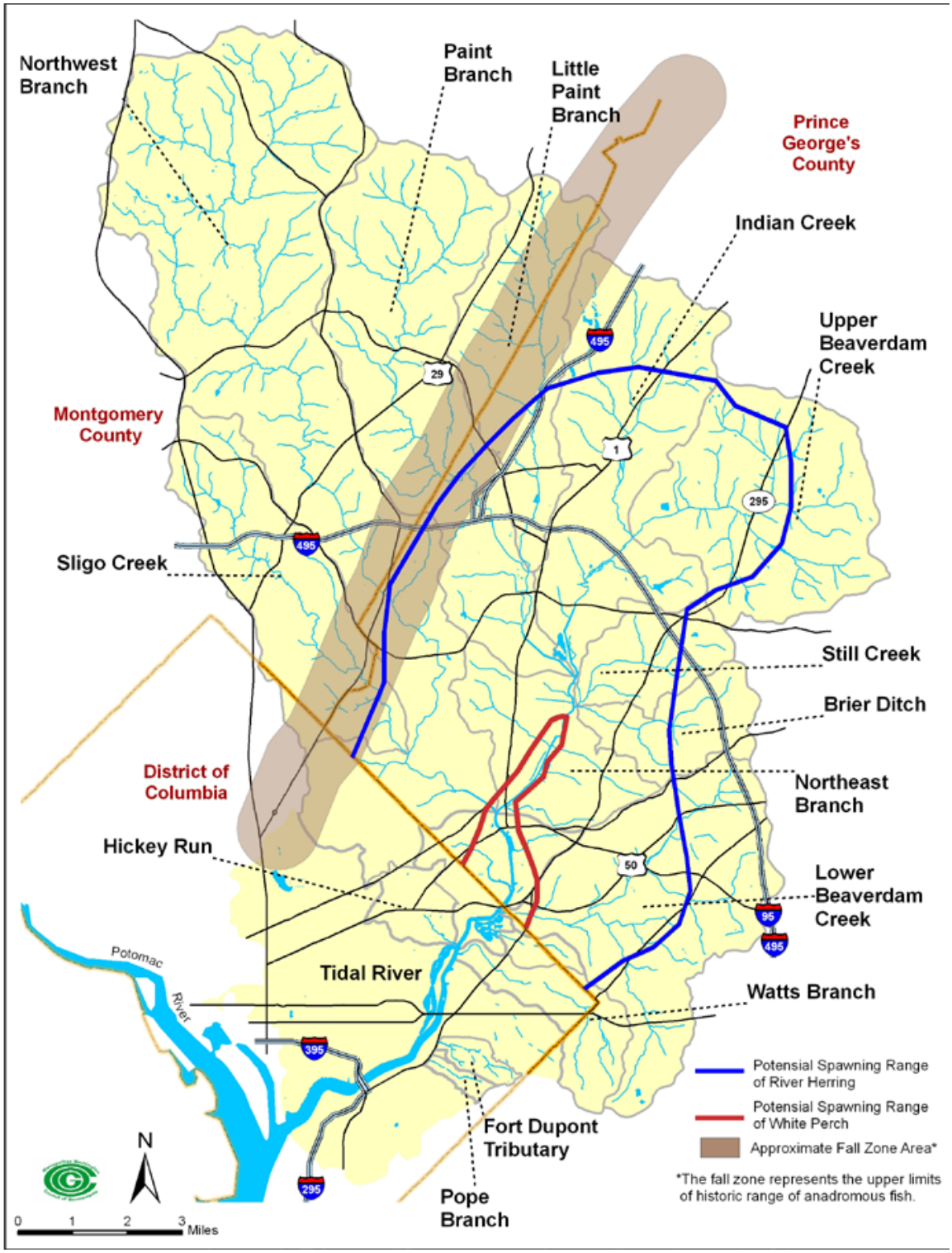


Figure 4. Historical range of anadromous fish (from USACE 2010).

Appendix A

Lists of amphibian, reptile, bird, and mammal species in the Anacostia watershed compiled by the Anacostia Watershed Society

				Conservation status								
Mammals	**Conservation Status**	**Native**	**Nonnative**	**S1**	**S2**	**S3**	**S4**	**S5**	**SH**	**SX**	**SNR**	**SNA**
n=35	MD	33	2	0	1	1	3	29	0	0	0	2
	DC	33	2	0	2	5	10	12	1	0	3	2
Birds	**Conservation Status**	**Native**	**Nonnative**	**S1**	**S2**	**S3**	**S4**	**S5**	**SH**	**SX**	**SNR**	
n=233	MD	217	6	21	31	43	80	76	1	1	0	
	DC	217	6	45	62	81	56	31	6	1	8	
Herps	**Conservation Status**			**S1**	**S2**	**S3**	**S4**	**S5**	**SH**		**SNR**	**SNA**
n=61	MD			1	1	2	9	50	0		0	0
	DC			4	2	6	16	10	15		2	8

Abbreviations:

S1: Critically Imperiled
S2: Imperiled
S3: Vulnerable
S4: Apparentley Secure
S5: Secure
SNR: Status Not Ranked/Under Review
SNA: Status Not Assessed/Not applicable

SX: Presumed Extirpated
SH: Possibly Extirpated

Table A-1. Summary of species conservation status, prepared by Anacostia Watershed Society.

Checklist of the mammals of the Anacostia River Watershed

Compilled by Jason Donaldson, AWS Stewardship Intern and Jorge Bogantes Montern, AWS Conservation Biologist

July, 2011

	Common Name	Scientific Name	Family	Non-native	Native	Conservation Status	Reference	Comments
1	American Beaver	*Castor canadensis*	Beavers (Castoridae)		X	MD: S5/ DC S3	2, 3	The only native species of beaver in North America
2	Big Brown Bat	*Eptesicus fuscus*	Bats (Vespertilionidae)		X	MD: S5/ DC S4	2, 3	Is larger than many other bats
3	Common Raccoon	*Procyon lotor*	Raccoons (Procyonidae)		X	MD: S5/ DC S5	2, 3	Can adapt to different habitats
4	Eastern Chipmunk	*Tamias striatus*	Squirrels (Sciuridae)		X	MD: S5/ DC S5	1, 2	
5	Eastern Cottontail	*Sylvilagus floridanus*	Rabbits and Hares (Leporidae)		X	MD: S5/ DC S5	1, 2	
6	Eastern Gray Squirrel	*Sciurus carolinensis*	Squirrels (Sciuridae)		X	MD: S5/ DC S5	2, 3	
7	Eastern Mole	*Scalopus aquaticus*	Moles (Talpidae)		X	MD: S5/ DC S5	2, 3	
8	Eastern Pipistrelle	*Pipistrellus subflavus*	Bats (Vespertilionidae)		X	MD: S5/ DC S4	2, 3	
9	Eastern Red Bat	*Lasiurus borealis*	Bats (Vespertilionidae)		X	MD: S5/ DC S4	1, 2	May migrate south
10	Evening Bat	*Nycticeius humeralis*	Bats (Vespertilionidae)		X	MD: S5/ DC S2	2, 3	
11	Gray Fox	*Urocyon cinereoargenteus*	Dogs (Canidae)		X	MD: S5/ DC S3	1, 2	Mostly in Southern America
12	Hairy-tailed Mole	*Parascalops breweri*	Moles (Talpidae)		X	MD: S4/ DC SNR	2, 3	

13	Hoary Bat	*Lasiurus cinereus*	Bats (Vespertilionidae)		X	MD: S5/ DC S2	2, 3	
14	House Mouse	*Mus musculus*	Rats and mice (Muridae)	X		MD: SNA/ DC SNA	2, 3	Has been domesticated as a pet
15	Little Brown Bat	*Myotis lucifugus*	Bats (Vespertilionidae)		X	MD: S5/ DC S4	2, 3	
16	Long-tailed Weasel	*Mustela frenata*	Weasels (Mustelidae)		X	MD: S5/ DC S3	2, 3	
17	Masked Shrew	*Sorex cinereus*	Shrews (Soricidae)		X	MD: S5/ DC SNR	2, 3	
18	Meadow Jumping Mouse	*Zapus hudsonius*	Jumping mice (Dipodidae)		X	MD: S5/ DC S3	2, 3	
19	Meadow Vole	*Microtus pennsylvanicus*	Rodents (Cricetidae)		X	MD: S5/ DC S5	2, 3	
20	Muskrat	*Ondatra zibethicus*	Rodents (Cricetidae)		X	MD: S5/ DC S4	2, 3	Found mainly in wetlands but can adapt
21	North American Least Shrew	*Cryptotis parva*	Shrews (Soricidae)		X	MD: S5/ DC S4	2, 3	One of the smallest mammals
22	Northern Long-eared bat	*Myotis septentrionalis*	Bats (Vespertilionidae)		X	MD: S4/ DC S4	2, 3	
23	Northern Short-tailed S*hrew*	*Blarina brevicauda*	Shrews (Soricidae)		X	MD: S5/ DC S5	2, 3	
24	Norway Rat	*Rattus norvegicus*	Rats and mice (Muridae)	X		MD: SNA/ DC SNA	2, 3	
25	Red Fox	*Vulpes vulpes*	Dogs (Canidae)		X	MD: S5/ DC S4	2, 3	Very invasive in other countries
26	Smokey Shrew	*Sorex fumeus*	Shrews (Soricidae)		X	MD: S2/S3/ DC SNR	2, 3	
27	Southern Flying Squirrel	*Glaucomys volans*	Squirrels (Sciuridae)		X	MD: S5/ DC S5	2, 3	Can return to their nests if moved one mile away
28	Star-nosed mole	*Condylura cristata*	Moles (Talpidae)		X	MD: S4/ DC S3	2, 3	

	Striped Skunk	*Mephitis mephitis*	Skunks (Mephitidae)	X	MD: S5/ DC S4	2, 3	Pry on honeybees by scratching the nest and waiting for them to come out
29							
30	Virginia Opossum	*Didelphis Virginiana*	Opossums (Didelphidae)	X	MD: S5/ DC S5	1, 2	
	White-footed Deermouse	*Peromyscus leucopus*	Rodents (Cricetidae)	X	MD: S5/ DC S5	2, 3	One of the most common found in the United States
31							
32	White-tailed deer	*Odocoileus virginianus*	Deer (Cervidae)	X	MD: S5/ DC S5	2, 3	
	Woodchuck	*Marmota monax*	Squirrels (Sciuridae)	X	MD: S5/ DC S5	2, 3	Also refered to as the groundhog or the land baever
33							
	Woodland Vole	*Microtus pinetorum*	Rodents (Cricetidae)	X	MD: S5/ DC S4	2, 3	They live in burrows exclusive to the family groups
34							

References
1. DDOE http://tinyurl.com/3ctnqkg
2. Nature Serve
3. DNR

Reptiles and Amphibians of the Anacostia River Watershed

Compiled by Emily Stransky, AWS Stewardship Intern and Jorge Bogantes Montero, AWS Conservation Biologist

Contributions from Rachel Gauza, head of the MARA (Maryland Amphibian and Reptile Atlas) Program, and Lindsay Rohrbaugh, Wildlife Biologist with DDOE

November, 2011

Salamanders

Common name	Scientific name	Family	Non-Native	Native	Reference	Conservation status	Comments
Jefferson Salamander	*Ambystoma jeffersonianum*	Ambystomatidae		x	1,2	MD:S3/DC:NA	They are found in well shaded, deciduous forests, and breed in the early spring in seasonal pools Adults are entirely terrestrial, but breed in seasonal pools and the females stay with the egg clutch
Marbled Salamander	*Ambystoma opacum*	Ambystomatidae		x (SGCN)	1,2	MD:S5/DC:S3	

Spotted Salamander	*Ambystoma maculatum*	Ambystomatidae	x (SGCN)	1,2	MD:S5/DC:S4	Adults are most active during rain, at night, and during breeding periods, some individuals lack spots
Northern Dusky Salamander	*Desmognathus fuscus*	Plethodontidae	x (SGCN)	1,2	MD:S5/DC:S5	They are usually found near running or trickling water Their colors vary from yellow to orange to red with black dumbbell shaped markings
Long-tailed Salamander	*Eurycea longicauda*	Plethodontidae	x	1,2	MD:S5/DC:SNR	
Northern Two-lined Salamander	*Eurycea bislineata*	Plethodontidae	x (SGCN)	1,2	MD:S5/DC:S5	Females stay with the eggs during the approximately 30 day incubation period, and

						these are most common in stream habitat
Mud Salamander	*Pseudotriton montanus*	Plethodontidae		x	1,2	MD:S2/DC:NA	They feed on arthropods and earthworms, and are typically found in muddy floodplains
Red Salamander	*Pseudotriton ruber*	Plethodontidae		x (SGCN)	1,2	MD:S5/DC:S3	The larval stage can last up to 5 years Females lay their eggs in moss next to a pool, which larvae can drop into after hatching, and they are distinguishable
Four-Toed Salamander	*Hemidactylium scutatum*	Plethodontidae		x	1,2	MD:S5/DC:SH	

						by the white belly and black spots, 4 toes on hind feet and squarish snout
Eastern Red-backed Salamander	*Plethodon cinereus*	Plethodontidae	x (SGCN)	1,2	MD:S5/DC:S5	Their home range is usually less than a few meters across, and they are the most common woodland salamander Females stay with their eggs until they develop into larvae, and they have glue-like skin secretions when handled roughly
Northern Slimy Salamander	*Plethodon glutinosus*	Plethodontidae	x	1,2	MD:S5/DC:SH	

Red-Spotted Newt (Eastern Newt)	*Notophthalmus viridescens*	Salamandridae		x (SGCN)	1,2	MD:S5/DC:S3	They produce highly toxic skin secretions

Toads and Frogs

Common name	Scientific name	Family	Non-Native	Native	Reference	Conservation status	Comments

American Toad	*Anaxyrus americanus*	Bufonidae	x (SGCN)	1,2	MD:S5/DC:S5	Their mating call lasts up to 30 seconds, it's a long, musical trill, they can mate with Fowler's toads, and have one or two warts per dark dorsal spot
Fowler's Toad	*Anaxyrus fowleri*	Bufonidae	x (SGCN)	1,2	MD:S5/DC:S5	Hognose snakes are immune to the toad's toxic skin excretions, they have three warts per dark dorsal spot, and typically have a white chest with central spot
American Bullfrog	*Lithobates catesbeianus*	Ranidae	x (SGCN)	1,2	MD:S5/DC:S4	Maryland's largest frog

Northern Green Frog	*Lithobates clamitans melanota*	Ranidae	x	1,2	MD:S5/DC:S5	Adult males' eardrums are larger than their eye, females and juveniles are about the same size
Pickerel Frog	*Lithobates palustris*	Ranidae	x (SGCN)	1,2	MD:S5/DC:S5	Their mating call is a 1-2 second long low snore
Southern Leopard Frog	*Lithobates sphenocephalus*	Ranidae	x	1,2	MD:S5,S4/DC:S3,S2	Usually have dark spots on the back with a yellow ridge extending down each side
Wood Frog	*Lithobates sylvaticus*	Ranidae	x (SGCN)	1,2	MD:S5/DC:S2	They have a dark "mask" across eyes, mating call is 1-8 loud clacks

Gray Treefrog	*Hyla versicolor*	Hylidae	x (SGCN)	1,2	MD:S5/DC:S4	Their mating call is loud slow trill, and they are identical to Cope's Gray Treefrog except for their call
Cope's Gray Treefrog	*Hyla chrysoscelis*	Hylidae	x	1,2	MD:S5/DC:S4	Their skin secretions can irritate human eyes and other membranes
Green Treefrog	*Hyla cinerea*	Hylidae	x	1,2	MD:S5/DC:SH	Their upper surface and part of the throat is usually green, but can range from yellow to gray, a breeding male has a gray or pinkish throat, and they often gather in large groups

Northern Spring Peeper	*Pseudacris crucifer*	Hylidae	x (SGCN)	1,2	MD:S5/DC:S4	These often have a dark "X" on their back
Upland Chorus Frog	*Pseudacris feriarum*	Hylidae	x	1,2	MD:S5/DC:SH	Mainly an upland frog in the North, but a lowland frog in the South, and have a dark triangle between the eyes
Eastern Cricket Frog	*Acris crepitans*	Hylidae	x	1,2	MD:S4/DC:NA	This frog is very small, about 4 cm in length, with a dark triangle between the eyes on the back of the head and short hind legs

Eastern Spadefoot	*Scaphiopus holbrookii*	Scaphiopodidae		x	1,2	MD:S5/DC:NA	Their eye is elliptical in bright light, and there are sickle shaped spades on the inner underside of the hind feet

Turtles

Common name	Scientific name	Family	Non-Native	Native	Reference	Conservation status	Comments
Spotted Turtle	*Clemmys guttata*	Emydidae		x (SGCN)	1,2	MD:S5/DC:S1	This is a small black turtle with yellow spots, although some individuals may lack spots on the carapace

Wood Turtle	*Glyptemys insculpta*	Emydidae		x (SGCN)	1,2	MD:S4/DC:SH	These lack a hinged plastron, their plastron is yellow with dark, irregular blotch on each scute
Eastern Box Turtle	*Terrapene carolina*	Emydidae		x (SGCN)	1,2	MD:S5/DC:S3	Their name comes from a hinged shell that allows the shell to become tightly closed
Red-eared Slider	*Trachemys scripta*	Emydidae	x		1,2	MD:S5/DC:SNR	These are aquatic, with a very small home range, and they have a prominent red or yellow patch on the head
Painted Turtle	*Chrysemys picta*	Emydidae		x (SGCN)	1,2	MD:S5/DC:S5	These have bright yellow lines on their head and limbs

Northern Red-bellied Cooter	*Pseudemys rubriventris*	Emydidae		x (SGCN)	1,2	MD:S5/DC:S4	They like large deep bodies of water, sometimes brackish
Chinese spiny softshell turtle	*Pelodiscus sinensis*	Trionychidae	x				
Stinkpot Turtle	*Stenothernus odoratus*	Kinosternidae		x (SGCN)	1,2	MD:S5/DC:S4	There are two light stripes on the head and neck, with barbells coming off chin and throat, and their plastron does not cover appendages

Eastern Mud Turtle	*Kinosternon subrubrum*	Kinosternidae		x (SGCN)	1,2	MD:S5/DC:SH	These have triangular pectoral scutes and a double hinged shell
Eastern Snapping Turtle	*Chelydra serpentina*	Chelydridae		x	1,2	MD:S5/DC:S5	These are large, up to 50 lbs, with powerful jaws, a plastron that does not cover appendages and they are mostly aquatic

Snakes

Common name	Scientific name	Family	Non-Native	Native	Reference	Conservation status	Comments

Copperhead	*Agkistrodon contortrix*	Viperidae	x (SGCN)	1,2	MD:S5/DC:S1	These are distinguishable as venomous snake by the slitted irises and pits located by eyes, they also have hour-glass like pattern down the body
Northern Water Snake	*Nerodia sipedon*	Colubridae	x	1,2	MD:S5/DC:S4	These are often mistaken for venomous Water Moccasin snakes, but are not venomous themselves, and they are very common in aquatic habitats
Queen Snake	*Regina septemvittata*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S1	These occur only where there are crayfish, which are a main diet staple

Eastern Smooth Earthsnake	*Virginia valeriae*	Colubridae	x (SGCN)	1,2	MD:S4,S5/DC:SH	They do not come out into the open often, but are usually found under boards or logs
Northern Brownsnake	*Storeria dekayi*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	This snake has two parallel lines of dark spots running down its back, it feeds on worms and soft-bodied insects and gives live birth
Red-bellied Snake	*Storeria occipitomaculata*	Colubridae	x	1,2	MD:S5/DC:SH	These are characterized by a red, unmarked belly, and will have three spots at the nape of the neck

Eastern Gartersnake	*Thamnophis sirtalis*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	This snake has a checkerboard pattern on its back with a distinct yellow or white stripe down the center of its back They are found in wet areas, such as marshes, bogs, ponds and shallow streams, and they have
Common Ribbon Snake	*Thamnophis sauritus*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	three bold cream stripes down the back
Eastern Wormsnake	*Carphophis amoenus*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	These are small in size, about 7-11 inches, and look similar to an earthworm

Rough Greensnake	*Opheodrys aestivus*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	These are bright green snakes with a white or cream colored belly
Eastern Hog-nosed Snake	*Heterodon platirhinos*	Colubridae	x (SGCN)	1,2	MD:S5/DC:SH	These will fan out their neck, like a cobra, when approached and then play dead
Rainbow Snake	*Farancia erytrogramma*	Colubridae	x	1,2	MD:S1/DC:NA	These are considered endangered in Maryland and are rarely found, they are a highly aquatic species with red, yellow and black stripes going vertically down their body

Northern Black Racer	*Coluber constrictor*	Colubridae	x (SGCN)	1,2	MD:S5/DC:S4	They are normally black or dark gray in color, with a white chin and conspicuous eye
Red Cornsnake	*Pantherophis guttatus*	Colubridae	x (SGCN)	1,2	MD:S4/DC:SH	An orange or orange-red snake, which eats most rodents
Eastern Ratsnake	*Pantherophis alleghaniensis*	Colubridae	x	1,2	MD:S5/DC:S3,S5	Maryland's largest snake, and has an all black, shiny back
Mole Kingsnake	*Lampropeltis calligaster*	Colubridae	x	1,2	MD:S4/DC:SH	These are a subterranean, nocturnal species, with a yellow or greenish hued color

Eastern Kingsnake	*Lampropeltis getula*	Colubridae	x	1,2	MD:S5/DC:SH	These eat many other reptiles, and are shiny black, with white or light colored rings around its body
Eastern Milksnake	*Lampropeltis triangulum*	Colubridae	x	1,2	MD:S5/DC:SH	These are red with black bordered blotches down the back, and a blotch on the head that may resemble an A, Y, U, or V
Coastal Plain Milksnake	*Lampropeltis triangulum elapsoides X triangulum*	Colubridae	x	1,2	N/A	This is a mix between the Eastern Milksnake and the Scarlet Kingsnake

Northern Scarletsnake	*Cemophora coccinea*	Colubridae		x	1,2	MD:S3/DC:NA	These are similar to the venomous Coral Snake, but are non-venomous and have black separating red and yellow (or white) sections, with an upper jaw that protrudes beyond the lower jaw
Ring-Necked Snake	*Diadophis punctatus*	Colubridae		x (SGCN)	1,2	MD:S5/DC:S4	These have a dark body with a cream/yellow ring around it's neck

Lizards and Skinks

Common name	Scientific name	Family	Non-Native	Native	References	Conservation status	Comments

Broad-headed Skink	*Plestiodon laticeps*	Scinidae	x	1,2	MD:S4/DC:S1	Maryland's largest skink, with juveniles and females resembling the five-lined skink
Common Five-lined Skink	*Plestiodon fasciatus*	Scinidae	x (SGCN)	1,2	MD:S5/DC:S4	These have 5 yellow or white stripes on their head, which extend down the back, and juveniles have a blue tail
Little Brown Skink	*Scincella lateralis*	Scinidae	x	1,2	MD:S5/DC:NA	They have a golden or dark brown back with a darker stripe running along either side
Eastern Six-lined Racerunner	*Aspidoscelis sexlineatus*	Teiidae	x	1,2	MD:S4/DC:SH	These have 6 colored lines extending from the head to the tail

Eastern Fence Lizard	*Sceloporous undulatus*	Phrynosomatidae	x (SGCN)	1,2	MD:S5/DC:SH	These have pointed scales on the back, males have a bright blue patch on the belly and underside of the throat, while females have crossbands along the back

References and Acronyms

References	URL
1. Nature Serve	http://www.natureserve.org/explorer/
2. Maryland Department of Natural Resources	http://www.dnr.state.md.us/wildlife/Plants_Wildlife/herps/

Birds of the Anacostia River Watershed

Compiled by Mallory Shramek, AWS Stewardship Intern and Jorge Bogantes Montero, AWS Conservation Biologist

July, 2011

UPDATED AUGUST 28, 2012 Michael Schramm

	Common Name	Scientific Name	Family	Non-native	Native	DC Conservation Status	MD Conservation Status	References	Comments
1	Acadian Flycatcher	*Empidonax virescens*	Flycatchers (Tyrannidae)		X	SNR	S5B	1, 2, 4	Passage migrant through the District of Columbia; primarily breeds in moist, upland deciduous forests with a moderate understory, generally near a stream.
2	Alder Flycatcher	*Empidonax alnorum*	Flycatchers (Tyrannidae)		X	S1N	S2B	1,3,6	
3	American Avocet	*Recurvirostra americana*	Avocets and Stilts (Recurvirostridae)		X	SNR	SNA	1, 2	
4	American Bittern	*Botaurus lentiginosus*	Bitterns, Egrets, and Herons (Ardeidae)		X	S1B	S1B	1, 2	Breed in freshwater marshes; local migrant within the District of Columbia.

5	American Black Duck	*Anas rubripes*	Geese, Swans, and Ducks (Anatidae)	X	S3 S4N	S4B S5N	1, 2	Hybridization between the American Black Ducks and Mallards is a major concern.
6	American Coot	*Fulica americana*	Rails (Rallidae)	X	S2N	S3N	1, 2	
7	American Crow	*Corvus brachyrhynchos*	Crows and Jays (Corvidae)	X	S5B S5N	S5	1, 4	
8	American Goldfinch	*Spinus tristis*	Finches and Grosbeaks (Fringillidae)	X	S4N S5B	S5	1, 4	
9	American Kestrel	*Falco sparverius*	Falcons (Falconidae)	X	S2B S3N	S4N S5B	1, 3, 4	North American's smallest falcon.
10	American Pipit	*Anthus rubescens*	Pipits and Wagtails (Motacillidae)	X	S4N	S3N	1, 2	
11	American Redstart	*Setophaga ruticilla*	Warblers (Parulidae)	X	S1B S4N	S4B	1, 3, 4	Flashes its orange and black wings and tail to flush insect prey from foliage.
12	American Robin	*Turdus migratorius*	Thrushes (Turdidae)	X	S5B S5N	S5B S5N	1, 4	
13	American Tree Sparrow	*Spizella arborea*	Sparrows and Towhees (Emberizidae)	X	S4N	S3N	1,3,6	
14	American Wigeon	*Anas americana*	Geese, Swans, and Ducks (Anatidae)	X	S3N	S4N	1,3,6	

15	American Woodcock	*Scolopax minor*	Sandpiper (Scolopacidae)	X	S3N	S4B S4N	1, 2	The most serious threat is habitat loss and alteration, through urbanization, reforestation, drainage of wetlands, and agricultural development.
16	Bald Eagle	*Haliaeetus leucocephalus*	Eagles and Hawks (Accipitridae)	X	S2N SXB	S2 S3B	1, 2	Migrant and breeder within the District of Columbia.
17	Baltimore Oriole	*Icterus galbula*	Blackbirds and Orioles (Icteridae)	X	S1B S3N	S5B	1	
18	Bank Swallow	*Riparia riparia*	Swallows and Martins (Hirundinidae)	X	S3N	S3 S4B	1,3,6	
19	Barn Owl	*Tyto alba*	Barn Owls (Tytonidae)	X	S1	S3	1, 4	
20	Barn Swallow	*Hirundo rustica*	Swallows and Martins (Hirundinidae)	X	S5B S5N	S5B	1, 4	
21	Barred Owl	*Strix varia*	True Owls (Strigidae)	X	S2	S5	1	

22	Bay-breasted Warbler	*Dendroica castanea*	Warblers (Parulidae)	X	S3N	SNA	1, 3, 5	Benefits from spruce budworm outbreaks when the caterpillars provide abundant food - spraying to control the destructive outbreaks may have reduced populations of this warbler.
23	Belted Kingfisher	*Megacerycle alcyon*	Kingfishers (Alcedindae)	X	S2N S2 S3B	S5B S4N	1, 4	
24	Black Vulture	*Coragyps atratus*	New World Vultures (Cathartidae)	X	S1	S4B S4N	1, 2	
25	Black-and-white Warbler	*Mniotilta varia*	Warblers (Parulidae)	X	S4N	S4B	1, 4	
26	Blackburnian Warbler	*Dendroica fusca*	Warblers (Parulidae)	X	S3N	S1 S2B	1, 5	
27	Black-billed Cuckoo	*Coccyzus erythropthalmus*	Cuckoos (Cuculidae)	X	S1 S2N	S4B	1,3,6	
28	Black-capped Chickadee	*Poecile atricapillus*	Chickadees and Titmice (Paridae)	X	S1	S4	1,3,6	
29	Black-crowned Night-Heron	*Nycticorax nycticorax*	Bitterns, Egrets, and Herons (Ardeidae)	X	S3B	S3B S2N	1, 2, 4	Local migrant and breeder within the District of Columbia.

30	Blackpoll Warbler	*Dendroica striata*	Warblers (Parulidae)	X	S4 S4N	SNA	1, 4	
31	Black-throated Blue Warbler	*Dendroica caerulescens*	Warblers (Parulidae)	X	S4N	S3 S4B	1, 4	
32	Black-throated Green Warbler	*Dendroica virens*	Warblers (Parulidae)	X	S4N	S4B	1, 4	
33	Blue Grosbeak	*Passerina caerulea*	Cardinals and Buntings (Cardinalidae)	X	S2B S2N	S5B	1, 4	
34	Blue Jay	*Cyanocitta cristata*	Crows and Jays (Corvidae)	X	S4N S5B	S5B S5N	1, 4	
35	Blue-gray Gnatcatcher	*Polioptila caerulea*	Gnatcatchers (Sylviidae)	X	S3B S3N	S5B	1, 3, 4	Flicks its white-edged tail from side to side to scare hiding insects.
36	Blue-headed Vireo	*Vireo solitarius*	Vireos (Vireonidae)	X	S2N	S3 S4B	1, 2	
37	Blue-winged Teal	*Anas discors*	Geese, Swans, and Ducks (Anatidae)	X	S2N	S2B S3 S4N	1,3,6	
38	Blue-winged Warbler	*Vermivora pinus*	Warblers (Parulidae)	X	S3N	S4B	1, 5	
39	Bobolink	*Dolichonyx oryzivorus*	Blackbirds and Orioles (Icteridae)	X	S3 S4N	S3 S4B	1, 2	Passage migrant through the District of Columbia.
40	Bonaparte's Gull	*Chroicocephalus philadelphia*	Gulls and Terns (Laridae)	X	S3N	S2N	1,3,6	
41	Broad-winged Hawk	*Buteo platypterus*	Eagles and Hawks (Accipitridae)	X	S1B S4N	S4B	1, 2	Passage migrant and breeder in the District of Columbia.

42	Brown Creeper	*Certhis americana*	Creepers (Certhiidae)		X	S3N	S4	1, 2	Resident, local migrant, and breeder within the District of Columbia.
43	Brown Thrasher	*Toxostoma rufum*	Mimids and Thrashers (Mimidae)		X	S3B S3N	S5B S2N	1, 2	Resident, local migrant, and breeder in the District of Columbia.
44	Brown-headed Cowbird	*Molothrus ater*	Blackbirds and Orioles (Icteridae)		X	S4	S5	1, 4	
45	Bufflehead	*Bucephala albeola*	Geese, Swans, and Ducks (Anatidae)		X	S1 S2N	S5N	1, 2	
46	Canada Goose	*Branta canadensis*	Geese, Swans, and Ducks (Anatidae)	X	X	S5	S4B S5N	1, 4	
47	Canada Warbler	*Wilsonia canadensis*	Warblers (Parulidae)		X	S4N	S3B	1	
48	Cape May Warbler	*Dendroica tigrina*	Warblers (Parulidae)		X	S2 S3N	SNA	1, 5	
49	Carolina Chickadee	*Poecile carolinensis*	Chickadees and Titmice (Paridae)		X	S5	S5	1, 2	
50	Carolina Wren	*Thryothorus ludovicianus*	Wrens (Troglodytidae)		X	S5	S5	1, 4	
51	Caspian Tern	*Hydroprogne caspia*	Gulls and Terns (Laridae)		X	S1 S2N	SNA	1, 2	
52	Cattle Egret	*Bubulcus ibis*	Bitterns, Egrets, and Herons (Ardeidae)	X		SNA	S3 S4B	1,3,6	
53	Common Tern	*Sterna hirundo*	Gulls and Terns (Laridae)		X				

54	Cedar Waxwing	*Bombycilla cedrorum*	Waxwings (Bombycillidae)	X	S1 S2B S4N	S5B S5N	1, 4	
55	Cerulean Warbler	*Dendroica cerulea*	Warblers (Parulidae)	X	S2N	S3 S4B	1, 2	Breeding populations in small forest tracts throughout the range are declining rapidly to extirpation.
56	Chestnut-sided Warbler	*Dendroica pensylvanica*	Warblers (Parulidae)	X	S4N	S4B	1, 5	
57	Chimney Swift	*Chaetura pelagica*	Swift (Apodidae)	X	S4N S5B	S5B	1, 2, 4	Passage migrant and breeder in the District of Columbia.
58	Chipping Sparrow	*Spizella passerina*	Sparrows and Towhees (Emberizidae)	X	S3B S4N	S5B S1N	1, 2	
59	Cliff Swallow	*Petrochelidon pyrrhonota*	Swallows and Martins (Hirundinidae)	X	S2N SHB	S3 S4B	1,3,6	
60	Common Grackle	*Quiscalus quiscula*	Blackbirds and Orioles (Icteridae)	X	S4 S5N S5B	S5	1, 4	
61	Common Loon	*Gavia immer*	Loons (Gaviidae)	X	SNA	S4N	1,3,6	

62	Common Merganser	*Mergus merganser*	Geese, Swans, and Ducks (Anatidae)	X	S3N	S3N	1, 2	
63	Common Nighthawk	*Chordeiles minor*	Nightjars (Caprimulgidae)	X	S4N	S3 S4B	1	
64	Common Raven	*Corvus corax*	Crows and Jays (Corvidae)	X	SNA	S2	1,3,6	
65	Common Yellowthroat	*Geothlypis trichas*	Warblers (Parulidae)	X	S3B S4N	S5B	1, 4	
66	Cooper's Hawk	*Accipiter cooperii*	Eagles and Hawks (Accipitridae)	X	S3B S4N	S4B S4N	1	
67	Dark-eyed Junco	*Junco hyemalis*	Sparrows and Towhees (Emberizidae)	X	S5N	S2B	1, 2, 3	Easy to recognize by their crisp (though extremely variable) markings and the bright white tail feathers they habitually flash in flight.
68	Double-crested Cormorant	*Phalacrocorax auritus*	Cormorants (Phalacrocoracidae)	X	S4N	S1B S3 S4N	1, 2	
69	Downy Woodpecker	*Picoides pubescens*	Woodpeckers (Picidae)	X	S5	S5	1, 4	
70	Eastern Bluebird	*Sialia Sialis*	Thrushes (Turdidae)	X	S4N	S5B S4N	1, 4	
71	Eastern Kingbird	*Tyrannus tyrannus*	Flycatchers (Tyrannidae)	X	S4B	S5B	1, 4	

72	Eastern Meadowlark	*Sturnella magna*	Blackbirds and Orioles (Icteridae)		X	S1B S4N	S5B S3N	1, 2, 3	Local habitat: Rock Creek National Park, Kenilworth Park, Anacostia Park, and Oxon Cove Park.
73	Eastern Phoebe	*Sayornis phoebe*	Flycatchers (Tyrannidae)		X	S3B	S5B	1, 4	
74	Eastern Screech-Owl	*Megascops asio*	True Owls (Strigidae)		X	S1	S5	1	
75	Eastern Towhee	*Pipilo erythrophthalmus*	Sparrows and Towhees (Emberizidae)		X	S4B S4 S5N	S5B S4N	1, 2	Local habitat: Rock Creek National Park, Kenilworth Park, Anacostia Park, Oxon Run Parkway, Oxon Cove Park, and the Fort Circle Parks area.
76	Eastern Wood-Pewee	*Contopus virens*	Flycatchers (Tyrannidae)		X	SNR	S5B	1, 4	
77	European Starling	*Sturnus vulgaris*	Starlings (Sturnidae)	X		SNA	SNA	1, 4	
78	Field Sparrow	*Spizella pusilla*	Sparrows and Towhees (Emberizidae)		X	S2B S4N	S5	1, 2, 4	Current intensive agricultural practices and spreading urbanization continue to restrict, or eliminate nesting habitat of old weedy fields with shrubs or small trees.

79	Fish Crow	*Corvus ossifragus*	Crows and Jays (Corvidae)	X	S1 S2N S3B	S5	1, 4	
80	Forster's Tern	*Sterna forsteri*	Gulls and Terns (Laridae)	X	S2 S3N	S4B	1,3,6	
81	Fox Sparrow	*Passerella iliaca*	Sparrows and Towhees (Emberizidae)	X	S3N	S2N	1, 2	
82	Gadwall	*Anas strepera*	Geese, Swans, and Ducks (Anatidae)	X	SNA	S2B S4N	1,3,6	
83	Glossy Ibis	*Plegadis falcinellus*	Ibises and Spoonbills (Threskiornithidae)	X	SNA	S4B	1,3,6	
84	Golden-crowned Kinglet	*Regulus satrapa*	Kinglets (Regulidae)	X	S3 S4N	S2B	1, 2	
85	Grasshopper Sparrow	*Ammodramus savannarum*	Sparrows and Towhees (Emberizidae)	X	S3N	S4B	1, 2	Populations declines have resulted in part from loss of habitat, especially the conversion of grassland to row-crop agriculture, urban sprawl, and reforestation, compounded by losses incurred as a result of mowing of habitat and subsequent increased predation.

86	Gray Catbird	*Dumetella carolinensis*	Mimids and Thrashers (Mimidae)		X	S4N S5B	S5B S1N	1, 4	
87	Gray Cheeked Thrush	*Catharus minimus*	Thrushes (Turdidae)		X	S3N	SNA	1, 5	
88	Great Black-backed Gull	*Larus marinus*	Gulls and Terns (Laridae)		X	S5N	S4B	1, 4	
89	Great Blue Heron	*Ardea herodias*	Bitterns, Egrets, and Herons (Ardeidae)		X	S4N	S4B S3 S4N	1, 4	
90	Great Crested Flycatcher	*Myiarchus crinitus*	Flycatchers (Tyrannidae)		X	S3B	S5B	1, 4	
91	Great Egret	*Ardea alba*	Bitterns, Egrets, and Herons (Ardeidae)		X	S4N	S4B	1	
92	Great Horned Owl	*Bubo virginianus*	True Owls (Strigidae)		X	S2	S5	1, 2	Local habitat: Rock Creek National Park, Kenilworth Park, Oxon Cove Park, and the Fort Circle Parks area.
93	Greater Scaup	*Aythya marila*	Geese, Swans, and Ducks (Anatidae)		X	S1N	S4N	1,3,6	
94	Greater Yellowlegs	*Tringa melanoleuca*	Sandpiper (Scolopacidae)		X	S3N	S1N	1, 2	
95	Green Heron	*Butorides virescens*	Bitterns, Egrets, and Herons (Ardeidae)		X	S3 S4B S3 S4N	S5B	1	

96	Green-winged Teal	*Anas crecca*	Geese, Swans, and Ducks (Anatidae)		X	S2N	S4N	1,3,6	
97	Hairy Woodpecker	*Picoides villosus*	Woodpeckers (Picidae)		X	S3	S5	1, 4	
98	Hermit Thrush	*Catharus guttatus*	Thrushes (Turdidae)		X	S3N	S3 S4B S4N	1, 4	
99	Herring Gull	*Larus argentatus*	Gulls and Terns (Laridae)		X	S4N	S5B S5N	1, 4	
100	Hooded Merganser	*Lophodytes cucullatus*	Geese, Swans, and Ducks (Anatidae)		X	S3N	S1B	1	
101	Hooded Warbler	*Wilsonia citrina*	Warblers (Parulidae)		X	S3 S4N	S4 S5B	1, 2, 4	Passage migrant within the District of Columbia.
102	Horned Grebe	*Podiceps auritus*	Grebes (Podicipedidae)		X	SNA	S4N	1,3,6	
103	Horned Lark	*Eremophila alpestris*	Larks (Alauidae)		X	S2N	S4B S4N	1,3,6	
104	House Finch	*Carpodacus mexicanus*	Finches and Grosbeaks (Fringillidae)	X		SNA	SNA	1, 4	
105	House Sparrow	*Passer domesticus*	Old World Sparrows (Passeridae)	X		SNA	SNA	1, 4	
106	House Wren	*Troglodytes aedon*	Wrens (Troglodytidae)		X	S4N S5B	S5B	1, 4	
107	Indigo Bunting	*Passerina cyanea*	Cardinals and Buntings (Cardinalidae)		X	S4 S5N S5B	S5B	1, 4	

108	Kentucky Warbler	*Oporornis formosus*	Warblers (Parulidae)	X	S3 S4N	S4B	1, 2, 4	Breeds in humid deciduous forest, dense second growth, swamps.
109	Killdeer	*Charadrius vociferus*	Plovers and Lapwings (Charadriidae)	X	S2B S4N	S5B S4N	1, 4	
110	Laughing Gull	*Leucophaeus atricilla*	Gulls and Terns (Laridae)	X	S3N	S1B S4N	1, 4	
111	Least Bittern	*Lxobrychus exilis*	Bitterns, Egrets, and Herons (Ardeidae)	X	S1B S2N	S2 S3B	1, 2	Breeds in tall emergent vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps.
112	Least Flycatcher	*Empidonax minimus*	Flycatchers (Tyrannidae)	X	S2 S3N	S3 S4B	1,3,6	
113	Least Sandpiper	*Calidris minutilla*	Sandpiper (Scolopacidae)	X	S3N	SNA	1,3,6	
114	Least Tern	*Sternula antillarum*	Gulls and Terns (Laridae)	X	SNR	S2B	1	
115	Lesser Black-Backed Gull	*Larus fuscus*	Gulls and Terns (Laridae)	X	SNR	SNA	1, 3	
116	Lesser Scaup	*Aythya affinis*	Geese, Swans, and Ducks (Anatidae)	X	S2S3N	S4N	1, 2	
117	Lesser Yellowlegs	*Tringa flavipes*	Sandpiper (Scolopacidae)	X	S3N	S1N	1, 2	

118	Lincoln's Sparrow	*Melospiza lincolnii*	Sparrows and Towhees (Emberizidae)	X	SNA	SNA	1,3,6	
119	Little Blue Heron	*Egretta caerulea*	Bitterns, Egrets, and Herons (Ardeidae)	X	S3N	S3B	1, 2	
120	Louisiana Waterthrush	*Seiurus motacilla*	Warblers (Parulidae)	X	S3 S4N	S5B	1, 2, 4	Breeds in moist forest, woodland, and ravines along streams, mature deciduous and mixed floodplain and swamp forests.
121	Magnolia Warbler	*Dendroica magnolia*	Warblers (Parulidae)	X	S4N	S3 S4B	1, 4	
122	Mallard	*Anas platyrhynchos*	Geese, Swans, and Ducks (Anatidae)	X	S4N S5B	SNA	1, 4	
123	Marsh Wren	*Cistothorus palustris*	Wrens (Troglodytidae)	X	S1B S3N	S4B S2N	1, 2	Local habitat: Kenilworth Park and Anacostia Park.
124	Merlin	*Falco columbarius*	Falcons (Falconidae)	X	S1N	S1N	1,3,6	
125	Mourning Dove	*Zenaida macroura*	Doves (Columbidae)	X	S4N S5B	S5	1, 4	
126	Mourning Warbler	*Oporornis philadelphia*	Warblers (Parulidae)	X	S2N	S1B	1, 5	
127	Nashville Warbler	*Vermivora ruficapilla*	Warblers (Parulidae)	X	S2N	S1 S2B	1, 5	

128	Northern Bobwhite	*Colinus virginianus*	Quails (Odontophoridae)		X	S1	S5	1, 2	Principal threat appears to be habitat loss and fragmentation associated with changing land use, particularly clean farming techniques, single crop production, plantation forestry, fire suppression, replacement of native grass pasture with Tall Fescue, and over-grazing by cattle.
129	Northern Cardinal	*Cardinalis cardinalis*	Cardinals and Buntings (Cardinalidae)		X	S5	S5	1, 4	
130	Northern Flicker	*Colaptes auratus*	Woodpeckers (Picidae)		X	S2 S3N S5B	S5B S5N	1, 4	
131	Northern Goshawk	*Accipiter gentilis*	Eagles and Hawks (Accipitridae)		X	SNA	S1B	1,3,6	
132	Northern Harrier	*Circus cyaneus*	Eagles and Hawks (Accipitridae)		X	S2N	S2B	1, 2	
133	Northern Mockingbird	*Mimus polyglottos*	Mimids and Thrashers (Mimidae)		X	S5	S5	1, 4	
134	Northern Parula	*Parula americana*	Warblers (Parulidae)		X	S3B S3N	S4 S5B	1, 4	
135	Northern Pintail	*Anas acuta*	Geese, Swans, and Ducks (Anatidae)		X	S2N	S4N	1,3,6	

136	Northern Rough-winged Swallow	*Stegidopteryx serripennis*	Swallows and Martins (Hirundinidae)		X	S2N S3B	S4B	1, 4	
137	Northern Shoveler	*Anas clypeata*	Geese, Swans, and Ducks (Anatidae)		X	S1N	S2N	1,3,6	
138	Northern Waterthrush	*Seiurus noveboracensis*	Warblers (Parulidae)		X	S3N	S2S3B	1, 4	
139	Orange-crowned Warbler	*Oreothlypis celata*	Warblers (Parulidae)		X	S1N	SNA	1,3,6	
140	Orchard Oriole	*Icterus spurius*	Blackbirds and Orioles (Icteridae)		X	S1B S3S4N	S5B	1, 4	
141	Osprey	*Pandion haliaetus*	Eagles and Hawks (Accipitridae)		X	S2 S3N	S4B	1, 4	
142	Ovenbird	*Seiurus aurocapilla*	Warblers (Parulidae)		X	S2B S3N	S5B	1, 2, 4	Typically nests in mid-late successional, closed-canopied deciduous or deciduous-coniferous forests that have deep leaf litter and limited understory.
143	Palm Warbler	*Dendroica palmarum*	Warblers (Parulidae)		X	S3N	S2N	1, 2	
144	Pectoral Sandpiper	*Calidris melanotos*	Sandpiper (Scolopacidae)		X	S2N	SNA	1,3,6	
145	Peregrine Falcon	*Falco peregrinus*	Falcons (Falconidae)		X	S1B S1N	S2B S3N	1, 2	

146	Philadelphia Vireo	*Vireo philadelphicus*	Vireos (Vireonidae)	X	S1N	SNA	1, 5	
147	Pied-billed Grebe	*Podilymbus podiceps*	Grebes (Podicipedidae)	X	S4 S5N	S2B	1, 2	
148	Pileated Woodpecker	*Dryocopul pileatus*	Woodpeckers (Picidae)	X	S3	S5	1, 4	
149	Pine Siskin	*Spinus pinus*	Finches and Grosbeaks (Fringillidae)	X	S1N	S1 S2N	1,3,6	
150	Pine Warbler	*Dendroica pinus*	Warblers (Parulidae)	X	S1B S1 S3N	S4B S2N	1, 4	
151	Prairie Warbler	*Dendroica discolor*	Warblers (Parulidae)	X	S1B S2N	S4B	1, 2	
152	Prothonotary Warbler	*Protonotaria citrea*	Warblers (Parulidae)	X	S1B	S4B	1, 2	Breeds in mature deciduous floodplain, river, and swamp forests; wet lowland forest.
153	Purple Finch	*Carpodacus purpureus*	Warblers (Parulidae)	X	S3N	S3B S3N	1, 5	
154	Purple Martin	*Progne subis*	Swallows and Martins (Hirundinidae)	X	S1B S5N	S5B	1,3,6	
155	Red-bellied Woodpecker	*Melanerpes carolinus*	Woodpeckers (Picidae)	X	S5	S5	1, 4	
156	Red-breasted Merganser	*Mergus serrator*	Geese, Swans, and Ducks (Anatidae)	X	S2N	S3N	1,3,6	
157	Red-breasted Nuthatch	*Sitta canadensis*	Nuthatches (Sittidae)	X	S1 S2N	S1B	1,3,6	
158	Red-eyed Vireo	*Vireo olivaceus*	Vireos (Vireonidae)	X	S5B S5N	S5B	1, 4	

159	Red-headed Woodpecker	*Melanerpes erythrocephalus*	Woodpeckers (Picidae)		X	S1N SHB	S4	1,3,6	
160	Red-shouldered Hawk	*Buteo lineatus*	Eagles and Hawks (Accipitridae)		X	S2B S3N	S4 S5B S4N	1, 2, 4	Breeds in bottomland hardwoods and riparian areas to upland deciduous or mixed deciduous-conifer forest.
161	Red-tailed Hawk	*Buteo jamaicensis*	Eagles and Hawks (Accipitridae)		X	S3N	S5B S5N	1	
162	Red-winged Blackbird	*Agelaius phoeniceus*	Blackbirds and Orioles (Icteridae)		X	S4 S5N	S5	1, 4	
163	Ring-billed Gull	*Larus delawarensis*	Gulls and Terns (Laridae)		X	S2 S4N	S5N	1, 4	
164	Ring-necked Duck	*Aythya collaris*	Geese, Swans, and Ducks (Anatidae)		X	S3N	S2N	1,3,6	
165	Rock Pigeon	*Columba livia*	Doves (Columbidae)	X		SNA	SNA	3, 4	
166	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Cardinals and Buntings (Cardinalidae)		X	S3N	S3 S4B	1, 4	
167	Royal Tern	*Thalasseus maximus*	Gulls and Terns (Laridae)		X	SNR	S1B	1	
168	Ruby-crowned Kinglet	*Regulus calendula*	Kinglets (Regulidae)		X	S4N	S3N	1, 2	
169	Ruby-throated Hummingbird	*Archilochus colubris*	Hummingbirds (Trochilidae)		X	S3B S3N	S5B	1	
170	Ruddy Duck	*Oxyura jamaicensis*	Geese, Swans, and Ducks (Anatidae)		X	S3 S4N	S3N	1, 2	

171	Rusty Blackbird	*Euphagus carolinus*	Blackbirds and Orioles (Icteridae)	X	S3N	S2 S3N	1,3,6	
172	Savannah Sparrow	*Passerculus sandwichensis*	Sparrows and Towhees (Emberizidae)	X	S1 S3N	S3 S4B S4N	1,3,6	
173	Scarlet Tanager	*Piranga olivacea*	Cardinals and Buntings (Cardinalidae)	X	S2B S4N	S5B	1, 2, 4	Local habitat: Rock Creek National Park, Kenilworth Park, Anacostia Park, Capitol Hill Parks, Oxon Run Parkway, Oxon Cove Park, and the Fort Circle Parks area.
174	Sedge Wren	*Cistothorus platensis*	Wrens (Troglodytidae)	X	SHB	S1B	1,3,6	
175	Semipalmated Plover	*Charadrius semipalmatus*	Plovers and Lapwings (Charadriidae)	X	S2N	SNA	1,3,6	
176	Semipalmated Sandpiper	*Calidris pusilla*	Sandpiper (Scolopacidae)	X	S2N	SNA	1,3,6	
177	Sharp-shinned Hawk	*Accipiter striatus*	Eagles and Hawks (Accipitridae)	X	S3N SHB	S1 S2B	1, 2	
178	Snow Bunting	*Plectrophenax nivalis*	Longspurs and Buntings (Calcariidae)	X	S1N	S1N	1,3,6	
179	Snowy Egret	*Egretta thula*	Bitterns, Egrets, and Herons (Ardeidae)	X	S2N	S3 S4B	1,3,6	
180	Solitary Sandpiper	*Tringa solitaria*	Sandpiper (Scolopacidae)	X	S3N	SNA	1, 2	

181	Song Sparrow	*Melospiza melodia*	Sparrows and Towhees (Emberizidae)		X	S5B S5N	S5	1, 4	
182	Sora	*Porzana carolina*	Rails (Rallidae)		X	S2N	S1B	1, 2, 3	Nesting habitat includes freshwater swamps, bogs, and swamps with dense stands of cattails, reeds, bulrushes, or sedges.
183	Spotted Sandpiper	*Actitis macularius*	Sandpiper (Scolopacidae)		X	S4N	S3 S4B	1, 3, 4	
184	Summer Tanager	*Piranga rubra*	Cardinals and Buntings (Cardinalidae)		X	S1 S2B S1 S2N	S4B	1,3,6	
185	Swainson's Thrush	*Catharus ustulatus*	Thrushes (Turdidae)		X	S4N	SXB	1, 4	
186	Swamp Sparrow	*Melospiza gerorgiana*	Sparrows and Towhees (Emberizidae)		X	S2 S3N	S4B S5N	1, 2	
187	Tennessee Warbler	*Vermivora peregrina*	Warblers (Parulidae)		X	S2 S3N	SNA	1, 5	
188	Tree Swallow	*Tachycineta bicolor*	Swallows and Martins (Hirundinidae)		X	S1B	S4B	1, 4	
189	Tricolored Heron	*Egretta tricolor*	Bitterns, Egrets, and Herons (Ardeidae)		X	S1N	S3B	1,3,6	
190	Tufted Titmouse	*Baeolophus bicolor*	Chickadees and Titmice (Paridae)		X	S5	S5	1, 4	

191	Tundra Swan	*Cygnus columbianus*	Geese, Swans, and Ducks (Anatidae)	X	S2N	S4N	1,3,6	
192	Turkey Vulture	*Cathartes aura*	New World Vultures (Cathartidae)	X	S3N	S5B S5N	1, 2	
193	Upland Sandpiper	*Bartramia longicauda*	Sandpiper (Scolopacidae)	X	S1N	S1B	1, 2	
194	Veery	*Catharus fuscescens*	Thrushes (Turdidae)	X	S2B S3N	S4B	1, 4	
195	Vesper Sparrow	*Pooecetes gramineus*	Sparrows and Towhees (Emberizidae)	X	S3N	S3 S4B S2N	1,3,6	
196	Virginia Rail	*Rallus limicola*	Rails (Rallidae)	X	S1N SHB	S4B S4N	1, 2	Inhabits shallow, freshwater, emergent wetlands of every size and type, from roadside ditches and borders of lakes and streams to large cattail marshes.
197	Warbling Vireo	*Vireo gilvus*	Vireos (Vireonidae)	X	S1B S1S2N	S4B	1, 4	
198	Western Sandpiper	*Calidris mauri*	Sandpiper (Scolopacidae)	X	S1 S2N	SNA	1,3,6	
199	Whip-poor-will	*Caprimulgus vociferus*	Nightjars (Caprimulgidae)	X	S3N	S3 S4B	1	
200	White-breasted Nuthatch	*Sitta carolinensis*	Nuthatches (Sittidae)	X	S3B S3N	S5	1	

201	White-crowned Sparrow	*Zonotrichia leucophrys*	Sparrows and Towhees (Emberizidae)		X	S3N	S3 S4N	1,3,6	
202	White-eyed Vireo	*Vireo griseus*	Vireos (Vireonidae)		X	S1B S2 S4N	S5B	1, 2, 4	During breeding season, inhabits early-late successional, shrubby habitats such as deciduous scrub, old fields, abandoned pastures, regenerating clearcuts or other heavily logged areas, drainage and streamside thickets, forest edges, reclaimed strip mines, and mangrove swamps.
203	White-rumped Sandpiper	*Calidris fuscicollis*	Sandpiper (Scolopacidae)		X	S1N	SNA	1	
204	White-throated Sparrow	*Zonotrichia albicollis*	Sparrows and Towhees (Emberizidae)		X	S5N	S5N	1, 4	

205	Wild Turkey	*Meleagris gallopavo*	Turkeys and pheasants (Phasianidae)	X	SNR	S4	1, 2	
206	Willet	*Tringa semipalmata*	Sandpiper (Scolopacidae)	X	S2N	S3 S4B	1,3,6	
207	Willow Flycatcher	*Empidonax traillii*	Flycatchers (Tyrannidae)	X	SNR	S4B	1	
208	Wilson's Snipe	*Gallinago delicata*	Sandpiper (Scolopacidae)	X	S2 S3N	S2N	3	
209	Wilson's Warbler	*Wilsonia pusilla*	Warblers (Parulidae)	X	S2 S3N	SNA	1, 2	
210	Winter Wren	*Troglodytes troglodytes*	Wrens (Troglodytidae)	X	S2 S3N	S2B	1, 2	
211	Wood Duck	*Aix sponsa*	Geese, Swans, and Ducks (Anatidae)	X	S3N S4B	S5B S3N	1, 2, 4	Inhabits quiet inland waters near woodland, such as wooded swamps, flooded forest, greentree reservoirs, ponds, marshes, and along streams. Local habitat: Rock Creek National Park, Anacostia Park, Kenilworth Park, Oxon Run Parkway, Oxon Cove Park, and the Fort Circle Parks area.
212	Wood Thrush	*Hylocichla mustelina*	Thrushes (Turdidae)	X	S3B S4N	S5B	1, 2, 4	

213	Worm-eating Warbler	*Helmitheros vermivorum*	Warblers (Parulidae)	X	S2N	S4B	1, 2	Breeds in well-drained upland deciduous forests with understory patches of mountain laurel or other shrubs, drier portions of stream swamps with an understory of mountain laurel, deciduous woods near streams
214	Yellow Warbler	*Dendroica petechia*	Warblers (Parulidae)	X	S2N	S5B	1, 4	
215	Yellow-bellied sapsucker	*Sphyrapicus varius*	Woodpeckers (Picidae)	X	S2N	SHB S3N	1, 2	
216	Yellow-bellied Flycatcher	*Empidonax flaviventris*	Flycatchers (Tyrannidae)	X	S1 S2N	SNA	1,3,6	
217	Yellow-billed Cuckoo	*Coccyzus americanus*	Cuckoos (Cuculidae)	X	S2B S3N	S5B	1, 4	
218	Yellow-breasted Chat	*Icteria virens*	Warblers (Parulidae)	X	S3 S4N	S5B	1, 4	
219	Yellow-crowned Night Heron	*Nyctanassa violacea*	Bitterns, Egrets, and Herons (Ardeidae)	X	SHB	S2B	1	
220	Yellow-rumped Warbler	*Dendroica coronata*	Warblers (Parulidae)	X	S5N	S4N	1, 4	

221	Yellow-throated Vireo	*Vireo flavifrons*	Vireos (Vireonidae)	X	S2 S3B S2 S3N	S4 S5B	1, 2	Breeds primarily in open deciduous forest and woodland, mixed forest near clearings or water, moist upland forest riparian woodland, tall floodplain forest, lowland swamp forest;
222	Yellow-throated Warbler	*Dendroica dominica*	Warblers (Parulidae)	X	S1N	S4B	1	

APPENDIX B

Endangered Species Letter from Genevieve LaRouche to Fred Pinkney 11/2/2015

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

November 2, 2015

Fred Pinkney, Ph.D.
Senior Biologist
Environmental Contaminants Program
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

RE: "Not Likely to Adversely Affect" northern long-eared bat determination; Anacostia IPaC Database Results for Anacostia Watershed Restoration Studies in Montgomery and Prince George's Counties in Maryland

Dear Dr. Pinkney:

The U.S. Fish and Wildlife Service (Service) has reviewed your project information from the Service's Information for Planning and Conservation (IPaC) online system dated July 7, 2015. The Service has evaluated the potential effects of this project to the threatened northern long-eared bat (*Myotis septentrionalis*). The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The purpose of this proposed project is to conduct feasibility studies of aquatic ecosystem restoration needs and opportunities within the Anacostia Watershed in Montgomery and Prince George's Counties in Maryland.

This project is within the range of the northern long-eared bat, a federally listed threatened species. The northern long-eared bat is a temperate, insectivorous migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Since the forest clearing for this proposed project is minimal, and there are no current records of northern long-eared bats in the project vicinity, this project as proposed is "not likely to adversely affect" the northern long-eared bat, therefore, there are no time of year restrictions on forest clearing.

Except for occasional transient individuals, no other Federal proposed or listed endangered or threatened species under our jurisdiction are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. This Endangered Species Act determination does not exempt this project from obtaining all permits and approvals that may be required by other State or Federal agencies.
If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

G. La Rouche

Genevieve LaRouche
Supervisor

APPENDIX C

Function-Based Rapid Field Stream Assessment data sheets
Sligo Creek Mainstem/Sligo Creek Tributary
Paint Branch
Little Paint Branch

RAPID WATERSHED ASSESSMENT DATA SHEETS
Sligo Creek Mainstem/Sligo Creek Tributary
Paint Branch
Little Paint Branch

RAPID WATERSHED ASSESSMENT DATA SHEET

Watershed: Sligo / Sligo Tr. 6

Rater(s): 6/4/15

Stream:

Date: RL, SD

Photo(s):

Overall Watershed Condition Good Fair **Poor**

WATERSHED ASSESSMENT

	Category / Parameter / Measurement Method	Description of Watershed Condition			Rating (G/F/P)
		Good	Fair	Poor	
1	Hydrology / Runoff / Watershed Impoundments	No impoundment upstream of project area	No impoundment within 1 mile upstream of project area OR impoundment does not adversely affect hydrology or fish passage	Impoundment(s) located within 1 mile upstream of project area and/or has an adverse effect on hydrology and/or fish passage	G or F?
2	Hydrology / Runoff / Concentrated Flow	No potential for concentrated flow/impairments from adjacent land use	Some potential for concentrated flow/impairments to reach restoration site, however, measures are in place to protect resources	Potential for concentrated flow/impairments to reach restoration site and no treatments are in place	P
3	Hydrology / Runoff / Land Use Change	Rural communities/slow growth or primarily forested (>70%)	Single family homes/suburban development occurring or active agricultural practices occurring, or commercial and/or industrial development starting, forested area 20 - 70%	Rapidly urbanizing/urban or primarily active agricultural practices (> 70%), forested area <20%	P
4	Hydrology / Runoff / Distance to Roads	No roads in or adjacent to site. No proposed major roads in or adjacent to site in 10 year DOT plans	No roads in or adjacent to site. No more than one major road proposed in 10 year DOT plans	Roads located in or adjacent to site boundary and/or major roads proposed in 10 year DOT plans	P
5	Hydrology / Runoff / Flashiness	Non-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover less than 6%	Semi-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover 7%- 15%	Flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover greater than 15%	P
6	Geomorphology / Riparian Vegetation	>80% of contributing stream length has >25 ft corridor width	50 - 80% of contributing stream length has >25 ft corridor width	<50% of contributing stream length has >25 ft corridor width	F
7	Geomorphology / Sediment Supply	Low sediment supply. Upstream bank erosion and bed load supply is minimal. There are few bars present in the channel	Moderate sediment supply from upstream bank erosion and bed load supply. There are some point bars and small lateral bars	High sediment supply from upstream bank erosion and bed load supply. There are numerous alternating point bars, transverse bars and/or mid-channel bars	F
8	Physicochemical / Water Quality / 303(d) List	Very clear, or clear but tea-colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks. Clear water along entire reach; diverse aquatic plant community includes low quantities of many species of macrophytes; little algal growth present. Not on 303d list	Considerable cloudiness most of the time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with green or olive-green film; or moderate odor of ammonia or rotten eggs. Greenish water along entire reach; overabundance of lush green macrophytes; abundant algal growth, especially during warmer months. On or downstream of 303d list and TMDL/WS Mgmt plan addressing deficiencies	Very turbid or muddy appearance most of the time; objects visible at depth< 0.5 ft; slow moving water maybe bright green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface; or strong odor of chemicals, oil, sewage, or other pollutants. Pea-green, gray, or brown water along entire reach; dense stands of macrophytes clogging stream; severe algal blooms creating thick algal mats in stream. On or downstream of 303d list and no TMDL/WS mgmt plan to address deficiencies	F?
9	Biology / Landscape Connectivity	Channel upstream and downstream of project area has native bed and bank materials and is not impaired	Channel upstream and downstream of project area has native bed and bank materials but is impaired	Channel upstream and downstream of project area is concrete piped, or hardened	P

RAPID WATERSHED ASSESSMENT DATA SHEET

Watershed: _____ Rater(s): RL

Stream: Paint Branch Date: 6/8/15

Photo(s): _____

Overall Watershed Condition Good Fair **Poor**

WATERSHED ASSESSMENT

	Category / Parameter / Measurement Method	Description of Watershed Condition			Rating (G/F/P)
		Good	Fair	Poor	
1	Hydrology / Runoff / Watershed Impoundments	No impoundment upstream of project area	No impoundment within 1 mile upstream of project area OR impoundment does not adversely affect hydrology or fish passage	Impoundment(s) located within 1 mile upstream of project area and/or has an adverse effect on hydrology and/or fish passage	G or F?
2	Hydrology / Runoff / Concentrated Flow	No potential for concentrated flow/impairments from adjacent land use	Some potential for concentrated flow/impairments to reach restoration site, however, measures are in place to protect resources	Potential for concentrated flow/impairments to reach restoration site and no treatments are in place	P
3	Hydrology / Runoff / Land Use Change	Rural communities/slow growth or primarily forested (>70%)	Single family homes/suburban development occurring or active agricultural practices occurring, or commercial and/or industrial development starting, forested area 20 - 70%	Rapidly urbanizing/urban or primarily active agricultural practices (> 70%), forested area <20%	P
4	Hydrology / Runoff / Distance to Roads	No roads in or adjacent to site. No proposed major roads in or adjacent to site in 10 year DOT plans	No roads in or adjacent to site. No more than one major road proposed in 10 year DOT plans	Roads located in or adjacent to site boundary and/or major roads proposed in 10 year DOT plans	P
5	Hydrology / Runoff / Flashiness	Non-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover less than 6%	Semi-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover 7%- 15%	Flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover greater than 15%	P
6	Geomorphology / Riparian Vegetation	>80% of contributing stream length has >25 ft corridor width	50 - 80% of contributing stream length has >25 ft corridor width	<50% of contributing stream length has >25 ft corridor width	F
7	Geomorphology / Sediment Supply	Low sediment supply. Upstream bank erosion and bed load supply is minimal. There are few bars present in the channel	Moderate sediment supply from upstream bank erosion and bed load supply. There are some point bars and small lateral bars	High sediment supply from upstream bank erosion and bed load supply. There are numerous alternating point bars, transverse bars and/or mid-channel bars	F or P
8	Physicochemical / Water Quality / 303(d) List	Very clear, or clear but tea-colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks. Clear water along entire reach; diverse aquatic plant community includes low quantities of many species of macrophytes; little algal growth present. Not on 303d list	Considerable cloudiness most of the time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with green or olive-green film; or moderate odor of ammonia or rotten eggs. Greenish water along entire reach; overabundance of lush green macrophytes; abundant algal growth, especially during warmer months. On or downstream of 303d list and TMDL/WS Mgmt plan addressing deficiencies	Very turbid or muddy appearance most of the time; objects visible at depth< 0.5 ft; slow moving water maybe bright green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface; or strong odor of chemicals, oil, sewage, or other pollutants. Pea-green, gray, or brown water along entire reach; dense stands of macrophytes clogging stream; severe algal blooms creating thick algal mats in stream. On or downstream of 303d list and no TMDL/WS mgmt plan to address deficiencies	F ?
9	Biology / Landscape Connectivity	Channel upstream and downstream of project area has native bed and bank materials and is not impaired	Channel upstream and downstream of project area has native bed and bank materials but is impaired	Channel upstream and downstream of project area is concrete piped, or hardened	F

RAPID WATERSHED ASSESSMENT DATA SHEET

Watershed: _____ Rater(s): SD, RL

Stream: Little Paint Branch Date: 6/8/15

Photo(s): _____

Overall Watershed Condition Good Fair (Poor)

WATERSHED ASSESSMENT

	Category / Parameter / Measurement Method	Description of Watershed Condition			Rating (G/F/P)
		Good	Fair	Poor	
1	Hydrology / Runoff / Watershed Impoundments	No impoundment upstream of project area	No impoundment within 1 mile upstream of project area OR impoundment does not adversely affect hydrology or fish passage	Impoundment(s) located within 1 mile upstream of project area and/or has an adverse effect on hydrology and/or fish passage	G or F
2	Hydrology / Runoff / Concentrated Flow	No potential for concentrated flow/impairments from adjacent land use	Some potential for concentrated flow/impairments to reach restoration site, however, measures are in place to protect resources	Potential for concentrated flow/impairments to reach restoration site and no treatments are in place	P
3	Hydrology / Runoff / Land Use Change	Rural communities/slow growth or primarily forested (>70%)	Single family homes/suburban development occurring or active agricultural practices occurring, or commercial and/or industrial development starting, forested area 20 - 70%	Rapidly urbanizing/urban or primarily active agricultural practices (> 70%), forested area <20%	P
4	Hydrology / Runoff / Distance to Roads	No roads in or adjacent to site. No proposed major roads in or adjacent to site in 10 year DOT plans	No roads in or adjacent to site. No more than one major road proposed in 10 year DOT plans	Roads located in or adjacent to site boundary and/or major roads proposed in 10 year DOT plans	P
5	Hydrology / Runoff / Flashiness	Non-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover less than 6%	Semi-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover 7%- 15%	Flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover greater than 15%	P
6	Geomorphology / Riparian Vegetation	>80% of contributing stream length has >25 ft corridor width	50 - 80% of contributing stream length has >25 ft corridor width	<50% of contributing stream length has >25 ft corridor width	F or P
7	Geomorphology / Sediment Supply	Low sediment supply. Upstream bank erosion and bed load supply is minimal. There are few bars present in the channel	Moderate sediment supply from upstream bank erosion and bed load supply. There are some point bars and small lateral bars	High sediment supply from upstream bank erosion and bed load supply. There are numerous alternating point bars, transverse bars and/or mid-channel bars	P
8	Physicochemical / Water Quality / 303(d) List	Very clear, or clear but tea-colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks. Clear water along entire reach; diverse aquatic plant community includes low quantities of many species of macrophytes; little algal growth present. Not on 303d list	Considerable cloudiness most of the time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with green or olive-green film; or moderate odor of ammonia or rotten eggs. Greenish water along entire reach; overabundance of lush green macrophytes; abundant algal growth, especially during warmer months. On or downstream of 303d list and TMDL/WS Mgmt plan addressing deficiencies	Very turbid or muddy appearance most of the time; objects visible at depth< 0.5 ft; slow moving water maybe bright green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface; or strong odor of chemicals, oil, sewage, or other pollutants. Pea-green, gray, or brown water along entire reach; dense stands of macrophytes clogging stream; severe algal blooms creating thick algal mats in stream. On or downstream of 303d list and no TMDL/WS mgmt plan to address deficiencies	F?
9	Biology / Landscape Connectivity	Channel upstream and downstream of project area has native bed and bank materials and is not impaired	Channel upstream and downstream of project area has native bed and bank materials but is impaired	Channel upstream and downstream of project area is concrete piped, or hardened	F

APPENDIX D

Comments and responses on the draft report submitted to USACE in July 2015

Comments and responses on the draft report submitted to USACE in June 2015.

NUMBERED COMMENTS				
		USACE Comment	Author	**USFWS Response**
1		Please provide clarity as to why the stream reaches selected were chosen. Are they representative of those that were not studied? That is, can the results be extrapolated to other sites? If so, please discuss this in the PAR**.**	Sowers	There are two parts to the PAR: 1) The assessment of recreational fishing, fish sampling data, potential for anadromous fish migration, and environmental education was conducted on all candidate reaches summarized in USACE (2015a,b). 2) The Function-based Rapid Stream Assessment was conducted on the following candidate stream reaches which were assigned to USFWS by USACE: Sligo Creek (Montgomery County) which included a mainstem and tributary subsection; Paint Branch (Prince Georges County), and Little Paint Branch (Prince Georges County). The assessment was based on field measurements and analysis of data provided by USACE. The results are specific to the reaches assessed and cannot be extrapolated to areas where no field work was conducted.
2		It appears much of the text was pulled from the Report Synopsis that USACE drafted. Please revise text to reduce the redundancy.	Gomez	The Introduction has been revised. The text that discusses bird species (in the Environmental Education section of "Results and Interpretation") is now given in quotes.
3		Please replace 'USACE' with 'USACE'	Gomez	Accepted

4		Please provide separate recommendations and prioritizations for Montgomery County and Prince George's County. The current draft has just one set of recommendations for the Anacostia.	Sowers	The Conclusions and Prioritization section is now divided into subsections for each county.
5		Please develop the recommendations/conclusions section further to include advice or conservation recommendations for both Montgomery and Prince George's County. See specific comments in the report.	Sowers/Gomez	Determination of the proper restoration techniques to be used on the stream segments is part of the design/development process and can vary significantly based on site conditions. This level of effort was beyond the scope of this study, but can be included in the next phase, or any joint future work.
6		It is identified that we would get tolerant species only and they are already there. Do you have any recommendations to address this?	Gomez	Text has been revised to further explain the potential biologic lift (p. 9 and 10 of report.)
7		Can you expand the discussion of what species would likely benefit from these projects?	Sowers	The biology parameter in the rapid assessment is a visual observation of tolerant vs. intolerant species only, and as such, individual species were not identified past their family in fish and order for benthic macroinvertebrates. A more detailed inventory of the baseline biological community present in the streams would have to occur for further discussion to take place.
8		Not all of the functions covered in the pyramid are stream functions. For example, 'provide clean water' is really a watershed function. Streams have some limited ability to address WQ, but this is usually overwhelmed by watershed factors. Is it appropriate in the Anacostia to credit the streams with water quality improvements? Does this lead to any problems in using the pyramid in this setting**?**	Spaur	Concur. Water quality cannot be addressed at the reach level without additional information about the watershed conditions. Based on that, please note that the restoration potential identified by CBFO as part of this study is only up to level 3 – geomorphology, not level 4 – physicochemical. However, any restoration on the stream segments will affect sediment supplies, and therefore nutrients. This would be the one water quality parameter that can be achieved at the reach rather than watershed level (through lateral stability improvements). USACE can determine whether crediting sediment/nutrient reductions at a site is acceptable, but it is something that can be quantified.

9		How do we address the issue that the pyramid structure implies that undertaking work at any level can provide functional lift that can be measured? Whereas, in reality, measurable improvement in some of the functions of the pyramid may produce no meaningful ecological improvement.	Spaur	Concur, that is why it is critical to select functions that: 1. Stakeholders believe they can change 2. Are measureable As in the reply to comment 5 above, this determination is something that occurs during the design process, but CBFO can assist in the process of identifying which functions to select.
COMMENTS IN TEXT				
abstract		For both Montgomery and Prince George's County? From Figure 3, it looks like a couple of the segments in Prince George's County are pinpointed.	JS1	Revised; "Based on a map provided by Jorge Montero of the Anacostia Watershed Society, three of the candidate reaches (all in Prince Georges County) have documented recreational fishing: Paint Branch (PG#5), Northeast Branch (PG Site #15), and Northeast Branch-Riggs Road (PG Site #13)."
abstract		In Montgomery County? Please provide a similar listing of species for Prince George's County.	JS2	Revised. The text and Table 3 provide the list of game fish species identified in the four Prince Georges candidate reaches that were surveyed by MBSS.
p.2		Please provide the corresponding stream reach number for Little Paint Branch	E3	Provided. As noted above, a subset of these reaches: Montgomery County—Sligo Creek (Site Mont #12; 0.7 miles), Prince Georges County—Paint Branch (Site PG#5, 1.2 miles), and Little Paint Branch (Site PG#12; 0.8 miles) were evaluated using the Function-based Rapid Stream Assessment.
p. 3		Where is this? (Refers to statement on page 3, "The watershed assessment identifies potential constraints and stressors that may influence the stream segment (and potential restoration) and was completed based on information provided by USACE."	E4	Text has been clarified by referencing the USACE (2015a,b) synopses
p.3		Why? Is this just an example or does flood plain connectivity drive the lift potential?	E5	Text has been added explaining the use of floodplain connectivity when determining potential lift.

p.4		Based on Table 3(now Table 4), all segments have a 'restoration potential' = 3, but the ranking ranges from low to maximum. Please explain how they can all have the same restoration potential but vary from low to maximum.	E6	Text has been added (p. 4) explaining the difference between restoration potential and the potential lift.
p. 4		This seems to be inconsistent with what is shown on Figure 3, which pinpoints a couple of study segments, including at least on Sites 15 and 13.	JS7	Text has been revised; Based on the maps provided by Jorge Montero of the Anacostia Watershed Society, fishing may be occurring in three of the candidate reaches in Prince Georges County: Paint Branch (PG#5), Northeast Branch (PG Site #15), and Northeast Branch-Riggs Road (PG Site #13).
p. 4		Why is this relevant?	E8	Sentence deleted.
p.4		Please provide similar table for Prince George's County.	JS9	Provided as Table 3
p.4		Please include the listing of these fish.	JS10	The section has been revised to include Galli et al. (2010) list of reported species within the watershed and the game species collected from the candidate reaches that were surveyed by the counties or MBSS.
p. 4		Communication with MBSS indicated the presence (1997) of two federally listed species within the Anacostia watershed including bluespotted sunfish and American brook lamprey. Do you have any further information on these species or where these watershed these observations may have occurred? Are our projects likely to affect these species?	JS11	No information on the presence of either of these two species was identified in a search of the MBSS data base and neither were listed by Galli et al. (2010)
p. 5		Can you provide any discussion about which birds have special value and which may potentially benefit improved stream network.	E12	Information of the conservation status of bird, amphibian, reptile, and mammal species in the watershed has been added as Appendix A.
p. 6		Why were the surveyed reaches chosen? Why only 2.7 mi? Are these reaches representative of any others? That is, can the results here be transferred to other reaches not surveyed? See emails on why sites were chosen.	E13	See response to Comment 1.

p. 6		Is this the case for stream segments not chosen? If this information is available for other reaches, why not chose those reaches instead?	E14	See response to Comment 1. We assessed all candidate reaches assigned to USFWS by USACE and used all USACE-provided data in the assessment.
p. 7		It would be beneficial to have some input provided on what specifically should be addressed/ actions taken to achieve level 3. Is it the floodplain connectivity and bedform diversity identified below?	E15	See response to Comment 5.
p. 7		What is the channel evolutionary trend?	E16	Text was added (p. 7), "The channel evolution trend for the majority of the reach indicates that the segment is trending towards NF."
p. 9		Such as? (refers to sentence in Conclusions and Recommendations section, "Although the stream segments have these constraints, all of the streams have a potential to achieve fully functioning levels up to level 3 – geomorphology with proper stream restoration techniques."	E17	See response to Comment 5.
p. 10		Can you provide any discussion on which species will benefit from these improvements.	E18	See response to Comments 6 and 7.
p. 14		Please provide similar list for Prince George's County.	JS19	Revised. The text and Table 3 provide the list of game fish species identified in the four Prince Georges candidate reaches that were surveyed by MBSS.

C-3: Endangered Species Act Determination

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

November 2, 2015

Fred Pinkney, Ph.D.
Senior Biologist
Environmental Contaminants Program
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

RE: "Not Likely to Adversely Affect" northern long-eared bat determination; Anacostia IPaC Database Results for Anacostia Watershed Restoration Studies in Montgomery and Prince George's Counties in Maryland

Dear Dr. Pinkney:

The U.S. Fish and Wildlife Service (Service) has reviewed your project information from the Service's Information for Planning and Conservation (IPaC) online system dated July 7, 2015. The Service has evaluated the potential effects of this project to the threatened northern long-eared bat (*Myotis septentrionalis*). The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The purpose of this proposed project is to conduct feasibility studies of aquatic ecosystem restoration needs and opportunities within the Anacostia Watershed in Montgomery and Prince George's Counties in Maryland.

This project is within the range of the northern long-eared bat, a federally listed threatened species. The northern long-eared bat is a temperate, insectivorous migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Since the forest clearing for this proposed project is minimal, and there are no current records of northern long-eared bats in the project vicinity, this project as proposed is "not likely to adversely affect" the northern long-eared bat, therefore, there are no time of year restrictions on forest clearing.

Except for occasional transient individuals, no other Federal proposed or listed endangered or threatened species under our jurisdiction are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. This Endangered Species Act determination does not exempt this project from obtaining all permits and approvals that may be required by other State or Federal agencies.

If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

G. LaRouche

Genevieve LaRouche
Supervisor

C-4: Nationwide Permit #27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities

NATIONWIDE PERMIT 27
Aquatic Habitat Restoration, Enhancement, and Establishment Activities
Effective Date: March 19, 2017
(NWP Final Notice, 82 FR 4)

27. Aquatic Habitat Restoration, Enhancement, and Establishment Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To be authorized by this NWP, the aquatic habitat restoration, enhancement, or establishment activity must be planned, designed, and implemented so that it results in aquatic habitat that resembles an ecological reference. An ecological reference may be based on the characteristics of an intact aquatic habitat or riparian area of the same type that exists in the region. An ecological reference may be based on a conceptual model developed from regional ecological knowledge of the target aquatic habitat type or riparian area.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, rehabilitation, or re-establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to enhance, rehabilitate, or re-establish stream meanders; the removal of stream barriers, such as undersized culverts, fords, and grade control structures; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to restore or enhance wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., the conversion of a stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the

conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 32), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Authorities: Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must

be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the

Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA

section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations

for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district

engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested

information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an

illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal

individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2-acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are

determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

F. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility.

Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has flowing water 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. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Protected tribal resources: Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish

attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no

longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ADDITIONAL INFORMATION

This nationwide permit is effective March 19, 2017, and expires on March 18, 2022.

Information about the U.S. Army Corps of Engineers regulatory program, including nationwide permits, may also be found at http://www.swf.usace.army.mil/Missions/Regulatory.aspx and http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

ENCLOSURE 2

REGIONAL CONDITIONS TO THE 2017 NATIONWIDE PERMITS FOR THE STATE OF MARYLAND

I. Regional Conditions Applicable to Specific Nationwide Permits within the State of Maryland:

A. Nationwide Permit #3 *Maintenance:* Prior to commencing an activity the permittee must submit a Pre-construction Notification (PCN) to the District Engineer, for that portion of paragraph (a) of Nationwide Permit (NWP) 3 applicable to the repair, rehabilitation, or replacement in-kind of any previously authorized currently serviceable structure or fill destroyed or damaged by storms, floods, fires, or other discrete events.

1. For activities in all tidal and nontidal coastal plain streams in the State of Maryland or nontidal Piedmont streams located in Harford and Cecil Counties, Maryland, the District Engineer will coordinate review of the PCN with the National Marine Fisheries Service (NMFS) pursuant to the requirements of the Magnuson-Stevens Fishery Conservation and Management Act when:

    a. The applicant requests a waiver to work during the time of year restriction for anadromous fish.

    b. The project affects more than 10,000 square feet of tidal wetlands and/or tidal waters.

B. Nationwide Permit #4 *Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities:* This nationwide permit does not authorize activities that cause interference with navigation. No structure can extend into anchorage areas; customary boating channels; navigation fairways; marked, lighted, or charted channels; or State or Federal Navigation Channels.

C. Nationwide Permit #23 *Approved Categorical Exclusions:* Prior to doing the work, the permittee shall submit a Pre-construction Notification to the District Engineer. (See General Condition 32 and Regional General Condition 32)

D. Nationwide Permit #27 *Aquatic Habitat Restoration, Establishment, and Enhancement Activities:* Prior to doing the work, the permittee shall submit a Pre-construction Notification (PCN) to the District Engineer (see General Condition 32 and Regional General Condition 32).

1. Any activity involving shellfish seeding, such as the placement of shell material or any other habitat development or enhancement, is restricted to shellfish species that are native to that waterbody.

2. For activities in all tidal and nontidal coastal plain streams within the State of Maryland or nontidal Piedmont streams in Harford and Cecil Counties, Maryland, the District Engineer will coordinate review of the PCN with the National Marine Fisheries Service Habitat Conservation Division pursuant to the requirements of the Magnuson Stevens Fishery Conservation and Management Act.

3. For activities involving the restoration of tidal marsh in mesohaline waters (i.e., salinity of 5-18 ppt) of the mid and upper Chesapeake Bay, the PCN should include information concerning the distribution of horned pondweed (*Zannichellia palustris)* within the project site. Distribution information of horned pondweed may require recent ground-truth survey of the area by the applicant (i.e., employing a survey crew with relevant experience) during the period of May 1 through June 15, of any year.

E. Nationwide Permit #30 *Moist Soil Management for Wildlife:* Prior to doing the work, the permittee must submit a PCN to the District Engineer (see General Condition 32 and Regional General Conditions 32).

F. Nationwide Permit #38 *Cleanup of Hazardous and Toxic Waste:* For activities in all tidal and nontidal streams, the Corps of Engineers will coordinate review of the Pre-construction Notification with the National Marine Fisheries Service Habitat Conservation Division pursuant to the requirements of the Magnuson Stevens Fishery Conservation and Management Act.

G. Nationwide Permit #48 *Commercial Shellfish Aquaculture Activities:*

1. This Nationwide Permit (NWP) **does not** authorize the following activities:

   a. Activities located in mapped anadromous fish spawning habitat. The applicant may refer to MERLIN or other reliable sources for this information. http://dnrweb.dnr.state.md.us/MERLIN/

   b. Activities associated with the cultivation and/or introduction into tidal waters of shellfish species that are not indigenous to the Chesapeake Bay and its tributaries, or the Maryland coastal bays.

   c. Activities associated with the mining of subtidal fossil shell deposits in waters of the Chesapeake Bay and its tributaries for use as cultch for a shellfish cultivation operation.

d. No work may extend into anchorage areas; customary boating channels; navigation fairways; marked, lighted, or charted channels; or State or Federal Navigation Channels.

e. Activities that adversely affect ingress to and egress from neighboring properties.

f. Commercial aquaculture activities for crustaceans or finfish.

g. Shellfish habitat restoration activities, including shellfish seeding which are conducted to restore populations of shellfish in navigable waters of the United States. Shellfish habitat restoration activities may be authorized by another form of Department of the Army permit (e.g., Nationwide Permit #27 or individual permit).

h. Activity or vehicular access to the project site that has more than a minimal adverse impact on coastal or wetland vegetation.

i. Oyster gardening activities.

j. The establishment of Aquaculture Enterprise Zones or preapproved areas of the Atlantic Coastal Bays.

k. Activities that impound water.

l. Predator control devices (i.e., mesh fences, mesh nets, mesh tents) suspended or erected vertically or obliquely in the water column used to surround or enclose shellfish/containment gear. This condition does not preclude the use of cages for shellfish containment.

m. Activities that use unsuitable materials for shellfish seeding (e.g., asphalt, bituminous concrete, slag, tires, wallboard, plastic, wood, metal, crushed glass, trash, and garbage).

n. Activities that will have more than minimal adverse effects on existing or naturally occurring beds or populations of shellfish, marine worms, or other invertebrates that could be used by man, other mammals, birds, reptiles, or predatory fish.

o. Activities that result in the physical destruction (e.g., through excavation, dredging, mining, fill or significant downstream sedimentation by substantial turbidity) of an important spawning/nursery habitat.

2. The prospective permittee must submit a Pre-construction Notification (PCN) to the District Engineer using the Joint State/Federal Application for a Commercial Shellfish Aquaculture Lease and Federal Permit (http://dnr2.maryland.gov/fisheries/Documents/Commercial-Shellfish-Lease-

Application.pdf and http://dnr2.maryland.gov/fisheries/Documents/Shellfish-Lease-Application-Instructions.pdf) when:

a. The project does not have a valid authorization from the Corps in effect as of August 15, 2016, or

b. The activity involves any change in the aquaculture type (bottom culture, floating structures, or structures suspended in the water column) from which was previously authorized by the Corps.

The Maryland Department of Natural Resources will forward the Joint Application to the Corps. Alternatively, the applicant may submit the application directly to the Corps. The Corps' review period shall commence with the receipt of a completed PCN at the Corps District Office.

3. In addition to the information required by NWP 48, General Conditions and Regional General Condition 32, the PCN must include:

a. A copy of the lease or permit issued by the appropriate state government agency if a lease or permit has been issued at the time of PCN submittal;

b. Legible project vicinity map (black line on white background), to scale, and depicting the footprint of project area relative to prominent land/water geographic features, including approximate latitude/longitude coordinates of the project footprint;

c. Legible overview plans (black line on white background), to scale (100':1", or 50':1"), depicting the entire project footprint and adjacent waters overlaid on composite mapping of the 5 most recent years of SAV data (derived from the Virginia Institute of Marine Science (VIMS) aerial surveys), and showing local water depths (bathymetry) of the project area, and other important ecological features of the site (e.g., native tidal marsh) that may be affected by project activities.

d. Detailed project description, with the following information:

i. Description of proposed activities, including site preparation and harvest activities (e.g., dredging, harrowing and dragging of bottom substrate, tonging), and a description of how structures and vertical and horizontal lines would be arranged throughout the project area, spacing of rows and spacing between structures;

ii. Types of aquaculture gear to be used, including anchoring devices, maximum number of vertical and horizontal lines, and buoys;

iii. Acreage of project footprint affecting bottom and water column;

iv. Impacts (temporary and/or permanent) to aquatic areas required for access to the aquaculture facility/gear, and remedial measures proposed to restore temporarily affected aquatic areas;

v. Substrate type of bottom affected by proposed activities (particularly for on-bottom activities) (e.g., soft sand, hard sand, mud, shell.).

e. Cross-sectional view of proposed aquaculture structures and all associated apparatus that represents the proposed operations of the activity (on-bottom, suspended, or floating).

f. If the applicant proposes work in waters adjacent to property owned by others, the applicant must provide proof of notification to adjacent property owners via certified mail, return receipt requested. In addition, the applicant may include any statement of no objection or comments from the adjacent property owner(s).

g. The PCN must include details that clearly identify how adverse effects to navigation and ingress to and egress from neighboring properties has been avoided.

4. **Shellfish Certification:** Shellfish introduced into tidal waters of the Chesapeake Bay and its tributaries, or in the Maryland coastal bays and their tributaries, must be certified (under Maryland standards) as being disease and parasite free.

5. **Vertical and Horizontal Lines:** The total number of vertical and horizontal lines must be minimized to the maximum extent practicable.

6. **Local Notice to Mariners:** Prior to the proposed project start/placement date, the permittee must provide coordinates (latitude and longitude) for all perimeter corners of the approved lease area, including minimum depth and other pertinent facility information to the U.S. Coast Guard (USCG), and request that a Local Notice to Mariners (LNM) be issued regarding the authorized work. This written request can be done either by e-mail, letter or fax to: Commander (dpw), Fifth Coast Guard District, 431 Crawford Street, Room 100, Portsmouth, VA 23704-5504, Attn: LNM, Fax Number: (757)398-6303.

No authorized work may commence until this required USCG LNM has been issued by the USCG, identifying the location and schedule for commencement of the approved aquaculture work. No authorized aquaculture work may commence until the permittee informs the District Engineer in writing, with the date that the USCG publishes the LNM.

7. **Navigation Charts:** The permittee must submit a copy of the Corps permit and plans for the aquaculture operation to the National Oceanic and Atmospheric Administration (NOAA) for charting the location of the authorized operation on navigation charts. Their address is NOAA-Marine Chart Division, Nautical Data Branch-N/CS26, 1315 East West Highway-Station 7350, Silver Spring, MD 20910-3282.

8. **Equipment Anchoring and Lease Marking:** All authorized equipment, gear, and manmade material must be securely anchored. The permittee must clearly and permanently mark all in-water structures and equipment with the permittee's name and the lease number issued by the Department Natural Resource. These markings must be maintained to ensure that they are readable and visible at all times for identification purposes.

9. **Inspection of Aquaculture Operation:** The permittee must regularly inspect the condition of the structures (e.g., floats, cages, lines, anchors, etc.) associated with this aquaculture operation as authorized herein, to ensure that any structures/gear do not affect safety on the waterway or interfere with general navigation. The permittee shall recover all storm-damaged, accident-damaged, or dislodged equipment within 10 days after it is dislodged and shall either restore its location within the permitted areas as authorized or dispose of such equipment in accordance with state and local ordinances and lease agreements issued by the State of Maryland.

10. **Disposal of Structures, Gear, or Waste:** Disposal of structures, gear or waste products on-site or into waters of the United States is prohibited. All structures, gear and waste products, including dead or dying culture animals, shall be disposed of in an approved upland disposal site in accordance with any Federal, State, and local regulations

11. **Reporting:** The permittee must maintain accurate records and submit annual reports to the Corps (U.S. Army Corps of Engineers, Baltimore District , ATTN: Regulatory Branch, 10 South Howard Street, Baltimore, MD 21201) before January 31 of each year, covering the previous year's aquaculture activities, see the following link for information that must be provided:
(http://www.nab.usace.army.mil/Missions/Regulatory/Aquaculture/)

12. **Abandonment:** The permittee must provide the Baltimore District with thirty (30) day advance written notification of the intent to abandon the activity authorized under this NWP. Upon abandonment of the activity authorized by this permit, all structures and equipment used to support the aquaculture operation must be completely removed. In addition, any fill material, other than shells/shell fragments that were authorized and were deposited to improve bottom conditions/facilitate the aquaculture operation, must be completely removed and the entire area restored to pre-construction elevation and conditions to the satisfaction of the District Engineer. Live oysters growing on the bottom need not be removed.

H. Nationwide Permit #53 *Removal of Low-Head Dams:* For activities in all tidal and nontidal coastal plain streams within the State of Maryland or nontidal Piedmont streams in Harford and Cecil Counties, Maryland, the District Engineer will coordinate review of the Pre-construction Notification with the National Marine Fisheries Service Habitat Conservation Division pursuant to the requirements of the Magnuson Stevens Fishery Conservation and Management Act.

II. Regional Conditions Applicable to ALL 2017 Nationwide Permits within the State of Maryland

Note: To qualify for NWP authorization, the prospective permittee must comply with the following regional general conditions, as applicable, in addition to any specific NWP regional conditions identified above in Section I, the general conditions found in the 2017 NWPs published in the *Federal Register* on January 6, 2017 (82 FR 1860), and any case-specific special conditions imposed by the District Engineer.

A. Nationwide Permit Regional General Condition #2 *Aquatic Life Movement:*

1. Work is prohibited during February 15 to June 15 each year to protect sensitive life stages of anadromous fish in all tidal and nontidal coastal plain streams within the State of Maryland or nontidal Piedmont streams in Harford and Cecil Counties, Maryland, unless specifically waived by the District Engineer in consultation with NMFS for NWPs 3a, 3b, 12, 13, 14, 18, 19, 22, 25, 28, 29, 33, 35, 36, 38, 39, 42, 45, and 53 activities.

2. For culverted road crossings of perennial and intermittent streams culverts must meet the below depression criteria or a PCN is required to be submitted to the District Engineer for coordination with the National Marine Fisheries Service. Extensions of existing culverts that are not depressed below the stream bottom do not require a PCN.

    a. Culverts measuring greater than 24 inches in diameter must be depressed 12 inches below the stream bottom; or

    b. Culverts measuring 24 inches or less in diameter must be depressed 6 inches below the stream bottom.

3. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through, or spawn/nursery within the area (e.g., anadromous/catadromous fish); unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions as stated above. A low flow channel must be maintained through any discharges placed for armoring across the channel so as to not impede flow in the waterway and/or not to block or impede the movements of anadromous, estuarine, and resident fish. Permanent culverts or pipes placed in streams must be depressed in accordance with the State of Maryland regulations. If depression of the culvert is not practicable, the applicant must submit a narrative, along with the PCN is

applicable, documenting measures evaluated to minimize disruption of the movement of aquatic life, as well as specific documentation concerning site conditions and limitations on depressing the culvert, cost, and engineering factors that prohibit depressing the pipe/culvert. Options that need to be considered include the use of a bridge, bottomless pipe, partial depression, or other measures to provide for the movement of aquatic organisms. The documentation must also include photographs documenting site conditions. The applicant may find it helpful to contact National Marine Fisheries Service for recommendations about the measures to be taken to allow for fish passage.

B. Nationwide Permit Regional General Condition #18 *Endangered Species:*

1. **For U.S. Fish and Wildlife Service (FWS) ESA species:** All permittees must use the FWS Chesapeake Bay Field Office Project Review website (IPaC) (https://www.fws.gov/chesapeakebay/EndSppWeb/ProjectReview/Index.html) to determine if any Federally listed species or designated critical habitat may be present in the proposed project area. A complete application must contain one of the following:

    a. If the FWS website shows that listed species or designated critical habitat may be present in the proposed project area, then, using the FWS website tool, the permittee must obtain and submit with the PCN a FWS Official Species List tailored for the proposed project area. An Official Species List is considered valid for 90 days.

    b. If the FWS website shows that no listed species or designated critical habitat are determined to be present in the proposed project area, then, using the FWS website tool: the permittee must generate and submit with the PCN a report that includes an online self-certification letter and a map of action area.

2. **Interactions with NMFS Federally Threatened or Endangered Species:** Any interaction between sturgeon, sea turtles, or any species listed now or in the future under Federal law as a threatened or endangered species ("listed species") and the vessels associated with the project must be reported to the NMFS as follows:

    a. If the animal appears alive and uninjured (i.e., breathing normally, no visible wounds, movement uninhibited), the permittee or its representative must report the incident to the NMFS Northeast Region Marine Mammal and Sea Turtle Stranding and Entanglement Hotline at (866) 755-6622 within 24 hours of returning from the trip on which they made the discovery;

    b. If the animal requires assistance, the call to the hotline must be made immediately;

c. If the animal appears to be injured (i.e. bleeding, gasping for air, etc.) or dead, the permittee or its representative must also immediately call the hotline so the appropriate rehabilitation or stranding network representative can be contacted. The applicant shall also notify District Engineer of all communications and coordination with the NMFS within two calendar days. Additional information about any federally threatened or endangered species may be obtained online at: https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html. An interaction is defined as an entanglement or capture of a listed species or a strike/direct contact between vessels or equipment used for the project and a listed species.

3. **Vessel Buffer:** When listed species are sighted, vessels must attempt to maintain a distance of 50 yards (150 feet) or greater between the animal and the vessel whenever possible. State and Federal regulations prohibit approaching a right whale within a 500 yard (1,500 foot) buffer zone. Any vessel finding itself within the 500 yard (1,500 foot) buffer zone created by a surfacing right whale must depart immediately at a safe, slow speed. If other listed species are detected, vessels will reduce their speeds to 10 knots or to the maximum extent practicable to ensure human safety. If listed species are sighted off of a moving dredge, intentional approaches within 100 yards (300 feet) of the animal must be avoided. Vessels must reduce speeds to 4 knots or the lowest speed practicable to ensure human safety. Any interactions must be reported to the NMFS.

4. **Best Management Practices Applicable Within Tidal Waters of the Chesapeake Bay in Maryland:**

a. For the protection of listed species, pile driving methods must maintain noise level thresholds not to exceed 150dB sound exposure level (SEL) re 1μPa or 206dB peak re 1μPa and for any pile driving activity that exceeds the peak sound level. A PCN must be submitted to District Engineer if one of the following conditions cannot be met :

i. Plastic or concrete piles must be less than 12 inches when a cushioned impact hammer or vibratory hammer is utilized for installation.

ii. Timber piles must be 10 inches or less when a vibratory hammer is utilized for installation.

iii. Vinyl or timber sheet piles must be 24 inches or less in width, as measured from the outer edge of corrugation to the inner edge of corrugation, when a cushioned impact hammer or vibratory hammer is used.

iv. Pile driving activities must be located within freshwater tributaries or within tidal or nontidal wetlands.

v. Piles of any size/type with any hammer method must be installed behind diversion structures or in the dry when the tide is out in the intertidal zone.

vi. Piles of any size/type with any hammer method must be installed between November 30 and March 15.

b. Pile driving must be initiated with a soft start each day of pile driving, building up power slowly from a low energy start-up over a 20 minute period to allow fish and other wildlife to leave the area.

5. **Sediment Disturbing Activities Time-of-Year Restriction:** Within all tidal waters of the Chesapeake Bay and its tidal tributaries in Maryland with salinity levels <6 ppt, sediment disturbing activities, which include pile driving activities, are prohibited during the period April 1 through June 30 for the protection of shortnose sturgeon during early life stages in these waters unless a waiver is received from the District Engineer.

C. Nationwide Permit Regional General Condition #22 *Designated Critical Resource Waters:*

1. Within the State of Maryland, the designated National Estuarine Research Reserves applicable to this regional general condition are:
   a. Jug Bay
   b. Otter Point Creek
   c. Monie Bay

2. Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7 and 31 for any activity within, or directly affecting the above-listed designated National Estuarine Research Reserves, including wetlands adjacent to those waters.

3. For NWPs 3, 8, 22, 25, 27, 30, 37, and 38, a PCN must be submitted to the District Engineer for any activity proposed in the above-listed designated National Estuarine Research Reserves, including wetlands adjacent to those waters.

D. Nationwide Permit Regional General Condition #32 *Pre-Construction Notification:*

The following regional general conditions are incorporated as part of the terms and conditions of NWP General Condition 32, *Pre-Construction Notification.* These regional general conditions are applicable to all NWPs where a PCN is submitted to the District Engineer. This includes the following: (a) those NWPs that require a PCN, (b) those NWPs requiring notification to the District Engineer pursuant to NWP General Conditions 18 and 22, (c) those NWPs requiring notification to the District Engineer pursuant to a regional condition, and (d) any other pre-constriction notifications to the District Engineer where an applicant has requested verification of an NWP authorization.

1. A PCN shall be submitted the Baltimore District Corps of Engineers for proposed construction and modification of docks, piers, and other structures that will occur along and/or within 150 feet of the horizontal limits of a federally authorized channel within the Baltimore District Civil Works Boundary as identified by: http://www.nab.usace.army.mil/Missions/Civil-Works/Nav-Maps/. In addition, a PCN is required for the replacement of previously authorized, currently serviceable structures located along federally authorized channels that are destroyed by an act of nature or sudden event. All proposed work shall comply with the most current version of the Baltimore District's setback guidance on the Baltimore District Regulatory website at: http://www.nab.usace.army.mil/Portals/63/docs/Regulatory/Pubs/spn11-17.pdf. As part of any PCN adjacent to a federally authorized channel, the permittee must provide the latitude and longitude of the channelward most point of the proposed structure.

2. When a PCN is required, the District Engineer will provide a copy of the complete PCN to the NMFS-Chesapeake Bay Office for all activities proposed within 50 feet of mapped SAV or locations of SAV otherwise identified from actual on-site SAV surveys conducted during the growing season. The PCN shall include plans depicting the entire project footprint and adjacent waters overlaid on composite mapping of the 5 most recent years of SAV data (derived from the Virginia Institute of Marine Science (VIMS) aerial surveys or locations of SAV otherwise identified from actual SAV surveys conducted during the growing season). The NMFS will have a 30 calendar day review and comment period from the date of their receipt of the EFH assessment, as provided by the Magnuson-Stevens Fishery Conservation and Management Act. The Virginia Institute of Marine Science aerial surveys may be obtained at: http://web.vims.edu/bio/sav/index.html.

3. All PCNs to the District Engineer shall be completed using the established Corps of Engineers permit application procedures for that locality (see http://www.nab.usace.army.mil/Missions/Regulatory/PermitTypesandProcess.aspx). The PCN shall include all activities that the applicant plans to undertake that are reasonably related to the same project. All PCNs to the District Engineer shall include the following information, where applicable, in addition to the information specified in the nationwide permit conditions, including General Condition 32:

    a. Work description: A narrative describing the proposed work and associated impacts. If excavation is part of the proposed work, a detailed description of the method, sequence, and equipment to be used to conduct the work.

    b. Plan(s) of the proposed work (if provided by hard copy no larger than 8-1/2 by 11 inch paper) which includes a location map; longitude and latitude; and plan view drawings clearly depicting the location, size, and dimensions of the proposed activity as well as the location of the delineated waters and/or wetlands, for the entire project area. The drawings shall contain the amount

(in cubic yards) and the area (square feet) of dredged and/or fill material to be discharged in District Engineer jurisdiction, including both permanent and temporary structures. Plans should depict all proposed work, including areas proposed for filling, grading, excavation, drainage, and/or inundation and shall identify all delineated waters and wetlands. All drawings shall include the OHWM, or if in tidal waters, the mean high water mark and high tide line; existing water depths; cross-sectional plan; depth of any structure(s) below mean low water; height of any structure(s) above mean high water; the maximum distance that the structure(s) or fill will extend channelward of the existing shoreline; the width of the waterway at the project site; the location of any dredged material disposal area; the distance from the edge of any federal navigation channel and the location of any temporary work; structures, vessels, or fills required for construction; a copy of any previous federal or state approvals; and the location and nature of any SAV (e.g., eel grass, *Zostera marina*). In the Baltimore District, the applicant may refer to the Virginia Institute of Marine Science aerial surveys for obtaining such information. http://web.vims.edu/bio/sav/index.html.

c. At the discretion of the District Engineer, the PCN may be determined to be incomplete if field verification of the wetland and/or stream delineation is required.

d. Numbered and dated pre-project color photographs showing all aquatic resources proposed to be impacted on the project site. The compass angle and position of each photograph shall be documented on the plan view drawing.

e. Evidence that the prospective permittee has already contacted and received a response from the FWS concerning any federally listed Threatened and Endangered Species that may be affected by the proposed activity. Completion of the required screening identified in Regional General Conditions 18 and submission of the documents required by the PCN serves as compliance with this condition.

f. Evidence that the prospective permittee has already contacted and received a response from the State Historic Preservation Officer concerning historic properties that may be affected by the proposed activity.

g. Documentation from the Maryland Historical Trust indicating whether the proposed project is located within a State Natural Heritage site, Outstanding National Resource Water, or National Estuarine Research Reserve. For further information, reference NWP General Condition 22.

h. A PCN shall include a written statement documenting the steps taken to avoid and minimize adverse impacts to waters of the United States, including jurisdictional wetlands.

4. When a PCN is required, the District Engineer's review period shall commence with the receipt of a complete permit application by the District Engineer. The prospective permittee shall not begin the activity until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed, if applicable.

5. Applicable to all perennial and intermittent streams, the Corps shall provide a copy of the PCN, including the supporting documentation, to the NMFS in accordance with the Magnuson Stevens Fisheries Conservation and Management Act for any culvert which cannot be depressed as outlined in Regional General Condition 2 for Aquatic Life Movements for NWP 3 and any other applicable NWP. The NMFS will have a 30 calendar day review and comment period from the date of their receipt of the Essential Fish Habitat Assessment, as provided by the Magnuson-Stevens Act.

6. Any compensatory mitigation required by special conditions of the NWP verification shall be completed before or concurrent with commencement of construction of the authorized activity, except when specifically determined to be impracticable by the District Engineer. If the applicant is proposing to use a mitigation bank or in lieu fee program, the PCN shall include identification of the bank/in lieu fee site and amount and type of credits to be purchased. If approved, proof of payment to the approved mitigation bank or in-lieu-fee program shall be submitted to the District Engineer prior to commencement of construction of the authorized activity. The amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions and services. A watershed approach to compensatory mitigation, which considers the importance of landscape position, resource type, and compensatory mitigation projects that address the sustainability of aquatic resource functions within the watershed should be used.

E. Nationwide Permit Regional General Conditions A *for Certain Activities in Navigable Waters:*

1. The following minimum clearances are required for aerial electric power transmission lines crossing navigable waters of the United States. These clearances are related to the clearances over the navigable channel provided by existing fixed bridges, or the clearances which would be required by the United States Coast Guard for new fixed bridges, in the vicinity of the proposed aerial transmission line. These clearances are based on the low point of the line under conditions producing the greatest sag, taking into consideration temperature, load, wind, length of span, and type of supports as outlined in the National Electrical Safety Code:

Nominal System Voltage (kV)	**Minimum additional clearance (ft.) above clearance required for bridges**
115 and below	20

138	22
161	24
230	26
350	30
500	35
700	42
750-765	45

a. The PCN for aerial transmission lines over navigable waters must include the nominal system voltage and the additional clearance above low steel for bridges, if available, or above maximum high water elevation;

b. Corps of Engineer regulation ER 1110-2-4401 prescribes minimum vertical clearances for power communication lines over Corps lake projects. In instances where both this regional condition and ER 1110-2-4401 apply, the greater minimum clearance is required; and

c. Clearances for communication lines, stream gaging cables, ferry cables, and other aerial crossings must be a minimum of ten feet above clearances required for bridges, unless specifically authorized otherwise by the District Engineer.

2. Within 60 days of completing an activity that involves an aerial transmission line, submerged cable, or submerged pipeline across a navigable water of the United States (i.e., Section 10 waters), the permittee shall furnish the District Engineer and the National Oceanic and Atmospheric Administration, Nautical Data Branch, N/CS26, Station 7317, 1315 East-West Highway, Silver Spring, Maryland, 20910, with professional, certified as-built drawings, to scale, with control (i.e., latitude/longitude, state plane coordinates), depicting the alignment and minimum clearance of the aerial wires above the mean high water line at the time of survey or depicting the elevations and alignment of the buried cable or pipeline across the navigable waterway.

3. Aids to Navigation: If the Corps or the U.S. Coast Guard determine that private aids to navigation are required to mark the project area, The permittee must prepare and provide for USCG approval (address below)l, a Private Aids to Navigation Application (CG-2554), which and the approval must be received prior to commencement of the authorized work. The form can be found at: http://www.uscg.mil/forms/cg/CG_2554.pdf. Within 30 days of the date of receipt of the USCG approval, the permittee must provide a copy to the Corps

F. Nationwide Permit Regional General Condition B *Poured Concrete into Forms:*

1. Activities that involve the discharge of poured concrete must be contained within cells or watertight forms until the concrete is set.

SPECIAL NOTES:

1. Where the State has denied 401 WQC and/or not concurred with the District Engineer' CZM consistency determination for a NWP authorization, the prospective permittee should contact the State to obtain an activity specific review and approval by the State prior to submitting any required PCN to the District Engineer of Engineers.

2. The following addresses shall be used for notification to those Federal and State agencies, where the review of the PCN must be coordinated by the District Engineer.

    1. Maryland Department of Natural
    Resources Environmental Review, B-3
    Tawes State Office Building
    580 Taylor Avenue
    Annapolis, Maryland 21401

    2. State Historic Preservation Officer:
    Maryland Historical Trust
    Division of Historical & Cultural Programs
    100 Community Place
    Crownsville, Maryland 21032-2023

    3. Maryland Department of the
    Environment
    Water Resources Administration
    Tidal Wetlands Division
    Montgomery Park Business Center
    1800 Washington Boulevard, Suite 430
    Baltimore, Maryland 21230-1708

    4. Maryland Department of the
    Environment
    Non-tidal Wetlands and Waterways
    Division/CZC Unit
    Montgomery Park Business Center, Suite 430
    Baltimore, Maryland 21230-1708

    5. Environmental Protection Agency
    1650 Arch Street
    Philadelphia, Pennsylvania 19103-2029

    6. U.S. Department of the Interior
    Fish and Wildlife Service
    177 Admiral Cochrane Drive

Annapolis, Maryland 21401

7. National Marine Fisheries Service-Chesapeake Bay Office
   177 Admiral Cochrane Drive
   Annapolis, Maryland 21401

C-5: Clean Air Act General Air Quality Conformity Analysis

General Conformity Analysis

Introduction

The alternative selected for the proposed ecosystem restoration projects in Prince George's County, Maryland, was evaluated for air quality emissions associated with project construction. Direct emissions were evaluated as discussed below and shown in Attachment 1. Upon consultation with the Maryland Department of the Environment (MDE) it was agreed that the project would not result in any sources of indirect emissions (MDE, personal communication 3/17/2015); therefore, indirect emissions were not calculated. The analysis demonstrates that the proposed projects comply with Clean Air Act General Conformity Rule.

Regulatory Background

The 1990 Federal Clean Air Act Amendments directed the Environmental Protection Agency (EPA) to develop two separate federal conformity rules. Those rules (promulgated as 40 CFR Parts 51 and 93) are designed to ensure that federal actions do not cause or contribute to air quality violations in areas that do not meet the national ambient air quality standards. The two rules include transportation conformity, which applies to transportation plans, programs, and projects; and general conformity, which applies to all other non transportation-related projects, including the projects proposed in this feasibility study.

The general conformity regulation requires that federal agencies sponsoring non transportation-related activities show that the emissions associated with those activities conform to state implementation plans (SIPs) if emissions meet specific criteria. First, the emissions must occur in areas designated as non-attainment areas for one or more of the federal ambient air quality standards. Second, those emissions must exceed certain *de minimus* threshold levels.

Ozone

The EPA Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, called "criteria" pollutants. They include carbon monoxide, nitrogen dioxide, ozone, lead, particulates, and sulfur dioxide. For Prince George's County, ozone does not attain the air quality standard. Areas that are designated in non-attainment of the ozone standard are further classified, in order of increasing severity, as Incomplete Data, Marginal, Moderate, Serious, Severe, and Extreme. The designation for Prince George's County, Maryland, is considered Moderate under the 8-hour standard.

Ozone is a gas that forms in the presence of sunlight in the atmosphere when three atoms of oxygen are combined (O_3). Ozone is not emitted directly into the air by any aspect of the project, but is created at ground level by a chemical reaction between oxides of nitrogen (NOx), and volatile organic compounds (VOC). For ozone, the *de minimus* thresholds are 100 tons/year (TPY) for NOx and 50 TPY VOC for Prince George's County.

Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOC, also known as ozone precursors. Strong sunlight and hot

weather cause ground-level ozone to form in harmful concentrations in the air. Many urban areas tend to have high levels of ozone, but other areas are also subject to high ozone levels as winds carry NOx emissions hundreds of miles away from their original sources.

$PM_{2.5}$ (Particulate Matter)

On October 6, 2014 EPA published a Final Rule in the Federal Register approving the State of Maryland's request to redesignate the Maryland region of the Washington DC-MD-VA Nonattainment Area for the annual $PM_{2.5}$ national ambient air quality standards (NAAQS) to Attainment status. The DC area includes Charles, Frederick, Montgomery and Prince George's counties. The rule became effective on November 5, 2014. Although now in attainment status for $PM_{2.5}$, these areas are in maintenance for the next twenty years. Maintenance areas must continue to meet the requirements of General Conformity regulations.

De minimis levels for $PM_{2.5}$ is 100 TPY for each of the precursors that form it (SO_2, NO_x, VOC, and ammonia). Under the current EPA policy for addressing $PM_{2.5}$ precursors, only SO_2 and NO_x must be evaluated in all regions. Evaluation of VOCs or ammonia are not required unless the State or EPA make a technical demonstration that those particular emissions from sources within the given State significantly contribute to $PM_{2.5}$ concentrations. This has not been done for the state of Maryland, so VOC and ammonia are not considered further for the purposes of calculating $PM_{2.5}$ emissions. $PM_{2.5}$ emissions for this project include particulate emissions from construction vehicles and fugitive dust.

Carbon monoxide (CO)

Prince George's County has been in maintenance for carbon monoxide (CO) since 1996. Later this year, it is expected that Prince George's County will be in full attainment for CO (i.e. will come out of maintenance status). Since construction of this project is not scheduled until several years from now, upon consultation with MDE (MDE, personal communication 3/17/2015), it was determined that evaluation of CO emissions is not required for this conformity evaluation.

Conformity Evaluation

The Clean Air Act General Conformity Rule (58 FR 63214, November 30, 1993, Final Rule, Determining Conformity of General Federal Actions to State or Federal Implementation Plans) dictates that a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS. The general conformity rule was designed to ensure that Federal actions do not impede local efforts to control air pollution. It is called a conformity rule because Federal agencies are required to demonstrate that their actions "conform with" (i.e. do not undermine) the approved State Implementation Plan for their geographic area. The purpose of conformity is to (1) ensure Federal activities do not interfere with the air quality budgets in the SIPs; (2) ensure actions do not cause or contribute to new violations, and (3) ensure attainment and maintenance of the NAAQS. Federal agencies make this demonstration by performing a conformity review. The stream restoration activities in Prince George's County are subject to detailed conformity determinations

unless these actions are clearly considered *de minimus* emissions; use of these thresholds assures that the conformity rule covers only major federal actions. Thresholds for de minimus are shown in Table 1 for the pollutants relevant for this analysis.

Table 1: *De minimus* thresholds for relevant pollutants.

Pollutant	***De minimus* (TPY)**
NO_x	100
VOC	50
SO_2	100
$PM_{2.5}$	100

Methodology

A conformity review requires consideration of both direct and indirect air emissions associated with the proposed action. Direct emissions are those that occur as a direct result of the action, and occur at the same time and place as the action. Sources that would contribute to direct emissions from this project would include demolition or construction activities associated with the proposed action and equipment used to facilitate the action (e.g. construction vehicles). Indirect emissions are those that occur at a later time or distance from the place where the action takes place, but may be reasonably anticipated because of the proposed action. Upon consultation with MDE, it was agreed that this project would result in no sources of indirect emissions (MDE, personal communication 3/17/2015). Both stationary and mobile sources must be included when calculating the total of emissions, but this project involves only mobile sources.

Air pollutant emissions generated by the proposed action were calculated to determine whether the total of direct emissions for NOx, VOCs, SO_2, and $PM_{2.5}$, would be below the conformity *de minimus* limits. The selected alternative, with the most equipment operating over the longest duration was assessed in detail in order to ensure a conservative evaluation. Table 2 shows a list of equipment that is expected to be used to construct the project and was developed based on engineering estimates. Each of the pieces of equipment to be used for the project was assumed to operate all day (8 hours) for a seven-month construction period (154 days), for a total of 1232 hours per year, except where noted. While assuming all of the equipment operating the entire project duration is unrealistic, this represents a bounding, albeit conservative approach to quantifying the direct emissions.

Given the hours of operation assumed, emissions were estimated based on equipment-specific emission factors recommended by the EPA for fuel-burning equipment (USEPA, 1998 and USEPA, 2000) that could be used. The following discussion summarizes the calculations for the exhaust and fugitive dust emissions.

Table 2. Potential Equipment List

Equipment Description	Specifications	PO - Power output (hp)	Fuel Type	Operating weight (tons)
Crane	Hyd, 33T	230	Diesel	
Loader, Crawler	F/E, 2.6 CY	160	Diesel	19.84
Loader, Crawler	F/E, 3.75 CY	210	Diesel	27.8
Loader/Backhoe	0.80 CY	60	Diesel	5.68
Loader/Backhoe	1.25 CY	84	Diesel	7.88
Roller	Vib, DD, 6.0 T	111	Diesel	
Roller	Vib,DD,12T	100	Diesel	
Roller	Static,14 T	80	Diesel	
Dozer, Crawler		240	Diesel	28.82
Dozer, Crawler		405	Diesel	50.98
Truck, Hwy	50K GVW, 6X4	330		20
Truck, Hwy	25K GVW	210	Diesel	20
Truck, Hwy	45K GVW	330		20
Scraper	ELEV, 11 CY	175	Diesel	
Grader	motor	135	Diesel	14.42
Asphalt Paver	10.0' W, SP	155	Diesel	16
Brush Chipper	12" Dia Log	135	Diesel	
Chainsaw	24"-42"Long Bar	5.7	Diesel	21.04

Annual Emissions

To calculate annual emissions in tons per year for VOC, NO_x, $PM_{2.5}$, the following equation was used:

AE = ((EF)(LF)(PO)(t))/907185

Where:

- *AE = annual emissions (tons/year)*
- *EF = emission factor (grams/horsepower-hour; from NR-009d[1] Tables 4, 5, 6 for Tier 3 except for NR-010f[2] Table 3 Phase 2 for chainsaw; PM_{10} emissions factors are conservatively used for $PM_{2.5}$)*
- *LF = load factor (typical fraction of available power available for each type of engine per vehicle specification)*
- *PO = power output (horsepower of vehicle engine per vehicle specifications);*
- *t = time of operation (1232 hours/year)*
- *907185 is the number of grams per ton*

[1] U.S. Environmental Protection Agency. July 2010. EPA-420-R-10-018. Exhaust and Crankcase Emissions Factors for Nonroad Engine Modeling – Compression-Ignition. NR-009d.

[2] U.S. Environmental Protection Agency. July 2010. EPA-420-R-10-019. Exhaust Emission Factors for Nonroad Engine Modeling – Spark-Ignition. NR-010f.

Emissions factors for SO_2 are rarely measured; instead they are typically calculated based on brake-specific fuel consumption (BSFC). The following equation was used to calculate SO_2 emissions factors (Equation 7 from EPA NR009d):

$SO_2 = (BSFC\ 453.6\ (1 - soxcnv) - HC)(0.01)(soxdsl)(2)$

Where:

- *SO_2 is the emission factor in g/hp-hr*
- *BSFC is the in-use adjusted fuel consumption in lb/hp-hr (NR-009d, Table C1 and NR-010f, Table 3 Phase 2 for chainsaw)*
- *453.6 is the conversion factor from pounds to grams*
- *soxcnv is the fraction of fuel sulfur converted to direct PM (NR-009d p.22 default value of 0.02247 used for diesel)*
- *HC is the in-use adjusted hydrocarbon emissions in g/hp-hr (NR-009d, Table 4 and NR-010f, Table 3 Phase 2 for chainsaw)*
- *0.01 is the conversion factor from weight percent to weight fraction*
- *soxdsl is the episodic weight percent of sulfur in nonroad diesel fuel (default of 0.33 wt % used per NR-009d p.C1)*
- *2 is the grams of SO_2 formed from one gram of sulfur*

Fugitive Dust Emissions ($PM_{2.5}$)

The analysis of the construction emissions included identification of the type of equipment needed for the activity, the duration it is needed, and when during the construction phase it would be used. The construction process was broken down into component operations where each component involved traffic and material movements. The emission factors from other AP-42 sections were used to generate estimates for particulate emissions from construction activities. Table 13.2.3-1 was used to identify dust sources involved with construction activities and recommended particulate emission factors to use. Table 3 indicates those recommended emission factors (from Table 13.2.3-1) for itemized activities associated with stream restoration construction and their approximate duration for this project. Durations and vehicles used for each phase were based on discussions with USACE-EN Civil (Ben Soleimani). The actual equations used are shown below the table for each component and associated duration listed in Table 3.

Table 3. Sources of emissions factor equations for different phases of construction.

Phases of Construction	Duration	Source of Emission Factor (from EPA AP-42)
Demolition and Debris Removal Phase		
General land clearing	5 days	Dozer equation (overburden) in Tables 11.9-1 and 11.9-2
Delivery, Removal, & Truck Transport of Materials		
Vehicular traffic on unpaved access road	Continuous throughout construction period (97 km/day for 154 days)	Unpaved road emission factor equation in Section 13.2.2

Vehicular traffic on paved urban road	Continuous throughout construction period (97 km/day for 154 days)	Paved road emission factor in Section 13.2.1
Unloading and loading of construction materials (dirt, sand, gravel, rock)	77 days	Material handling emission factor equation in Tables 13.2.4
Site Preparation & Earth Moving Phase		
Creating access roads (compacting)	5 days	Dozer equation (overburden) in Tables 11.9-1 and 11.9-2
Excavation and grading of stream bed material	77 days	Grading equation in Table 11.9-1 and 11.9-2

Paved road equation (for three highway trucks):
Source: EPA AP-42, 13.2.1, Paved Roads

$$\mathbf{E = k\,(sL)^{0.91}\,(W)^{1.02}}$$

- *E = particulate emission factor (same units as k)*
- *k = particle size multiplier for $PM_{2.5}$ (from table 13.2.1-1; k=0.15 g/vehicle km traveled)*
- *sL=road surface silt loading (g/m^2; 0.2 per Table 13.2.1-2)*
- *W=average weight of vehicle fleet (20 tons)*

So, E = 0.73 g/km

Then, Annual Emissions = E (distance x time)
AE =(0.73 g/km)(97 km/day x 154 days) = 10904.74 g = 0.012 tons per truck

Unpaved road equation (for trucks only transport of debris & construction materials):
Source: EPA AP-42, 13.2.2, Unpaved Roads

$PM_{2.5}$ emissions from unpaved roads are a function of the vehicle miles traveled (VMT) on the roads, silt content of the roadway material, and the moisture content of this material. Equation (1a) was used to estimate the quantity in pounds of site-specific particulate emissions from an unpaved road at industrial sites (e.g., construction sites), per vehicle mile traveled (VMT):

$$\mathbf{E = k\,(s/12)^{a}(W/3)^{b}}$$

- *E = size-specific emission factor (same units as k) for each construction site (e.g. pounds of $PM_{2.5}$ emissions from an unpaved road per vehicle mile traveled (lb/VMT))*
- *k = particle size multiplier for PM2.5 (from table 13.2.2-2; k=0.15 lb/VMT)*
- *a = 0.9 (empirical constant provided in Table 13.2.2-2)*
- *b = 0.45 (empirical constant provided in Table 13.2.2-2)*
- *s = surface material silt content in percent (default mean silt content for construction sites from Table 13.2.2-1; s = 8.5 %; Silt refers to particles that have a diameter equal to or*

less than 75 microns. The silt content is determined by measuring the portion of dry aggregate material that passes through a 200 mesh screen, using ASTM-C-136 method. Since measured data were not available, the default of 8.5 percent was used. However, the use of the default introduces error. The silt content of the parent soils in the construction areas as identified through mapping on: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx provides a conservative approximation of silt content, which ranges from 34-55% for all sites. These values are much higher than the default. Further clarification in Section13.2.2 noted that silt content will vary with geographic location and that road silt content is normally lower than in the surrounding parent soil due to the removal of fines by vehicle traffic. In a telephone conversation on Oct 14, 2015, Jim Myers, District Conservationist of Montgomery County NRCS, indicated that actual silt percentage values from the soil survey are likely higher than actual values based on prior disturbances, and that without site specific tests, there is no good way to estimate silt content. Brian Hug (MDE indicated that use of the appropriate default values from Table 13.2.2-1 are permitted when site-specific values have not been obtained (MDE, personal communication 27 Oct 2015).

- *W = mean vehicle weight (21 tons; averaged operating weight of each type of equipment identified for use on unpaved roads using online specifications for similar equipment. Sources: http://www.ritchiespecs.com/; http://www.specguideonline.com/)*

So, $E = 0.15(8.5/12)^{0.9}(21/3)^{0.45} = 0.263$ lb/VMT (unmitigated value, defined below)

The metric conversion from lb/VMT to grams per vehicle kilometer traveled (VKT) is:
1 lb/VMT = 281.9 g/VKT

So, conversion of 0.263 lb/VMT = 74.14 g/VKT (unmitigated value)

The construction trucks will be traveling the total length of the project (i.e. stream and access areas) an estimated three dozen times a day for the construction period (154 days). Based on mapping of access points and likely travel routes, the linear distance that trucks will travel for each of the project sites was estimated (Site 9 = 2,241 ft; Site 3 = 7,285 ft; Site 15 = 6,453 ft; Site 5 = 6,453 ft; Site 13 = 7,690 ft; and Site 11 = 10,466 ft). The total travel distance for the three combined project areas is 39,654 ft.

Travel distance for 36 one-way trips = 39,654 x 36 = 1,427,544 ft or 435 km/day

Then Annual Emissions = E (distance x time):
AE = (74.14 g/km)(435 km/day x 154 days) = 4,966,638.6 g = 5.48 tons (short) per truck (unmitigated)

As discussed in Section 13.2.2, all roads are subject to some natural mitigation because of rainfall and other precipitation. Below is the calculation using natural mitigation due to rainfall and other precipitation (Equation 2 from EPA AP-42, 13.2.2). Equation 2 provides an estimate that accounts for precipitation on an annual average basis for the purpose of inventorying emissions.

$E_{ext} = E\ [(365-P)/365]$

- *E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (g/VKT)*
- *E = emission factor from Equation 1a (g/VKT)*
- *P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (from Figure 13.2.2-1, the mean annual number of "wet" days for Prince George's County, MD = 120 days)*

E_{ext} = 74.14 g/VKT[(365-120)/365] = 49.76 g/VKT (natural mitigated value)

AE = (49.76 g/km)(435 km/day x 154 days) = 3,333,422 g = 3.68 tons (short) per truck (natural mitigated value)

General Land Clearing (roller, dozer, scraper, grader, brush chipper, chainsaw)
Source: EPA AP-42, 13.2.3 Heavy Construction Operations (Table 13.2.3-1, Recommended Emission Factors for Construction Operations) & 11.9 Western Surface Coal Mining

Table 13.2.3-1 recommends the use of the dozer equation (overburden) in Tables 11.9-1 and 11.9-2 for estimating the emission factor for general land clearing associated with construction operations. Table 11.9-1 was used since it identifies English units of lb/hr for the overburden emissions. It was assumed that most on-site materials (fill, trees, rock, boulders) would be used on-site and not transported off-site.

Dozer emission factor equations (overburden) from Table 11.9-1 are below. The equation is for total suspended particulates (TSP). Particulate matter less than or equal to 30 µm in aerodynamic diameter is sometimes termed "suspended particulate" and is often used as a surrogate for TSP. For smaller particle sizes (≤2.5µm), the TSP predictive equation is multiplied by a scaling factor of 0.105 to determine the emissions. For TSP ≤30µm:

$E = 5.7(s)^{1.2}/(M)^{1.3}$

- *E = Emissions (lb/hr)*
- *s = percent silt content of material (site-specific value not obtained, therefore used geometric mean value from Table 11.9-3; bulldozer overburden geometric mean = 6.9%)*
- *M = percent moisture content of material (site-specific value not obtained, therefore used geometric mean value from Table 11.9-3; bulldozer overburden geometric mean = 7.9%)*

$E= 5.7(6.9)^{1.2}/(7.9)^{1.3}$ = 3.93 lb/hr

Using ≤2.5µm/TSP scaling factor (*Bulldozing - overburden scaling factor for ≤2.5 µm/TSP = 0.105, from Table 11.9-1)*:

E = 3.93 lb/hr x 0.105 = 0.413 lb/hr

Assuming 5 days duration for general land clearing with 8 hour days:
0.413 lb/hr x 40 total hrs = 16.52 lbs = 0.00826 tons per truck

Creating Access Roads - Compacting (roller, scraper, grader, asphalt paver)
Source: EPA AP-42, 13.2.3 Heavy Construction Operations (Table 13.2.3-1, Recommended Emission Factors for Construction Operations) & 11.9 Western Surface Coal Mining

Table 13.2.3-1 recommends the use of the dozer equation (overburden) in Tables 11.9-1 (English units) for estimating the emission factor for dust-generating compacting activities associated with creating access road construction operations. The emission factor is downgraded because of differences in operating equipment from those used in western surface coal mining (section 11.9). Again, the TSP scaling factor of 0.105 is applied. For TSP ≤30µm:

$E = 5.7(s)^{1.2}/(M)^{1.3}$

- *E = Emissions (lb/hr)*
- *s = percent silt content of material (site-specific value not obtained, therefore used geometric mean value from Table 11.9-3; bulldozer overburden geometric mean = 6.9%)*
- *M = percent moisture content of material (site-specific value not obtained, therefore used geometric mean value from Table 11.9-3; bulldozer overburden geometric mean = 7.9%)*

$E= 5.7(6.9)^{1.2}/(7.9)^{1.3}$ = 3.93 lb/hr

Using ≤2.5µm/TSP scaling factor (*Bulldozing - overburden scaling factor for ≤2.5 µm/TSP = 0.105, from Table 11.9-1)*:

E = 3.93 lb/hr x 0.105 = 0.413 lb/hr

Assuming 5 days duration for general land clearing with 8 hour days:
0.413 lb/hr x 40 total hrs = 16.52 lbs = 0.00826 tons per truck

Excavation & Grading of Stream Bed Materials (loader-backhoe, loader-crawler, dozer-crawler, scraper, grader)
Source: EPA AP-42, 13.2.3 Heavy Construction Operations (Table 13.2.3-1, Recommended Emission Factors for Construction Operations) & 11.9 Western Surface Coal Mining

The motor grading emission factor equation from Table 11.9-1 (English units) was used to estimate the emissions of the excavation and land moving activities associated with the stream bed and bank reconfiguration and/or stream structure installation. The grading emission factor equation is below. The TSP predictive equation is multiplied by a scaling factor of 0.031 to determine emissions. For TSP ≤30µm:

$E = 0.040(S)^{2.5}$

- *E = Emissions (lb/VMT)*

- *S = mean vehicle speed (mph; 10 mph based on average vehicle speed from equipment specifications – see above for website references)*

$E = 0.040(10)^{2.5} = 12.26$ lb/VMT

Using ≤2.5µm/TSP scaling factor of 0.031 (*Bulldozing - overburden scaling factor for ≤2.5 µm/TSP = 0.105, from Table 11.9-1)*:

E = 12.26 lb/VMT x 0.031 = 0.380 lb/VMT = 107.12 g/VKT

The estimated distance that equipment will travel for land grading per day (total project and access length = 39,654 ft) is 7.51 miles. The total distance traveled for grading equipment for the entire project (assuming a total of 4 passes along the stream for the entire project) is 30.04 miles (48.35 km) per vehicle.

Annual Emissions = E(distance x time)
AE = (107.12 g/VKT)(48.35 km) = 5,179.25 g = 0.006 tons per truck

Loading and unloading of debris and construction materials into trucks (dirt, sand, gravel, rock)
Source: EPA AP-42, 13.2.3 Heavy Construction Operations (Table 13.2.3-1, Recommended Emission Factors for Construction Operations) & 13.2.4 Aggregate Handling and Storage Piles

Loading debris and materials into Trucks: Table 13.2.3-1 recommends the use of the material handling emission factor equation in Tables 13.2.4 for estimating the emission factor for loading of debris and materials into trucks. Loading material from a stockpile to a truck with a front end loader is an example of a batch drop operation. The quantity of particulate emissions generated by a drop operation, per ton of material transferred, is estimated using the following equation:

$E = k(0.0032)\ [(U/5)^{1.3}/(M/2)^{1.4}]$

- *Where E = emission factor (lb/ton, i.e. lbs emitted per ton of material transferred)*
- *k = particle size multiplier (dimensionless; from Section 13.2.4 Aggregate Handling and Storage Piles = 0.053 for <2.5µm)*
- *U = mean wind speed (miles per hour; from http://www.erh.noaa.gov/er/gyx/climo/avgwind.html, the annual average wind speed in Baltimore, MD is 9.1 mph)*
- *M = material moisture content in percent (From Table 13.2.4-1, mean moisture content for exposed ground = 3.4%)*

$E = 0.053(0.0032)\ [(U/5)^{1.3}/(3.4/2)^{1.4}] = 0.0002$ lb/ton

The approximate total of material transferred is estimated to be 8 tons (based on personal communication with Ben Soleimani, NAB-EN), so annual emissions are:

AE = 0.0002 lb/ton x 8 tons = 0.0016lbs per truck = 0.0000008 ton/truck

Unloading debris and materials from Trucks: Table 13.2.3-1 recommends the use of the material handling emission factor equation in Tables 13.2.4 for estimating the emission factor for unloading of debris and materials into trucks. The quantity of particulate emissions generated by a drop operation, per ton of material transferred, is estimated using the following equation.

$E = k(0.0032) [(U/5)^{1.3}/(M/2)^{1.4}]$

- *E = emission factor (lb/ton)*
- *k = particle size multiplier (dimensionless; from Section 13.2.4 Aggregate Handling and Storage Piles = 0.053 for <2.5µm)*
- *U = mean wind speed (miles per hour; from http://www.erh.noaa.gov/er/gyx/climo/avgwind.html, the annual average wind speed in Baltimore, MD is 9.1 mph)*
- *M = material moisture content in percent (From Table 13.2.4-1, mean moisture content for exposed ground = 3.4%)*

$E = 0.053(0.0032) [(U/5)^{1.3}/(3.4/2)^{1.4}] = 0.0002$ lb/ton

The approximate total of material transferred is estimated to be 8 tons (based on personal communication with Ben Soleimani, NAB-EN), so annual emissions are:

AE = 0.0002 lb/ton x 8 tons = 0.002 lbs per truck = 0.000001 ton/truck

On-site Truck transport of debris and construction materials (soil, sand, gravel, rock): Included in unpaved road equation and emissions as shown above.

Summary of Emissions

As shown in Table 4, both annual emissions from exhausts and fugitive dust are below de minimus thresholds, therefore complying with the Clean Air Act General Conformity Rule.

Table 4: Summary of emissions for stream restoration in Prince Georges County, MD.

SUMMARY - Direct emissions for preferred alternative			
Pollutant	**Emissions per Stream Site (TPY)**	**Emissions Project Total (TPY)**	**Annual Limit (de minimus) (TPY)**
NOx	5.77	34.6	100
VOCs	0.56	3.4	50
SO2	1.95	11.7	100
PM2.5 (exhaust)	0.44	2.6	see PM 2.5 total
PM2.5 (fugitive dust)	N/A	11.2	see PM 2.5 total
PM2.5 Total (exhaust and dust)	N/A	13.9	100

Notes:

Paved road - trucks
Unpaved road – trucks, loader crawler, loader backhoe, paver
Dozer – roller, dozer crawler, scraper, grader
Compacting – roller, scraper, grader, asphalt paver
Excavation and grading - loader-backhoe, loader-crawler, dozer-crawler, scraper, grader
Loading and unloading of debris and excavated materials into trucks (dirt, sand, gravel, rock) - trucks

Assumptions:

- Total construction period estimated to be 154 days
- 5 days for general land clearing, access road compacting – dozer, scraper, grader, paver, chipping – 40 hours/day
- 50% all other equip – 616 hours = 0.86 mo
- 77 days for in-stream excavation and grading and loading and unloading of materials (10-26-15 email from USACE-EN, Ben Soleimani)
- The total length, including access points, of the three combined project areas = 20,851 lf. (stream reach lengths provided by Andrew Roach from GIS mapping of project area)
- Based on discussions with USACE-EN Civil (Ben Soleimani), the construction trucks will be traveling the total length of the project (i.e., stream and access areas) a couple of dozen times a day for the construction period (154 days).
- Approximate total of material transferred was estimated to be 8 tons (based on personal communication with Ben Soleimani, NAB-EN).

Stream Restoration, Prince Georges County Maryland

Table 1: Conformity Assessment: Preferred Alternative

DIRECT IMPACTS		**EQUIPMENT**																
ANNUAL EXHAUST EMISSIONS																		
Equipment Description	**Crane**	**Loader, Crawler**	**Loader, Crawler**	**Loader/Back hoe**	**Loader/Back hoe**	**Roller**	**Roller**	**Roller**	**Dozer, Crawler**	**Dozer, Crawler**	**Truck, Hwy**	**Truck, Hwy**	**Truck, Hwy**	**Scraper**	**Grader**	**Asphalt Paver**	**Brush Chipper**	**Chainsaw**
Specifications	Hyd, 33T	F/E, 2.6 CY	F/E, 3.75 CY	0.80 CY	1.25 CY	Vib, DD, 6.0 T	Vib,DD,12T	Static,14 T			50K GVW, 6X4	25K GVW	45K GVW	ELEV, 11 CY	motor	10.0' W, SP	12" Dia Log	4"-42"Long Bar
PO - Power output (hp)	230	160	210	60	84	111	100	80	240	405	330	210	330	175	135	155	135	5.7
Fuel Type	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel		Diesel		Diesel	Diesel	diesel	diesel	Diesel
BSFC	0.367	0.367	0.367	0.408	0.408	0.367	0.408	0.408	0.367	0.367	0.367	0.367	0.367	0.367	0.367	0.367	0.367	0.608
Operating weight (tons)		19.84	27.8	5.68	7.88				28.82	50.98	20	20	20		14.42	16		21.0381818
EF - Emission Factors (grams/hp-hr)*																		
NOx	2.5	2.5	2.5	3	3	2.5	3	3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.9
HC	0.1836	0.1836	0.1836	0.1836	0.1836	0.1836	0.1836	0.1836	0.1836	0.1669	0.1669	0.1836	0.1669	0.1836	0.1836	0.1836	0.1836	47.98
SO2	0.85	0.85	0.85	0.95	0.95	0.85	0.95	0.95	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	1.09
PM2.5 (using PM10 factors)	0.15	0.22	0.15	0.3	0.3	0.22	0.3	0.3	0.15	0.15	0.15	0.15	0.15	0.22	0.22	0.22	0.22	7.7
LF - Load Factor (fraction of power)	0.43	0.80	0.21	0.21	0.21	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.43	0.59	0.59	0.43	0.43
t - Time of operation (hr/yr)	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232	1232
AE - Annual Emissions (tons/year)* = (EF X LF X PO X t)/907185																		
NOx	0.3358	0.4346	0.1497	0.0513	0.0719	0.2223	0.2404	0.1923	0.4807	0.8113	0.6610	0.4207	0.6610	0.2555	0.2704	0.3105	0.1971	0.0030
VOCs	0.0247	0.0319	0.0110	0.0031	0.0044	0.0163	0.0147	0.0118	0.0353	0.0542	0.0441	0.0309	0.0441	0.0188	0.0199	0.0228	0.0145	0.1597
SO2	0.1142	0.1479	0.0509	0.0162	0.0227	0.0757	0.0758	0.0606	0.1636	0.2761	0.2249	0.1431	0.2249	0.0869	0.0920	0.1056	0.0671	0.0036
PM2.5 (exhaust)	0.0201	0.0382	0.0090	0.0051	0.0072	0.0196	0.0240	0.0192	0.0288	0.0487	0.0397	0.0252	0.0397	0.0225	0.0238	0.0273	0.0173	0.0256

ANNUAL FUGITIVE DUST EMISSIONS																			
Equipment Description	**Crane**	**Loader, Crawler**	**Loader, Crawler**	**Loader/Back hoe**	**Loader/Back hoe**	**Roller**	**Roller**	**Roller**	**Dozer, Crawler**	**Dozer, Crawler**	**Truck, Hwy**	**Truck, Hwy**	**Truck, Hwy**	**Scraper**	**Grader**	**Asphalt Paver**	**Brush Chipper**	**Chainsaw**	**Total**
Paved Roads - tons (Equations from EPA AP-42, equation 13.2.1)																			
											0.012	0.012	0.012						0.036
Unpaved roads - tons, natural mitigated value (Equations from EPA AP-42, 13.2.2)																			
											3.68	3.68	3.68						11.04
General Land Clearing - tons (Equations from EPA AP-42 13.2.3)																			
						0.008	0.008	0.008	0.008	0.008				0.008	0.008		0.008	0.008	0.072
Creating access roads (compacting) - tons (Equations from EPA AP-42 13.2.3)																			
						0.008	0.008	0.008						0.008	0.008	0.008			0.048
Excavation & grading of stream bed materials -tons (Equations from EPA AP-42 13.2.3)																			
		0.006	0.006	0.006	0.006				0.006	0.006				0.006	0.006				0.024
Loading of debris & construction materials -tons (Equations from EPA AP-42 13.2.3)																			
											0.000001	0.000001	0.000001						0.000003
Unloading of debris & construction materials -tons (Equations from EPA AP-42 13.2.3)																			
											0.000001	0.000001	0.000001						0.000003

Total Direct Emission Amounts (tons/yr)			Direct
NOx			5.77
VOCs			0.56
SO2			1.95
PM2.5 Total			0.4412

Total On-Site Fugitive Dust Emissions (tons/yr)	
PM2.5 Total (Fugitive Dust)	11.220006

SUMMARY - Direct emissions for preferred alternative

Pollutant	**Emissions per Stream Site (TPY)**	**Emissions Project Total (TPY)**	**Annual Limit (de minimus) (TPY)**
NOx	5.77	34.6	100
VOCs	0.56	3.4	50
SO2	1.95	11.7	100
PM2.5 (exhaust)	0.44	2.6	see PM 2.5 total (exhaust and dust)
PM2.5 (fugitive dust)	N/A	11.2	see PM 2.5 total (exhaust and dust)
PM2.5 Total (exhaust and dust)	N/A	13.9	100

C-6: Agency Coordination

AGENCY CORRESPONDENCE*

*Note that agency correspondence received during the public comment period for the Draft Feasibility Report and Environmental Assessment (June 1- June 30, 2017) and the State and Agency Review (August 2018) of the Final Feasibility Report and Environmental Assessment is contained in Appendix D.

Date	Summary of Agency Correspondence
11 March 2014	USACE email to Genevieve LaRouche (US Fish and Wildlife Service) requesting coordination under the Fish and Wildlife Coordination Act and Endangered Species Act.
20 March 2015	USACE email to Brian Hug and Walter Simms (Maryland Department of Environment (MDE)), requesting assistance regarding the analysis for the air quality conformity.
15 May 2015	USACE Email to MDE about air quality conformity analysis for the stream restoration projects in Prince George's and Montgomery County.
01 June 2015	USACE Public Notice sent to agencies and the public to notify of ongoing study (mailing list included in Appendix D)
15 June 2015	Letter from Maryland Department of Planning, Maryland Historical Trust (MHT) regarding recommendations for cultural resources evaluation at the project sites. MHT believes that the proposed restoration work will unlikely have an adverse effect on the cultural resources within six out of the ten reaches. From Dixie L. Henry, Preservation Officer.
23 June 2015	Letter from the Maryland-National Capital Park and Planning Commission responding to study notice. MNCPPC provided maps of the Anacostia River Watershed and is very supportive of the proposed environmental assessment as the first step in developing restoration projects for the Anacostia River Watershed. From Lawrence E. Quarrick, Division Chief.
2 July 2015	Letter from the Maryland Department of Natural Resources (MDDNR) to share their recommendations on natural resource considerations during the development of the Environmental Assessment. From Greg Golden, Project Review Division.
13 July 2015	Letter from the Maryland Department of Planning conveying state clearinghouse recommendations. Comments from The Maryland Department of Environment: any solid waste generated from the subject project must be disposed properly by recycling, if possible, or a permitted solid waste acceptance facility; The Waste Diversion and Utilization Program must be contacted before construction activities begin if the facilities may generate, propose to generate, and/or handling hazardous wastes to ensure the activities are being conducted correctly with applicable State and federal laws and regulations; comments from the MHT on recommendations for cultural evaluations. From Linda C. Janey, J.D, Assistant Secretary
29 July	Letter from MDDNR, Wildlife and Heritage Service, stating that there

2015	is one state listed endangered plant (Stellaria Alisine) at the project area at Indian Creek. From Lorie A. Byrne, Environmental Review Coordinator.
7 August 2015	Letter from Prince George's County Department of Permitting stating that approval of Stormwater Management Concept and site development is required, as well as and approval for 100-year floodplain. From Haitham A. Hijazi, Director
27 October 2015	Email from MDE about unpaved roads for air quality conformity.
4 January 2016	Email from MDDNR about the design for Indian Creek, with regards to the rare plant.
14 January 2016	Email from MDDNR (Katharine McCarthy) to USACE (Angela Sowers) with information on wildlife and plant species at Site 11, Indian Creek.
2 February 2016	Email from MDDNR (Katharine McCarthy) to USACE (Angela Sowers) summarizing conference call regarding rare plant at Indian Creek.
12 February 2016	Email from MDDNR (Katharine McCarthy) to USACE (Angela Sowers and Jacqueline Seiple) providing information on rare plant at Indian Creek, Site 11.
25 April 2016	Letter to MHT (Ms. Elizabeth Hughes) from USACE (Daniel Bierly) to initiate Section 106 consultation.
17 May 2016	Email from USACE (Angela Sowers) to Prince George's County Soil Conservation District (Steve Darcey) regarding the presence of prime and unique farmlands in the study area.
27 May 2016	Letter from USDA Natural Resources Conservation Service (Dean Cowherd) communicating that the project will not impact or convert prime or unique farmlands.
1 June 2016	USACE Notice of Availability sent to agencies and the public to inform them of release of Draft Feasibility Report and Integrated Environmental Assessment (see Appendix D for responses to public comments).
1 August 2016 & 22 September 2016	Email correspondence between MDDNR (Katharine McCarthy) and USACE (Jacqui Seiple) discussing site visit report for Indian Creek and conveying MDDNR recommendations for feasibility level designs to avoid impacting the rare plant.
3 November 2016	USACE letter to Delaware Nation of Oklahoma inquiring whether the tribe would like to initiate government to government consultation in accordance with the Department of Defense American Indian and Alaska Native Policy.
3 November 2016	USACE letter to Eastern Shawnee Tribe of Oklahoma inquiring whether the tribe would like to initiate government to government consultation in accordance with the Department of Defense American Indian and Alaska Native Policy.
3 November 2016	USACE letter to Pamunkey Indian Tribe inquiring whether the tribe would like to initiate government to government consultation in

	accordance with the Department of Defense American Indian and Alaska Native Policy.
3 November 2016	USACE letter to Delaware Tribe of Indians inquiring whether the tribe would like to initiate government to government consultation in accordance with the Department of Defense American Indian and Alaska Native Policy.
3 November 2016	USACE letter to Seneca-Cuyuga Nation inquiring whether the tribe would like to initiate government to government consultation in accordance with the Department of Defense American Indian and Alaska Native Policy.
3 November 2016	USACE letter to Tuscarora Nation inquiring whether the tribe would like to initiate government to government consultation in accordance with the Department of Defense American Indian and Alaska Native Policy.
16 & 21 December 2016	Email correspondence between USACE (Seiple) and EPA (Aaron Blair) concurring with USACE response to EPA comment on concerns over potential impacts of the stream restoration project on groundwater in the vicinity of University of Maryland Landfill 3A.
2 February & 22 March 2017	Email correspondence between USACE (Seiple) and The National Capital Planning Commission (Michael Weil) confirming that the proposed project is consistent with the existing park use and requires no further review for the Capper Crampton Act.
13 July 2017	Email correspondence to Katharine McCarthy (MDDNR) from USACE (Seiple) providing the 35% site designs for her review that incorporate MDNR recommendations to protect Stellaria alsine at Indian Creek, Site 11.
1 August 2017	Email from USACE (Seiple) to MDDNR (McCarthy and Golden) documenting teleconference discussion (25 July 2017) regarding Indian Creek, Site 11 designs.
1 September 2017	Letter from USACE (Bierly) to MHT conveying information cultural investigations and Phase I surveys of the project sites, to request completion of coordination under Section 106.
30 October 2017	Letter from Maryland Historic Trust (Dixie Henry) to USACE indicating their opinion that restoration work will have no adverse effect on historic properties.
3 August 2018	Letter sent from USACE to agencies listed below for State and Agency Review of Final Feasibility Report and Environmental Assessment (see Appendix D for comments received from these agencies). • Larry Hogan, Governor of Maryland • Adam Ortiz, Prince George's County Department of Environment • Bill Shuster, U.S. House Committee on Transportation and Infrastructure • John Barrasso, U.S. Senate Committee on Environment and Public Works

	• Terron Hillsman, National Resources Conservation Service • Gregory Murrill, Federal Highways Administration • Michael Pentony, National Marine Fisheries Service • Rachel Lipsy, NOAA Office of Strategic Planning • Barbara Rudnick, US Environmental Protection Agency • Lisa Treichel, Department of Interior • Myra Barnes, Maryland Department of Planning • USACE, Assistant Secretary of the Army

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

Planning Division

MAR 1 1 2014

Ms. Genevieve LaRouche
Field Supervisor
Chesapeake Bay Field Office
U.S. Fish & Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Ms. LaRouche:

This letter is in reference to the U.S. Army Corps of Engineers (USACE), Baltimore District's proposal to continue work on the Anacostia River Watershed restoration project in Montgomery County, Maryland. In July 2005, the Section 905(b) report "Anacostia River and Tributaries, Maryland and the District of Columbia, Comprehensive Watershed Plan" was completed and recommended USACE conduct a comprehensive investigation of watershed problems. The resulting Anacostia Restoration Plan (ARP) was completed in February 2010 and identified over 3,000 candidate projects for the restoration of the Anacostia River watershed, including several projects that USACE could potentially implement. Alterations to the hydrologic regime, physical habitat, and water chemistry have been found to be the primary drivers of degradation in the Anacostia River.

A Feasibility Study was initiated in 2013 to more fully investigate restoration opportunities to address degraded aquatic ecosystems in the Anacostia River Watershed. During a May 2012 meeting, Montgomery County Department of Environmental Protection (MCDEP) staff confirmed that stream restoration is a priority for Montgomery County. In October 2013, USACE entered into an agreement with Montgomery County as the local non-Federal sponsor.

The study team identified the following primary objectives: (1) Restore in-stream habitat by restoring stream geomorphic condition. Biological data, in the form of IBIs, physical habitat data, stream geomorphic data, land use data, and other data will be utilized to assess the present ecological health of streams and the expected lift in ecological function and structure from restoration activities; (2) Restore the natural range and habitat of resident and migratory fish to the greatest extent possible in the Anacostia River and its streams. Inventories of stream blockages, information on ongoing fish passage remediation efforts, and other data will be utilized to assess the effects of blockage removal; and (3) Restore non-tidal wetlands along stream reaches. Characterization of riparian plant communities in the watershed, will be required to evaluate potential resource trade-offs.

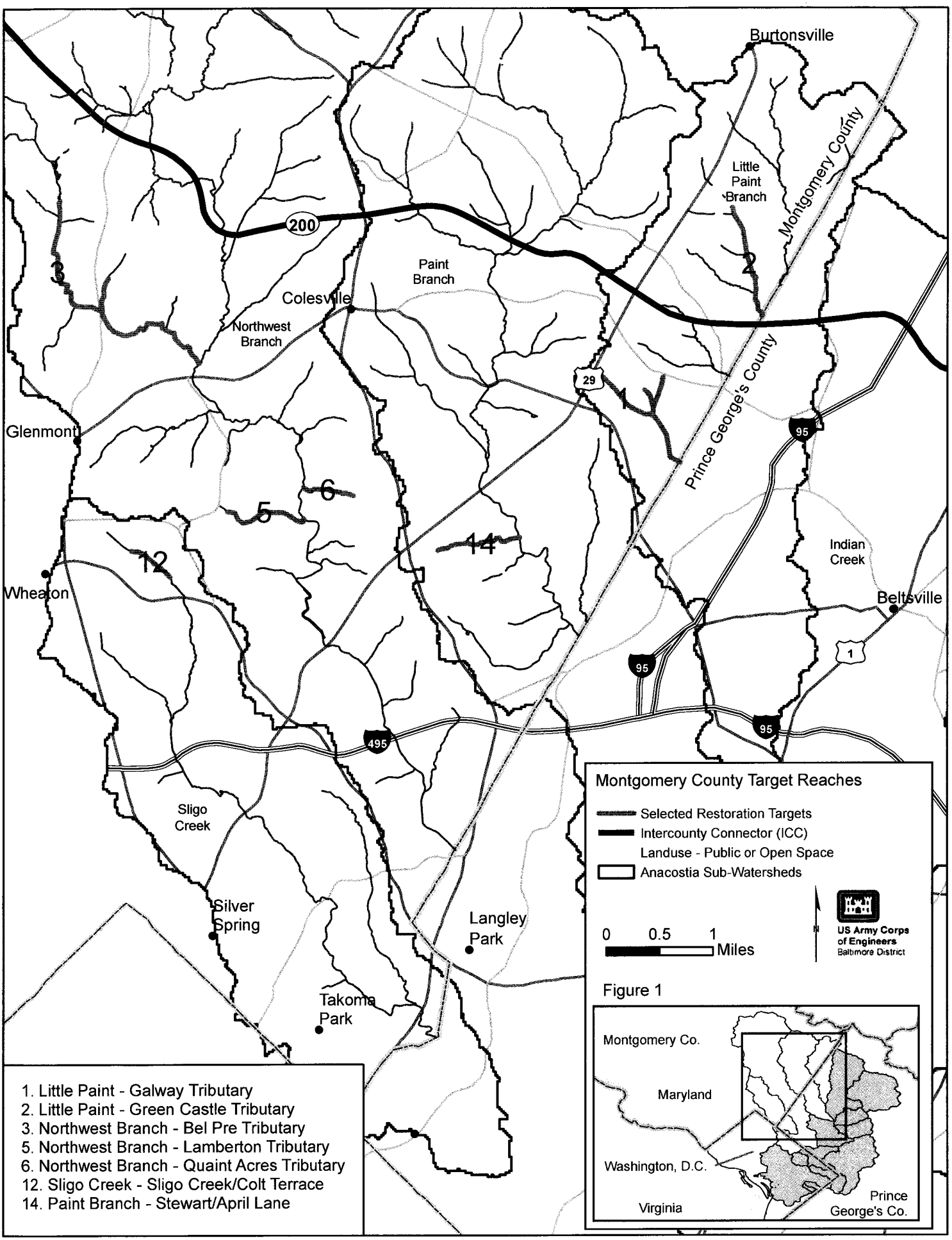
The criteria and objectives by which a recommended plan will be selected will be determined during the Alternative and Evaluation phase. Preliminary criteria and metrics have been identified and will be reexamined and refined as the study progresses. An initial array of candidate stream segments has been identified as an outcome of preliminary office and field work (Figure 1). If a plan is recommended and authorized, USACE will obtain any permits necessary for construction.

The appropriate level of involvement for the U.S. Fish and Wildlife Service, with the two ecosystem restoration feasibility studies in the Anacostia River Watershed with Prince George's County and Montgomery County, Maryland, involves a relatively low level of effort that will be needed to accomplish the requirements under the Fish and Wildlife Coordination Act (FWCA). This would consist of general coordination during plan formulation and preparation of FWCA reports. At this time, USACE is requesting your agency's continued input with respect to wildlife resources within the Anacostia River watershed in accordance with the Fish and Wildlife Coordination Act and Endangered Species Act. Any information your office may have on recent/new occurrences of federally protected species of animals and plants listed by Section 7 of the Endangered Species Act would be greatly appreciated. USACE is committed to incorporating USFWS input and interests throughout the process.

Thank you for the continued involvement of your agency pursuant to the FWCA and any Section 7 requirements for the restoration project. If you have any questions, or would like to provide any feedback, please contact Chris Spaur by email at Christopher.C.Spaur@usace.army.mil or by telephone at (410) 962-6134.

Sincerely,

Daniel M. Bierly, Chief
Civil Project Development Branch


Burtonsville
Montgomery County
Little Paint Branch
200
Paint Branch
Colesville
Northwest Branch
29
Prince George's County
95
Glenmont
Indian Creek
Beltsville
Wheaton
1
495
Sligo Creek
Silver Spring
Langley Park
Takoma Park
Montgomery County Target Reaches
Selected Restoration Targets
Intercounty Connector (ICC)
Landuse - Public or Open Space
Anacostia Sub-Watersheds
0 0.5 1
Miles
N
US Army Corps of Engineers
Baltimore District
Figure 1
Montgomery Co.
Maryland
Washington, D.C.
Virginia
Prince George's Co.
1. Little Paint - Galway Tributary
2. Little Paint - Green Castle Tributary
3. Northwest Branch - Bel Pre Tributary
5. Northwest Branch - Lamberton Tributary
6. Northwest Branch - Quaint Acres Tributary
12. Sligo Creek - Sligo Creek/Colt Terrace
14. Paint Branch - Stewart/April Lane

From:	Brian Hug -MDE-
To:	Seiple, Jacqueline A NAB
Subject:	[EXTERNAL] Fwd: Emissions factors - General Conformity (UNCLASSIFIED)
Date:	Friday, March 20, 2015 12:28:46 PM
Attachments:	420r10018.pdf

---------- Forwarded message ----------
From: Walter Simms -MDE- <walter.simms@maryland.gov>
Date: Fri, Mar 20, 2015 at 12:12 PM
Subject: Re: Emissions factors - General Conformity (UNCLASSIFIED)
To: Brian Hug -MDE- <brian.hug@maryland.gov>

Hi Roger:
I checked the formulas and methodologies being used by Ms. Seiple and they appear to be acceptable, I would however inform her that she should make sure she uses the most up to date guidance. There is a NR-009d and most of the table and values match the NR-009b , but I have not checked all. I'm sure that there are changes in the guidance somewhere. I have attached the NR-009d document.

Walter

On Fri, Mar 20, 2015 at 7:53 AM, Brian Hug -MDE- <brian.hug@maryland.gov> wrote:

> Walter...please review this for the corp of engineers and email me your comments today. Thanks.
>
> ---------- Forwarded message ----------
> From: Seiple, Jacqueline A NAB <Jacqueline.A.Seiple@usace.army.mil>
> Date: Friday, March 20, 2015
> Subject: Emissions factors - General Conformity (UNCLASSIFIED)
> To: Brian Hug -MDE- <brian.hug@maryland.gov>
>
> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Brian,
>
> Thanks for meeting with me on Monday regarding General Conformity analyses for the stream restoration projects we are planning in Montgomery County. I do have a few more questions, mainly regarding where to find emissions factors for construction equipment. I just want to verify that my thoughts below are correct, before moving on.
> ---
>
> For NOx, VOC (HC), and PM2.5, I will use emissions factors from Tables 4, 2, and 5, respectively, from EPA NR-009B (see attached).
>
> For SO2, I could not find a similar table, so was going to use Equation 7 on pg. 19 of EPA NR-009B. For the variables, I would use:
>
> >BSFC from Appendix C Table C1
> >HC from Table 2
> >soxcnv = 0.02247 for diesel (from p. 17)
> >soxdsl = 500 ppm = 0.05 weight percent (max S content of fuel for nonroad vehicles June 2007)

Can you tell me if I am on the right track with regards to vehicle emissions??

I also have a chainsaw on the list of equipment - I was looking at using information in EPA NR010f (attached), p. 4-6 and Table 3 for Class V (spark Ignitions, handheld, <25 hp, 2 stroke, >50cc). I was not entirely clear on Phase I and Phase II difference, but seems like the date of manufacture. Assuming the chainsaw likely in use would be manufactured in the last 10 years, could I use Phase II?

Can I then use Equation 7 above using HC and BSCF from Table 3 (EPA NR010f), and same soxcnv and soxdsl as above??

Thanks, your help is much appreciated!

Jacqui

Jacqueline Seiple
Geographer, P.G.
Planning Division
U.S. Army Corps of Engineers, Baltimore
(410) 962-4398 <tel:%28410%29%20962-4398>

Classification: UNCLASSIFIED
Caveats: NONE

--

Brian J. Hug
Deputy Program Manager
Air Quality Planning Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
410 537 4125 <tel:410%20537%204125>

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Brian J. Hug
Deputy Program Manager
Air Quality Planning Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
410 537 4125

From: Brian Hug -MDE-
To: Seiple, Jacqueline A NAB
Subject: [EXTERNAL] Re: Emissions factors - General Conformity (UNCLASSIFIED)
Date: Friday, May 15, 2015 9:40:44 AM

Seems ok

On Friday, May 15, 2015, Seiple, Jacqueline A NAB <Jacqueline.A.Seiple@usace.army.mil> wrote:

> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Hi Brian,
>
> It has been a while, but if you recall, I am trying to complete a general air quality conformity analysis for our stream restoration projects in Montgomery County. I calculated the chemical emissions and we are below the de minimus. I now am looking at particulate (PM2.5) emissions. I've been trying to figure out how to perform this analysis.
>
> It seems that there is an option to use a default value (Section 3. Construction in http://www.epa.gov/airquality/genconform/training/files/General_Conformity_Training_Manual.pdf) for the emissions factor (E=1.2 tons/acre/month). To calculate dust emissions at the site, can I just use this value multiplied by the site area and time?
>
> I saw that it is necessary to also calculate offsite emissions. For these projects, there will be some delivery of materials (sand, gravel, rock) and some removal of materials. However, it is hoped that any materials excavated from the stream bed will be reused on site, including woody debris, and vegetation would be mulched. So, I think it would mainly be delivery of material on paved roads, using the paved roads equation AP-42 Section 13.2.1.3 equation 1. Roads within the site limits would be unpaved, but I think this would be included in the calculation using the default value and site acres.
>
> Can you let me know if this is correct? Any help would be appreciated.
> Thanks!
>
> Jacqui
>
> Jacqueline Seiple
> Geographer, P.G.
> Planning Division
> U.S. Army Corps of Engineers, Baltimore
> (410) 962-4398
>
> -----Original Message-----
> From: Brian Hug -MDE- [mailto:brian.hug@maryland.gov <javascript:;>]
> Sent: Friday, March 20, 2015 12:20 PM
> To: Seiple, Jacqueline A NAB
> Subject: [EXTERNAL] Fwd: Emissions factors - General Conformity (UNCLASSIFIED)
>
> ---------- Forwarded message ----------
> From: Walter Simms -MDE- <walter.simms@maryland.gov <javascript:;> >
> Date: Fri, Mar 20, 2015 at 12:12 PM
> Subject: Re: Emissions factors - General Conformity (UNCLASSIFIED)
> To: Brian Hug -MDE- <brian.hug@maryland.gov <javascript:;> >

Hi Roger:

I checked the formulas and methodologies being used by Ms. Seiple and they appear to be acceptable, I would however inform her that she should make sure she uses the most up to date guidance. There is a NR-009d and most of the table and values match the NR-009b , but I have not checked all. I'm sure that there are changes in the guidance somewhere. I have attached the NR-009d document.

Walter

On Fri, Mar 20, 2015 at 7:53 AM, Brian Hug -MDE- <brian.hug@maryland.gov <javascript:;> > wrote:

Walter...please review this for the corp of engineers and email me your comments today. Thanks.

---------- Forwarded message ----------
From: Seiple, Jacqueline A NAB <Jacqueline.A.Seiple@usace.army.mil <javascript:;> >
Date: Friday, March 20, 2015
Subject: Emissions factors - General Conformity (UNCLASSIFIED)
To: Brian Hug -MDE- <brian.hug@maryland.gov <javascript:;> >

Classification: UNCLASSIFIED
Caveats: NONE

Brian,

Thanks for meeting with me on Monday regarding General Conformity analyses for the stream restoration projects we are planning in Montgomery County. I do have a few more questions, mainly regarding where to find emissions factors for construction equipment. I just want to verify that my thoughts below are correct, before moving on.

For NOx, VOC (HC), and PM2.5, I will use emissions factors from Tables 4, 2, and 5, respectively, from EPA NR-009B (see attached).

For SO2, I could not find a similar table, so was going to use Equation 7 on pg. 19 of EPA NR-009B. For the variables, I would use:

>BSFC from Appendix C Table C1
>HC from Table 2
>soxcnv = 0.02247 for diesel (from p. 17)
>soxdsl = 500 ppm = 0.05 weight percent (max S content of fuel for nonroad vehicles June 2007)

Can you tell me if I am on the right track with regards to vehicle emissions??

I also have a chainsaw on the list of equipment - I was looking at using information in EPA NR010f (attached), p. 4-6 and Table 3 for Class V (spark Ignitions, handheld, <25 hp, 2 stroke, >50cc). I was not entirely clear on Phase I and Phase II difference, but seems like the date of manufacture. Assuming the chainsaw likely in use would be manufactured in the last 10 years, could I use Phase II?

Can I then use Equation 7 above using HC and BSCF from Table 3 (EPA NR010f), and same soxcnv and soxdsl as above??

US Army Corps
of Engineers
Baltimore District

Public Notice

Anacostia River Watershed Restoration Project
Prince George's County, Maryland

All Interested Parties: In compliance with the National Environmental Policy Act (NEPA), the U.S. Army Corps of Engineers, Baltimore District (USACE), is preparing an environmental assessment (EA) for multiple stream and wetland restoration projects being proposed in the Anacostia River watershed, Prince George's County, Maryland. The study is being conducted in partnership with the Prince George's County Department of the Environment to determine if there are restoration projects to be implemented by the Corps. If implemented, the projects would directly support USACE's commitment to the Chesapeake Bay goals included in Executive Order 13508, *Chesapeake Bay Protection and Restoration.*

In February 2010, USACE, in cooperation with local resource agencies, completed the Anacostia Restoration Plan (ARP) which identified numerous environmental restoration opportunities in the Anacostia watershed. The current Anacostia River watershed restoration study includes more detailed consideration of some of the restoration projects previously identified in the ARP that USACE can implement in Prince George's County. The EA under preparation also contains additional stream and wetland restoration projects that were not included in the ARP.

Ten stream segments totaling approximately 10 miles in length, have been selected for investigation (see attached map). The primary project objectives for the selected stream segments are to: (1) restore in-stream habitat; (2) remove fish barriers; and (3) restore floodplain wetlands and increase stream-floodplain connection. To achieve these objectives, stream and wetland restoration methods involving placement of in-stream structures, fish blockages removal/modification, excavating floodplain sediments, placing fill and soil in the floodplain, or planting native vegetation in the floodplain are being investigated. Projects would be formulated to optimize environmental benefits, avoid increasing flood risk, and minimize detrimental impacts to structures, properties, and human use of the streams and floodplain.

Alternatives that achieve project objectives are being planned and benefits and costs will be evaluated. This planning information will be presented in a draft EA integrated within a USACE feasibility report anticipated to be released for public review in late 2015. A notice of availability will be released to inform the public that the EA describing proposed actions is available for review and comment.

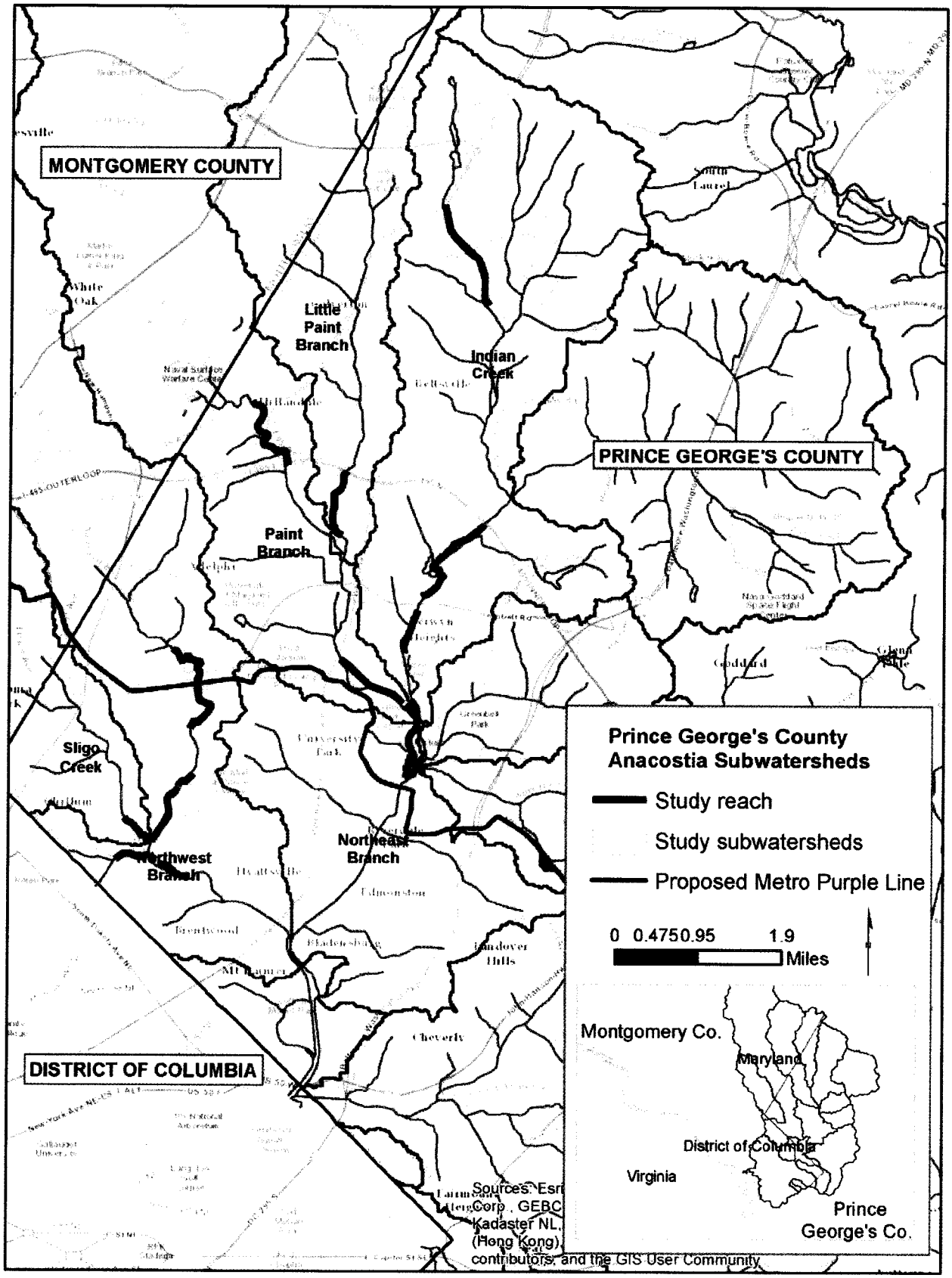
To assist in the development of the EA, we are requesting that you provide information concerning your interests or your organization's area of responsibility or expertise within 30 days from the date of this notice to the address below. A timely review of this information and a written response will be greatly appreciated. Substantive public comments received via the NEPA process will be fully considered by USACE.

If you have any questions, please contact Christopher Spaur by email at christopher.c.spaur@usace.army.mil, by telephone at (410) 962-6134, or by mail at U.S. Army

Corps of Engineers, Baltimore District, ATTN: CENAB-PL-P (Spaur), P.O. Box 1715, Baltimore, Maryland 21203-1715.

Daniel M. Bierly
Chief, Civil Project Development Branch

Enclosure: Site Map



Attachment - Map of the stream reaches in Prince George's County

June 15, 2015

Mr. Christopher Spaur
Planning Division
Baltimore District
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, MD 21203-1715

Re: MHT Review of Anacostia River Watershed Restoration Project – Prince George's County, Maryland

Dear Mr. Spaur:

In response to a request from the U.S. Army Corps of Engineers, the Maryland Historical Trust (MHT) is reviewing the above-referenced project to assess potential effects on historic properties in accordance with Section 106 of the National Historic Preservation Act. It is our understanding that the Corps, in partnership with Prince George's County, is preparing an environmental assessment (EA) for multiple stream and wetland restoration projects that are being proposed within ten stream segments in the Anacostia River watershed. As a federal ecosystem restoration project, the proposed undertaking is subject to federal historic preservation law. We are therefore reviewing the proposed restoration study to assess potential effects on historic properties.

Following our careful review of the ten stream segments/reaches, it is our opinion that the proposed restoration work is unlikely to have an ***adverse*** effect on cultural resources within six of the ten reaches, including:

- Indian Creek – I-95
- Paint Branch – I-95 Interchange
- Indian Creek – College Park
- Paint Branch
- Northeast Branch
- Chillum Road Tributary

No archeological survey work will be recommended for these six reaches for *Section 106* purposes.

While much of the area surrounding the remaining four stream reaches has never been *systematically* surveyed for archeological deposits, MHT files indicate that several archeological sites, both prehistoric and historic, have already been identified in the vicinity these four study areas:

- Little Paint Branch
- Lower Northwest Branch
- Northwest Branch Hyattsville
- Sligo Creek

Given the presence of these archeological resources, we believe that these four stream reaches have moderate to high potential for containing additional archeological resources that have not yet been identified. For these reasons, archeological investigations *may* be needed prior to any stream or wetland restoration work, depending upon the location and extent of the proposed impact areas. We are therefore requesting that we be provided with more detailed site plans (as they become available) illustrating the location and boundaries of all proposed ground-disturbing activities (bank grading, removal of fish blockages, sediment removal, plantings, fencing, staging areas, etc.) that would be involved in the restoration work within the four stream reaches listed above. The plans should clearly indicate where all activities will be taking place and to what depth the ground disturbance will extend. Upon our review of these plans, we will be able to provide informed recommendations regarding what, if any, archeological investigations will be necessary prior to construction. All recommended survey work will need to be carried out by a qualified professional archeologist and performed in accordance with the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994).

We look forward to receiving the information requested above and to further coordination as project planning proceeds. If you have any questions or we may be of assistance, please do not hesitate to contact me at dixie.henry@maryland.gov or 410-514-7638. Thank you for providing us with this opportunity to comment.

Sincerely,

Dixie Henry

Dixie L. Henry, Ph.D.
Preservation Officer
Maryland Historical Trust

DLH/201502225

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
Department of Parks and Recreation
6600 Kenilworth Avenue Riverdale, Maryland 20737

VOICE 301-699-2516
TTY 301-699-2544
FAX 301-277-9041

June 23, 2015

Daniel M. Bierly, Chief
Civil Project Development Branch
US Army Corps of Engineers, Baltimore District
Attn: CENAB-PL-P
P.O. Box 1715
Baltimore, Maryland 21203-1715

RE: Anacostia River Watershed Restoration Project
Prince George's County, Maryland

Dear Mr. Bierly:

This letter responds to the public notice recently sent to The Maryland-National Capital Park and Planning Commission (M-NCPPC) regarding the environmental assessment for multiple stream and wetland restoration projects proposed by the U.S. Army Corps of Engineers in the Anacostia River Watershed. The M-NCPPC owns and manages several properties that abut the streams and tributaries of the Anacostia River. These include the following stream valley parks:

- Anacostia River
- Northwest Branch
- Sligo Creek
- Paint Branch
- Little Paint Branch
- Indian Creek

Each of these parks is improved with facilities and amenities that are heavily used by the public. As such, we are very supportive of your proposed environmental assessment as the first step in developing restoration projects for the Anacostia River Watershed to implement the goals of protecting and restoring the Chesapeake Bay. In addition, the Corps' future project will assist the M-NCPPC in determining ways to enhance the experience of our park users. For your information and use, we have enclosed a set of maps that delineate parcels owned by M-NCPPC in the Anacostia River Watershed.

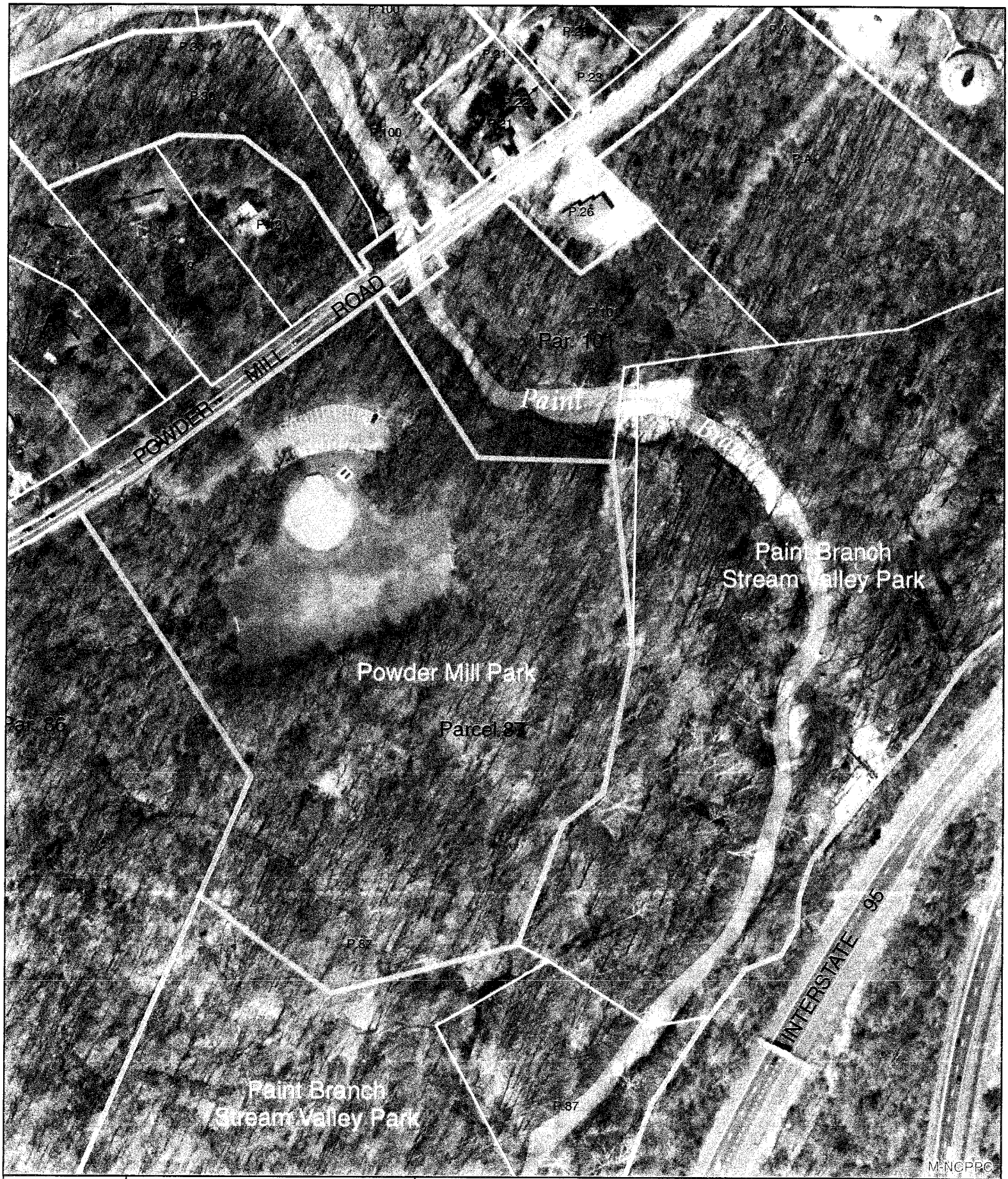
Should you have any questions, please contact me at 301-699-2525. Thank you for providing notice of your pending environmental assessment study.

Very truly yours,

Lawrence E. Quarrick, Division Chief
Park Planning and Development Division

Enclosures

C: Patricia Colihan Barney
Darin Conforti
Alvin McNeal
Robert Clark
Laura Connelly
Eileen Nivera



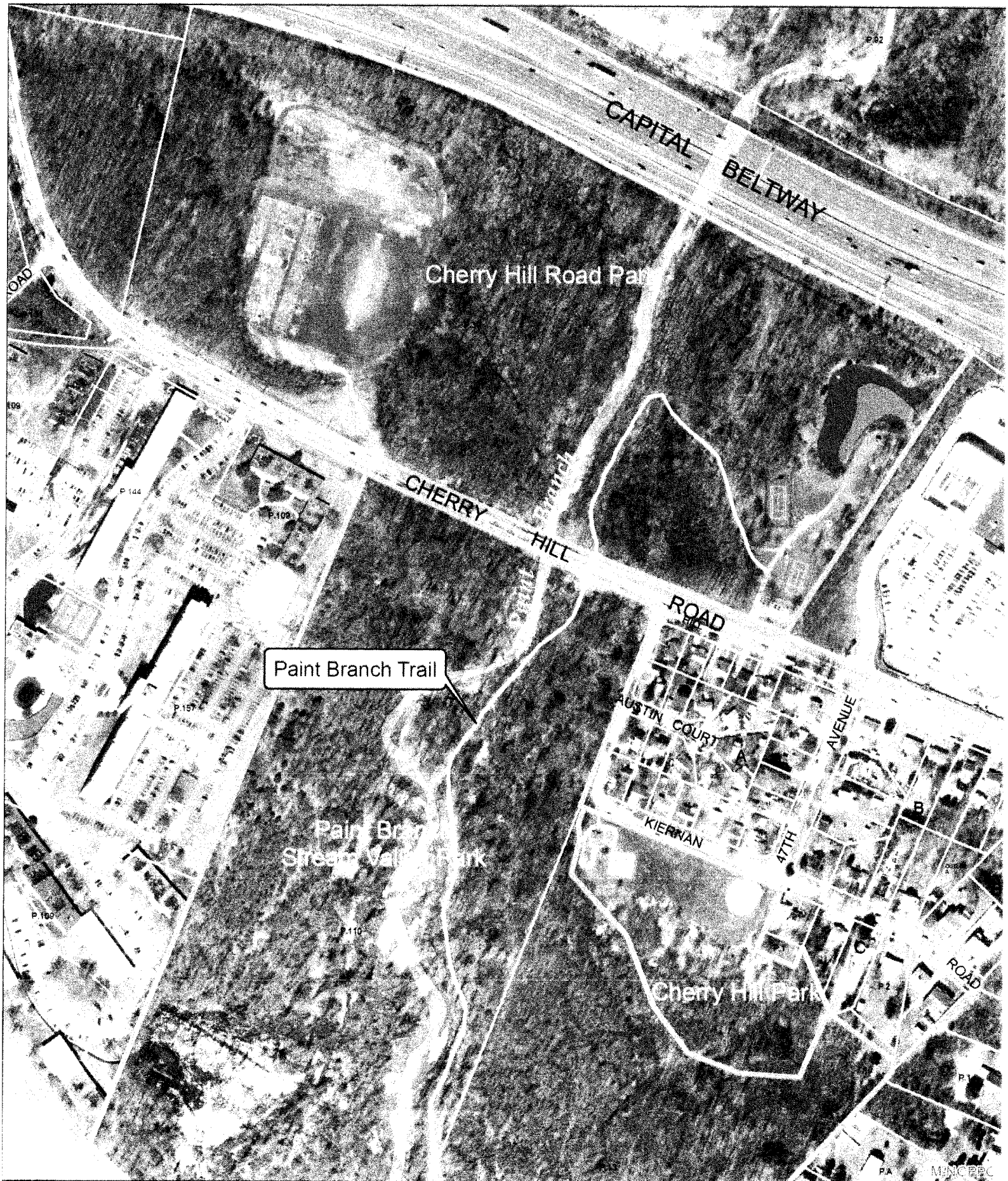
GIS

M59 - Powder Mill Park

DATE: 06/19/2015

SCALE: 200 Feet

N



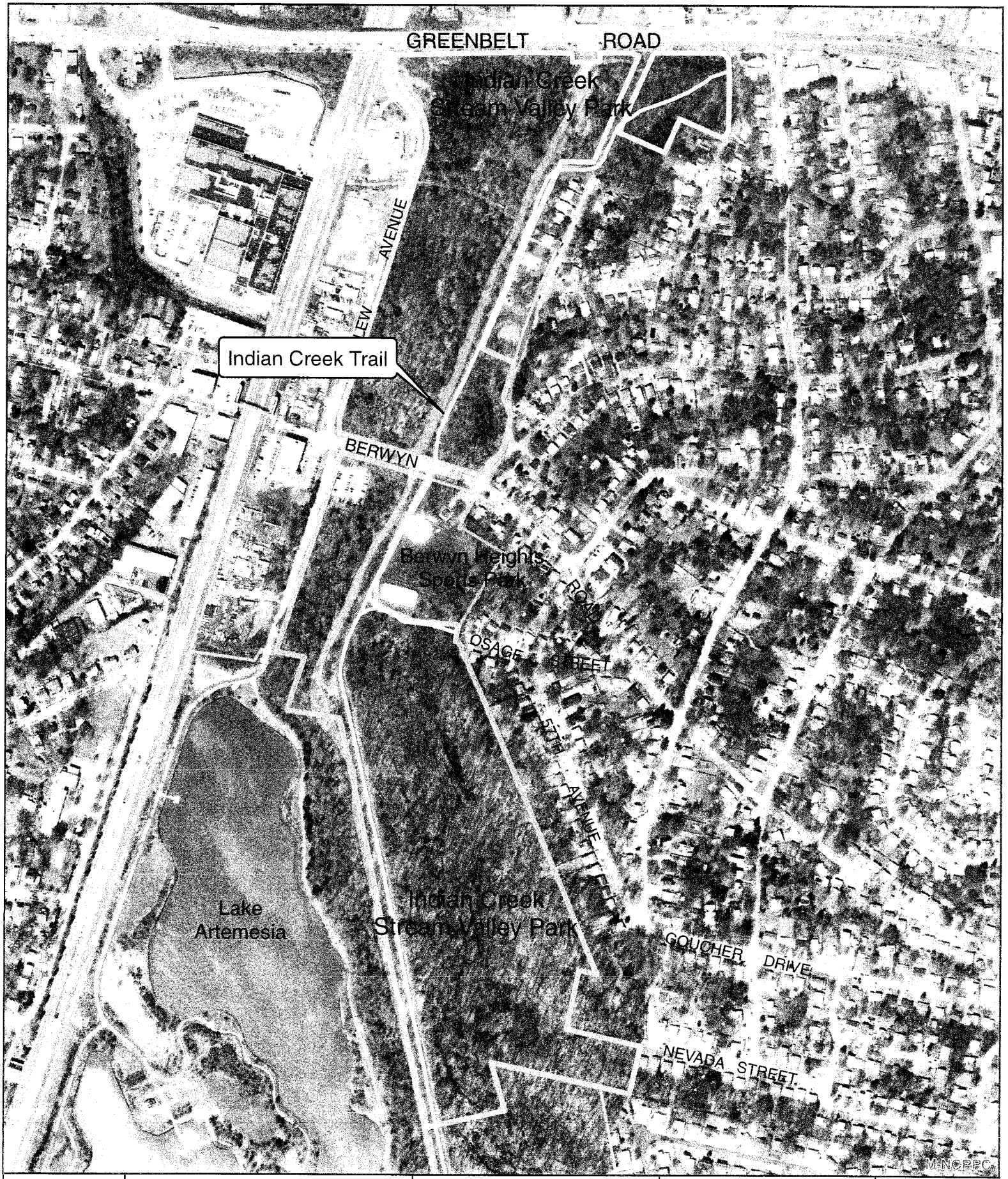
GIS

S59 - Cherry Hill Road Park and N32 - Cherry Hill Park

DATE: 06/19/2015

SCALE: 300 Feet

N



GIS

N79 - Indian Creek Stream Valley Park and Park Trail

DATE: 06/19/2015

SCALE: 500 Feet

N

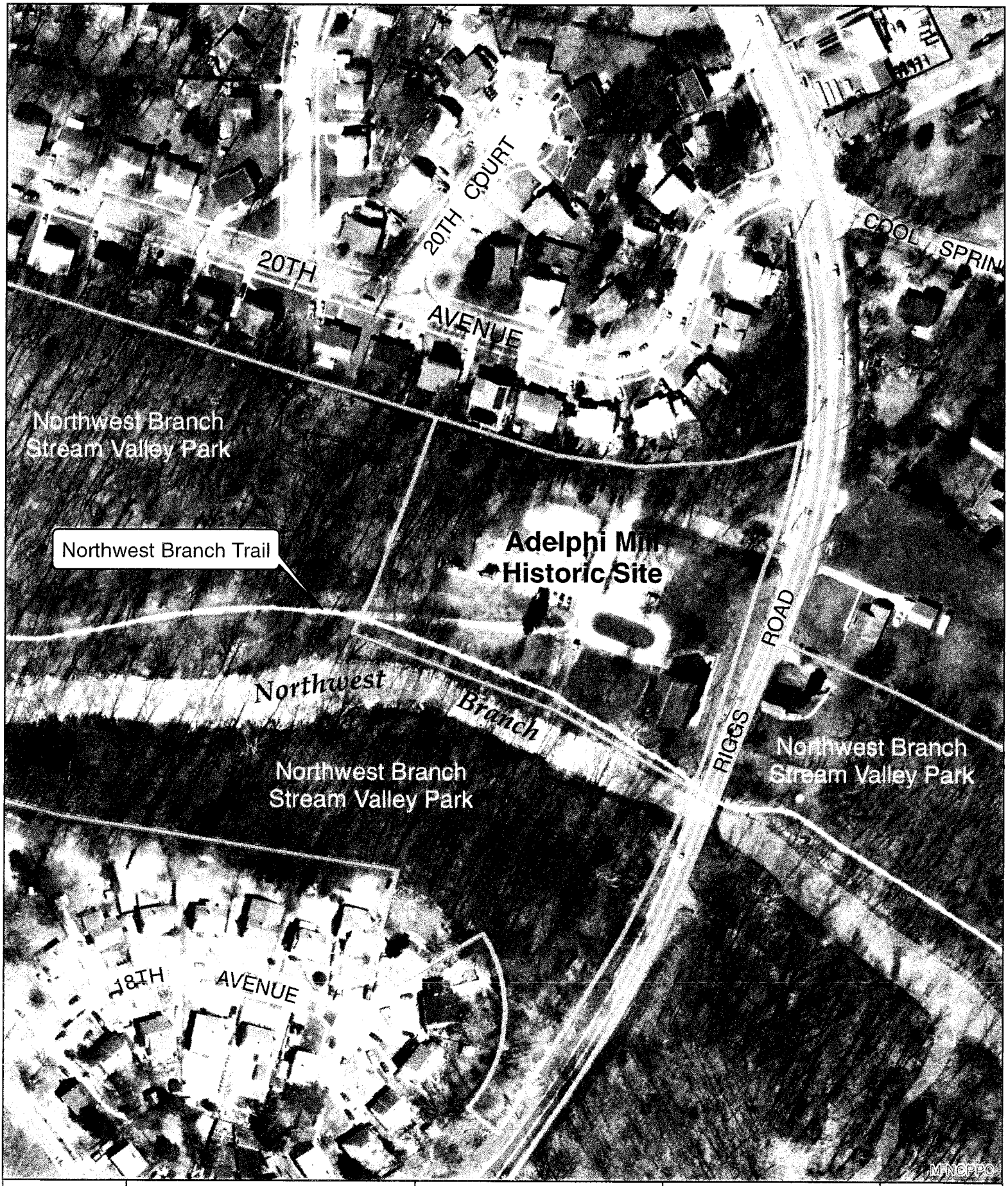
GIS

N64 - Paint Branch Parkway Park

DATE: 06/19/2015

SCALE: 250 Feet

N



GIS

N86 - Adelphi Mill Historic Site

DATE: 06/19/2015

SCALE: 150 Feet

N

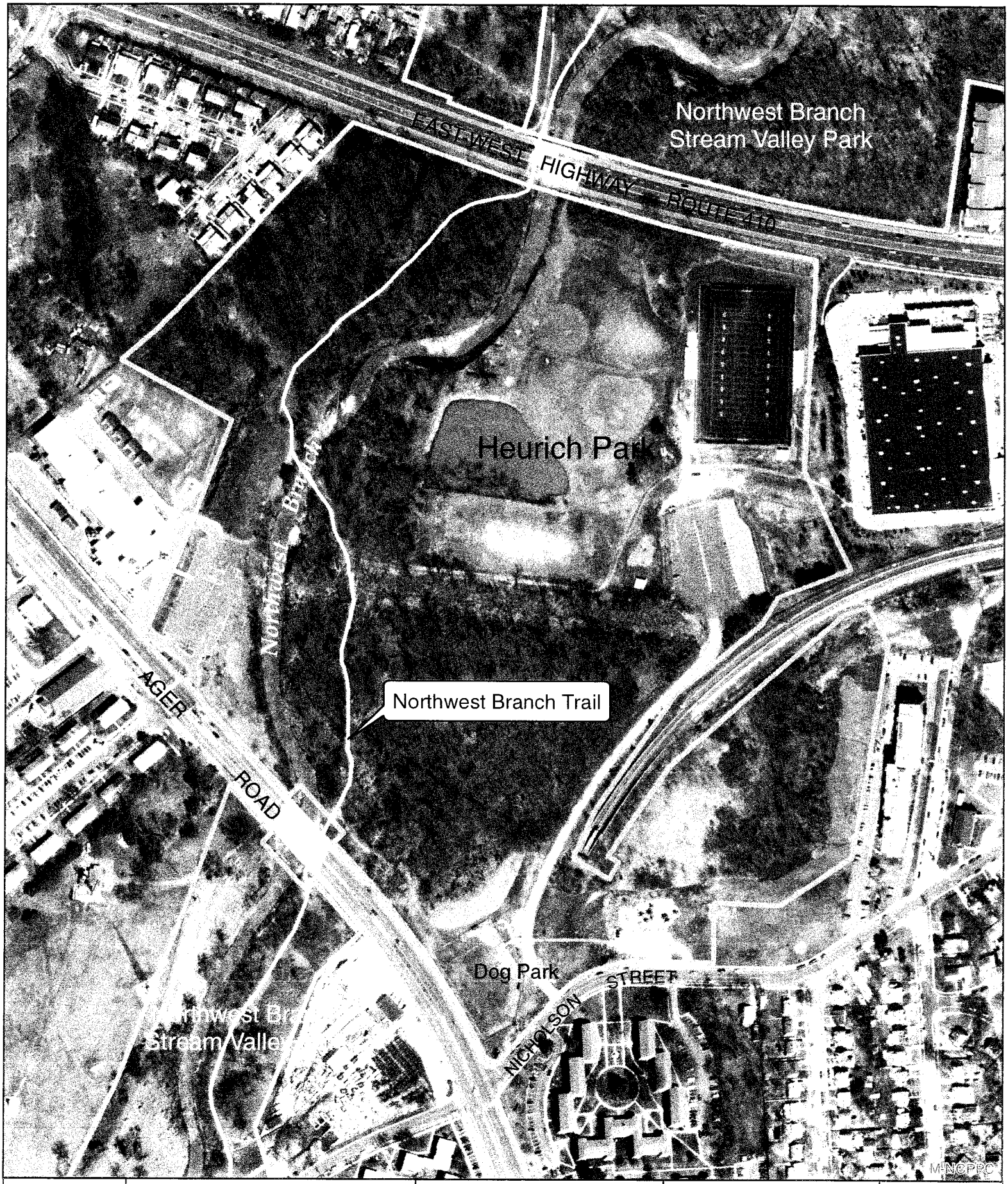
GIS

N63 - Adelphi Manor Park Building and N71 - Lane Manor Park Building

DATE: 06/19/2015

SCALE: 400 Feet

N



GIS

N69 - Heurich Park

DATE: 06/19/2015

SCALE: 300 Feet

N

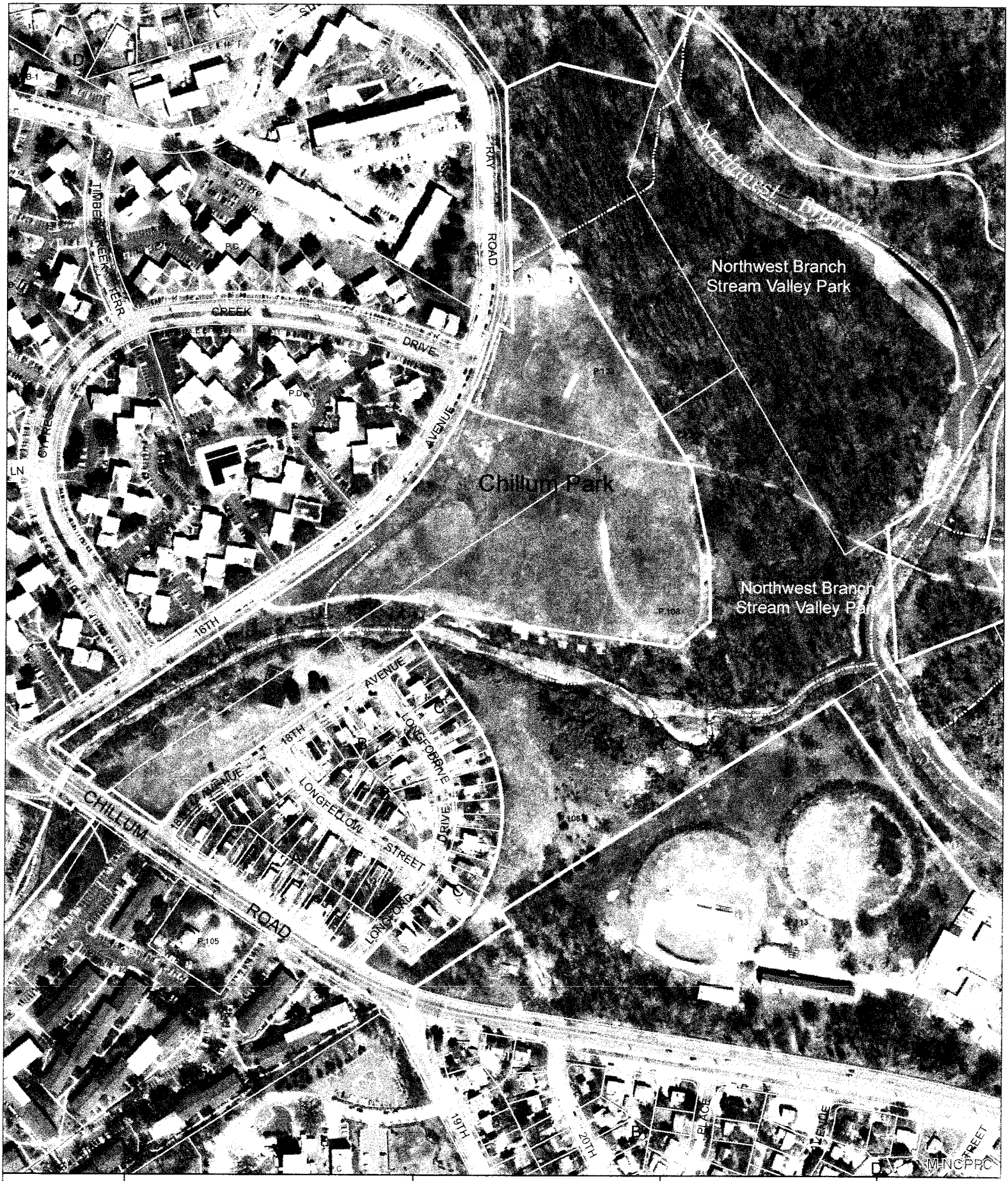
GIS

N68 - Green Meadows Park Building

DATE: 06/19/2015

SCALE: 300 Feet

N



GIS

N65 - Chillum Park

DATE: 06/19/2015

SCALE: 300 Feet

N

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd K. Rutherford, *Lt. Governor*
Mark J. Belton, *Secretary*
Mark L. Hoffman, *Acting Deputy Secretary*

July 2, 2015

Daniel M. Bierly, Chief
Civil Project Development Branch
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

ATTN: Christopher Spaur

RE: CENAB-PL-P (Ancostia Watershed Restoration Project), Prince George's County, Maryland

Dear Mr. Bierly:

The Department has reviewed the above referenced area associated with your request. The U.S. Army Corps of Engineers, Baltimore District (USACE), is preparing an Environmental Assessment (EA) for multiple stream and wetland restoration projects proposed in the Anacostia River watershed, Prince George's County, Maryland. If implemented, the projects would directly support USACE's commitment to the Chesapeake Bay goals included in Executive Order 13508, *Chesapeake Bay Protection and Restoration.*

The Department has a long history of interagency coordination in support of restoration opportunities in the Anacostia watershed. The Department has also partnered with local agencies including the Metropolitan Council of Governments (MWCOG), Maryland-National Capital Park and Planning Commission (M-NCPPC), and the Anacostia Watershed Restoration Partnership (AWRP) to improve water quality, restore streams, and protect and improve aquatic and riparian habitat in the Anacostia watershed. The Department strongly advocates continued coordination with local groups to integrate federal, state, and local efforts and encourage citizen participation in Anacostia watershed restoration efforts.

The Department offers the following recommendations for consideration during the development of a draft EA which will be integrated within a USACE feasibility report for the Anacostia River Watershed Project:

- The Department supports Anacostia watershed restoration projects, particularly those projects that provide functional uplift in terms of increased biodiversity and the protection and restoration of aquatic and riparian habitat.
- Fish passage improvements are extremely important in the Anacostia watershed. Anadromous fish migrations and sustainable local fish populations are important factors in proposed stream restoration projects in this watershed. The removal of fish barriers is essential to ensure that aquatic species can complete those activities necessary for their particular life cycles in order to sustain healthy populations. Anadromous fish restoration

activities are ongoing in the Anacostia watershed. The ultimate goal of anadromous fish restoration efforts is to achieve fish passage to the middle reaches of the watershed.

- These streams may support many resident fish species documented by our Maryland Biological Stream Survey (MBSS). MBSS stations are located near several of the proposed stream and wetland sites. Information about the MBSS, including a link to an interactive stream health map, can be accessed via the following link: http://streamhealth.maryland.gov/
- Stream projects should be designed to minimize thermal impacts to coldwater fish species in Paint Branch stream reaches above the Capital Beltway.
- It is the overarching policy of the Department to protect riparian forests and tree cover and to minimize tree clearing associated with stream restoration or other proposed stream projects.
- Existing riparian vegetation should be preserved to the greatest extent possible to maintain aquatic and riparian habitat, provide shading to the stream, sustain allochthonous input into the stream, and protect water quality.
- Proposed stream projects should have clear goals and objectives provided in the project documentation. The proposal should include a description of the restoration potential of the reach and the explicit performance standards that will be used to evaluate the project.
- Monitoring protocols for stream projects should include the most appropriate measures to determine the degree to which the project objectives and performance standards have been achieved.
- Restoration and retrofit projects proposed to address water quality issues should incorporate a watershed approach. Essential items in this approach include identifying the specific pollutants of concern and their sources within the watershed, assessing the ability of various BMPs (structural and non-structural) to reduce pollutant loads, and prioritizing the implementation of pollution reduction strategies based on the ability of the proposed activities to achieve increased water quality in a cost-effective manner.
- Proposed SWM BMPs, when incorporated into a watershed restoration strategy, should meet state-of-the-art design criteria and minimize the need for ongoing maintenance activities.
- The preparation of an EA investigating proposed restoration efforts in the Anacostia River watershed represents an outstanding opportunity to increase citizens' awareness of and access to the extraordinary natural resources in their own backyard. The Anacostia River flows through some of the most economically disadvantaged, low-income areas in the country. Past environmental damage and pollution continue to negatively impact the citizens living in the watershed. The Anacostia River represents the most significant natural area and the sole connection to natural resources for many of the citizens living in the highly urbanized watershed. Community outreach opportunities, educational efforts, and increased citizen access to the Anacostia River would be valuable additions to the EA.
- The Anacostia River is a state-designated Scenic River. It is the policy of the State of Maryland to preserve and protect the natural values of these rivers, enhance their water quality, and wisely use the resources within their surrounding environment. Further review related to this designation will be conducted for any of the proposed stream projects selected to move forward to design.
- In addition to the general comments above regarding the potential stream and wetland restoration projects, the Department would like to offer the following comments concerning specific stream reaches:

- Paint Branch, a tributary to the Anacostia River, is a designated Use III stream (Nontidal Cold Water) and supports wild (naturally reproducing) brown trout above the Capital Beltway. Individual brown trout can potentially be found at times a short distance downstream of the Capital Beltway. Brown trout are highly sensitive to changes in habitat including sedimentation and changes in water temperature. No instream work should be conducted during the Use III restriction period of October 1 through April 30 of any year in these Use III stream reaches.
- Paint Branch has limited sustainable habitat for brown trout in reaches between US 29 and the Capital Beltway. Stream restoration in these reaches would potentially serve to support the long term protection of this population which is centered in headwater tributaries further upstream.
- Northwest Branch Anacostia River above East West Highway is a designated Use IV stream (Recreational Trout Waters). The Department's Fisheries Service and the MWCOG have conducted a joint effort to establish a limited, local fishery for smallmouth bass and sunfish in the middle reaches of Northwest Branch main stem.
- Anadromous fish species documented in the area include River Herring (*Alosa* spp.) and Sea Lamprey (*Petromyzon marinus*). No instream work should be conducted during the Use I restriction period of March 1 through June 15 of any year in Use I stream reaches.
- The Department's Wildlife and Heritage Service (WHS) is reviewing the Public Notice for potential impacts to sensitive species. More specific comments on the occurrence and protection of these sensitive species will be forwarded by Ms. Lori Byrne from WHS as soon as they are available.

Thank you for the opportunity to provide comments to assist in the development of the EA for the Anacostia River Watershed Restoration Project. The Department is extremely interested in continued partnership and interagency coordination regarding Anacostia watershed restoration initiatives. In addition, we are available to discuss stream restoration methodologies and review criteria in order to avoid and/or minimize adverse impacts to natural resources to the greatest degree possible. The Department would appreciate being notified if and when specific stream and wetland restoration projects are selected to move forward to the design phase. If you have any questions or concerns regarding these comments, you may contact Susan Makhlouf, DNR Project Review Division (PRD), at 410.260.8750.

Sincerely,

Gregory J Golden

Greg Golden, Manager
Project Review Division, Integrated Policy and Review Unit
Maryland Department of Natural Resources

cc: Christopher Spaur, USACE
Lori Byrne, DNR WHS
Susan Makhlouf, DNR PRD

July 13, 2015

Mr. Christopher Spaur
CENAB-PL-P (Spaur)
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20150605-0487
Applicant: U.S. Army Corps of Engineers, Baltimore District
Project Description: Scoping to Prepare an Environmental Assessment (EA) for Multiple Stream and Wetland Restoration Projects being Proposed in Anacostia River Watershed, Prince George's County, MD
Project Location: Prince George's County
Approving Authority: U.S. Department of Defense DOD/ARMY
Recommendation: Consistent with Qualifying Comment(s) and Contingent Upon Certain Action(s)

Dear Mr. Spaur:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Department(s) of Natural Resources (DNR), Transportation (MDOT), the Environment (MDE) and the Maryland Department of Planning (MDP), including the Maryland Historical Trust; and Prince George's County.

The Maryland Department(s) of Transportation and the Maryland Department of Planning; and Prince George's County found this project to be consistent with their plans, programs and objectives.

The Department of Transportation stated that "as far as can be determined at this time, the subject has no unacceptable impacts on plans or programs."

Prince George's County stated that all 10 sites are located within the Anacostia River watershed (maps listing the 10 sites will be sent to MDP electronically). In addition, there are three maps for each site which include the effective FEMA map, the preliminary DFIRM (Digital Flood Insurance Rate Map) and the Storm Water Management Technical Group (SWMTG) Anacostia River watershed study each with the 1-percent annual chance (100-year) floodplain shown. The Department of Permitting, Inspections, and Enforcement (DPIE) is the regulatory agency that determines which study governs at each site (the highest 100-year floodplain elevation) and therefore should review all sites.

The Maryland Department(s) of Natural Resources and Environment found this project to be generally consistent with their plans, programs and objectives, but included certain qualifying comments summarized below.

The Maryland Department of Natural Resources (DNR) generally supports these restoration projects. DNR stated, please ensure that the historic and cultural resources are identified and protected.

The Maryland Department of Environment comments are as follows:

1. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.

2. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.

The Maryland Historical Trust (MHT) stated that their finding of consistency is contingent upon the applicant's completion of the review process required under Section 106 of the National Historic Preservation Act.

In response to a request from the U.S. Army Corps of Engineers, the Maryland Historical Trust (MHT) is reviewing this project to assess potential effects on historic properties in accordance with Section 106 of the National Historic Preservation Act. Following our careful review of the ten stream segments/reaches, it is our opinion that the proposed restoration work is unlikely to have an adverse effect on cultural resources within six of the ten reaches, including:

- Indian Creek – I-95
- Paint Branch – I-95 Interchange
- Indian Creek – College Park
- Paint Branch
- Northeast Branch
- Chillum Road Tributary

No cultural resources survey work will be recommended for these six reaches for Section 106 purposes.

While much of the area surrounding the remaining four stream reaches has never been systematically surveyed for archeological deposits, MHT files indicate that several archeological sites, both prehistoric and historic, have already been identified in the vicinity these four study areas:

- Little Paint Branch
- Lower Northwest Branch
- Northwest Branch Hyattsville
- Sligo Creek

Given the presence of these archeological resources, we believe that these four stream reaches have moderate to high potential for containing additional archeological resources that have not yet been identified. For these reasons, archeological investigations may be needed prior to any stream or wetland restoration work, depending upon the location and extent of the proposed impact areas. We have therefore requested that we be provided with more detailed site plans (as they become available) illustrating the location and boundaries of all proposed ground-disturbing activities (bank grading, removal of fish blockages, sediment removal, plantings, fencing, staging areas, etc.) that would be involved in the restoration work within the four stream reaches listed above. The plans should clearly indicate where all activities will be taking place and to what depth the ground disturbance will extend. Upon our review of these plans, we will be able to provide informed recommendations regarding what, if any, archeological investigations will be necessary prior to construction. All recommended survey work will need to be carried out by a qualified professional archeologist and performed in accordance with the Standards and Guidelines for Archeological Investigations in Maryland (Shaffer and Cole 1994).

Any statement of consideration given to the comments(s) should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at nasrin.rahman@maryland.gov. **Also please complete the attached form and return it to the State Clearinghouse as soon as the status of the project is known.** ***Any substitutions of this form must include the State Application Identifier Number.*** **This will ensure that our files are complete.**

Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey

Linda C. Janey, J.D., Assistant Secretary

LCJ:NR
cc:

Tina Quinichette - MDOT
Amanda Degen - MDE
Greg Golden - DNR
Kathleen Herbert - PGEO
John Leocha/LaVerne Gray - MDPLR&WC
Beth Cole - MHT

15-0487_CRR.CLS.doc

PROJECT STATUS FORM

Please complete this form and return it to the State Clearinghouse upon receipt of notification that the project has been approved or not approved by the approving authority.

TO: **Maryland State Clearinghouse**
Maryland Department of Planning
301 West Preston Street
Room 1104
Baltimore, MD 21201-2305

DATE: _____
(Please fill in the date form completed)

FROM: _____
(Name of person completing this form.)

PHONE: ____-____-_____
(Area Code & Phone number)

RE: **State Application Identifier:** **MD20150605-0487**
Project Description: Scoping to Prepare an Environmental Assessment (EA) for Multiple Stream and Wetland Restoration Projects being Proposed in Anacostia River Watershed, Prince George's County, MD

PROJECT APPROVAL

This project/plan was: ☐ **Approved** ☐ **Approved with Modification** ☐ **Disapproved**

Name of Approving Authority: _____

Date Approved: _____

FUNDING APPROVAL

The funding (if applicable) has been approved for the period of:

_____, 201____ **to** _____, 201____ **as follows:**

Federal $:	**Local $:**	**State $:**	**Other $:**
_____	_____	_____	_____

OTHER

☐ *Further comment or explanation is attached*

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Mark J. Belton, Secretary
Mark L. Hoffman, Acting Deputy Secretary

July 29, 2015

U.S. Army Corps of Engineers
Baltimore District
ATTN: CENAB-PL-P (Spaur)
P.O. Box 1715
Baltimore, MD 21203-1715

RE: Environmental Review for Anacostia River Watershed Restoration Project, 10 Streams, Prince George's County, Maryland.

Dear Mr. Spaur:

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

The stream segment located in Indian Creek in the Greenbelt area is known to support a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). This occurrence could potentially be impacted by any proposed work associated with stream restoration. Further coordination with the WHS is recommended if the work proposed for the Indian Creek site is pursued.

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

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2015.0801.pg
Cc: K. McCarthy, DNR

Rushern L. Baker, III
County Executive

THE PRINCE GEORGE'S COUNTY GOVERNMENT
Department of Permitting, Inspections and Enforcement
Office of the Director

DEPARTMENT OF PERMITTING, INSPECTIONS AND ENFORCEMENT

MEMORANDUM

August 7, 2015

TO: Dawn Hawkins-Nixon, Acting Associate Director
Department of the Environment

FROM: Haitham A. Hijazi, Director
Department of Permitting, Inspections and Enforcement

RE: Anacostia River Watershed Multiple Stream & Wetland Restoration Projects
Clearinghouse Referral Number: MD20150605-0487

This memorandum is in response to your June 26, 2015, memorandum regarding the U.S. Army Corps of Engineers Anacostia River Watershed Multiple Stream & Wetland Restoration Projects.

The Department of Permitting, Inspections and Enforcement (DPIE) has reviewed this request and offers the following comments:

1. Stormwater Management Concept approval and site development fine grading permits are required for all of these project sites.

2. 100-year floodplain approval from DPIE is required.

If you have any questions or need additional information, please feel free to contact Mr. Steve Snyder, District Engineer for the area, at 301.636.2060.

HAH:SS:dar

cc: Gary E. Cunningham, Deputy Director, DPIE
Dawit Abraham, P.E., Associate Director, DO, DPIE
Mary C. Giles, P.E. Associate Director, S/RPRD, DPIE
Rey de Guzman, P.E., Chief, Site/Road Section, S/RPRD, DPIE
Steve Snyder, P.E., District Engineer, S/RPRD, DPIE
M.J. Labban, Engineer, S/RPRD, DPIE

From: Brian Hug -MDE-
To: Bachur, Beth NAB
Cc: Seiple, Jacqueline A NAB; Roger Thunell -MDE-
Subject: [EXTERNAL] Re: Unpaved road equation for PM2.5 emissions (UNCLASSIFIED)
Date: Tuesday, October 27, 2015 10:43:19 AM

Beth,

Responses below - keep in mind MDE is not an approving entity for general conformity assessments - we can try to guide and answer questions but always refer to the feds for the final say. We only have a few on staff engineers so we can try to help but cant guarantee fast responses.

Brian

1. In reviewing EPA AP-42, Section13.2.2 Unpaved roads, would the PM2.5 fugitive dust emissions apply for construction access roads that have wood much chips laid over silt fabric? If wood mulching is required on construction access roads within the wooded areas along streams, then do we still need to calculate the unpaved road emissions PM2.5 factor?

Response:

Unpaved road dust emissions vary directly with the amount of silt in the roads surface material. Other variables such as weight of the vehicle and moisture content factor into emissions as well. From your description it appears that any emissions from the original road surface material would be contained by the silt fabric with the wood mulch overlay.

In this case, the main factor for any unpaved road dust emissions come from the wood mulch chips. EPA AP-42, Section 13.2.2 Unpaved roads, does not specify a silt factor for wood mulch. Table 13.2.2-1 cites a silt content range of 4.8-12 with a mean of 8.4 for lumber sawmills with a log yard surface material.

Another factor in unpaved road dust emissions is precipitation. The emission factor is adjusted based on the number of days in a year with at least 0.01 inches of precipitation using the following equation:

Eext = E [365-P)/365]

Eext = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation

If the wood mulch chips are kept wet, then the emission factor goes to zero and no fugitive unpaved road dust emissions are generated.

A third factor in calculating unpaved road dust emissions is vehicle miles travelled. The units of the size specific emission factors are in pounds per vehicle mile travelled. Without knowing the specifics of the project, one would assume that the VMT would be quite low, making the overall tonnage (poundage) quite low.

2. We did not do field investigations for the measured silt content at the sites. It appears that Section 13.2.2-6 of EPA AP-42 will allow for the use of these default mean values when on-site investigations have not been obtained. We would like to use the default mean values from Table 13.2.2-1 and wanted to be sure that this was a reasonable approach for these stream restoration projects?

Response:

This is an acceptable calculation and Table 13.2.2-1 default values are permitted.

3. We had separated out the construction emissions into component operations. One component is for the excavation of stream bed materials. Do you have any suggestions for which component operations from Table 13.2.3-1 would be the best to use?

Response:

The type of equipment used in the excavation would determine what dust-generating activity is appropriate. Activities listed in Table 13.2.3-1 include bulldozers, scrapers, loaders and trucks. The fugitive dust emissions from these activities are for general construction activities and do not include dust control programs like watering. If the excavation of the stream bed materials is conducted wet, control factors can be applied.

On Tue, Oct 20, 2015 at 3:44 PM, Bachur, Beth NAB <BETH.BACHUR@usace.army.mil <mailto:BETH.BACHUR@usace.army.mil> > wrote:

CLASSIFICATION: UNCLASSIFIED

Hello Brian,

My name is Beth Bachur and I work for the Corps of Engineers, Baltimore District Planning Division. We are working on the calculations for the PM2.5 emissions from unpaved roads for the Montgomery County Anacostia stream restoration projects and I have a couple of questions that I would like to get your feedback on to provide some direction on how to proceed with our air conformity for the PM2.5 fugitive dust emissions:

1. In reviewing EPA AP-42, Section13.2.2 Unpaved roads, would the PM2.5 fugitive dust emissions apply for

construction access roads that have wood much chips laid over silt fabric? If wood mulching is required on construction access roads within the wooded areas along streams, then do we still need to calculate the unpaved road emissions PM2.5 factor?

2. We did not do field investigations for the measured silt content at the sites. It appears that Section 13.2.2-6 of EPA AP-42 will allow for the use of these default mean values when on-site investigations have not been obtained. We would like to use the default mean values from Table 13.2.2-1 and wanted to be sure that this was a reasonable approach for these stream restoration projects?

3. We had separated out the construction emissions into component operations. One component is for the excavation of stream bed materials. Do you have any suggestions for which component operations from Table 13.2.3-1 would be the best to use?

Thanks again for your time and support.

Beth Bachur
USACE-Baltimore
Regulatory Branch
P.O. Box 1715
Baltimore, MD 21203
(o) 410-962-4336

CLASSIFICATION: UNCLASSIFIED

--

Brian J. Hug
Acting Program Manager
Air Quality Planning Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
410 537 4125

From: Lori Byrne -DNR-
To: Sowers, Angela NAB
Subject: [EXTERNAL] Re: Anacostia River Watershed Restoration Project, Prince George"s County - RTE coordination
Date: Monday, January 04, 2016 4:09:33 PM

Dear Ms. Sowers,

Could you provide us with the latest plans for the Indian Creek site, so that we can evaluate the details and make a determination regarding our level of concern? That seems like the best way to proceed. Thanks.

Lori Byrne

On Mon, Jan 4, 2016 at 3:15 PM, Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> > wrote:

> Hi Lori,
>
> Prior coordination for our Anacostia River Watershed Restoration Project in Prince George's County identified that we should reach back to you if the Indian Creek site in the Greenbelt area is included in the recommended plan. Please see the attached letter. We are projecting that it will be included. Can you please let me know what the next steps are that we should take to coordinate this project with the Wildlife and Heritage Service?
>
> Thank you,
> Angie Sowers

--

Lori A. Byrne
Environmental Review Coordinator

MD DNR
Wildlife and Heritage Service
Tawes State Office Building
410-260-8573

From: Katharine McCarthy -DNR-
To: Sowers, Angela NAB
Cc: Lori Byrne -DNR-; Greg Golden -DNR-; Tim Larney -DNR-
Subject: [EXTERNAL] Re: Additional information on Site 11 for Anacostia- PG County
Date: Thursday, January 14, 2016 1:47:05 PM

Angela,
Lori Byrne forwarded to me your info on the Indian Creek project. It appears from the mapping you provided that quite a bit of the proposed work north of Rte 193 has potential direct impacts on a population of Trailing stitchwort, a State Endangered plant in the Pink family that grows on the gravel bars and banks of the small, braided streams in this forest.
The wetlands creation due east of Stream Bank Lane would not impact this species, nor would the pond creation proposed at the northern jct of Stream Bank Lane and Greenbelt Station Parkway.
However, the work proposed north of these projects would have the potential to directly destroy plants of Trailing stitchwort, perhaps the entire population known at this site. I'd like to get a better understanding of the proposed work and how it would affect existing stream hydrology and flooding in the forest of this area.
How would the hydrology of the small, braided stream channels that support this rare annual be affected by the proposed work?
Some of the large polygons representing wetland creation occur where, based upon our GPS records of the rare plant locations, there are braided stream channels. Would these channels be inundated for extended periods by the wetland creation?
How would the instream structures in the main channel affect the hydrology of the small, braided channels?
The forest in this area to the north of Stream Bank Lane and east of the Greenbelt Metro parking area has a number of invasive plants in the herbaceous layer, but the shrub and tree canopy are of native species.The forest provides habitat for several reptile and amphibian species we noted while we conducted a site survey in 2009: snapping turtle, green frog, southern leopard frog, northern watersnake. It also offers habitat for forest interior breeding birds. How would the proposed work affect the forest of this area?
Attached is a photo of the Trailing stitchwort from this site.
Thank you for continuing to coordinate with us on this review.
Kathy McCarthy

On Thu, Jan 7, 2016 at 5:26 PM, Lori Byrne -DNR- <lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> > wrote:

> Hi Kathy, passing this on to you...
>
> Lori
>
> ---------- Forwarded message ----------
> From: Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> >
> Date: Thu, Jan 7, 2016 at 4:06 PM
> Subject: Additional information on Site 11 for Anacostia- PG County
> To: "lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> " <lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> >
>
> Hi Lori,
> Please see the attached write-up. I should have sent this originally with the figures. This provides some discussion of the plans for Site 11 in Indian Creek.
>
> Thanks,
> Angie

Sowers, Angela NAB

From: Katharine McCarthy -DNR- <katharine.mccarthy@maryland.gov>
Sent: Tuesday, February 02, 2016 1:23 PM
To: Sowers, Angela NAB
Cc: Lori Byrne -DNR-; Greg Golden -DNR-; Tim Larney -DNR-
Subject: Re: [EXTERNAL] Re: Additional information on Site 11 for Anacostia- PG County

Thank you, Angie, for arranging for the conference call today. A summary of our discussion follows.

Stream restoration and wetland creation work are two potentially independent options at the Indian Creek site. The purpose of the stream restoration work is to improve instream habitat. The wetland creation work would involve excavation in the floodplain to improve the connection with the stream channel, though the intent is not to remove trees.
The trailing stitchwort (state endangered) grows in shallow, braided streams within several of the areas identified for wetland creation work, and that work would likely alter the hydrology of the trailing stitchwort's habitat. Due to this potential for habitat alteration, we should not pursue this option further.
The proposed pond and wetland creation at the south end of the project site adjacent to Stream Bank Lane would NOT disturb habitat of the trailing stitchwort, and this work may be pursued further.
Regarding instream work, the next step is to discuss with the project engineer the potential hydrologic impacts from that work on the shallow braided stream system that supports trailing stitchwort.
Further survey work to delineate the population of trailing stitchwort on site is not necessary to proceed with this review, but I am available to meet on site at the end of June or first week of July to confirm locations if needed.
Let me know if you'd like to add any other points to the summary.
Kathy

On Thu, Jan 14, 2016 at 2:14 PM, Katharine McCarthy -DNR- <katharine.mccarthy@maryland.gov <mailto:katharine.mccarthy@maryland.gov> > wrote:

Angie,
I also meant to mention that we have been reviewing proposals for major projects at the Greenbelt Metro Station...FBI headquarters, plus hotel and shops. Greg Golden of DNR's Environmental Review Unit has been coordinating that review for us. If that work moves forward, it appears that there will be better stormwater management for the area. Just wanted to bring this up in case you were not aware.
Kathy

On Thu, Jan 14, 2016 at 1:59 PM, Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> > wrote:

Thank you for the input Katharine. We will discuss within the team and get back to you to set up a time to discuss.
Angie

-----Original Message-----
From: Katharine McCarthy -DNR- [mailto:katharine.mccarthy@maryland.gov <mailto:katharine.mccarthy@maryland.gov>]
Sent: Thursday, January 14, 2016 1:44 PM
To: Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> >

Cc: Lori Byrne -DNR- <lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> >; Greg Golden -DNR- <greg.golden@maryland.gov <mailto:greg.golden@maryland.gov> >; Tim Larney -DNR- <tim.larney@maryland.gov <mailto:tim.larney@maryland.gov> >

Subject: [EXTERNAL] Re: Additional information on Site 11 for Anacostia- PG County

Angela,

Lori Byrne forwarded to me your info on the Indian Creek project. It appears from the mapping you provided that quite a bit of the proposed work north of Rte 193 has potential direct impacts on a population of Trailing stitchwort, a State Endangered plant in the Pink family that grows on the gravel bars and banks of the small, braided streams in this forest.

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However, the work proposed north of these projects would have the potential to directly destroy plants of Trailing stitchwort, perhaps the entire population known at this site. I'd like to get a better understanding of the proposed work and how it would affect existing stream hydrology and flooding in the forest of this area.

How would the hydrology of the small, braided stream channels that support this rare annual be affected by the proposed work?

Some of the large polygons representing wetland creation occur where, based upon our GPS records of the rare plant locations, there are braided stream channels. Would these channels be inundated for extended periods by the wetland creation?

How would the instream structures in the main channel affect the hydrology of the small, braided channels?

The forest in this area to the north of Stream Bank Lane and east of the Greenbelt Metro parking area has a number of invasive plants in the herbaceous layer, but the shrub and tree canopy are of native species.The forest provides habitat for several reptile and amphibian species we noted while we conducted a site survey in 2009: snapping turtle, green frog, southern leopard frog, northern watersnake. It also offers habitat for forest interior breeding birds. How would the proposed work affect the forest of this area?

Attached is a photo of the Trailing stitchwort from this site.

Thank you for continuing to coordinate with us on this review.

Kathy McCarthy

On Thu, Jan 7, 2016 at 5:26 PM, Lori Byrne -DNR- <lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> <mailto:lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> > > wrote:

Hi Kathy, passing this on to you...

Lori

---------- Forwarded message ----------

From: Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> <mailto:Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> > >

Date: Thu, Jan 7, 2016 at 4:06 PM

Subject: Additional information on Site 11 for Anacostia- PG County

To: "lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> <mailto:lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> > " <lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> <mailto:lori.byrne@maryland.gov <mailto:lori.byrne@maryland.gov> > >

Hi Lori,

Please see the attached write-up. I should have sent this originally with the figures. This provides some discussion of the plans for Site 11 in Indian Creek.

Thanks,
Angie

Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
10 S. Howard St.
Rm 11700-E
Baltimore, MD 21201
angela.sowers@usace.army.mil <mailto:angela.sowers@usace.army.mil>
<mailto:angela.sowers@usace.army.mil <mailto:angela.sowers@usace.army.mil> >
(410)962-7440 <tel:%28410%29962-7440> <tel:%28410%29962-7440>

--

Lori A. Byrne
Environmental Review Coordinator

MD DNR
Wildlife and Heritage Service
Tawes State Office Building
410-260-8573 <tel:410-260-8573> <tel:410-260-8573 <tel:410-260-8573> >

--

Katharine A. McCarthy
Southern Regional Ecologist
Natural Heritage Program
Wildlife and Heritage Service
MD Dept of Natural Resources
Tawes State Office Building, E1
Annapolis, MD 21401
phone: 410/260-8569 <tel:410%2F260-8569>
fax: 410/260-8596 <tel:410%2F260-8596>
Katharine.McCarthy@maryland.gov <mailto:Katharine.McCarthy@maryland.gov>
<mailto:Katharine.McCarthy@maryland.gov <mailto:Katharine.McCarthy@maryland.gov> >

Sowers, Angela NAB

From: Katharine McCarthy -DNR- <katharine.mccarthy@maryland.gov>
Sent: Friday, February 12, 2016 1:37 PM
To: Sowers, Angela NAB
Cc: Seiple, Jacqueline A NAB
Subject: Re: [EXTERNAL] Re: Anacostia - Indian Creek - Site 11

Jacqui and Angie,
Apologies for being late on the call! I got sucked into something this morning and got totally distracted from my planned schedule.
I've checked all of our data for this species. Last week of June-first week of July looks like the best time to do a survey for Stellaria alsine. In addition to checking our database, I've looked online for info on habitat from other state programs. There's just very little to go on, and the habitat at this site seems typical of where it's found...on exposed gravel bars in small streams, sometimes on the stream bank if it's not densely vegetated. It's also reported to grow in springs and seeps. We noted that the stream it was growing in at Indian Creek was 2-4 ft wide, and the gravel had very little vegetation on it...80% bare. We found 7 separate locations, 215-315m west of Cherrywood Lane, at it's closest point about 115 m from the sewer alignment.
Let's be in touch in mid-May to come up with a survey time. By then I should have a sense of whether plants are blooming at typical times (whether it's an early spring, late spring or normal timing).
Kathy

On Tue, Feb 9, 2016 at 11:09 AM, Katharine McCarthy -DNR- <katharine.mccarthy@maryland.gov <mailto:katharine.mccarthy@maryland.gov> > wrote:

> Ok. Look forward to talking with Jacqui and others on Friday morning. -Kathy
>
> On Mon, Feb 8, 2016 at 9:11 PM, Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> > wrote:
>
> > Great. Below is the call-in information. Jacqui will be leading the call.
> >
> > Thanks!
> >
> > AUDIO CONFERENCE ACCESS INFORMATION:
> > USA Toll-Free: 877-336-1828 <tel:877-336-1828>
> > USA Caller Paid/International Toll: 404-443-6396 <tel:404-443-6396>
> > ACCESS CODE: 4495502
> > Security Code: 4321
> >
> > -----Original Message-----
> > From: Katharine McCarthy -DNR- [mailto:katharine.mccarthy@maryland.gov <mailto:katharine.mccarthy@maryland.gov>]
> > Sent: Monday, February 08, 2016 5:33 PM
> > To: Sowers, Angela NAB <Angela.Sowers@usace.army.mil <mailto:Angela.Sowers@usace.army.mil> >
> > Subject: Re: [EXTERNAL] Re: Anacostia - Indian Creek - Site 11
> >
> > Yes, Friday 11am works for me.-Kathy

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

CENAB-PL-P

Ms. Elizabeth Hughes
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville, Maryland 21032-2023

APR 25 2016

Dear Ms. Hughes:

The purpose of this letter is to initiate consultation with your office under Section 106 of the National Historic Preservation Act regarding the Anacostia Watershed Restoration, Prince George's County, Maryland feasibility study and environmental assessment. The study is developing and evaluating potential ecosystem restoration solutions to address degraded aquatic ecosystems in the Anacostia River watershed. The study's goal is to provide a solution to restore ecological function, structure, and health in selected stream reaches and riparian zones in the Anacostia River watershed in Prince George's County. The study is being conducted under the authority of a September 8, 1988 resolution of the House Committee on Public Works and Transportation and is being performed by the U.S. Army Corps of Engineers, Baltimore District (USACE).

The feasibility study and environmental assessment will evaluate aquatic ecosystem restoration to restore in-stream habitat and fish passage. The proposed project area includes ten stream reaches within six sub-watersheds of the Anacostia River watershed, including the Northwest Branch, Sligo Creek, the Northeast Branch, Indian Creek, Paint Branch, and Little Paint Branch (Enclosure 1). The stream reaches are primarily on land owned by Maryland-National Capital Parks and Planning Commission.

The area of potential effect for the project is the area of direct construction impacts and the areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, including visual effects. This area of potential effect would likely include work performed in and around the streams, staging areas, newly constructed access roads, and any other areas of potential ground disturbance. The viewsheds of any nearby historic properties would also be included in the area of potential effect.

USACE completed a preliminary examination of areas of potential project impact in 2014 and 2015. Maryland state databases were searched for known archeological and historic resources in the project vicinity. Based on these searches, as well as field visits and information received from the Maryland Historical Trust, some historic properties are likely located in and around the project areas.

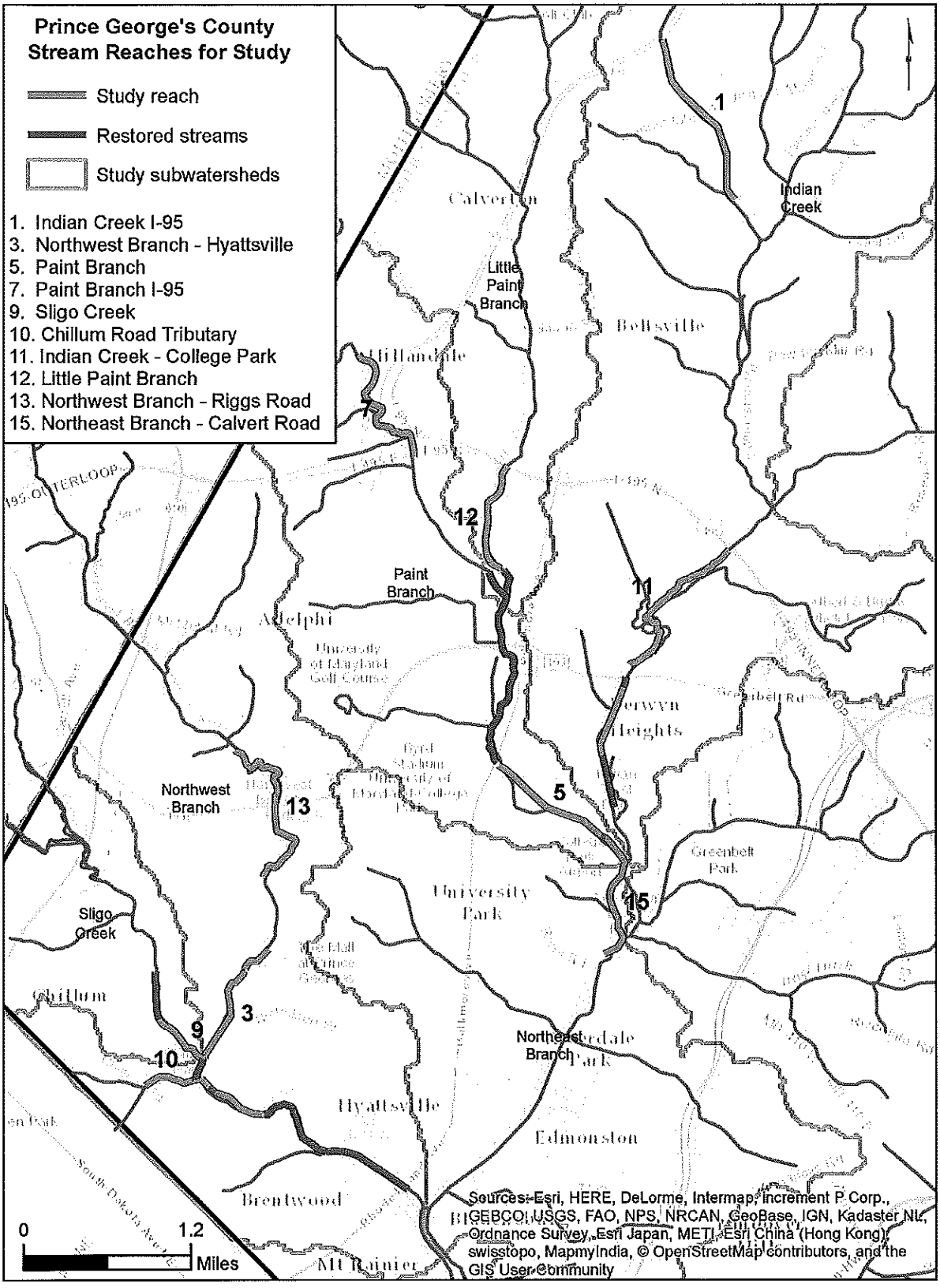
We look forward to consulting with your office regarding the nature and scope of additional investigations to identify historic properties in the project areas, and to assess potential effects to those properties should they exist. In the interim, we would appreciate your concurrence with the project's area of potential effect as defined in the third paragraph of this letter.

Thank you for your assistance with the Anacostia River Watershed Restoration, Prince George's County, Project. Questions regarding this matter should be directed to Jacqueline Seiple at (410) 962-4398 or email at Jacqueline.A.Seiple@usace.army.mil.

Sincerely,

Daniel Bierly
Chief, Civil Projects Development Branch
Planning Division

Enclosure



Enclosure: Project area and study stream reaches (orange) in Prince George's County, Maryland.

From: Sowers, Angela NAB
To: "pgscd@verizon.net"
Subject: USACE Feasibility Study - Anacostia River Watershed Restoration in Prince George"s County
Date: Tuesday, May 17, 2016 4:50:00 PM
Attachments: NW-C+NE-A_for_PI.pdf
Anacostia_PG_Farmland_Classification.pdf

Hello Mr. Darcey,

I work in the Planning Division of the U.S. Army Corps of Engineers, Baltimore District (USACE). USACE, in partnership with the Prince George's County Department of the Environment, serving as the non-federal sponsor, is undertaking an investigation of watershed restoration opportunities in the Anacostia River Watershed, specifically stream restoration and removal of fish blockages. This email is in reference to evaluating the presence of prime and unique farmlands (CEQ Memorandum, 11 August 1980) within the study area.

In February 2010, USACE, in cooperation with local resource agencies, completed the Anacostia Restoration Plan (ARP) which identified numerous environmental restoration opportunities in the Anacostia watershed. The current Anacostia River watershed restoration study includes more detailed consideration of some of the restoration projects previously identified in the ARP that USACE can implement in Prince George's County. The investigation has also considered additional stream and wetland restoration projects that were not included in the ARP.

Ten stream segments totaling approximately 10 miles in length, were initially selected for investigation. The primary project objectives for the selected stream segments are to: (1) restore in-stream habitat; (2) remove fish barriers; and (3) increase stream-floodplain connection. To achieve these objectives, stream restoration methods involving placement of in-stream structures, fish blockages removal/modification, excavating floodplain sediments, placing fill and soil in the floodplain, or planting native vegetation in the floodplain are being investigated. The recommended plan includes restoration efforts at six sites and has been formulated to optimize environmental benefits, avoid increasing flood risk, and minimize detrimental impacts to structures, properties, and human use of the streams and floodplain. The six sites, summing to 6.9 miles of restoration on the Northwest Branch and Northeast Branch and tributaries is provided in a map attached to this email. I have reviewed the soils survey for the stream reaches where we are proposing work and concluded that the recommended plan does not impact prime and unique farmland soils.

In addition to the map of our proposed project, I have attached the soil survey maps for the study area. We are requesting your concurrence that the proposed project is in compliance with the Prime and Unique Farmlands Executive Order and would provide no further impacts to the prime and unique soils located at the site. If you have any questions, please feel free to contact me at (443) 676-4679 or via email. If possible, please confirm receipt of this email.

Thank you,
Angie

Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
10 S. Howard St.
Rm 11700-E
Baltimore, MD 21201
angela.sowers@usace.army.mil
(410)962-7440

USDA

United States Department of Agriculture

DATE: May 27, 2016

TO: Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District – Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
10 S. Howard Street
Rm 11700-E
Baltimore, MD 21201

SUBJECT: Prime and Unique Farmland Soils
USACE Feasibility Study – Anacostia River Watershed Restoration in P. G. County

Dear Ms. Sowers:

We have reviewed your proposed project for the Anacostia River Watershed Restoration in Prince George's County. Because all of the work is taking place in flood plains, we believe that the proposed project will neither impact nor convert any prime or unique farmland soils.

If you require any additional information, please let us know.

Sincerely,

Dean Cowherd

Dean Cowherd
NRCS Assistant State Soil Scientist
443-482-2931

cc: Gemelle Brion, Annapolis, MD
Phillip King, Dover, DE
Patricia Engler, Annapolis, MD
James Brewer, Easton, MD

Natural Resources Conservation Service
339 Busch's Frontage Road, Suite 301
Annapolis, MD 21409-5543
Voice (410) 757-0861 – FAX (855) 432-9027

US Army Corps of Engineers
Baltimore District

Planning Division

NOTICE OF AVAILABILITY

JUN - 1 2016

Aquatic Ecosystem Restoration
Anacostia River Watershed, Prince George's County
Feasibility Report and Integrated Environmental Assessment

All Interested Parties: The U.S. Army Corps of Engineers, Baltimore District (USACE), in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, has prepared an environmental assessment (EA) recommending a plan for aquatic ecosystem restoration in the Anacostia River watershed in Prince George's County, Maryland. The plan is being conducted in partnership with the Prince George's County Department of the Environment.

Purpose of Work: The purpose of the project is to restore in-stream physical habitat in the selected stream reaches and enhance aquatic ecosystem resilience by restoring fish passage and longitudinal connectivity.

Recommended Plan Description: The recommended plan proposes restoration of approximately 7 miles of in-stream habitat on six stream reaches within Northwest Branch, Sligo Creek, Northeast Branch, Paint Branch, and Indian Creek (see attached map). The plan will restore approximately 4 miles of fish passage, and connect approximately 14 miles of restored habitat. Fish blockages will be removed on Northwest Branch and Sligo Creek, providing anadromous fish species with access to their historical range. Restoration of in-stream habitat and fish blockage removal will utilize natural channel design principles, including the placement of in stream structures (e.g., J-hooks, cross vanes) for riffle grade control and riffle/pool restoration.

An EA has been prepared for the actions relating to the construction of this project. Potential impacts were assessed with regard to aquatic ecosystem impacts; temporary construction impacts to water, air and traffic; endangered and threatened species; hazardous, toxic and radioactive substances; flooding; cultural resources; and the general needs and welfare of the public.

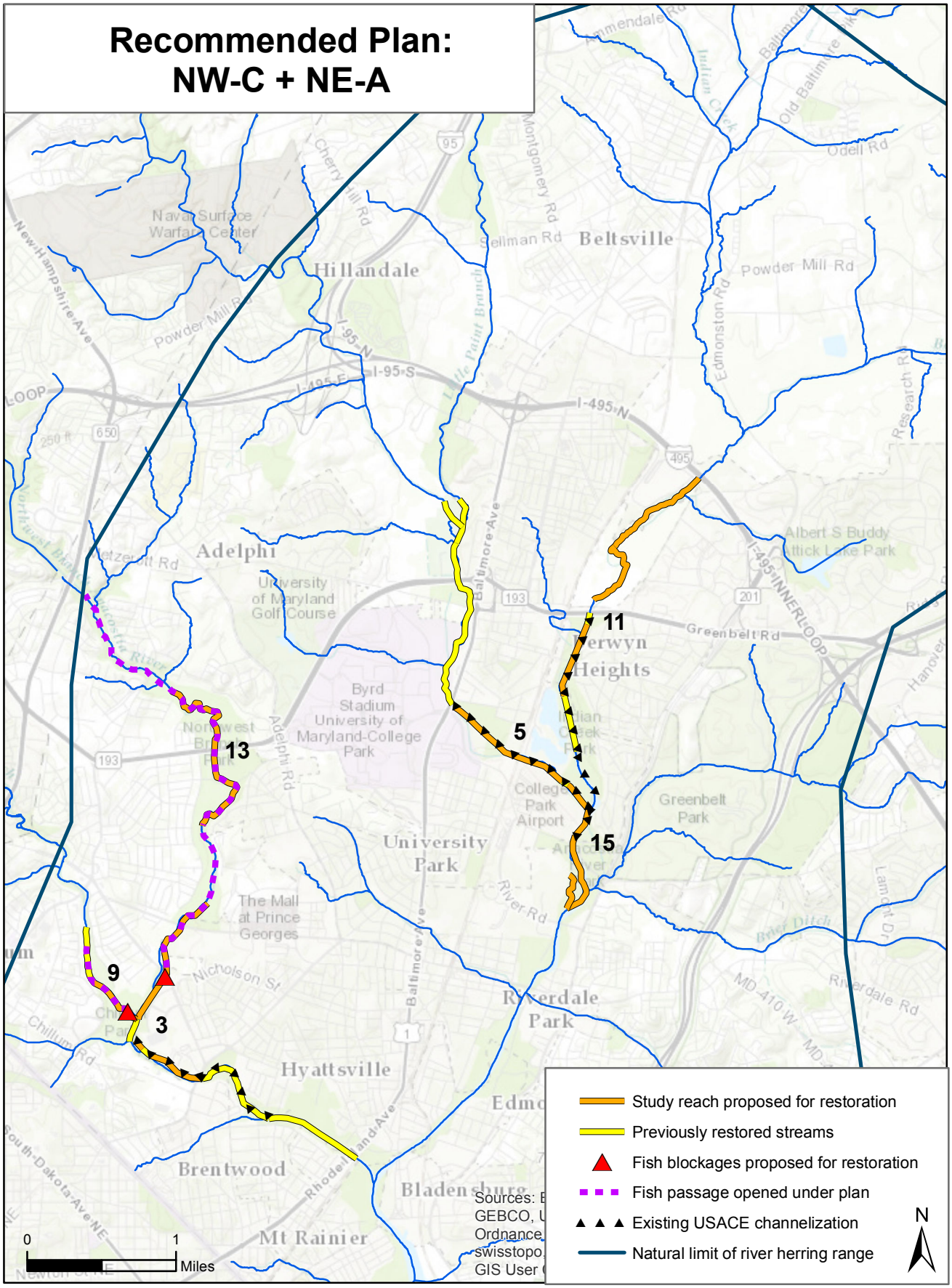
Any person who has an interest in the project may make comments and/or request a public hearing within 30 days of the date of publication of this notice. Comments must clearly set forth the interest that may be adversely affected by this proposed action and the manner in which the interest may be adversely affected. Written comments received on or before this date will become part of the written record and will be considered in the determination of impacts to the environment. We anticipate the EA to result in a finding of no significant impacts.

The draft feasibility report and integrated EA are available for viewing electronically at http://go.usa.gov/cJwx9, and hard copies can be found at the following Prince George's County libraries: Beltsville, Greenbelt, Hyattsville, Mount Rainier, and Bladensburg. Comments will be accepted by email to CENAB-CC@usace.army.mil or by mail to: U.S. Army Corps of Engineers, Baltimore District, Attn: Angie Sowers, 10 South Howard Street, Ste. 116000, Baltimore, Maryland 21201.

If you have any questions, please contact Angie Sowers by telephone at (410) 962-7440 or by email to Angela.Sowers@usace.army.mil.

Daniel Bierly
Chief, Civil Project Development Branch
Planning Division

Enclosure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Study reach proposed for restoration
Previously restored streams
Fish blockages proposed for restoration
Fish passage opened under plan
Existing USACE channelization
Natural limit of river herring range
N
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Miles

From:	Katharine McCarthy -DNR-
To:	Seiple, Jacqueline A NAB
Cc:	Sowers, Angela NAB; Soleimani, Behnam NAB; Snead, Louis C NAB; Lori Byrne -DNR-; Tim Larney -DNR-
Subject:	[EXTERNAL] Re: PG County Stream Restoration - Site 11 (UNCLASSIFIED)
Date:	Thursday, September 22, 2016 5:25:58 PM
Attachments:	Indian Creek Stellaria alsine (green dots) topo.pdf Indian Creek Stellaria alsine (green dots).pdf

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Jacqui,
Looking back through my email I realize I did not reply to you. I apologize. Attached are a topo map and aerial image of the locations of Stellaria alsine from prior field surveys. The small green dots are very accurate. The large dot is a locator.
Going through your list of questions..
--Avoiding work in the floodplain and side channels would avoid disturbance to the Stellaria alsine, so I think confining all work to the main channel is the way to go from Cherrywood Ct north.
-- South of Cherrywood Ct, work in the floodplain would not affect Stellaria alsine so there would be no concerns with potential impacts.
--Regarding timing, because this is an annual plant it would be ideal to avoid disturbance during the summer so that fruits have time to mature and disperse. However, if no work is proposed in the floodplain or side channels, this is not crucial.
--The locations for Stellaria alsine shown as small green dots should suffice to map the population. The plants we found in July that were likely to be this rare Stellaria were all in very close proximity to these mapped locations. Maintaining the hydrology of the Stellaria alsine habitat and avoiding disturbance to the populations is important to sustaining this species in Indian Creek.
Thank you for the site visit summary. I look forward to seeing the designs as they are developed.
Kathy

On Mon, Aug 1, 2016 at 11:01 AM, Seiple, Jacqueline A NAB <Jacqueline.A.Seiple@usace.army.mil <mailto:Jacqueline.A.Seiple@usace.army.mil> > wrote:

CLASSIFICATION: UNCLASSIFIED

Kathy,

Thanks again for meeting with us to perform the survey for Stellaria alsine within the Indian Creek floodplain in Greenbelt. Please see the attached site visit report and let us know if you have any comments or questions.

We are now moving forward to doing our detailed feasibility level designs. It would be helpful in planning our designs if based on our conversations at the site visit and your knowledge of the plants location and habitat requirements, you could provide us with written recommendations to guide our designs. For example:

-Would any floodplain work be permissible adjacent to the channel or do we need to stay strictly within the main channel in the upper portion of the reach where we surveyed?
-If floodplain work is permissible, is there a certain distance from the stream bank that we should stay within?
-Can you delineate a boundary around the identified plants where we would need to stay within the channel? Previously I believe you said that floodplain work is ok south of Cherrywood Ct. Please confirm.
-Are there any timing restrictions based on the plants habitat requirements that would be helpful?

Also, whatever other suggestions you have to guide our designs would be appreciated. It will take us a few months to produce the designs, but we will check in with you along the way.

Also, can you please send a copy of the pdf you had in the field that showed the last surveyed locations for the plant?

Thanks!
Jacqui

Jacqueline Seiple
Geographer, P.G.
Planning Division
U.S. Army Corps of Engineers, Baltimore
(410) 962-4398 <tel:%28410%29%20962-4398>

CLASSIFICATION: UNCLASSIFIED

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Katharine A. McCarthy
Southern Regional Ecologist
Natural Heritage Program
Wildlife and Heritage Service
MD Dept of Natural Resources
Tawes State Office Building, E1
Annapolis, MD 21401
phone: 410/260-8569
fax: 410/260-8596
Katharine.McCarthy@maryland.gov <mailto:Katharine.McCarthy@maryland.gov>

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear President Holton:

The U.S. Army Corps of Engineers (USACE), Baltimore District is conducting a feasibility study and preparing an environmental assessment in accordance with National Environmental Policy Act of 1969, as amended, to restore in-stream aquatic habitat in six stream reaches within the Anacostia River watershed in Prince George's County, Maryland (see enclosed map). The recommended plan will restore approximately 7 miles of in-stream habitat in Northwest Branch, Sligo Creek, Northeast Branch, Paint Branch, and Indian Creek. The plan will open 4.3 miles of fish passage and connect 13.5 miles of restored habitat. Fish blockages will be removed on Northwest Branch and Sligo Creek.

With this plan, habitat and stream connectivity will be improved to support river herring migration and spawning. As a component of comprehensive watershed restoration, which includes water quality improvements being conducted by other agencies, habitat improvements are expected to lead to increased aquatic health for fish and benthic organisms. Further information on this study, including a draft feasibility study and Environmental Assessment is available at the project website: http://go.usa.gov/cJwx9.

Please consider this letter our notification to begin consultation on the plan recommended in the feasibility study. We look forward to consulting with you on a Government-to-Government basis, in accordance with the Department of Defense American Indian and Alaska Native Policy. Please let us know if you are interested in consulting and the extent to which you wish to participate. We will provide a USACE representative at consultation and fact-finding meetings, and we will fully consider any information you wish to provide. Please advise me if you wish to enter into consultation and how best to proceed to address tribal rights and resources.

This request for participation and information has been provided to the following Federally Recognized Tribal Nations:

Delaware Nation	Pamunkey Indian Tribe
Delaware Tribe of Oklahoma	Seneca-Cayuga Nation
Eastern Shawnee Tribe of Oklahoma	Tuscarora Nation

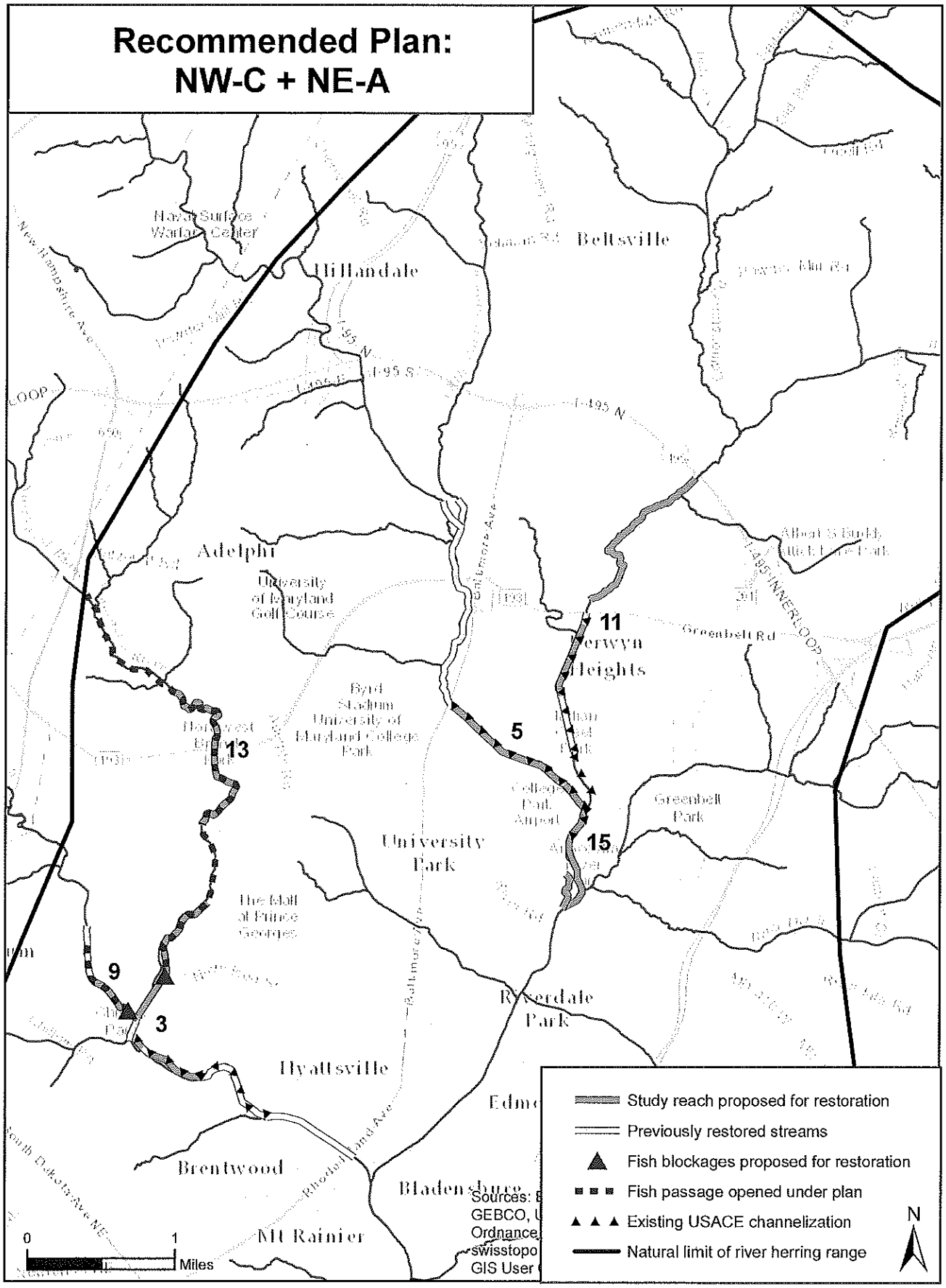
We respectfully request your response, or questions within 30 days of the receipt of this letter.

If this office can be of further assistance, or if you have any questions concerning this matter, please feel free to contact Mr. Scott C. Watson at 410-962-9500 or via email at scott.c.watson@usace.army.mil. Written correspondence can be addressed to Mr. Scott C. Watson, Cultural Resource Manager, Planning Division at 10 S. Howard St., Baltimore, MD 21201.

Sincerely,

David Robbins
Acting Chief, Civil Works Project Development Branch
Planning Division

Enclosure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Existing USACE channelization
Natural limit of river herring range
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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear Chief Wallace:

The U.S. Army Corps of Engineers (USACE), Baltimore District is conducting a feasibility study and preparing an environmental assessment in accordance with National Environmental Policy Act of 1969, as amended, to restore in-stream aquatic habitat in six stream reaches within the Anacostia River watershed in Prince George's County, Maryland (see enclosed map). The recommended plan will restore approximately 7 miles of in-stream habitat in Northwest Branch, Sligo Creek, Northeast Branch, Paint Branch, and Indian Creek. The plan will open 4.3 miles of fish passage and connect 13.5 miles of restored habitat. Fish blockages will be removed on Northwest Branch and Sligo Creek.

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Please consider this letter our notification to begin consultation on the plan recommended in the feasibility study. We look forward to consulting with you on a Government-to-Government basis, in accordance with the Department of Defense American Indian and Alaska Native Policy. Please let us know if you are interested in consulting and the extent to which you wish to participate. We will provide a USACE representative at consultation and fact-finding meetings, and we will fully consider any information you wish to provide. Please advise me if you wish to enter into consultation and how best to proceed to address tribal rights and resources.

This request for participation and information has been provided to the following Federally Recognized Tribal Nations:

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Eastern Shawnee Tribe of Oklahoma	Tuscarora Nation

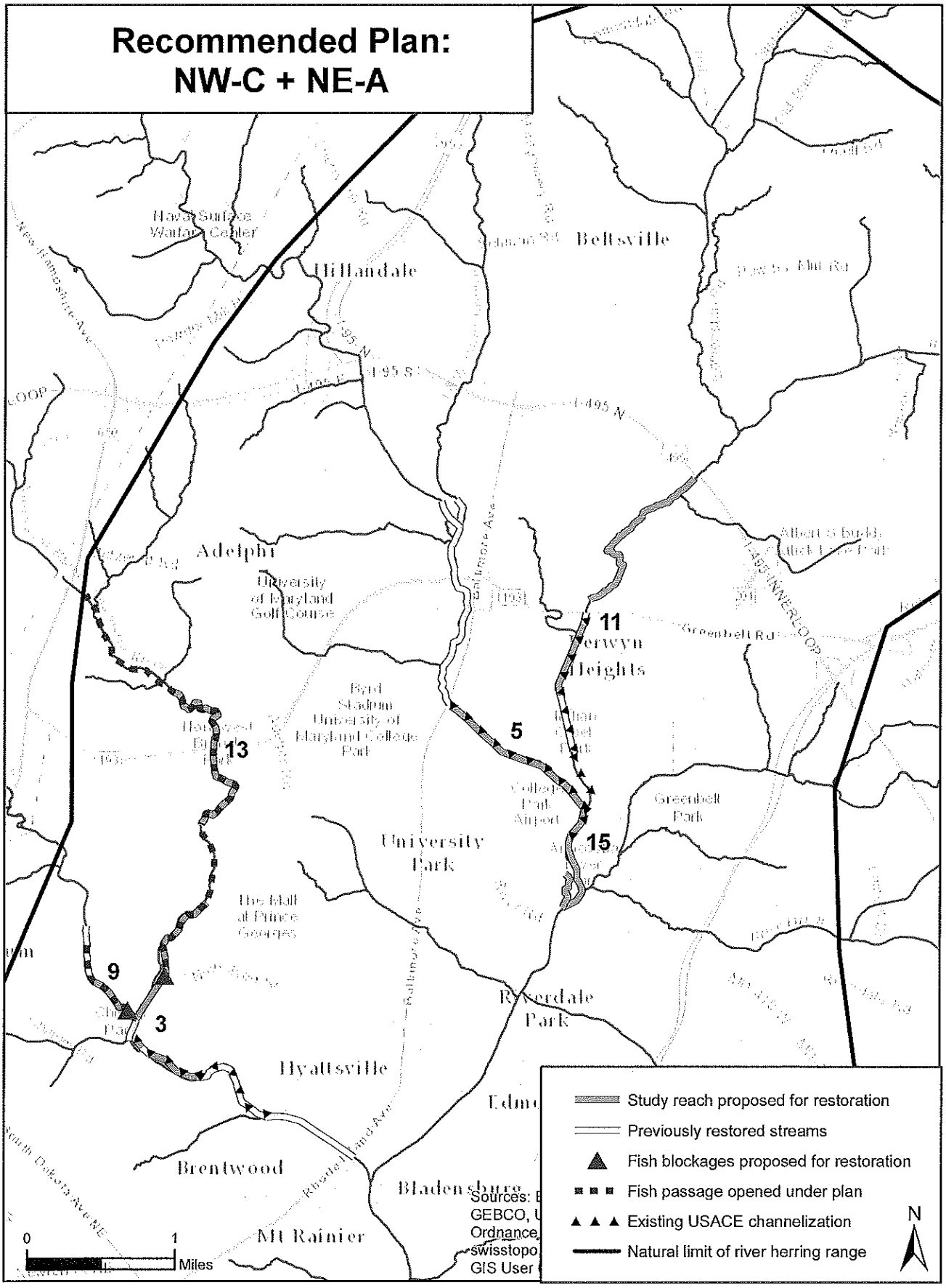
We respectfully request your response, or questions within 30 days of the receipt of this letter.

If this office can be of further assistance, or if you have any questions concerning this matter, please feel free to contact Mr. Scott C. Watson at 410-962-9500 or via email at scott.c.watson@usace.army.mil. Written correspondence can be addressed to Mr. Scott C. Watson, Cultural Resource Manager, Planning Division at 10 S. Howard St., Baltimore, MD 21201.

Sincerely,

Enclosure

David Robbins
Acting Chief, Civil Works Project Development Branch
Planning Division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Natural limit of river herring range

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear Chief Gray:

The U.S. Army Corps of Engineers (USACE), Baltimore District is conducting a feasibility study and preparing an environmental assessment in accordance with National Environmental Policy Act of 1969, as amended, to restore in-stream aquatic habitat in six stream reaches within the Anacostia River watershed in Prince George's County, Maryland (see enclosed map). The recommended plan will restore approximately 7 miles of in-stream habitat in Northwest Branch, Sligo Creek, Northeast Branch, Paint Branch, and Indian Creek. The plan will open 4.3 miles of fish passage and connect 13.5 miles of restored habitat. Fish blockages will be removed on Northwest Branch and Sligo Creek.

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Please consider this letter our notification to begin consultation on the plan recommended in the feasibility study. We look forward to consulting with you on a Government-to-Government basis, in accordance with the Department of Defense American Indian and Alaska Native Policy. Please let us know if you are interested in consulting and the extent to which you wish to participate. We will provide a USACE representative at consultation and fact-finding meetings, and we will fully consider any information you wish to provide. Please advise me if you wish to enter into consultation and how best to proceed to address tribal rights and resources.

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If this office can be of further assistance, or if you have any questions concerning this matter, please feel free to contact Mr. Scott C. Watson at 410-962-9500 or via email at scott.c.watson@usace.army.mil. Written correspondence can be addressed to Mr. Scott C. Watson, Cultural Resource Manager, Planning Division at 10 S. Howard St., Baltimore, MD 21201.

Sincerely,

Enclosure

David Robbins
Acting Chief, Civil Works Project Development Branch
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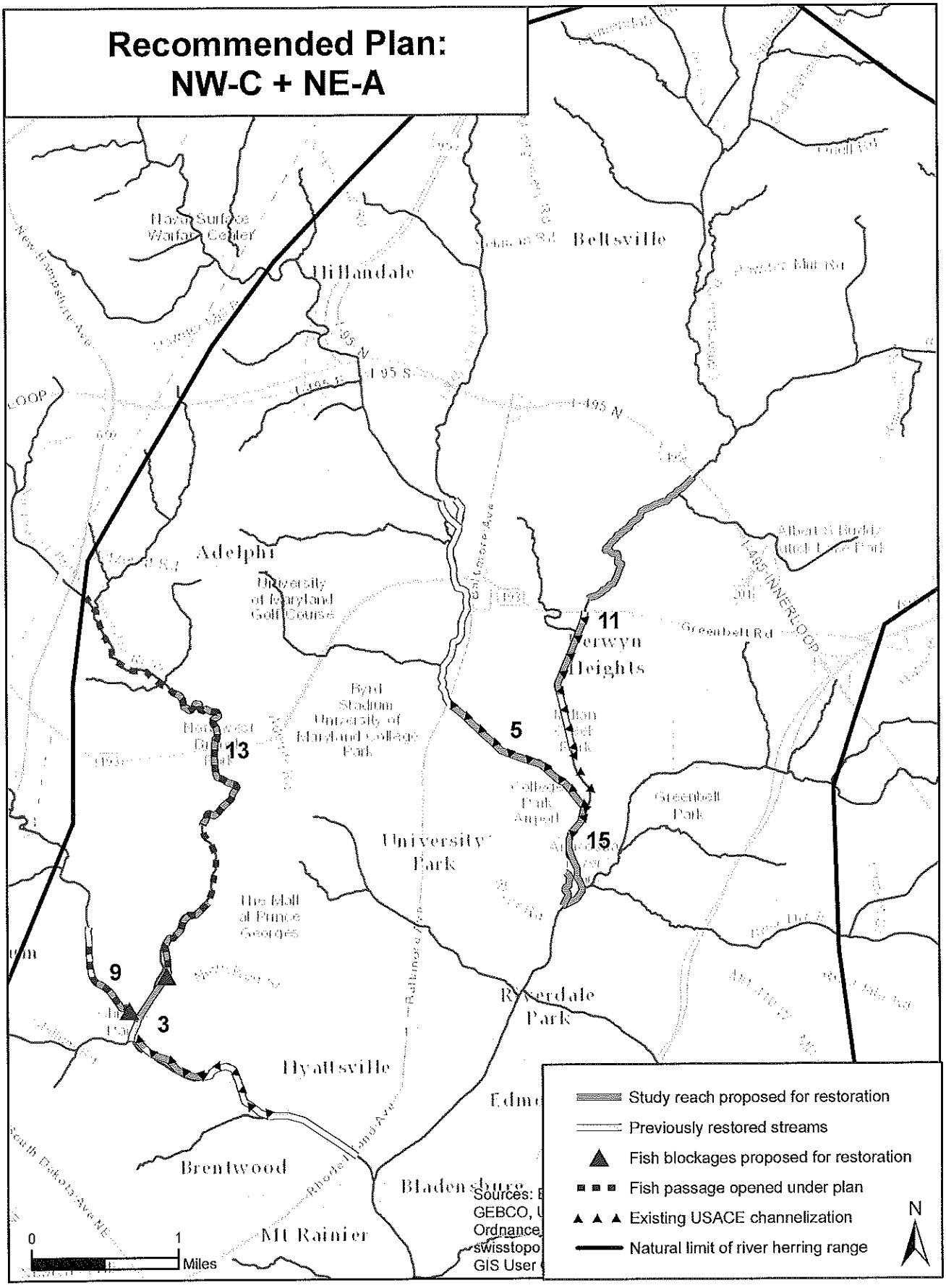
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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear Chief Brooks:

The U.S. Army Corps of Engineers (USACE), Baltimore District is conducting a feasibility study and preparing an environmental assessment in accordance with National Environmental Policy Act of 1969, as amended, to restore in-stream aquatic habitat in six stream reaches within the Anacostia River watershed in Prince George's County, Maryland (see enclosed map). The recommended plan will restore approximately 7 miles of in-stream habitat in Northwest Branch, Sligo Creek, Northeast Branch, Paint Branch, and Indian Creek. The plan will open 4.3 miles of fish passage and connect 13.5 miles of restored habitat. Fish blockages will be removed on Northwest Branch and Sligo Creek.

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Acting Chief, Civil Works Project Development Branch
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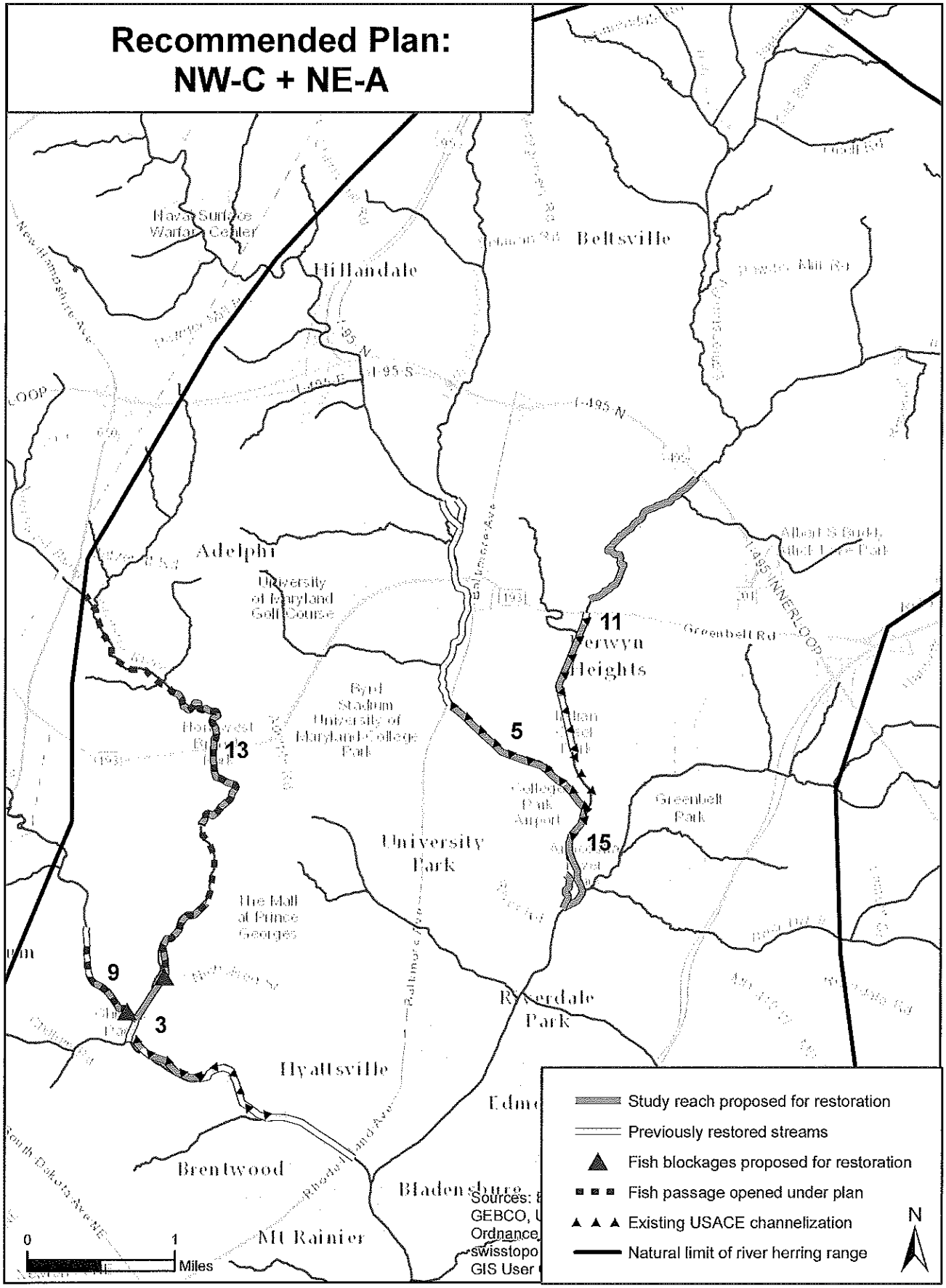
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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear Chief Fisher:

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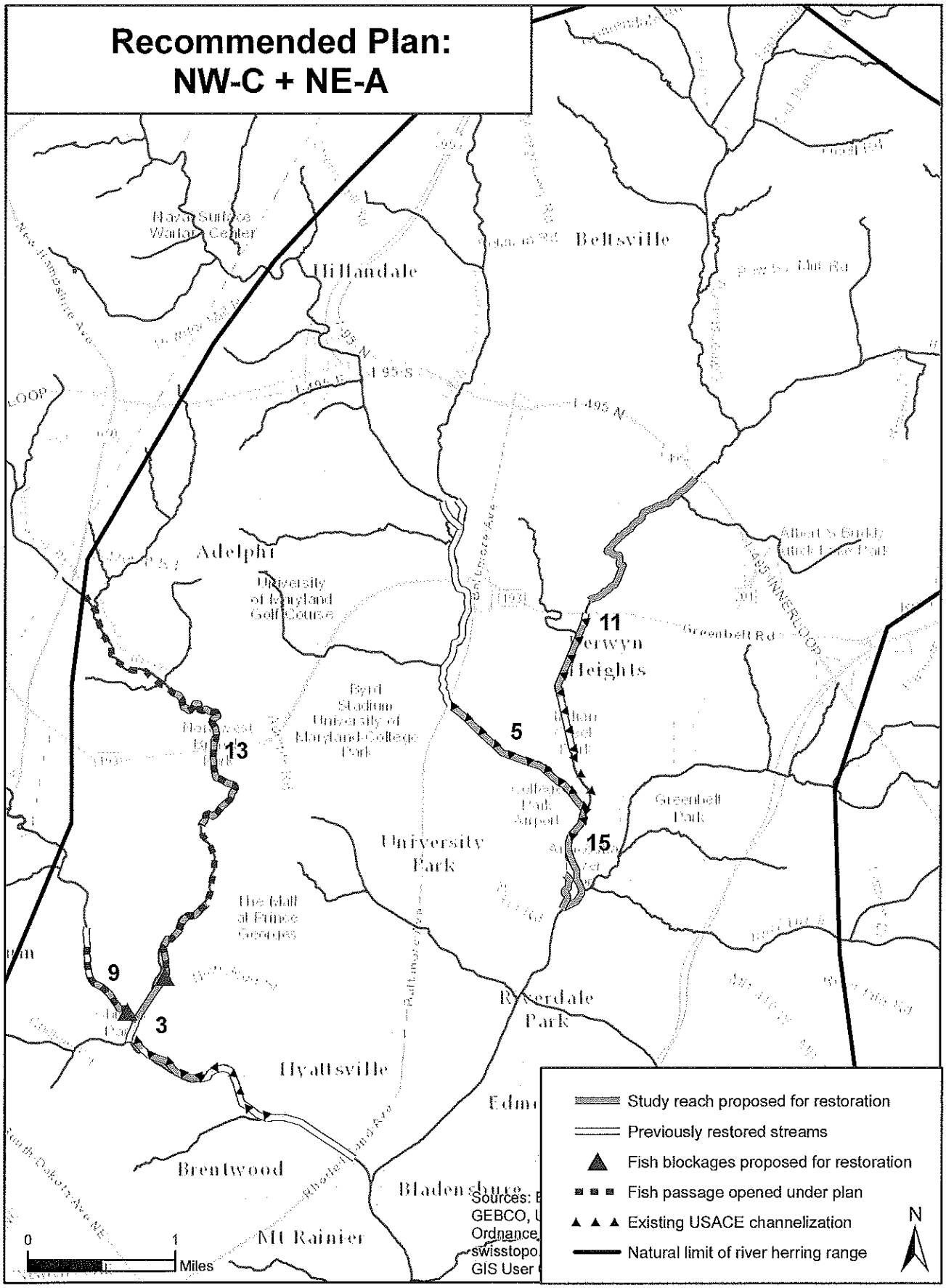
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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

Dear Chief Henry:

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David Robbins
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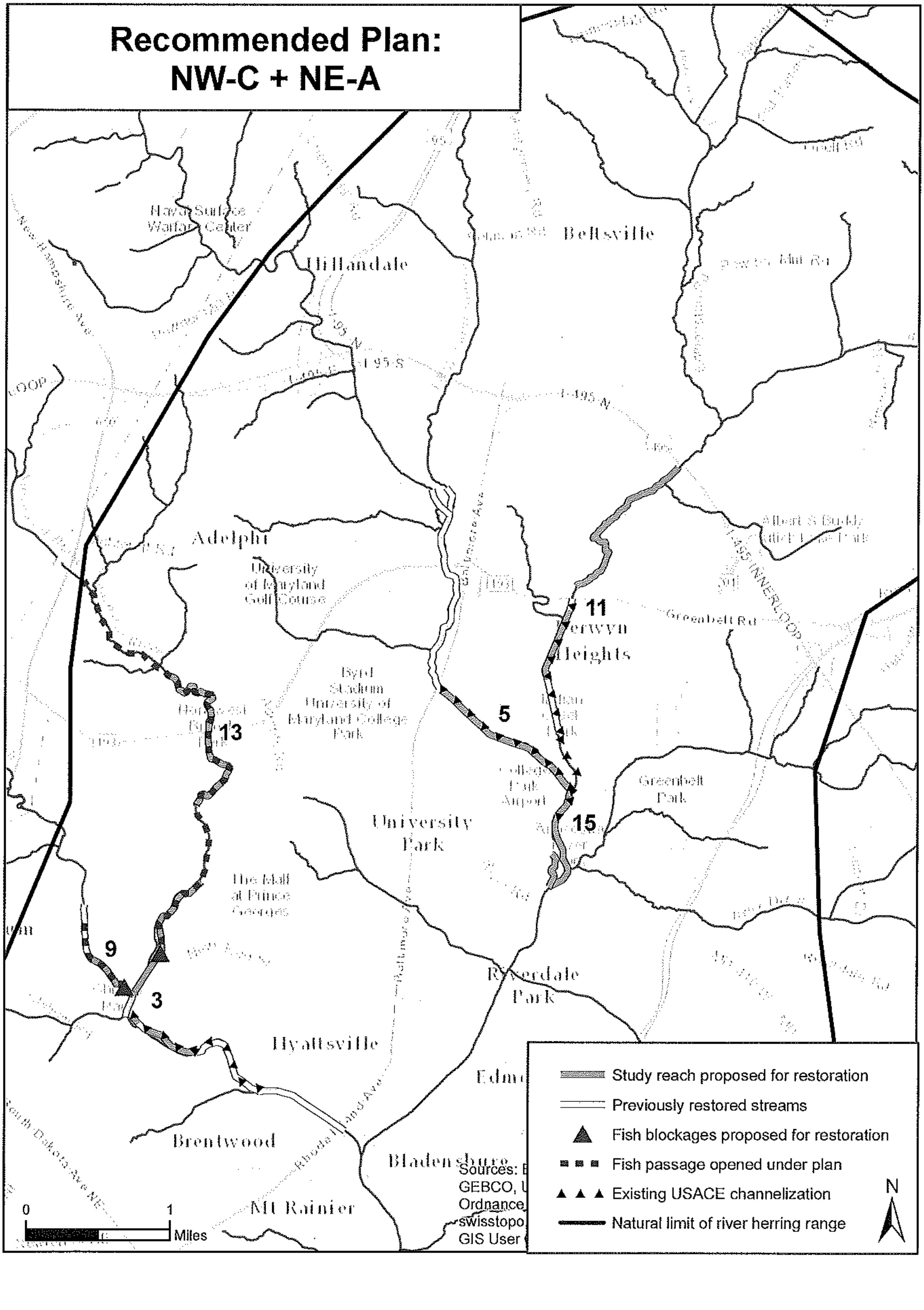
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Sources:
GEBCO,
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swisstopo,
GIS User

From: Blair, AaronM
To: Seiple, Jacqueline A CIV USARMY CENAB (US)
Subject: [EXTERNAL] RE: Anacostia Watershed Restoration EA - USEPA Comments
Date: Wednesday, December 21, 2016 3:48:20 PM

Hi Jacqui -

We appreciate you coordinating with UMD and EPA to determine that the restoration project is not thought to have an appreciable impact on contamination within or reaching Paint Branch. This was the predominate concern from EPA, and we're glad to hear that the impacts will not be significant.

Thank you,
Aaron

_____

Aaron Blair
Physical Scientist
Environmental Assessment and Innovation Division
U.S. EPA - Region III
215-814-2748

-----Original Message-----
From: Seiple, Jacqueline A CIV USARMY CENAB (US) [mailto:Jacqueline.A.Seiple@usace.army.mil]
Sent: Friday, December 16, 2016 7:25 AM
To: Blair, AaronM <blair.aaronM@epa.gov>
Cc: Powers, Dennis J CIV USARMY CENAB (US) <Dennis.J.Powers@usace.army.mil>; Baron, James W CIV USARMY CENAB (US) <James.W.Baron@usace.army.mil>; Sowers, Angela M CIV USARMY CENAB (US) <Angela.Sowers@usace.army.mil>; Snead, Louis C Jr CIV CENAB CENAD (US) <Louis.C.Snead@usace.army.mil>
Subject: Anacostia Watershed Restoration EA - USEPA Comments

Dear Mr. Blair,

We received the attached comments from EPA on the draft Feasibility Report and Environmental Assessment for stream restoration in Prince George's County Maryland. We wanted to coordinate with you further regarding your comments on the impacts of the stream restoration project on groundwater in the vicinity of University of Maryland Landfill 3A, which is adjacent to a section of Paint Branch that we propose to restore.

Since we received your comments, we have done a good deal of research on groundwater contamination at the landfill and particularly contamination that might be reaching the stream. We coordinated with University of Maryland and EPA through a FOIA request to obtain documentation on groundwater and sediment data in the vicinity of Paint Branch.

A review of available data and reports, including EPA's "Documentation of Environmental Indicator Determination, Migration of Contaminated Groundwater Under Control, Environmental Indicator (EA) RCRIS code (CA750)", indicates that groundwater contamination is contained on the landfill site and is not migrating to Paint Branch. The RCRA Facility Investigation results (revised 6 April 2002, prepared by Environmental Resources Management [ERM]), documents that sampling of sediments, surface water and soil samples from Paint Branch did not show any release of Permit-list metals, volatile organic compounds (VOCs) or semivolatile organic compounds (SVOCs), as well as Permit-list VOCS or SVOCs in ground water. Permit-list metals were reported in groundwater. In 1999 ERM re-sampled the Permit-list metals, including PCBs, toxins, and methane, to conclude that groundwater conditions beneath the Paint Branch Landfill Areas do not pose unacceptable risks to human health or the environment. We have also reviewed more recent data (2014), which indicate low concentrations of MTBE at the monitoring well (PW-7) located along Paint Branch (not to be confused with the small tributary - Paint Branch Creek), and concentrations of dissolved hydrocarbons continue to decrease over time.

As a result of the above information, we do not believe the restoration project will have an appreciable impact on contamination within or reaching Paint Branch. For the draft report, designs were conceptual, but now we will be advancing the designs to the feasibility level. We will soon have a better idea of the types and locations of the proposed restorations. We plan to share this with you once the designs progress; however, if you have any thoughts on additional coordination/considerations that we need to account for, please let us know as soon as possible so we can incorporate this information.

Please let me know if I can provide anything additional or if there is more that needs to be done in consideration of your comments.

Thanks!
Jacqui Seiple

Jacqueline Seiple
Geographer, P.G.
Planning Division
U.S. Army Corps of Engineers, Baltimore
(410) 962-4398

From:	Weil, Michael
To:	Seiple, Jacqueline A CIV USARMY CENAB (US)
Cc:	Snead, Louis C Jr CIV USARMY CENAB (US); Roach, Andrew A CIV USARMY CENAB (US); Oestreich, Adam L CIV CENAB CENAD (US); Singh, Surina
Subject:	[EXTERNAL] RE: Anacostia Stream Restoration - Capper Crampton Act
Date:	Wednesday, March 22, 2017 1:06:32 PM

Hi Jacqui, yes, based on the project materials provided to us and our earlier consultations, NCPC staff believes that the proposed stream restoration would be consistent with the existing park use and its character and therefore, no further NCPC review is required since our authority is contingent upon a 'change in use' to the park's General Management Plan pursuant to the 1930 Capper-Cramton Act, and no such modification is warranted at this time. Should the project design be substantively modified in anyway however, please contact us to discuss whether additional consultation is required.

Please contact me with any further questions, and thanks again for reaching out to us.

- Mike Weil, 202-482-7253

-----Original Message-----
From: Seiple, Jacqueline A CIV USARMY CENAB (US) [mailto:Jacqueline.A.Seiple@usace.army.mil]
Sent: Thursday, February 2, 2017 1:39 PM
To: Weil, Michael <michael.weil@ncpc.gov>
Cc: Snead, Louis C Jr CIV CENAB CENAD (US) <Louis.C.Snead@usace.army.mil>; Roach, Andrew A CIV USARMY CENAB (US) <Andrew.A.Roach@usace.army.mil>; Oestreich, Adam L CIV CENAB CENAD (US) <Adam.L.Oestreich@usace.army.mil>
Subject: Anacostia Stream Restoration - Capper Crampton Act

Mike,

Thanks very much for speaking with us about Capper Crampton lands today. It was a useful discussion for the current project as well as for future projects.

To summarize our conversation, the stream restoration project we are proposing does not constitute a change in the park use from recreational open space (natural space) to another type of use. Although we may be altering the park land slightly (e.g. shifting the stream along a short reach or cutting into the parkland by altering the stream course slightly), this is still considered a natural use. Therefore, there is no further review required on your part with regards to this project. Please reply to confirm that this is correct.

As I mentioned, we will be adding a short section to our report about Capper Crampton lands, which we will forward to you for your review. We will also forward your concurrence of the above to MNCPPC in order to close the loop with them.

Thanks for your help!
Jacqui Seiple

Jacqueline Seiple
Geographer, P.G.
Planning Division
U.S. Army Corps of Engineers, Baltimore
(410) 962-4398

From:	Seiple, Jacqueline A CIV USARMY CENAB (US)
To:	"Katharine McCarthy -DNR-"
Cc:	Sowers, Angela M CIV USARMY CENAB (US); Lori Byrne -DNR-; Tim Larney -DNR-
Subject:	Re: PG County Stream Restoration - Site 11
Date:	Thursday, July 13, 2017 10:53:00 AM
Attachments:	C-150.pdf C-151.pdf C-152.pdf

Hi Kathy,

It has been a while since we last communicated about our project on Indian Creek. We have developed the feasibility level designs (35% design) taking into account your recommendations below to confine work to the main channel north of Cherrywood Ct. I have attached the designs for the work north of Cherrywood Court, which show the limits of disturbance (LODs).

Please take a look and let me know if you have any concerns or would like any further discussion. Sheet 150 is the north end of the reach at Indian Creek adjacent to the metro station. Sheet 152 shows the stream reach extending to just south of Cherrywood Ct.

Thanks,
Jacqui

Jacqueline Seiple
Geographer, P.G.
Planning Division
U.S. Army Corps of Engineers, Baltimore
(410) 962-4398

-----Original Message-----
From: Katharine McCarthy -DNR- [mailto:katharine.mccarthy@maryland.gov]
Sent: Thursday, September 22, 2016 5:24 PM
To: Seiple, Jacqueline A NAB <Jacqueline.A.Seiple@usace.army.mil>
Cc: Sowers, Angela NAB <Angela.Sowers@usace.army.mil>; Soleimani, Behnam NAB <Behnam.Soleimani@usace.army.mil>; Snead, Louis C NAB <Louis.C.Snead@usace.army.mil>; Lori Byrne -DNR- <lori.byrne@maryland.gov>; Tim Larney -DNR- <tim.larney@maryland.gov>
Subject: [EXTERNAL] Re: PG County Stream Restoration - Site 11 (UNCLASSIFIED)

Jacqui,
Looking back through my email I realize I did not reply to you. I apologize. Attached are a topo map and aerial image of the locations of Stellaria alsine from prior field surveys. The small green dots are very accurate. The large dot is a locator.
Going through your list of questions..
--Avoiding work in the floodplain and side channels would avoid disturbance to the Stellaria alsine, so I think confining all work to the main channel is the way to go from Cherrywood Ct north.
-- South of Cherrywood Ct, work in the floodplain would not affect Stellaria alsine so there would be no concerns with potential impacts.
--Regarding timing, because this is an annual plant it would be ideal to avoid disturbance during the summer so that fruits have time to mature and disperse. However, if no work is proposed in the floodplain or side channels, this is not crucial.
--The locations for Stellaria alsine shown as small green dots should suffice to map the population. The plants we found in July that were likely to be this rare Stellaria were all in very close proximity to these mapped locations.

From:	Seiple, Jacqueline A CIV USARMY CENAB (US)
To:	"Katharine McCarthy -DNR-"
Cc:	Sowers, Angela M CIV USARMY CENAB (US); "Lori Byrne -DNR-"; "Tim Larney -DNR-"; Soleimani, Behnam CIV USARMY CENAB (US); Martyn, Michael CIV USARMY CENAB (US); "Greg Golden -DNR-"
Subject:	RE: [Non-DoD Source] Re: PG County Stream Restoration - Site 11
Date:	Tuesday, August 01, 2017 8:50:00 AM

Kathy & Greg (please forward to Chris),

Thanks for speaking with us last week (7/25/2017). I just want to follow up with a summary of what we discussed for our records:

-Ben explained the rationale for the design proposed for Indian Creek, which includes widening the channel in some places, deepening the channel in some places, and adding flood plain benches. We took MDDNR recommendations into account by confining work to the main channel as much as possible north of Cherrywood Court.
-Impacts to trees were discussed. We will conserve trees as much as possible. Details will be included at a higher level of design.
-Greg identified that the proposed work, including removal of vegetation, could be a concern if the stellaria alsine inhabits that area, but since it does not, it is not a concern for the plant. The LOD does not impact the plant which lives in the low energy braided channels. Ben explained the modeling that was performed (HEC-RAS and SIAM) including to evaluate changes to the areas hydrology (water surface elevation and flooding). Based on this, the hydrology outside the channel will not be changed and so will not impact the plant.
-We discussed future potential development in the area, and that the proposed design is not inconsistent with at least the plans that were proposed for development related to the metro station/FBI.
-MDDNR agreed that the design does not appear to impact the plant. They will discuss further internally. The final report will be made available for state and agency review and comment in April next year.

Let me know if you have any questions/concerns/additions to the above.

Thanks!
Jacqui

-----Original Message-----
From: Katharine McCarthy -DNR- [mailto:katharine.mccarthy@maryland.gov]
Sent: Thursday, July 20, 2017 3:14 PM
To: Seiple, Jacqueline A CIV USARMY CENAB (US) <Jacqueline.A.Seiple@usace.army.mil>
Cc: Sowers, Angela M CIV USARMY CENAB (US) <Angela.Sowers@usace.army.mil>; Lori Byrne -DNR- <lori.byrne@maryland.gov>; Tim Larney -DNR- <tim.larney@maryland.gov>; Soleimani, Behnam CIV USARMY CENAB (US) <Behnam.Soleimani@usace.army.mil>; Martyn, Michael CIV USARMY CENAB (US) <Michael.Martyn@usace.army.mil>; Greg Golden -DNR- <greg.golden@maryland.gov>
Subject: Re: [Non-DoD Source] Re: PG County Stream Restoration - Site 11

I am also free on Tuesday from 11-5 and could talk then. Please let me know what time works best for you and what number to call. Thanks!
Kathy

On Thu, Jul 20, 2017 at 2:47 PM, Seiple, Jacqueline A CIV USARMY CENAB (US) <Jacqueline.A.Seiple@usace.army.mil <mailto:Jacqueline.A.Seiple@usace.army.mil> > wrote:

> Hi Kathy,
>
> Thanks for your response. I think it would be best if we could set up a meeting with you and our engineers.

Rushern L. Baker, III
County Executive

THE PRINCE GEORGE'S COUNTY GOVERNMENT
Department of Permitting, Inspections and Enforcement
Office of the Director

DEPARTMENT OF PERMITTING, INSPECTIONS AND ENFORCEMENT

MEMORANDUM

August 7, 2015

TO: Dawn Hawkins-Nixon, Acting Associate Director
Department of the Environment

FROM: Haitham A. Hijazi, Director
Department of Permitting, Inspections and Enforcement

RE: Anacostia River Watershed Multiple Stream & Wetland Restoration Projects
Clearinghouse Referral Number: MD20150605-0487

This memorandum is in response to your June 26, 2015, memorandum regarding the U.S. Army Corps of Engineers Anacostia River Watershed Multiple Stream & Wetland Restoration Projects.

The Department of Permitting, Inspections and Enforcement (DPIE) has reviewed this request and offers the following comments:

1. Stormwater Management Concept approval and site development fine grading permits are required for all of these project sites.

2. 100-year floodplain approval from DPIE is required.

If you have any questions or need additional information, please feel free to contact Mr. Steve Snyder, District Engineer for the area, at 301.636.2060.

HAH:SS:dar

cc: Gary E. Cunningham, Deputy Director, DPIE
Dawit Abraham, P.E., Associate Director, DO, DPIE
Mary C. Giles, P.E. Associate Director, S/RPRD, DPIE
Rey de Guzman, P.E., Chief, Site/Road Section, S/RPRD, DPIE
Steve Snyder, P.E., District Engineer, S/RPRD, DPIE
M.J. Labban, Engineer, S/RPRD, DPIE

July 13, 2015

Mr. Christopher Spaur
CENAB-PL-P (Spaur)
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20150605-0487
Applicant: U.S. Army Corps of Engineers, Baltimore District
Project Description: Scoping to Prepare an Environmental Assessment (EA) for Multiple Stream and Wetland Restoration Projects being Proposed in Anacostia River Watershed, Prince George's County, MD
Project Location: Prince George's County
Approving Authority: U.S. Department of Defense DOD/ARMY
Recommendation: Consistent with Qualifying Comment(s) and Contingent Upon Certain Action(s)

Dear Mr. Spaur:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.01.04-.06, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Department(s) of Natural Resources (DNR), Transportation (MDOT), the Environment (MDE) and the Maryland Department of Planning (MDP), including the Maryland Historical Trust; and Prince George's County.

The Maryland Department(s) of Transportation and the Maryland Department of Planning; and Prince George's County found this project to be consistent with their plans, programs and objectives.

The Department of Transportation stated that "as far as can be determined at this time, the subject has no unacceptable impacts on plans or programs."

Prince George's County stated that all 10 sites are located within the Anacostia River watershed (maps listing the 10 sites will be sent to MDP electronically). In addition, there are three maps for each site which include the effective FEMA map, the preliminary DFIRM (Digital Flood Insurance Rate Map) and the Storm Water Management Technical Group (SWMTG) Anacostia River watershed study each with the 1-percent annual chance (100-year) floodplain shown. The Department of Permitting, Inspections, and Enforcement (DPIE) is the regulatory agency that determines which study governs at each site (the highest 100-year floodplain elevation) and therefore should review all sites.

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 SOUTH HOWARD STREET
BALTIMORE, MARYLAND 21201

CENAB-PL-E

Ms. Elizabeth Hughes
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville, Maryland 21032-2023

Dear Ms. Hughes:

The purpose of this letter is to continue consultation with your office under Section 106 of the National Historic Preservation Act regarding the Anacostia Watershed Restoration Study in Prince George's County, Maryland. The study is being conducted by the U.S. Army Corps of Engineers, Baltimore District (USACE) to develop and evaluate potential ecosystem restoration solutions to address degraded aquatic ecosystems in the Anacostia watershed. The project's goal is to restore ecological function, structure, and health in selected stream reaches and riparian zones. The proposed project area originally included ten stream reaches within six sub-watersheds of the Anacostia River watershed (Enclosure 1); however, the recommended plan (Enclosure 2) now includes six of the original ten stream reaches (Sites 3, 5, 9, 13, 11, and 15).

The area of potential effect (APE) for the project includes areas of ground disturbance and areas where the undertaking may directly or indirectly cause alterations in the character or use of historic properties, including visual effects. Any access roads or staging areas associated with the project will not include subsurface excavation and will be confined to previously disturbed areas when possible.

Previous correspondence from your office dated June 15, 2015 provided your opinion that work in six of the ten stream reaches was unlikely to have an adverse effect on cultural resources, while the remaining four reaches had moderate to high potential for archaeological resources and might require investigation. The four reaches with archaeological potential include the Little Paint Branch (Site #12), the Northwest Branch (Site #13), the Northwest Branch Hyattsville (Site #3), and the Sligo Creek (Site #9). Since receipt of your letter, Little Paint Branch (Site #12) is no longer under consideration. In addition, USACE has determined that the majority of the proposed work in the remaining three reaches will be conducted within the active stream banks, in areas with low to no archaeological potential. Additionally, records reviews indicate significant past disturbance and/or prior surveys for cultural resources at all sites within the recommended plan.

Ground disturbing work outside the stream banks is proposed for Site #11, Indian Creek – College Park, and Site #15, Northeast Branch – Calvert Road. Although your office did not recommend any archaeological testing at these two locations, a review of their topographic settings and the presence of known archaeological resources in similar settings nearby suggested that a limited Phase IB-level archaeological survey would be warranted. USACE conducted this survey in

November 2016 and July 2017. No significant archaeological resources were identified at either site, and both areas are characterized by the presence of modern alluvium and heavy ground disturbance from flooding. A report describing the Phase I investigation is enclosed for your review and comment (Enclosure 3).

No National Register eligible archaeological or architectural resources are present in the project's direct APE, and no historic architectural resources are located within the project's viewshed. USACE has determined that implementation of the activities recommended by the Anacostia Watershed Restoration, Prince George's County, Study, will have no effect on historic properties, and no further investigations are recommended.

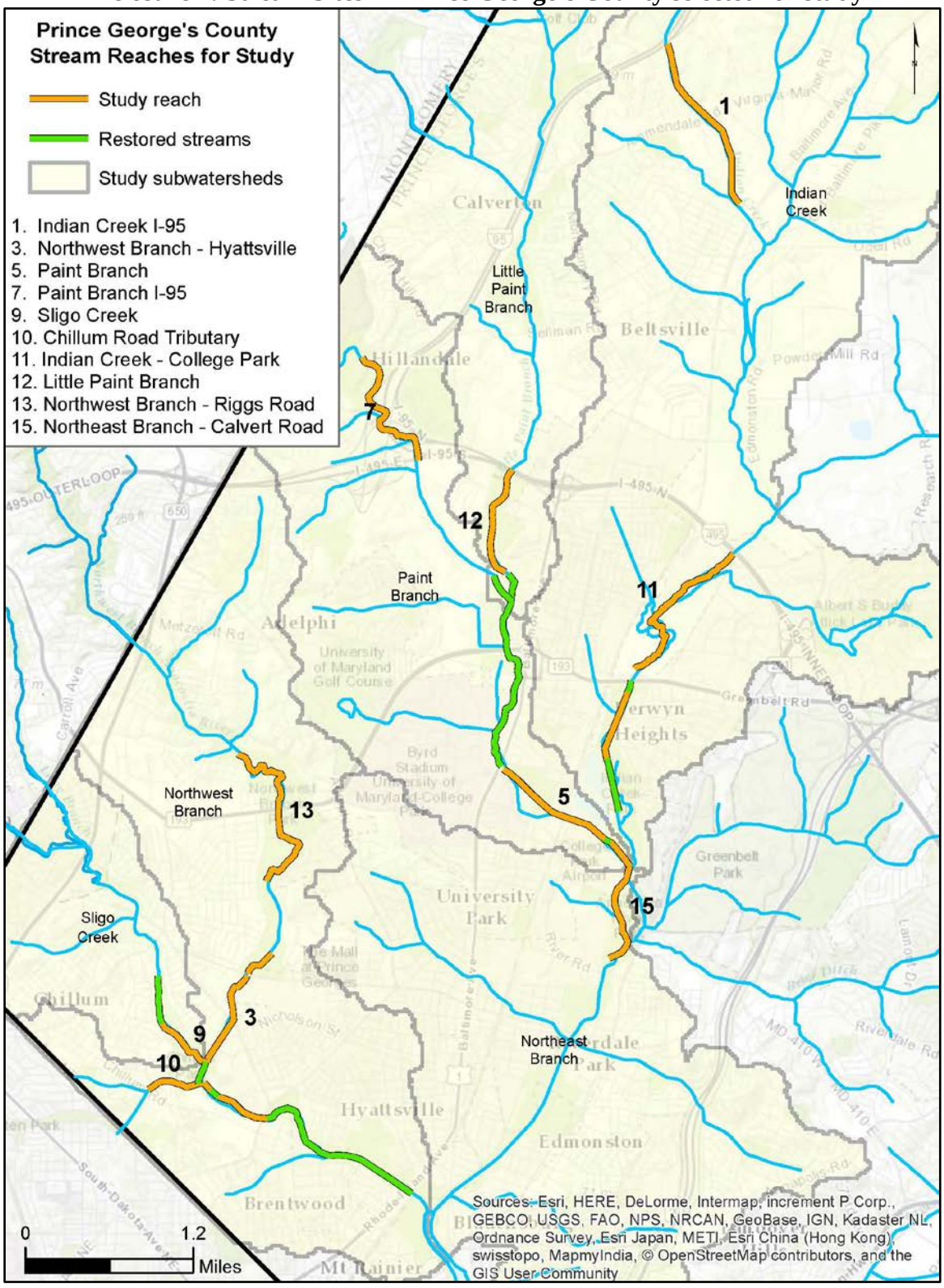
USACE looks forward to receiving your response to this determination within thirty (30) days of your receipt of this letter. Should we become aware, from any source, that historic properties are located in the project area we will notify your office immediately. Questions or comments regarding this project should be directed to Mr. Scott C. Watson at (410) 962-9500 or email at scott.c.watson@usace.army.mil. Thank you for your assistance with this project.

Sincerely,

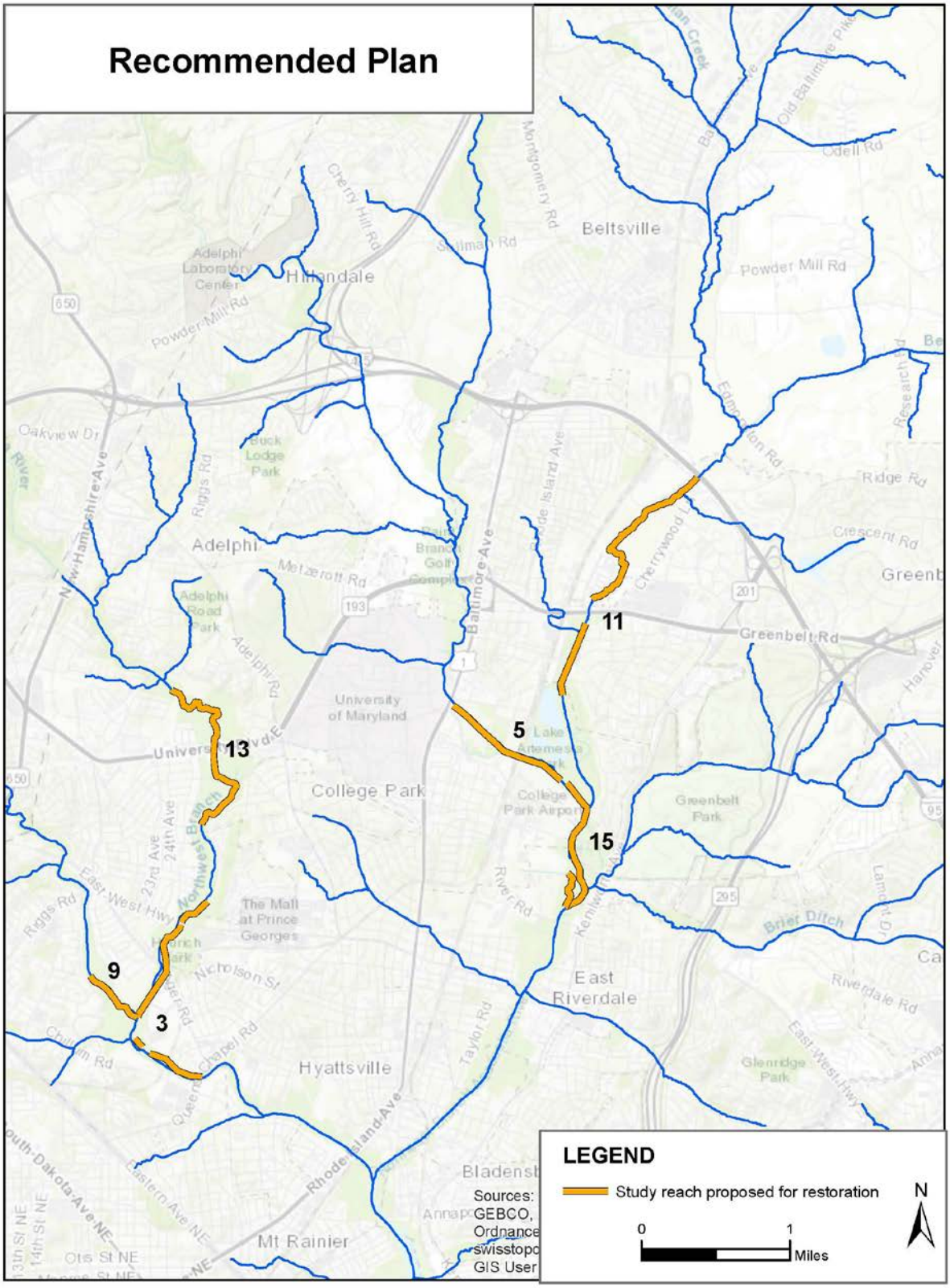
Daniel M. Bierly
Chief, Civil Project Development Branch
Planning Division

Enclosures

Enclosure 1: Stream Sites in Prince George's County selected for study



Enclosure 2: Sites in the recommended plan



MARYLAND DEPARTMENT OF
PLANNING
MARYLAND HISTORICAL TRUST

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

Robert S. McCord, Acting Secretary

October 30, 2017

Mr. Scott C. Watson
Archeologist, Planning Division
Baltimore District
U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21201

Re: MHT Review of Phase I Archeological Survey for Anacostia Watershed Restoration Project
Prince George's County, Maryland

Dear Mr. Watson:

Thank you for providing the Maryland Historical Trust (MHT) with a draft report detailing the results of the Phase I archeological survey work that has been conducted for the above-referenced project. The proposed watershed restoration study is being conducted by the U.S. Army Corps of Engineers, Baltimore District and is therefore subject to federal historic preservation law. We have therefore reviewed the draft document in accordance with Section 106 of the National Historic Preservation Act and are writing to provide the following comments and recommendations regarding potential effects on historic properties.

The report, *Phase I Level Cultural Resource Investigation, Anacostia Watershed Restoration Project, Prince George's County, Maryland* (U.S. Army Corps of Engineers 2017), is consistent with the reporting requirements of the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994) and presents the necessary documentation on the goals, methods, results, and recommendations of the Phase I survey work that has been conducted within six areas of proposed stream restoration work. Please note, however, that the final Phase I report should include the qualifications of the principal investigator as an appendix.

The Phase I survey was carried out during the summer of 2017 and consisted of background research, pedestrian survey and the excavation of shovel test pits at a 50-foot interval at Sites 11 (Indian Creek) and 15 (Northeast Branch). While the survey failed to identify any cultural features or intact archeological deposits, it *did* reveal that the area of potential effect at both Sites 11 and 15 have experienced significant erosion and stream channel migration. Based on the documentation presented in the Phase I report, we concur that the Anacostia Watershed Restoration project area possesses no archeological research potential and that further

archeological investigations are not warranted for Section 106 purposes. It is our opinion that the proposed stream restoration work will have no adverse effect on historic properties.

The archeological survey work that has been conducted for the Anacostia Watershed Restoration project has generated important information regarding the presence of historic properties within the project area, and we appreciate the conscientious efforts that have been made to recover this information. If you have any questions or require further information, please do not hesitate to contact me at 410-697-9553 or dixie.henry@maryland.gov. Thank you for providing us with this opportunity to comment.

Sincerely,

Dixie Henry

Dixie L. Henry, Ph.D.
Preservation Officer
Maryland Historical Trust

DLH/201705176
cc: Dan Bierly (COE)
Ethan Bean (COE)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

The Honorable Larry Hogan
Governor of Maryland
State House
100 State Circle
Annapolis, Maryland 21401

AUG 03 2018

Dear Governor Hogan:

The purpose of this letter is to notify you of the distribution of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, and the State process instituted by Maryland; Public Law 78-534 (as amended by Public Law 104-303) pertaining to coordination procedures on water resources reports; and Public Law 85-624 pertaining to fish and wildlife, we have requested comments on the proposed report from single point of contact, Ms. Myra Barnes, Maryland State Clearinghouse, Maryland Department of Planning. We will consider State process comments provided by the single point of contact to be the position of the State of Maryland regarding the recommendation of the Chief of Engineers.

Comments of the State of Maryland will be considered in determining whether the proposed report of the Chief of Engineers should be changed prior to its transmittal to the Secretary of the Army. These comments will be included with the report when it is transmitted to Congress.

Receipt of State views and recommendations within 30 days will facilitate expeditious processing of the final report of the Chief of Engineers.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

AUG 03 2018

Prince George's County Department
of Environment
Attn: Mr. Adam Ortiz
Director
1801 McCormick Drive, Suite 500
Largo, Maryland 20774

Dear Mr. Ortiz:

For your information, enclosed is a copy of the proposed report of the Chief of Engineers on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

The district engineer's report is currently under review by the Office of Water Project Review. Upon completion of that review and receipt of comments on the proposed report from Federal agencies and the State, the Chief of Engineers will forward his final report to the Secretary of the Army.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

AUG 03 2018

The Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Representative Shuster:

Enclosed for your information is a copy of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland. The district engineer's report is currently under review by the Office of Water Project Review. Upon completion of that review and receipt of comments on the proposed report from Federal agencies and the State, the Chief of Engineers will forward his final report to the Secretary of the Army.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

The Honorable John Barrasso
Chairman, Committee on Environment
and Public Works
United States Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

AUG 03 2018

Dear Senator Barrasso:

Enclosed for your information is a copy of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland. The district engineer's report is currently under review by the Office of Water Project Review. Upon completion of that review and receipt of comments on the proposed report from Federal agencies and the State, the Chief of Engineers will forward his final report to the Secretary of the Army.

Sincerely,

Joseph H. Redican
Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

National Resources Conservation
Service
Attn: Mr. Terron L. Hillsman, Ph. D.
Maryland State Office
John Hanson Business Center
339 Busch's Frontage Road, Suite 301
Annapolis, Maryland 21409

AUG 0 3 2010

Dear Mr. Hillsman:

Enclosed for your review and comment are two copies of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Send your reply to me at the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

Department of Transportation
Federal Highway Administration
Attn: Mr. Gregory Murrill
Division Administrator
George H. Fallon Federal Building
31 Hopkins Plaza, Suite 1530
Baltimore, Maryland 21201

AUG 03 2016

Dear Mr. Murrill:

Enclosed for your review and comment are two copies of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Send your reply to me at the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

National Marine Fisheries Service
Attn: Mr. Michael Pentony
Regional Administrator
Greater Atlantic Region Fisheries Office
55 Great Republic Drive
Gloucester, Maine 01930

AUG 03 2018

Dear Mr. Pentony:

Enclosed for your review and comment are two copies of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Send your reply to me at the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

NOAA, Office of Strategic Planning
Attn: Ms. Rachel Lipsy
1315 East West Highway, Room 15123
Silver Spring, Maryland 20910

AUG 03 20

Dear Ms. Lipsy:

Enclosed for your review and comment is a copy of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland. We are also forwarding a copy of the report to Mr. Michael Pentony, Greater Atlantic Region Fisheries Office.

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Please send your reply to me at the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

Environmental Protection Agency
Attn: Ms. Barbara Rudnick
NEPA Team Leader, Region 3
1650 Arch Street, 3RA00
Philadelphia, Pennsylvania 19106

AUG 0 3 2018

Dear Ms. Rudnick:

Enclosed for your review and comment are two copies of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Send your reply to me at the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

Department of the Interior
Office of Environmental Policy
and Compliance
Attn: Ms. Lisa Treichel
1849 C Street NW, MS 5538
Washington, DC 20240

AUG 03 2018

Dear Ms. Treichel:

Enclosed for your review and comment are two electronic copies of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland. The final feasibility report and technical appendices supporting this Chief's Report are available for download from the following website:

http://www.nab.usace.army.mil/Missions/Environmental/Anacostia-Watershed-Restoration/

In accordance with established coordination procedures on water resources reports, please furnish your comments and recommendations on any aspect of the report for which your agency has jurisdiction by law or has special expertise. In order to facilitate processing of this document in a timely manner, you are requested to provide any comments or recommendations within 30 days. Please send your reply to the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

Maryland State Clearinghouse
Attn: Ms. Myra Barnes
Maryland Department of Planning
301 West Preston Street, Suite 1101
Baltimore, Maryland 21201

AUG 0 3 2018

Dear Ms. Barnes:

Enclosed a copy of the proposed report of the Chief of Engineers and the report of the district engineer on the Anacostia Watershed Restoration Project, Prince George's County, Maryland.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, and the State process instituted by Maryland, we request your comments and recommendations, as the State single point of contact, on the proposed report. As set forth in Public Law 78-534 (as amended by Public Law 104-303) pertaining to coordination procedures on water resources reports and Public Law 85-624 pertaining to fish and wildlife, please submit your comments and recommendations (including the views of the agency responsible for fish and wildlife) within 30 days. Please send your reply to the following address:

Headquarters
U. S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

I appreciate your assistance with this review. Any questions on the proposed project or this request can be addressed to Mr. Jeff Trulick at (202) 761-1380.

The position of the State of Maryland will be considered in determining whether the proposed report of the Chief of Engineers should be changed prior to its transmittal to the Secretary of the Army. If all State process recommendations cannot be accommodated in the final report of the Chief of Engineers, you will be so informed.

Your comments will be included with the report when it is transmitted to Congress. A copy of the transmittal letter will be provided when the Secretary of the Army transmits the report to Congress.

Sincerely,

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-PC

AUG 03 2018

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY FOR PROJECT PLANNING AND REVIEW, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS

SUBJECT: Proposed Report of the Chief of Engineers on the Anacostia Watershed Restoration Project, Prince George's County, Maryland -- INFORMATION MEMORANDUM

1. Purpose. To provide you with a copy of the subject proposed report.

2. Discussion.

a. I enclose for your information a copy of the proposed report of the Chief of Engineers.

b. We have transmitted the proposed report together with the report of the district engineer, to the State of Maryland; Departments of the Interior, Commerce, Agriculture, and Transportation; and Regional Administrator, Region 3, Environmental Protection Agency, for review and comment.

c. We have provided information copies to the Committee on Environment and Public Works of the United States Senate and Committee on Transportation and Infrastructure of the House of Representatives.

Encl

Joseph H. Redican
Acting Chief, Planning and Policy Division
Directorate of Civil Works