

APPENDIX A: PUBLIC INVOLVEMENT

SCOPING NEWSLETTER

Chesapeake and Ohio Canal National Historical Park

National Park Service
U.S. Department of the interior



Enhancing Visitor Experience at Hancock, MD Mile 122.12–124.59
Public Scoping August 13 – September 13, 2010

Public Scoping Meeting August 25, 2010

Environmental Assessment/Assessment Enhancing Visitor Experience at Hancock, MD, Mile 122.12 – 124.59

The National Park Service, Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP), is proposing to enhance the visitor experience at Hancock, Maryland. This would enable the park to better interpret the canal through interpretive programs and historic preservation of original canal structures.

The project area begins at park Mile 122.12 and ends at park Mile 124.59. This area includes Locks 51 and 52, the Bowles (Little) Farm, the Tonoloway Aqueduct, canal prism, canal boat basin, Little Tonoloway Picnic Area, as well as the Little Tonoloway Boat Ramp. The National Park Service has initiated work on an Environmental Assessment/Assessment of Effects (EA/AOE) to evaluate potential impacts of the proposed project to the natural, cultural, and human environment, in accordance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA).



Project location



Existing condition of Lock 52 with Tonoloway Aqueduct in the background

Purpose and Need

The Chesapeake and Ohio Canal National Historical Park preserves the physical structures of the historic Chesapeake and Ohio Canal. The purpose of the project is to expand visitor opportunities for learning about the C&O Canal and its operations in the late 1800's near Hancock, Washington County, Maryland. Physical improvements to the canal's historic structures and development of more extensive interpretive/educational opportunities would help the visitor more fully understand, appreciate, and enjoy the canal and its heritage.

The need for this project is to address an area of the park that has had only basic preservation of historic structures and limited interpretive/educational opportunities. Mile 122.12 – Mile 124.59 contain significant canal structures including two locks and an aqueduct. Interpretive and educational services have, in the past, been located outside of the park.



Existing condition of the Tonoloway Aqueduct

Chesapeake and Ohio Canal National Historical Park

Enhancing Visitor Experience at Hancock, MD Mile 122.12–124.59
Public Scoping August 13 – September 13, 2010

National Park Service
U.S. Department of the Interior



Public Scoping Meeting August 25, 2010

Preliminary Alternatives

NEPA/NHPA process requires the development of preliminary alternatives for the proposed project. These alternatives are developed as a result of project scoping by the public, affected agencies, and NPS. The alternatives are then evaluated within the EA/AOE document for their potential impacts on the natural and human environment.

“No Action” alternative is required by the NEPA/NHPA process and must be included in the EA/AOE. This alternative serves as the baseline for the other alternatives used in the evaluation. The No Action alternative, for this proposed project, is the status quo. The canal operations would continue to be maintained in their current condition, including the partially collapsed aqueduct, non-functioning Lock 51 and Lock 52, as well as the picnic area, boat ramp and currently rewatered section of the canal inside Hancock.

Additional project alternatives* will explore different levels of preservation/restoration to historic canal features including;

- Mile 122.11 - Waste weir/Culvert 174
- Mile 122.12 - 124.59 - Canal Prism
- Mile 122.59 - Lock 51
- Mile 122.59 - Lockhouse ruins at Lock 51
- Mile 122.80 - Four Locks District Maintenance Complex
- Mile 122.85 - Bowles (Little) House
- Mile 122.85 - Bowles Bank Barn
- Mile 122.89 - Lock 52
- Mile 122.89 - Lockhouse ruins at Lock 52
- Mile 122.96 - Tonoloway Aqueduct
- Mile 123.84 - Historic Boat Basin
- Mile 124.10 - 124.59 - Existing rewatered canal prism
- Mile 124.33 - Little Tonoloway Picnic Area and boat ramp

****Development of alternatives will be dependent upon studies of the potential impacts to the natural and human environment. This includes, but is not limited to, wetland delineation, rare and endangered species inventory, terrestrial plant surveys, archeological surveys, and traffic flow patterns.***

Some of the concepts that the park would like to address:

1. Expansion of visitor services and interpretive opportunities
2. Evaluation of the Little Tonoloway picnic area, boat ramp, and site parking
3. Various treatments to the canal prism
4. Levels of restoration to the Tonoloway Aqueduct
5. Levels of restoration to the Bowles (Little) Property
6. Levels of restoration to Locks 51 and 52 including bypass flumes



Existing conditions at Waste weir culvert #174 at MP 122.12

Impact Topics

Mandatory topics to be considered during the development of the EA/AOE are;

- Geology, Geologic Hazards, topography, and Soils
- Hydrology
- Water Quality
- Wetlands
- Floodplains
- Vegetation
- Wildlife
- Rare, Threatened, and Endangered Species
- Scenic Resources (aesthetics and viewsheds)
- Cultural Resources, including:
 - Archeology
 - Museum collections
 - Ethnography
 - Historic Structures and Districts
 - Cultural Landscapes
- American Indian Traditional Cultural Properties
- Visitor Use and Experience
- Human Health and Safety
- Park Operations and Management
- Transportation
- Land Use
- Socioeconomics
- Environmental Justice

Chesapeake and Ohio Canal National Historical Park

Enhancing Visitor Experience at Hancock, MD Mile 122.12–124.59
Public Scoping August 13 – September 13, 2010

National Park Service
U.S. Department of the Interior



Public Scoping Meeting August 25, 2010



Existing Conditions of canal prism upstream of Tonoloway Aqueduct

Overview of the Process

Project milestones include:

- Public Scoping (August 13 – September 13, 2010)
- Public Scoping Meeting – August 25, 2010
- Analysis of Scoping Comments – September 2010
- Preparation of EA/AOE – Fall/2010 - Winter/2011
- Public review of EA/AOE – Spring 2011
- Analysis of public comment – Spring 2011
- Preparation of decision document – Late Spring 2011
- Announcement of decision on proposal – Summer 2011

Public Scoping Period

The Superintendent has announced a 32-day public scoping period, August 13–September 13, 2010, to solicit public comments on this proposal. During this scoping period, the public is invited to identify any issues or concerns they might have with the proposed project so that the National Park Service can appropriately consider them in the EA/AOE. **Only written comments can be accepted.**

You may submit comments electronically at the National Park Service's Planning, Environment, and Public Comment website (<http://parkplanning.nps.gov>) or submit written comments by to:

Superintendent
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, MD 21740

Mailed comments must be postmarked by **September 13, 2010** to receive consideration. Please feel free to use the attached form to submit your comments.

Please be aware that your entire comment will become part of the public record. If you wish to remain anonymous, please clearly state that within your correspondence, although we cannot guarantee that personal information, such as email address, phone number, etc. will be withheld.

Once the EA/AOE is developed, it will be made available for 30-day public review period.



Existing Conditions at the Bowles Farm House



Existing Conditions at the Little Tonoloway Picnic Area

Chesapeake and Ohio Canal National Historical Park

Enhancing Visitor Experience at Hancock, MD Mile 122.12–124.59
Public Scoping August 13 – September 13, 2010

National Park Service
U.S. Department of the interior



Public Scoping Meeting August 25, 2010

NOTES

Public Scoping Meeting August 25, 2010

Please note that names and addresses of people who comment become part of the public record. **If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment.** We will make all submissions from organizations, businesses, and individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Public Comment Form (Please Print)

Your Name: _____

Organization you represent (if any): _____

Mailing Address: _____

City, State, Zip Code: _____

Comments:

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Chesapeake and Ohio Canal National Historical Park

Enhancing Visitor Experience at Hancock, MD Mile 122.12–124.59
Public Scoping August 13 – September 13, 2010

National Park Service
U.S. Department of the Interior



Public Scoping Meeting August 25, 2010

Fold on dotted lines, seal with tape

Return Address

Postage
required

Kevin Brandt, Superintendent
Chesapeake and Ohio Canal NHP
1850 Dual Highway, Suite 100
Hagerstown, MD 21740

Washington County – Enhancing Visitor Experience at Hancock, MD, Mile 122.12 – 124.59

APPENDIX B: AGENCY CONSULTATION AND COORDINATION

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APPENDIX B-1: AGENCY CONSULTATION LETTERS

B-1.1. Natural Resources



United States Department of the Interior

NATIONAL PARK SERVICE
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740
301-739-4200

IN REPLY REFER TO:

1.D (Resource Management & Lands)

April 23, 2013

Ms. Mary J. Ratnaswamy, Ph.D.
Deputy Field Supervisor
United States Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Dear Ms. Ratnaswamy:

In accordance with the National Environmental Policy Act (NEPA) of 1969, the National Park Service (NPS) is preparing an Environmental Assessment for the proposed project near Hancock, Maryland.

The purpose of this project is to improve the visitor experience, rehabilitate and restore historic structures at Hancock, Maryland on the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP). The project would be completed in a phased approach and would include the following potential components:

- 1) Restoration of the canal prism and re-watering the canal to operational condition from the Route 522 Bridge to Lock 51 (approximately milepost 122 to milepost 124 of the C&O Canal NHP).
- 2) Restoration of Tonoloway Creek Aqueduct.
- 3) Restoration of Lock 52 to operational condition.
- 4) Expand existing parking lot.
- 5) Reconstruct historic bank barn at Bowles Farm.
- 6) Widen public access Road between Route 144 to parking lot from one lane to two lanes.
- 7) Relocate Maintenance Compound outside of the floodplain.
- 8) Establish new picnic area in former Maintenance Compound.
- 9) Construct new maintenance access road from maintenance complex to towpath in the vicinity of Lock 51.

In accordance with Section 7(c)(1) of the Endangered Species Act (ESA) we are informing you of this proposed project, to request an informal consultation on data you have on proposed or

listed species or their critical habitat that could potentially be affected by this project and request your comments on the proposed action.

Your response within 30 days from the date of receipt of this letter would be greatly appreciated. Please forward written comments to Michelle Carter, Natural Resource Program Manager, at the address listed above. Thank you for your assistance with this project. If you have any questions, contact Mrs. Michelle Carter at (301) 714-2225.

Sincerely,



Kevin D. Brandt
Superintendent



IN REPLY REFER TO

United States Department of the Interior

NATIONAL PARK SERVICE
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740

1.B (Management and Lands)

April 24, 2013

Ms. Lori A. Byrne
Environmental Review Specialist
Maryland Wildlife & Heritage Service
Tawes State Office Building
Annapolis, MD 21401

Dear Ms. Byrne:

Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP) is in the process of preparing an Environmental Assessment for a project proposing to rehabilitate and rewater sections of the C&O Canal prism and rehabilitate the Little House near Hancock, Maryland. The project area will cover encompass park land from Little Pool to Route 522. It can be found in the "Hancock Quadrangle" and "Cherry Run Quadrangle" of the USGS 7.5" Quadrangle Maps.

As part of the National Environmental Policy Act process, we are requesting consultation on State Rare, Threatened, and Endangered Species within the vicinity of the project sites. We are also contacting the United States Fish and Wildlife Service for federally listed species.

Your response within 30 days from the date of receipt of this letter would be greatly appreciated. Enclosed is the C&O Canal NHP brochure. If you have any questions, please contact Michelle Carter, Natural Resource Program Manager, at (301) 714-2225.

Thank you for your assistance in this matter.

Sincerely,

Kevin D. Brandt *for*
Superintendent

[Redacted]

B-1.2. Cultural Resources



United States Department of the Interior

NATIONAL PARK SERVICE
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740

IN REPLY REFER TO
D22-CHOH-DSC PEPC26516

September 2, 2010

Ms. Elizabeth Cole, Administrator
Project Review and Compliance
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

Subject: Enhancing Visitor Experience at Hancock, MD Mile 122.12 -124.59
Chesapeake & Ohio Canal National Historical Park

Dear Ms Cole:

The National Park Service (NPS) is proposing to address enhancements for park visitors near Hancock, Maryland. This would enable the park to better interpret the canal through interpretive programs and historic preservation of original canal structures. The project area begins at park Mile 122.12 and ends at park Mile 124.59. This area includes Locks 51 and 52, Lock House 52, the Bowles (Little) Farm, the Tonoloway Aqueduct, canal prism, canal boat basin, Little Tonoloway Picnic Area, and the Little Tonoloway Boat Ramp. The NPS wishes to initiate consultation with the Maryland Historical Trust under Section 106 of the National Historic Preservation Act in accordance with 36 CFR 800 of the regulations of the Advisory Council on Historic Preservation (ACHP) and the Programmatic Agreement Among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, 2008.

Undertaking

The NPS has established that the project will address preservation of historic canal structures and the improvement of the visitor experience at Hancock is an undertaking as defined by ACHP regulations 36 CFR 800. The project is consistent with the vision of Chesapeake & Ohio Canal National Historical Park's 1976 *General Plan* that identifies the canal at Hancock as one of six potential interpretative zones and the 1989 *Design Concept Plan* for the site that addresses issues of accessibility, interpretive and recreational opportunities, preservation, and interagency planning efforts. All of these documents are available for your review upon request.

Enhancing Visitor Experience at Hancock, MD
Chesapeake and Ohio Canal National Historical Park
SHPO Consultation
Page 1 of 3
August 3, 2010

The project is in the initial planning stages and could include, among other actions, preservation, restoration or rehabilitation of lock structures and canal walls for possible re-watering of all or

sections of the canal between Mile 122.12 and Mile 124.59, rehabilitation of the Bowles (Little) Farmhouse for visitor services and staff use, widening of the Bowles House entrance road, restructuring of parking and picnicking areas, relocating maintenance facilities, and site and landscaping work. Various levels of alternatives are currently under consideration and are presented in the attached public scoping notice.

Area of Potential Effect

The Area of Potential Effect (APE) includes the canal prism and areas on both sides of the canal from mile post 122.12 and ends at park Mile 124.59. The approximately two and a half-mile-long APE lies entirely within Washington County. A map of the APE is enclosed for your review and concurrence (Enclosure A).

Historic Properties

Historic properties within the APE include the Chesapeake and Ohio Canal (C&O Canal), which is listed in the National Register of Historic Places on August 9, 1979. Features of the canal within the proposed project area include locks 51 and 52 including the bypass flumes for each lock, the Tonoloway Aqueduct, the canal walls, intake and outfall structures, and the ruins of the Bowles Property Bank Barn.

Additionally, the Bowles Little House is within the APE and has been determined eligible for listing in the National Register. Archeological resources may be associated with the Bowles Little House and in support of the proposed undertaking to restore canal operations; NPS proposes to conduct archeological investigations later this year or in the spring of 2011. A research design will be forwarded to your office prior to the commencement of archeological work.

The canal at Hancock retains many important features that represent the development, growth, and decline of the C&O Canal over a one-hundred year period from 1828 to 1924. Surviving features represent the evolution of a rural landscape spanning the opening of the canal at Hancock in 1839 to the closing of the canal in 1924. Both the canal and its setting at Hancock retain integrity of location, design, setting, materials, workmanship, feeling and association.

The canal prism and the associated historic properties meet National Register Criterion A because the canal is associated with events that have made a significant contribution to the broad patterns of American History, specifically the transportation, agricultural, and social history of both Hancock and the entire canal. The landscape of Hancock and its historic properties meet Criterion B because of the canal's important association with local agricultural community. Historic resources of the canal and the Hancock landscape meet

Criterion C because the canal reflects an important work of engineering and provides insights into nineteenth-century canal construction in the United States. Finally the canal landscape and features at Hancock meet Criterion D because limited archeological investigation of the C&O Canal and environs in the Hancock vicinity have yielded and continue to yield important historic and prehistoric information.

As your office is aware, the NPS recently completed a three-year archeological survey of the central 64 miles of the C&O Canal. The investigation was conducted by The Louis Berger Group, Inc. in Washington, DC under contract to NPS, National Capitol Region. Archeological field work and investigation occurred from 2005 through 2007. In support of the proposed undertaking to restore canal operations at Hancock, the NPS proposes to conduct archeological investigation of the APE for the Hancock project later this year.

Environmental Assessment

NPS is preparing an Environmental Assessment (EA) to evaluate effects of the proposed project, in accordance with the National Environmental Policy Act (NEPA) of 1969. The NPS plans use the NEPA process to involve the public regarding the effect the undertaking would have on historic properties and to take into account the views of the public. The first public meeting took place on August 25, 2010. A copy of the draft EA will be provided to your office for review when it becomes available. We are requesting to combine the Assessment of Effect into the same document as the Environmental Assessment.

If there are any questions or if there is a need for additional information please contact our park Historian, Ahna Wilson, at ahna_wilson@nps.gov or phone number 301-714-2236.

Sincerely,

Kevin Brandt
Superintendent

Enclosures:

A Area of Potential Effect Map

cc: w/copy enclosures

Louise Brodnitz
Office of Federal Agency Programs
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 809
Washington, DC 20004

Enhancing Visitor Experience at Hancock, MD
Chesapeake and Ohio Canal National Historical Park
SHPO Consultation
Page 3 of 3
August 3, 2010



United States Department of the Interior

NATIONAL PARK SERVICE
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740

IN REPLY REFER TO:

D22-CHOH-DSC PEPC26516

September 21, 2011

Ms. Elizabeth Cole, Administrator
Project Review and Compliance
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

Subject: Enhancing the Visitor Experience at Hancock, MD
Milepost 122.59 to Milepost 124.10
Chesapeake & Ohio Canal National Historical Park

Dear Ms Cole:

As you know from our letter of September 2, 2010, the National Park Service is planning to Enhance the Visitor Experience at Hancock, MD, milepost 122.59 to milepost 124.10 in the Chesapeake & Ohio Canal National Historical Park, Washington County, Maryland. In our letter of September 2, we outlined the undertaking and indicated that we will be conducting an archaeological survey of the Area of Potential Effect.

We have been continuing work on the supporting studies for the Environmental Assessment, one of which is an archeological study of the Area of Potential Effects (APE). We are herewith providing a copy of that report (*Phase I Archeological Survey for Enhancing the Visitor Experience at Hancock, Milepost 122.59 to 124.10, Chesapeake & Ohio Canal National Historical Park*, prepared by New South Associates, August 2011) for your review. With the completion of the archeological study, we seek your concurrence regarding the National Register eligibility of the archeological resources in the APE, so that we may proceed to the next step in the Section 106 process.

Thank you for your time and review of this report. We look forward to your comments. If you have any questions or you need additional information, please contact Cultural Resource Program Manager, Sam Tamburro directly at 301-714-2211.

Sincerely,


FK Kevin D. Brandt
Superintendent

Enclosure

APPENDIX B-2: AGENCY RESPONSES

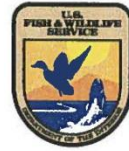
B-2.1 Natural Resources



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>



June 12, 2013

U. S. Department of the Interior
National Park Service
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, MD 21740

Handwritten notes:
CIS Gld
for
Michelle
KB
6/14/13
John H.
6/20/13



*RE: Improve the Visitor Experience, Rehabilitate and Restore Historic Structures at
Hancock MD*

Dear Kevin D. Brandt:

This responds to your letter, received April 23, 2013, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

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

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on



August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

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

<http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>

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

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

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Trevor Clark at (410) 573-4527.

Sincerely,

A handwritten signature in dark ink, reading "G. LaRouche". The signature is written in a cursive, flowing style.

Genevieve LaRouche
Supervisor



MARYLAND
DEPARTMENT OF
NATURAL RESOURCES



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
Joseph P. Gill, Secretary
Frank W. Dawson III, Deputy Secretary

June 12, 2013

Mr. Kevin D. Brandt
National Park Service
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, MD 21740

6/18
Chris
KB
Michelle
John H.
9/28/13

RE: Environmental Review for Proposed Rehabilitation and Rewatering Sections of C&O Canal Prism from Little Pool to Route 522, and Rehabilitate the Little House near Hancock, Washington County, Maryland.

Dear Mr. Brandt:

The Wildlife and Heritage Service has determined that there are the following State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated:

The area of the Potomac River at the confluence of Tonoloway Creek supports an occurrence of the Atlantic Spike (*Elliptio producta*), a freshwater mussel species with In Need of Conservation status in Maryland. Freshwater mussels require fish hosts for part of their life cycle and are filter-feeders; therefore water quality is crucial to their continued existence. We would encourage the applicant to observe strict sediment and erosion control measures during any work in this area.

In the area of Little Pool, there are records for the Atlantic Spike and the state-listed endangered Brook Floater (*Alasmidonta varicosa*). Again, we would like to emphasize the need for stringent sediment and erosion control best management practices during any work, to reduce the likelihood of adverse impacts to the water quality where these freshwater mussels occur.

Also in the Little Pool area, there are records of the following rare, threatened or endangered plants:

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>
<i>Ptilmnum nodosum</i>	Harperella	Endangered, also Federally-listed
<i>Carya lacinosa</i>	Big Shellbark Hickory	Endangered
<i>Matteucia struthiopteris</i>	Ostrich Fern	Rare
<i>Diarrhena americana</i>	Twin-oats	Globally Rare

The Harperella is from an introduced population and is associated with a section of the canal approximately 0.7 miles west of Little Pool. The Big Shellbark Hickory record describes a small population of trees located near the southwest end of Little Pool, in upland floodplain forest. The Ostrich Fern is located in two sub-populations located approximately ¼-mile apart, in the floodplain forest across from Hollow Road. The Twin-oats occurs in floodplain forest habitat on alluvial soils, and is located near Millstone along the Potomac River.

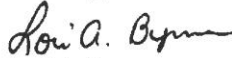
Any work proposed for these areas should be planned so as to avoid impacting these occurrences directly, and we also recommend avoidance of further forest fragmentation and further spread of invasives as the work proceeds.

In addition, our analysis of the information provided also suggests that the forested area on or adjacent to the project site contains Forest Interior Dwelling Bird habitat. Populations of many Forest Interior Dwelling Bird Species (FIDS) are declining in Maryland and throughout the eastern United States. The conservation of FIDS habitat is strongly recommended by DNR. The following guidelines will help minimize the project's impacts on FIDS and other native forest plants and wildlife:

1. Avoid placement of new utility trails or related construction in the forest interior. If forest loss or disturbance is absolutely unavoidable, restrict development to the perimeter of the forest (i.e., within 300 feet of the existing forest edge), and avoid line placement in areas of high quality FIDS habitat (e.g., old-growth forest). Maximize the amount of remaining contiguous forested habitat.
2. Do not remove or disturb forest habitat during April-August, the breeding season for most FIDS. This seasonal restriction may be expanded to February-August if certain early nesting FIDS (e.g., Barred Owl) are present.
3. Maintain forest habitat as close as possible to the trail, and maintain canopy closure where possible.
4. Maintain grass height at least 10" during the breeding season (April-August).

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
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER # 2013.0609.wa
Cc: D. Feller, DNR

B-2.2. Cultural Resources



*Maryland Department of Planning
Maryland Historical Trust*

*Martin O'Malley
Governor*

*Anthony G. Brown
Lt. Governor*

*Richard Eberhart Hall
Secretary*

*Matthew J. Power
Deputy Secretary*

October 4, 2010

Kevin Brandt, Superintendent
C&O Canal National Historical Park
National Park Service
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740

*received
12/5/2010*

Re: Enhancing Visitor Experience at Hancock
MD Milepost 122.12 – 124.59
Chesapeake and Ohio Canal National Historical Park
Washington County, Maryland
Section 106 Review – NPS

Dear Superintendent Brandt:

Thank you for your recent letter initiating consultation with our office regarding the above-referenced project. The letter was dated September 2, 2010 and received by the Maryland Historical Trust (Trust) on September 7, 2010. The Trust, Maryland's State Historic Preservation Office, will be reviewing the proposed undertaking to assess its effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and in accordance with the NPS Nationwide Programmatic Agreement. We appreciate early notification of this initiative and look forward to working with NPS to successfully complete the Section 106 review as project planning progresses.

According to your letter, the project will entail various actions to enhance the park visitor experience in the Hancock section of the C&O Canal. The enhancements will address issues of accessibility, interpretive and recreational opportunities, and the preservation of historic features. Specific improvements may include preservation, restoration or rehabilitation of lock structures and canal walls; possible rewatering of sections of the canal; rehabilitation of the Bowles (Little) Farmhouse for visitor services and staff use; widening of the Bowles House entrance road; restructuring of parking and picnicking areas; relocating maintenance facilities; and site and landscaping work. This important project will enhance the visitor experience and provide for the appropriate preservation treatment of historic canal features. NPS intends to use the NEPA process to help fulfill public involvement and Section 106 requirements.

As noted in your letter, the Hancock section of the C&O Canal contains many historic properties including Locks 51 and 52, bypass flumes, the Tonoloway Aqueduct, canal walls, intake and outfall structures, the ruins of the Bowles Property Bank Barn, the Bowles Little House, as well as archeological resources. NPS will be undertaking an archeological survey and evaluation within the project's area of potential effects (APE). We will be happy to review a copy of the research design for the archeological work and resulting draft report, when available.

We await receipt of the draft Environmental Assessment, more detailed project plans, the draft archeology report, and other relevant information for this project, when the materials are produced. As project planning proceeds, we request a site visit of the project area in order for our staff to gain a better understanding of the project and multiple resources involved.

100 Community Place • Crownsville, Maryland 21032-2023
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Kevin Brandt
Enhancing Visitor Experience at Hancock
C&O Canal National Historical Park
October 4, 2010
Page 2 of 2

As noted in your letter, further consultation among NPS, the Trust, and any other involved parties will be necessary to successfully complete the Section 106 review of this undertaking. Given the presence of significant historic and archeological properties in the APE, NPS will need to carefully consider project alternatives that avoid and minimize any adverse effects to those resources. We look forward to meeting with your staff and participating in a site visit once NPS completes conceptual plans for the efforts. To facilitate consultation, we request the following information, when available:

- Conceptual and/or preliminary plans for the various actions proposed as part of the enhancement project at Hancock;
- Discussion of the alternatives NPS has considered to avoid and minimize any adverse effects; and
- NPS's assessment of the project's effects on historic and archeological properties.

We look forward to further coordination with NPS and other consulting parties to successfully complete the Section 106 consultation. If you have questions or require further assistance, please contact Jonathan Sager (for historic structures and landscapes) at 410-514-7636 \ jsager@mdp.state.md.us or Beth Cole (for archeology) at 410-514-7631 \ bcole@mdp.state.ms.us. Thank you for providing us this opportunity to comment.

Sincerely,



Jonathan Sager
Preservation Officer
Maryland Historical Trust

EJC/JES
201004103
cc: Ahna Wilson (NPS C&O)

Maryland Department of Planning
Maryland Historical Trust

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

October 19, 2011

Kevin Brandt, Superintendent
C&O Canal National Historical Park
National Park Service
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740

Re: Enhancing the Visitor Experience at Hancock
MD Milepost 122.59 – 124.10
C & O Canal National Historical Park
Washington County, Maryland
Section 106 Review – NPS

Dear Superintendent Brandt:

Thank you for your recent letter, dated September 21, 2011 and received by the Maryland Historical Trust (Trust) on September 26, 2011, regarding the above-referenced project.

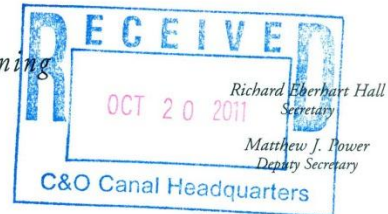
Your correspondence provided the Trust with a copy of the report on the initial Phase I archeological survey NPS conducted for this undertaking, for review and comment. We appreciate the efforts NPS has taken to initiate archeological investigations during early planning for the project. The Trust reviewed the submitted information pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. We offer the following comments regarding the archeological work and await further coordination with NPS as planning proceeds.

Trust staff reviewed the following draft report, prepared for NPS by New South Associates: *Phase I Archeological Survey for Enhancing the Visitor Experience at Hancock, Milepost 122.59 to 124.10, Chesapeake & Ohio Canal National Historic Park, Washington County, Maryland* (Botwick 2011). The report presents basic documentation on the goals, methods, results and recommendations of preliminary archeological investigations conducted as part of project planning for the proposed undertaking at Hancock. The draft report generally meets the requirements of the Trust's *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994). We have a few minor comments regarding the draft itself, and ask NPS to have the consultant address the following issues in the preparation of the final report:

1. Figure 1 should illustrate the project/survey areas as well as the locations of the newly identified sites on a full scale section of the USGS quadrangle.
2. The report should contain an overall site plan for the undertaking itself, that illustrates the existing conditions and resources in the area of potential effects. The aerial photograph NPS used in its EA scoping document would be appropriate to include.
3. The Phase I Results chapter should present a more detailed discussion of the recovered materials and include artifact tables or summaries, as well as illustrations.
4. The report should present the artifact inventories for the materials recovered by the investigations in an appendix.
5. The report should contain an appendix that documents the professional qualifications of the principal investigator/author.

Please provide us with two bound copies of the final report for our library, when available.

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Kevin Brandt
Enhancing Visitor Experience at Hancock
C&O Canal National Historical Park
October 19, 2011
Page 2

The survey identified two archeological sites within the areas investigated. Site 18WA590 includes a scatter of historic artifacts associated with the Bowles House and Bank Barn foundation, as well as a light scatter of prehistoric lithics. Site 18WA591 consists of the remains of the Rinehart Mill as well as a prehistoric component with lithic debitage and Woodland pottery found between 1 – 2 feet below the ground surface. We concur with the report's conclusions that further Phase II archeological investigations are necessary to determine the eligibility of these sites for the National Register of Historic Places as individual properties and as contributing resources to the C & O Canal National Historical Park. In addition, further Phase I testing is needed in the area of the water intake structure to assess the area's potential for containing buried cultural remains beneath the canal berm and historic alluvial deposits.

The Phase II effort must be sufficient to: a) identify the sites' vertical and horizontal boundaries; b) interpret the sites' cultural affiliations, functions, and significance; c) evaluate the sites' integrity; d) conclusively determine the sites' eligibility for the National Register of Historic Places; and e) define the need for further archeological work. The investigations should be undertaken by a qualified archeologist and performed in accordance with the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994). Based on the investigations' results, we will be able to determine whether or not the project will have an effect on National Register eligible archeological resources, and make appropriate recommendations. Implementation and review of the Phase II research should be closely coordinated with our office.

We look forward to further coordination with NPS and other consulting parties to successfully complete the Section 106 consultation for this important project. We await receipt of the draft Environmental Assessment, more detailed project plans, and other relevant information for this project, as the information becomes available. At some point, it will be helpful to have a site meeting and visit for our staff to gain a better understanding of the project and its involved resources. If you have questions or require further assistance, please contact Jonathan Sager (for historic structures and landscapes) at 410-514-7636 / jsager@mdp.state.md.us or me (for archeology) at 410-514-7631 / bcole@mdp.state.md.us.

Thank you for providing us this opportunity to comment.

Sincerely,



Beth Cole
Administrator, Project Review and Compliance

EJC/ 201103754

cc: Sam Tamburro (NPS C&O)



*Maryland Department of Planning
Maryland Historical Trust*

*Martin O'Malley
Governor*

*Anthony G. Brown
Lt. Governor*

*Richard Eberhart Hall
Secretary*

*Matthew J. Power
Deputy Secretary*

April 9, 2013

Kevin Brandt, Superintendent
C&O Canal National Historical Park
National Park Service
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740



Re: Restoration of Canal Operations at Hancock
MD Milepost 122.12 – 124.59
C & O Canal National Historical Park
Washington County, Maryland
Section 106 Review – NPS

Dear Superintendent Brandt:

Thank you for your recent letter, dated March 5, 2013 and received by the Maryland Historical Trust (Trust) on March 6, 2013, regarding the above-referenced project. The NPS submittal represents ongoing coordination pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, concerning the long-term planning efforts for the restoration of canal operations at Hancock. We offer the following comments and await further consultation with NPS to successfully complete the Section 106 components of the planning initiative.

Report on Phase I Archeological Survey: Your correspondence provided the Trust with a copy of the final report on the initial Phase I archeological survey NPS conducted for this undertaking: *Phase I Archeological Survey for Enhancing the Visitor Experience at Hancock, Milepost 122.59 to 124.10, Chesapeake & Ohio National Historic Park, Washington County, Maryland* (Botwick 2013). The report addresses the comments on the draft document presented in our prior letter dated October 19, 2011. As noted in the report, NPS will need to complete Phase II archeological evaluation of sites 18WA590 and 18WA591 to determine their eligibility for the National Register of Historic Places. In addition, further Phase I testing is needed in the area of the water intake structure to assess the area's potential for containing buried cultural remains beneath the canal berm and historic alluvial deposits. We understand that NPS plans to phase completion of the identification and evaluation of archeological resources as funding becomes available and they are able to proceed with design for the various components of the project.

Draft Programmatic Agreement: The recent NPS submittal also attached a draft Programmatic Agreement (PA) for the Hancock restoration of canal operations initiative. We understand that NPS intends to develop and implement the overall project in phases and plans to complete archeological investigations during subsequent planning and design for the individual components of the project that require further investigation, as funding becomes available. Thus, it is not yet possible to make an informed and definitive assessment of the effects of the entire project, or individual components, on historic and archeological properties based on the information available at this time. We appreciate the efforts NPS has taken to incorporate its historic preservation responsibilities into the planning process. Nevertheless, it is our opinion that development of a PA for the initiative as a whole is not warranted.

The overall project is preservation oriented and will promote the rehabilitation, restoration and active interpretation of multiple contributing resources to the C&O Canal, although certain elements have the potential to adversely impact historic and archeological resources. The implementation of individual components is not necessarily dependent on the other actions, and

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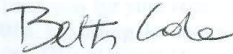


Kevin Brandt
Restoration of Canal Operations at Hancock
C&O Canal National Historical Park
April 9, 2013
Page 2 of 2

many of these components may function as standalone projects. As funding becomes available to design and implement specific projects, NPS may fulfill its Section 106 responsibilities under the Nationwide PA (NPA), where applicable, or through the standard review process under 36 CFR Part 800. NPS may elect to follow the standard review process even for actions that could fall under the NPA's streamlined process. We recommend that NPS continue to maintain close coordination with the Trust as planning proceeds for this initiative and as funding progresses for specific actions at Hancock. Although we do not believe a PA is needed, we remain open to further discussion on this topic if NPS wants to pursue the development of alternatives to the standard consultation process.

We look forward to further coordination with NPS and other consulting parties to successfully complete the Section 106 consultation for this important initiative as individual components move forward. If you have questions or require further assistance, please contact Jonathan Sager (for historic structures and landscapes) at 410-514-7636 / jsager@mdp.state.md.us or me (for archeology) at 410-514-7631 / bcole@mdp.state.md.us. Thank you for providing us this opportunity to comment.

Sincerely,



Beth Cole
Administrator, Project Review and Compliance

EJC/ JES
201301003

cc: Ahna Wilson (NPS C&O)
Michelle Carter (NPS C&O)

APPENDIX C: WETLAND STATEMENT OF FINDINGS

STATEMENT OF FINDINGS
FOR
EXECUTIVE ORDER 11990 (PROTECTION OF WETLANDS)

Restoration of Canal Operations at Hancock MP 122.12 to 124.59

Chesapeake & Ohio Canal National Historical Park
Washington County, Maryland

Recommended:

Superintendent, Chesapeake & Ohio
Canal National Historical Park

Date

*Certification of
Technical Adequacy
and Servicewide Consistency:*

Chief, Water Resources Division

Date

Approved:

Regional Director, Date
National Capitol Region

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LIST OF ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practices
C&O Canal NHP	Chesapeake and Ohio Canal National Historical Park
DO	Director's Order
EA Engineering	EA Engineering, Science, and Technology, Inc.
EO	Executive Order
MDE	Maryland Department of the Environment
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	National Resource Conservation Service
NWI	National Wetlands Inventory
PEM1	Palustrine, Emergent, Persistent
PEM1/2	Palustrine, Emergent, Persistent/Nonpersistent Wetland
PFO1	Palustrine, Forested, Broad-Leaved Deciduous
PM	Procedural Manual
R2SB4/5	Perennial Stream Channel
R4SB4/5	Intermittent Stream Channel
SAV	Submerged Aquatic Vegetation
SOF	Statement of Findings
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

1.1 WETLANDS

Executive Order (EO) 11990: *Protection of Wetlands*, issued 24 May 1977, directs all federal agencies to avoid to the maximum extent possible the long- and short-term adverse impacts associated with the occupancy, destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. In the absence of such alternatives, parks must modify actions to preserve and enhance wetland values and minimize degradation.

To comply with EO 11990 within the context of the agency's mission, the National Park Service (NPS) has developed a set of policies and procedures found in *Director's Order (DO)#77-1: Wetland Protection* (NPS 2002) and *Procedural Manual (PM) #77-1: Wetland Protection* (NPS 2012a). These policies and procedures emphasize: 1) exploring all practical alternatives to building on, or otherwise adversely affecting, wetlands; 2) reducing impacts to wetlands whenever possible; and 3) providing direct compensation for any unavoidable wetland impacts by restoring degraded or destroyed wetlands on other NPS properties. If a preferred alternative would have adverse impacts on wetlands, a Statement of Findings (SOF) must be prepared that documents the above steps and presents the rationale for choosing an alternative that would have adverse impacts on wetlands.

2.0 PROJECT AREA

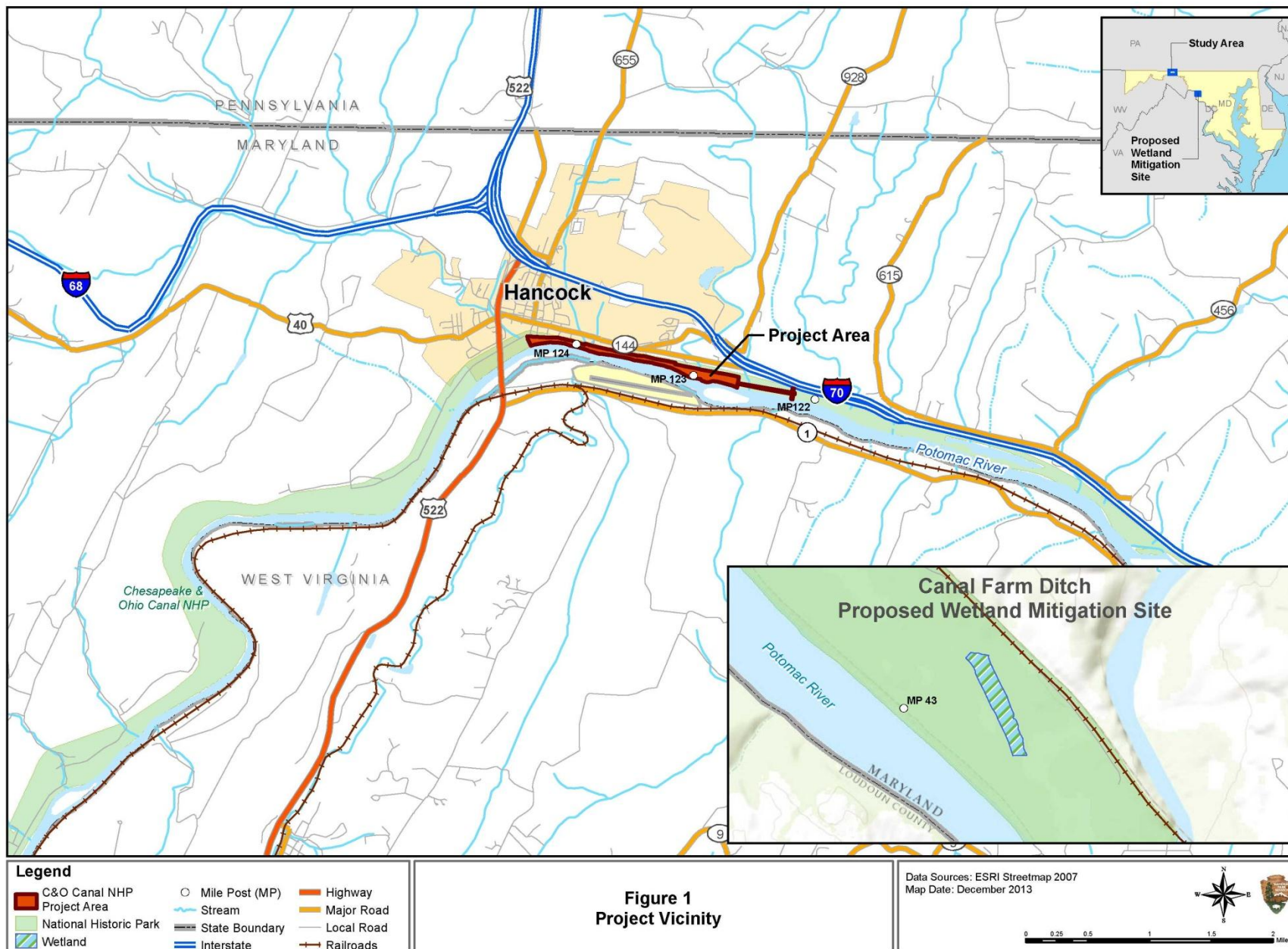
The Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP) is located along the Potomac River from the mouth of Rock Creek in Georgetown, Maryland upriver for 184.5 miles to Cumberland, Maryland in Allegheny County (Figure 1). The project area consists of two sites, the Hancock site and the wetland mitigation site. The Hancock site begins at Mile 122.12 and ends at Mile 124.59 of the towpath, along the Potomac River (Figure 2). This area includes Locks 51 and 52, the Bowles (Little) Farm, the Tonoloway Aqueduct, canal prism, canal boat basin, parking area at Little Tonoloway Picnic Area/Boat Ramp, and the park's maintenance compound. The project area is approximately 84 acres and follows the C&O Canal NHP towpath for approximately 2.5 miles. The area is bordered to the north by the town of Hancock and Main Street and to the south by the Potomac River. The project area is located within Washington County, Maryland. In addition, the project area includes an 11.42 acre site located at Mile 43 within the park. This site includes an artificially-drained wetland that is proposed for wetland mitigation for this project.

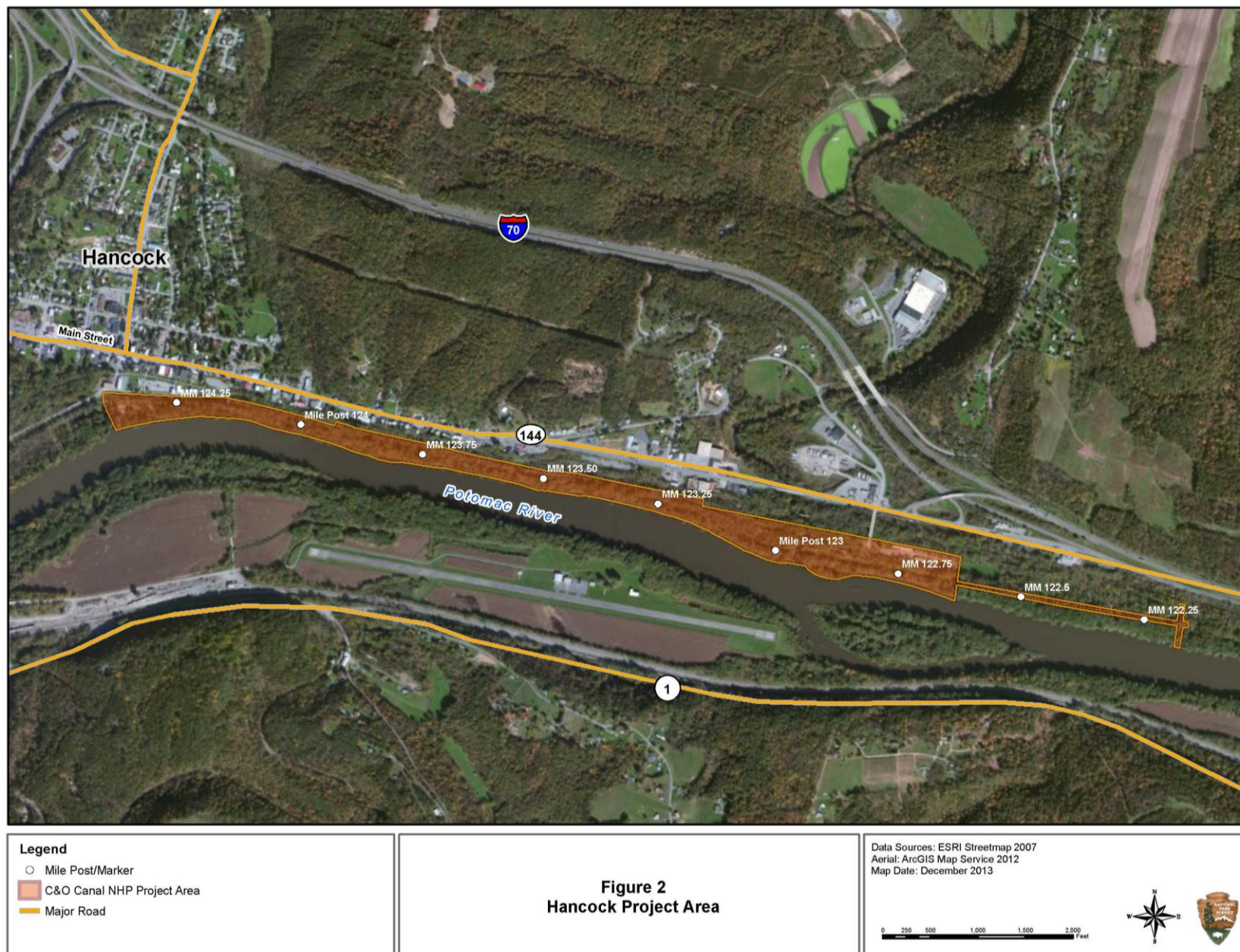
3.0 ALTERNATIVES

The purpose of this project is to improve the visitor experience and rehabilitate and restore the historic structures at the Hancock area. The proposed project would be undertaken in a phased approach and would include actions and project components characterized as canal operations, visitor experience, access roads, and maintenance as described below for each alternative.

3.1 ALTERNATIVE 1 – NO-ACTION ALTERNATIVE

The no-action alternative is required for the National Environmental Policy Act (NEPA) process to review and compare feasible alternatives to the existing conditions. Under the no-action alternative, the canal facilities at Hancock would continue to be maintained in their current conditions. The Tonoloway Aqueduct would remain partially collapsed and Locks 51 and 52 would remain non-functioning. In addition, the canal would remain vegetated and unwatered or unimproved between Lock 51 (Mile 122.12)





and the existing rewatered section (Mile 124.10-124.59). The Hancock Visitor Center would continue to operate within the first level of the Bowles House using temporary exhibits. The Bowles Property would continue to offer limited visitor services. The maintenance compound would remain in the current location at Bowles Farm. No changes would be made to the Tonoloway Picnic Area and Boat Ramp.

3.2 ALTERNATIVE 2 – PREFERRED ALTERNATIVE

Alternative 2, the preferred alternative, takes into account the recommendation of previous planning documents to rewater as much of the canal as possible and includes a complete rewatering of the canal prism in the Hancock area. It would provide the highest access to and interpretation of the canal of the alternatives analyzed. Under alternative 2 the following actions would occur:

3.2.1 Canal Operations

- The existing rewatered section (Mile 124.10 – 124.59) would be extended downstream to Lock 51 (Mile 122.12).
- Locks 51 and 52 would be made functional with repointing, selective repairs, and installation of gates.
- Bypass flumes and waste weirs would be made operational.
- Existing waste weir #22 and culvert #174 would be restored to allow for natural outfall to occur and canal operations.
- All work on the historic structures and canal prism would meet the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
- All trees within the canal prism and on the towpath embankment abutting the canal prism would be removed. No clearing would occur along the river-side embankment. A geotechnical investigation would be completed as part of the design process to evaluate the structural capability of the existing embankment to adequately retain water and the degree of stabilization required, if needed.
- If needed, the NPS would work with the Town of Hancock to upgrade the town's existing water intake and pump facility within the existing footprint to supply sufficient water to the expanded canal operations. If needed, the NPS would work with the Town of Hancock to upgrade the town's existing water intake and pump facility on the Potomac River within the existing footprint to supply sufficient water to the expanded canal operations. Although it is expected that the quantity of water needed to rewater proposed section of the canal at Hancock would be comparable to the proposed diversion at Williamsport of approximately several cubic feet per second, the actual diversion requirements at Hancock would be determined based on final design for the rewatered section of the canal. Any in-stream work would be in accordance with review and approval from federal and state review agencies. A portable dewatering system may need to be employed during construction for a small area of the Potomac River, less than 0.1 acre. An overflow pipe would be constructed through an above grade earthen dike below Lock 51 to allow water to be returned to the river a half mile downstream of Lock 51, at historic waste weir #22/culvert 174 (Mile 122.12). Untreated water would be discharged, as it was historically, into an existing drainage that leads to the Potomac River.
- The canal prism would be restored to historic specifications and a clay liner would be installed to provide a waterproof lining.

- The Tonoloway Aqueduct would be restored to carry the canal across the Tonoloway Creek. The towpath and parapet walls, as well as, the barrel vault would be preserved to provide sound stability. Restoration of the aqueduct would resemble the 1870s time period; however, global climate change is expected to increase rainfall intensity and duration leading to increase runoff. This increase would increase flooding within the watershed above the aqueduct. Because the aqueduct is historic, increasing the available open waterway is not an option; therefore, backwater would be increased as well as possible debris loads from the watershed. The replacement spandrel and parapet walls would require strengthening beyond what was historically constructed. The historic parapets were constructed of stone with a relatively weak lime based mortar. Typically the inner and outer parapet walls were constructed simultaneously, with the space between them filled with a low bonding material of puddling clay, sand and a weak lime mortar. The replacement parapet would contain reinforced concrete with a wood cladding or similar materials that would be many times stronger than the original construction thereby limiting the risk of structural failure.

3.2.2 Visitor Experience

- The Bank Barn would be stabilized and preserved as ruins as either short- or long-term preservation strategy.
- The second floor of the Bowles House, basement, and outbuildings would be rehabilitated and continue to house the Hancock Visitor Center. Permanent exhibits would be created and installed.
- The final preservation specifications to both the interior and exterior of the Bowles House, beyond the temporary work completed in 2010 would be completed. Rehabilitation of the Bowles house would mostly involve interior work and restoration of the smokehouse/wash house.
- The Bowles Farm cultural landscape would be reflective of the 1870s through opening views to the canal and river, as well as clearing areas for grassy meadows. These changes would result in a more appropriate setting for the house and farm buildings.
- The visitor parking area at Bowles Farm would be expanded into the current maintenance compound area. The substrate used for the parking lot addition would include a permeable surface treatment.
- A new cross over pedestrian bridge would be located at the Bowles House/Lock 52 area to connect the towpath to the Visitor Center. The bridge would also be designed to accommodate boat operations.
- NPS or concession operated launch boats would provide interpretive programs and connect the Bowles House to the Little Tonoloway area. Boat docks located at the Bowles House and Little Tonoloway would be constructed to accommodate operation. The boats would cross the Aqueduct and “lock through” Lock 52. A kiosk/operational booth would be constructed at Little Tonoloway.
- A walk-in campground with approximately 15 campsites would be established on approximately 2 acres within the existing maintenance compound. Limited utilities (water and sewer) would tie into lines that currently serve the maintenance compound.
- Improvements to the parking area for the Little Tonoloway Picnic Area/Boat Ramp would include formalizing an area currently used for parking for approximately 5 boat trailers. The surface of the boat parking lot would remain permeable.

- Work with the Town of Hancock to identify pedestrian access routes and possible improvement by the Town such as signing or striping of existing pavement along existing roadways from municipal parking lots.
- The ruins of the Little Warehouse and stone wall would be cleared of vegetation and stabilized.

3.2.3 Access Roads

- To improve visitor access to the Bowles Property, the existing single lane road from Route 144 into the park would be widened to two lanes along an approximate 0.1 mile section of the existing road.
- A new single lane maintenance access road would be constructed to replace the existing access road. The new access road would be relocated downstream of Lock 51, through existing woodlands. The access road would cross the canal prism on a dike with through pipes that would carry canal discharge water downstream to the outfall.

3.2.4 Maintenance

- The existing park maintenance compound which occupies approximately 2 acres is currently located within the 100-year floodplain on the former Bowles Farm Property. The park maintenance operations would be relocated to an area outside the floodplain, most likely within the town of Hancock. The park will evaluate possible future maintenance facility locations at such time as funding for the project becomes available. Park law enforcement offices would move from a temporary office trailer in the maintenance parking lot and co-locate within the new maintenance compound. The existing maintenance compound would be removed from Bowles Farm.

The preferred alternative includes a full rewatering of the historic canal between the Bowles Farm and the Tonoloway Boat Ramp area of the park (Miles 122.12-124.59). The project area incorporates the existing one-half mile of existing rewatered canal at the boat ramp area. The rewatering of the canal would enable replica canal boat interpretive programming, which would demonstrate the relationship between the Bowles Farm, the town of Hancock, and the C & O Canal to the visiting public.

3.3 ALTERNATIVE 3 – PARTIAL RE-WATERING OF CANAL PRISM

Alternative 3 includes a partial rewatering of the canal prism in the Hancock area and would include a moderate level of visitor interpretation and a high level of access to the canal through the addition of a campground as recommended by several previous planning documents (NPS 1976, 1989). An additional portion of the canal between Lock 51 and upstream of the Tonoloway Aqueduct would be rewatered (Miles 122.12 – 123), but the portion between the existing rewatered portion of the canal and the newly restored portion would remain unwatered and wooded. In the newly restored portion, locks, bypass flumes, and waste weirs would be made operational, and a new water intake would be installed in the Potomac River for the Lock 51 and 52 portion of the canal. The Tonoloway Aqueduct would be restored under alternative 3. A cross-over pedestrian bridge would be built at the Bowles House/Lock 52 Area, and a replica of a canal barge would be located in the Bowles House vicinity as an interpretive exhibit. An interpretive wayside to show the succession of natural resources over time would be constructed, and a walk-in campground would be established. This alternative would also include the construction of a new maintenance access road downstream of Lock 51. Table 1 below provides a comparison of the project components under each alternative. For a more detailed description of alternative 3, please see chapter 2 of the Environmental Assessment.

Table 1 . Project Components by Alternative

Project Components	Alternative 1 (No Action)	Alternative2 (Preferred)	Alternative 3	Alternative 4
Canal Operations				
Rewater Canal Mile 123 - 124.10 (Phase 2)		X		
Rewater Canal Mile 122.12 - 123 (Phase 2)		X	X	
Restore Operation of Locks 51 and 52 (Phase 1)		X	X	
Minimal Preservation of Locks 51 and 52 (Phase 1)				X
Restore Bypass Flume and Waste Weirs (Phase 1)		X	X	
Restore Canal Prism and Install Clay Liner (Phase 2)		X	X	
Install New Water Intake (Phase 2)			X	
Restore and Harden Tonoloway Aqueduct (Phase 2)		X	X	
Restore Existing Waste Weir #22 and Culvert #174 (Phase 2)		X	X	
Work on Historic Structures and Canal Prism will meet Secretary of Interior's Standards for the Treatment of Historic Properties (Phase 2)		X	X	X
Remove Trees within Canal Prism and adjacent Towpath (Phase 1)		X		
Update Town's Existing Water Intake and Pump Facility (Phase 2)		X		
Visitor Experience				
Preserve and Stabilize Bank Barn Ruins		X	X	X
Rehabilitate and Create/Install Permanent Exhibits at Bowles House for Visitor Center (Phase 1)		X	X	X
Cultural Landscape to Reflect the 1870s (Phase 2)		X	X	X
Formalize Pedestrian Access along Existing Roadways from Parking Lots (Phase 1)		X	X	X
Establish Walk-In Campground within Existing Maintenance Compound (Phase 2)		X	X	
Establish a Picnic Area within Existing Maintenance Compound (Phase 2)				X
Improve Parking Area for the Little Tonoloway Picnic Area/Boat Ramp (Phase 1)		X	X	X
Install boat dock at Bowles House and Little Tonoloway Picnic Area for operation of launch boats (Phase 2)		X		
Install New Pedestrian Bridge (Phase 2)		X	X	
Improve Natural Resources Interpretation (Phase 1)			X	

Project Components	Alternative 1 (No Action)	Alternative2 (Preferred)	Alternative 3	Alternative 4
Clear Vegetation and Stabilize the Ruins of the Little Warehouse and Stone Wall (Phase 1)		X	X	X
Maintenance				
Move Existing Maintenance Compound (Phase 2)		X	X	X
Expanded Visitor Parking (Phase 2)		X	X	X
Access Road				
Widen Access Road from Route 144 to Two Lanes (Phase 1)		X	X	X
Construct New Maintenance Access Road (Phase 2)		X	X	

3.4 ALTERNATIVE 4 – CLEARED/MOWED PRISM IMPROVEMENTS

Alternative 4 includes minimal preservation of canal features and minimal improvements to visitor interpretation, but would still be in keeping with previous planning documents for the Hancock area. The existing canal prism between the Tonoloway Aqueduct and Lock 51 would remain unwatered and mowed. No additional rewatering of the canal would occur. Locks 51 and 52 would receive minimal preservation stabilization. A picnic area would be established within the existing maintenance compound. No new access roads would be constructed. Table 1 below provides a comparison of the alternatives, and a more detailed description of alternative 4 can be found in chapter 2 of the Environmental Assessment.

4.0 DESCRIPTION OF WETLANDS IN THE PROJECT AREA

For the NPS, any area that is classified as a *wetland* according to the U.S. Fish and Wildlife Service's (USFWS) "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979) is subject to NPS DO #77-1: *Wetland Protection* (NPS 2002). Deepwater habitats are not subject to DO #77-1. Under the Cowardin definition, a wetland must have one or more of the following three attributes:

1. At least periodically, the land supports predominantly hydrophytes (wetland vegetation);
2. The substrate is predominantly undrained hydric soil; or
3. The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

The Cowardin wetland definition encompasses more aquatic habitat types than the definition and delineation manual used by the Corps of Engineers for identifying wetlands subject to Section 404 of the Clean Water Act. The 1987 *Corps of Engineers Wetlands Delineation Manual* requires that *all three* of the parameters listed above (hydrophytic vegetation, hydric soil, wetland hydrology) be present in order for an area to be considered a wetland (USACE 1987). The Cowardin wetland definition includes such wetlands, but also adds some areas that, though lacking vegetation and/or soils *due to natural physical or chemical factors* such as wave action or high salinity, are still saturated or shallow inundated environments that support aquatic life (e.g., unvegetated stream shallows, mudflats, rocky shores).

The soils in the project area are predominately Bigpool silt loam and Monogahela silt loam, but other soils found include Atkins silt loam, Klinesville-Calvin channery loams, Lindside silt loam, Philo gravelly sandy loam, and Pope gravelly loam (Table 2). According to the National Resource Conservation Service's (NRCS) Web Soil Survey for Washington County, six soil types exist in the vicinity of the project area that are listed as hydric and include the following: Atkins silt loam, Bigpool silt loam, Klinesville-Calvin channery loams, Lindside silt loam, Philo gravelly sandy loam, and Pope gravelly loam. Atkins silt loam is commonly found within floodplain areas, while Bigpool silt loam, Philo gravelly sandy loam, and Pope gravelly loam are commonly found in depressions (USDA NRCS 2010a; USDA NRCS 2010b). Monogahela silt loam is also found in the project area, but is not characterized as a hydric soil (USDA NRCS 2010b).

Table 2. Mapped Soil Types in Project Area

Soil Series	Symbol	Drainage Class	Hydric Soil?
Atkins silt loam	At	Poorly drained	Yes
Bigpool silt loam	Bp	Moderately Well Drained	Yes
Klinesville-Calvin channery loams	KcF	Well Drained	Yes
Lindside silt loam	Ln	Moderately Well Drained	Yes
Monogahela silt loam	MgC	Moderately Well Drained	No
Philo gravelly sandy loam	Ph	Moderately Well Drained	Yes
Pope gravelly loam	Po	Well drained	Yes

Source: USDA NRCS 2010a; USDA NRCS 2010b

The National Wetlands Inventory (NWI) of the USFWS produces information on the characteristics, extent, and status of the nation's wetlands and deepwater habitats. The USFWS definition of wetlands is similar to the NPS definition of wetlands in that only one of three parameters (hydric soils, hydrophytic vegetation, and hydrology) is required to characterize an area as a wetland, based upon the Cowardin Classification of Wetlands (Cowardin et al. 1979). The USFWS objective of mapping wetlands and deepwater habitats is to produce "reconnaissance-level information on the location, type and size of these resources" (USFWS 2010). NWI maps are prepared by the USFWS from the analysis of high altitude imagery and wetlands are identified based on vegetation, visible hydrology and geography. The NWI maps identify three NWI wetlands in the vicinity of but not within the project area, with the exception of the Potomac River. In the vicinity of Hancock, Maryland, the Cowardin Classification on the NWI maps for the Potomac River is a riverine, unknown perennial, unconsolidated bottom, permanently flooded wetland (USFWS 2010).

4.1 WETLAND FUNCTIONS AND VALUES

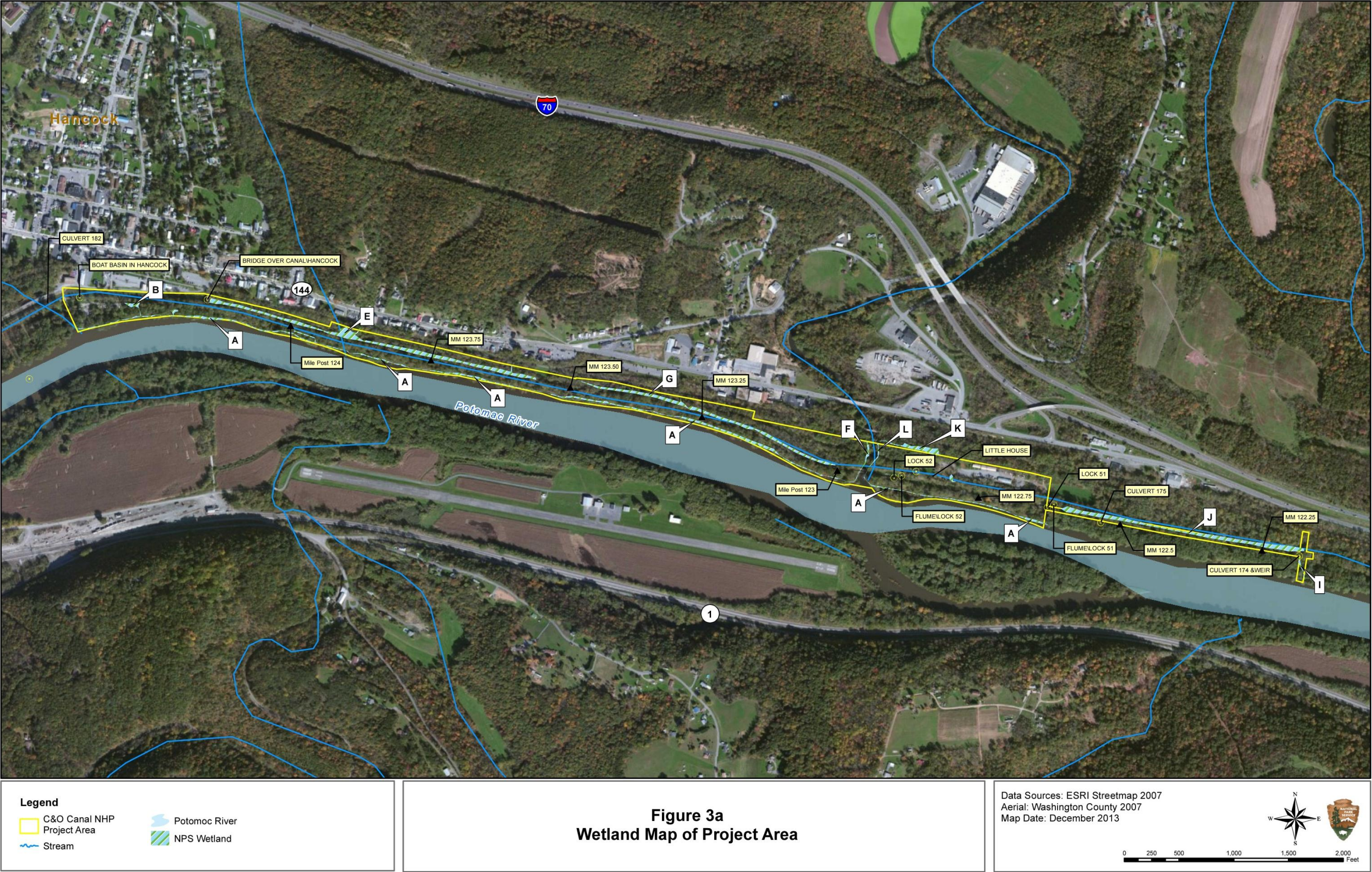
Wetlands serve a wide range of ecological functions. They are valuable as holding areas for rising floodwaters. Wetland vegetation reduces floodwater velocity and depletes its destructive energy, thereby protecting mainland and upland areas. Wetland vegetation also forms buffers against erosion by absorbing current and storm energy, stabilizing substrates, and trapping sediments. Filtration of sediments, nutrients, pollutants, and toxic substances has the added advantage of improving water quality. Wetland functions are physical, chemical, and biological processes or attributes of wetlands that are vital to the integrity of a wetland system, while wetland values are attributes not necessarily important to the integrity of a wetland system but perceived as valuable to society. A brief description of the common function and values is provided below:

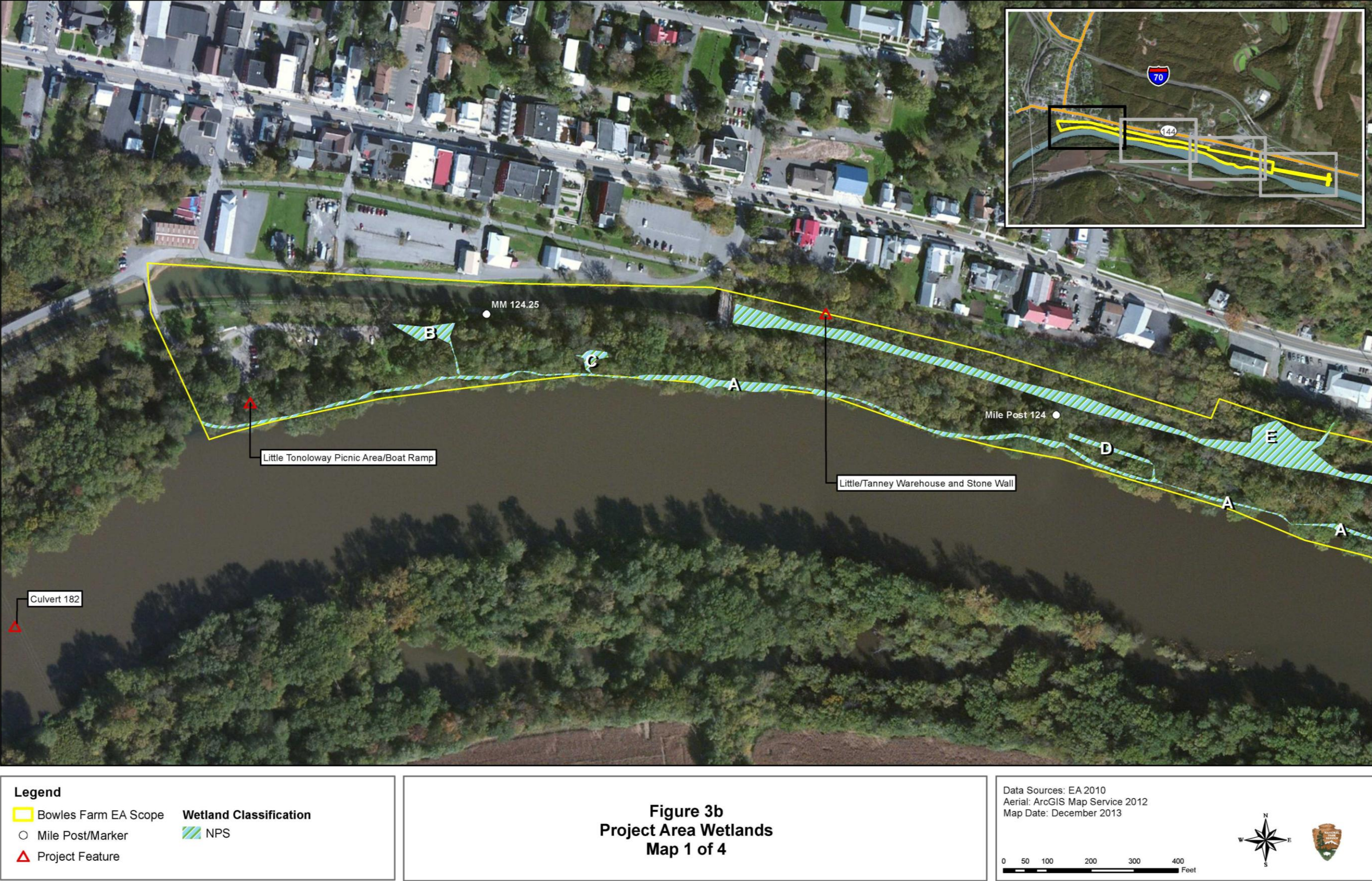
- **Groundwater recharge/discharge** — The potential for the wetland to contribute water to an aquifer or potential for the wetland to serve as an area where groundwater can be discharged to the surface.
- **Floodflow alteration (Storage & Desynchronization)** — Effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
- **Fish and shellfish habitat** — Effectiveness of seasonal or permanent water bodies associated with the wetland in question for fish and shellfish habitat.
- **Sediment/toxicant/pathogen retention** — Prevents degradation of water quality relating to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.

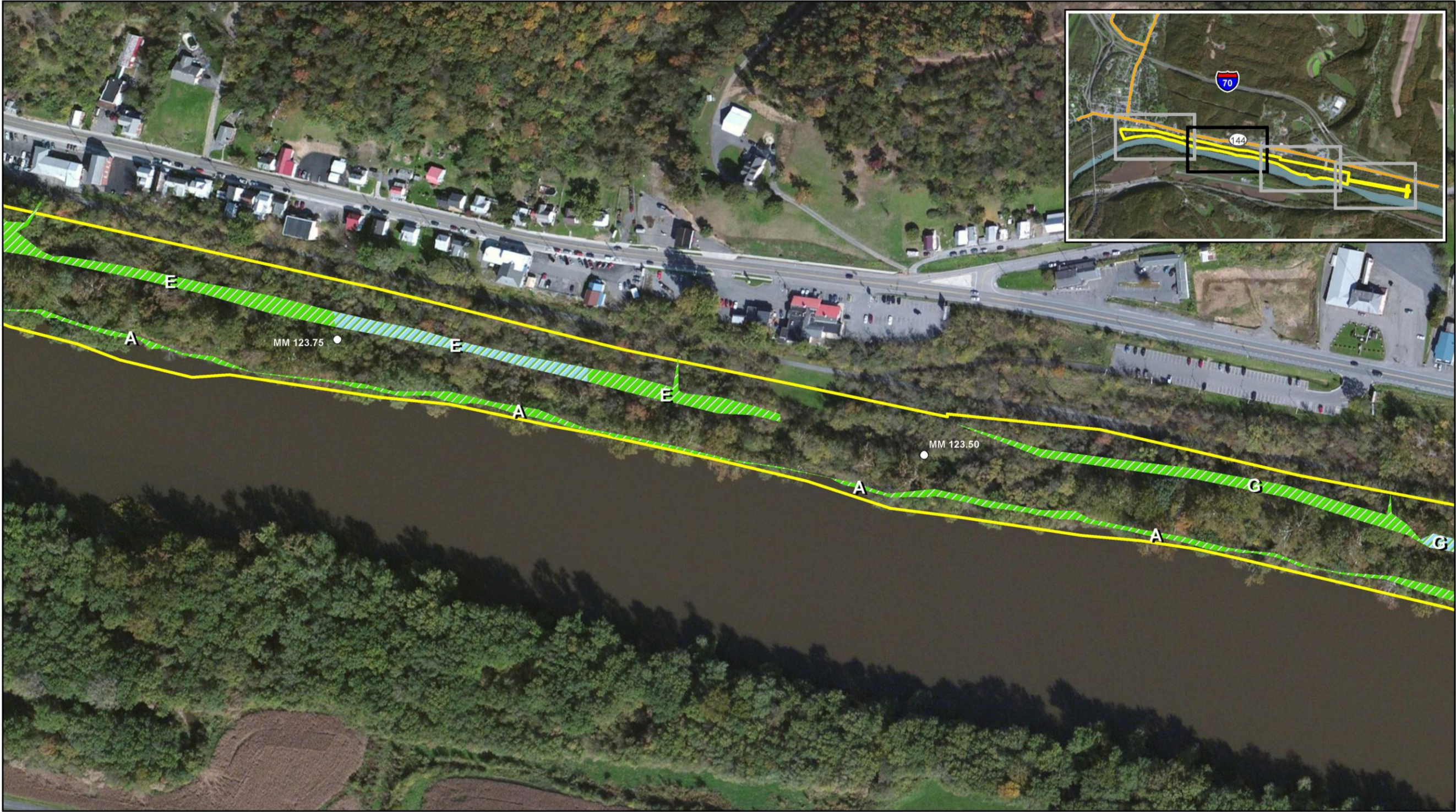
- **Nutrient removal/retention/transformation** — Ability for the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.
- **Production export (Nutrient)** — Wetlands ability to produce food or usable products for humans or other living organisms.
- **Sediment/shoreline stabilization** — Effectiveness of a wetland to stabilize stream banks and shorelines against erosion.
- **Wildlife habitat** — The wetlands ability to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.
- **Recreation (Consumptive and Non-Consumptive)** — Ability for the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.
- **Educational/scientific value** — Value of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
- **Uniqueness/heritage** — Ability for the wetland or its associated water bodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.
- **Visual quality/aesthetics** — The presence of visual and aesthetic qualities of the wetland for society.

4.2 WETLAND DELINEATION AND FUNCTION/VALUE ASSESSMENT

In addition to reviewing the NWI maps, a wetland delineation was also conducted at the project area. In July 2010, EA Engineering, Science, and Technology, Inc. (EA Engineering), delineated all natural and artificial wetlands in the project area according to the guidance in NPS DO #77-1 without regard to regulatory jurisdiction (EA Engineering 2010). This wetland delineation was conducted by a wetland delineator (Sarah T. Koser) who has received a certificate of training from a recognized wetland delineation training provider, has over 12 years of wetland delineation experience, and is now a Professional Wetland Scientist certified by the Society of Wetland Scientists Certification Program. Wetlands were identified in accordance with the 1987 Corps of Engineers Wetland Delineation Manual (USACE 1987) and in conjunction with USFWS’s Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). The area that was surveyed for wetlands included the canal prism on both sides of the canal from park Mile 122.12 to Mile 124.59 (approximately a 100-foot wide corridor) which included the shoreline of the Potomac River, the Tonoloway Boat Ramp and Picnic Area east to the Old 522 Bridge, and the canal prism on both sides of the canal from Lock 51 east to Culvert 174. A total of 10 wetlands (wetlands A through L) were identified and flagged during the survey. In general, wetlands at the site are located along the Potomac River, along tributaries to the Potomac River, and within the historic C&O Canal. Two small stream channels were also mapped that did not have associated wetlands beyond the channels. The majority of the wetlands at the site are forested wetlands with a mature tree canopy. Wetlands A through L are described briefly in the paragraphs that follow, in table 3 and in figures 3a-d. Wetlands shown on figures 3a-d meet the NPS definition of a wetland described above. Some of these wetland areas may also meet the definition of the USACE wetlands/waters of the U.S. A USACE jurisdictional determination will be completed during the project design phase.







Legend

- Bowles Farm EA Scope
- Mile Post/Marker

Wetland Classification

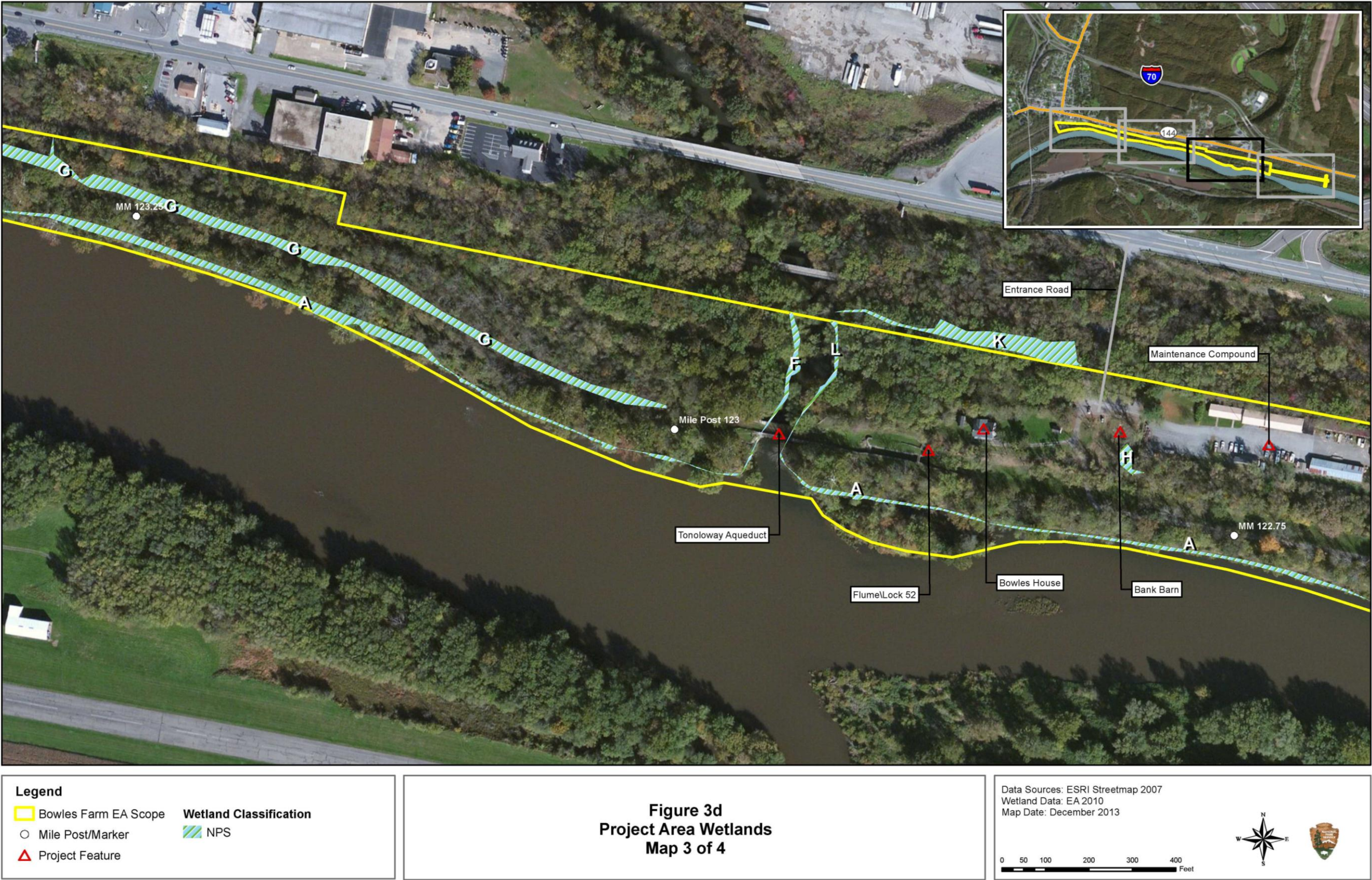
- NPS

Figure 3c
Project Area Wetlands
Map 2 of 4

Data Sources: EA 2010
Aerial: ArcGIS Map Service 2012
Map Date: December 2013

0 50 100 200 300 400 Feet





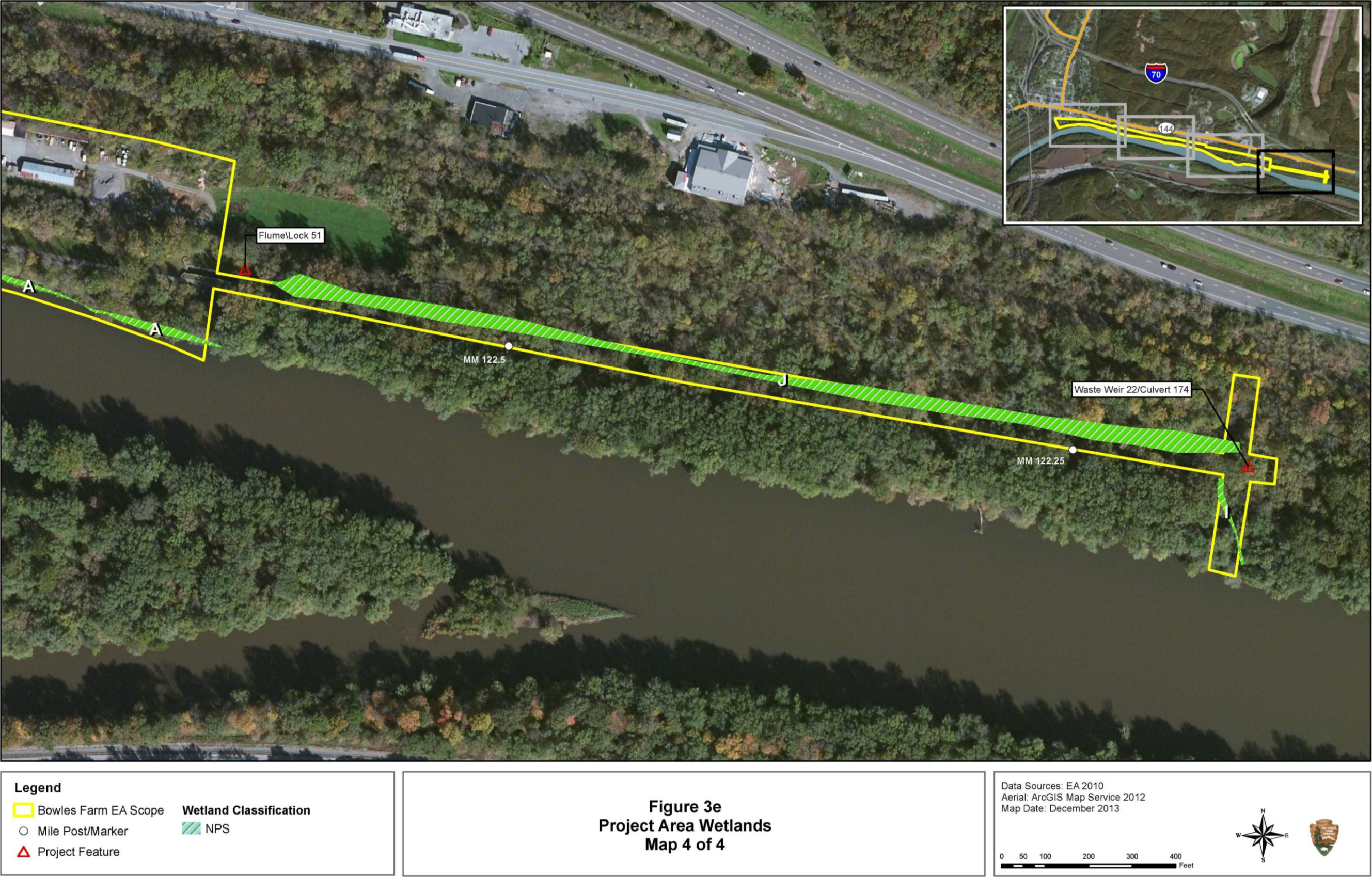


Table 3. Emergent and Forested Wetlands Delineated in the Project Area

Delineated Feature	Resource/Cowardin Classification*	Acres
Wetland A	PFO1/PEM1	1.75
Wetland B	PFO1	0.08
Wetland C	PFO1	0.03
Wetland D	PFO1	0.04
Wetland E	PFO1	1.91
Wetland G	PFO1	1.14
Wetland H	PFO1	0.04
Wetland J	PFO1	1.44
Wetland K	PFO1	N/A - Outside of Project Area
Wetland L	PEM1/2	0.04
TOTAL WETLANDS IN PROJECT AREA		6.47

*PFO1/PEM1 = perennial stream shoreline with emergent/forested wetlands; PFO1 = forested wetland
 PEM1/2 = emergent wetland

In addition to the standard wetland delineation methods, EA Engineering personnel performed a Function and Value Assessment of the wetlands delineated within the study area. EA Engineering utilized the methodology from the New England District of the USACE, *The Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach*. Generally the wetlands delineated onsite have the primary function of groundwater recharge and provide suitable habitat for wildlife. During the wetland delineation effort, a wide range of wildlife species or evidence of species presence was observed. Wetland values are attributes not necessarily important to the integrity of a wetland system but perceived as valuable to society and are described for each delineated wetland in the paragraphs that follow. Descriptions for wetlands A through L as well as functions and values are included in the paragraphs that follow, in table 3 below, and in figures 3a-d.

4.3 DESCRIPTION OF WETLANDS IN THE PROJECT AREA

Wetland A: Wetland A is a mosaic system of narrow wetlands located along the shoreline of the Potomac River from the Tonoloway Boat Ramp at the western-most portion of the project area to Lock 51, the eastern-most portion of the project area along the Potomac River. This wetland was identified as a rocky shoreline consisting of pockets of forested and emergent wetlands located above the ordinary high water mark of the Potomac River and is classified as a palustrine, forested, broad-leaved deciduous/palustrine, emergent, persistent (PFO1/PEM1) wetland. Wetland A consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of silver maple (*Acer saccharinum*), boxelder (*Acer negundo*), and sycamore (*Platanus occidentalis*) along a narrow portion of the shoreline of the Potomac River; understory herbaceous areas were dominated by smallspike false nettle (*Boehmeria cylindrica*). Small pockets of herbaceous wetland areas also exist within wetland A where suitable substrate accumulates, thus supporting hydrophytic vegetation such as lizard's tail (*Saururus cernuus*), water willow (*Justicia americana*), and common three-square sedge (*Scirpus americanus*). In the immediate shoreline areas of shallow water (beyond project area), three species of submerged aquatic vegetation (SAV) were also observed and included: hydrilla (*Hydrilla verticillata*), wild celery (*Vallisneria spiralis*), and water stargrass (*Heteranthera dubia*). The soils within wetland A are listed on both the National and local hydric soils list by USDA. At least two of the following wetland hydrology indicators were observed in the four areas sampled within wetland A: inundation, saturation in the upper 12 inches,

water marks, drift lines, sediment deposits, and drainage patterns. The source of hydrology for wetland A appeared to be water level fluctuations of the Potomac River. The primary function of wetland A appeared to be *Sediment/Shoreline Stabilization* due to the narrow areas of vegetation protection along shoreline, although extremely steep adjacent slopes occur immediately inland. Secondary functions included: *Floodflow Alteration* (due to location within the floodplain of the Potomac River), *Fish and Shellfish Habitat* (due to proximity to the Potomac River shoreline, particularly in areas inhabited by SAV species where snails and crayfish were observed), and secondary values included: *Wildlife Habitat* (the riverine portion of Potomac River provides excellent wildlife value, particularly for fish and aquatic bird species). This wetland also had the following values, generally due to its location within a National Historical Park: *Educational/Scientific Value*, *Uniqueness/Heritage*, and *Visual Quality/Aesthetics*.

Wetland B: Wetland B is a small, forested wetland (PFO1) with an herbaceous understory that exists as a depressional area between the canal and the Potomac River; a small drainage swale connects wetland B to the Potomac River. The source of hydrology for wetland B appeared to be runoff from the nearby parking lot and towpath and potentially from groundwater as well. Wetland B consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of silver maple, boxelder, and sycamore; the shrub layer was dominated by spicebush (*Lindera benzoin*), the vine layer was dominated by Japanese honeysuckle (*Lonicera japonica*), and the herbaceous understory was dominated by jewelweed (*Impatiens capensis*) and moneywort (*Lysimachia nummularia*). The soils within wetland B are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland B: saturation in the upper 12 inches, drainage patterns, and oxidized root channels in the upper 12 inches. The primary function of wetland B appeared to be *Groundwater Recharge/Discharge* due to groundwater seeping out of the ground and providing hydrology for the wetland. Secondary values included: *Wildlife Habitat* and *Uniqueness/Heritage* (generally due to its location within a National Historical Park). It is important to note that this wetland supports a state endangered sedge species known as Short's sedge (*Carex shortiana*). The Environmental Assessment discusses Special-Status Species in detail.

Wetland C: Wetland C is a small, forested wetland (PFO1) with an herbaceous understory that exists as a depressional area beyond the shoreline of the Potomac River but within the riparian/floodplain area of the river; a small drainage swale connects wetland C to the Potomac River. During the field review ground water was observed seeping out of the river bank of the Potomac River directly below wetland C. Only a small portion of this wetland was identified to contain hydric soils. Wetland C consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of boxelder and silver maple; the herbaceous understory was dominated by Japanese knotweed (*Polygonum cuspidatum*), jewelweed, wingstem (*Verbesina alternifolia*), silver maple and Japanese stiltgrass (*Microstegium vimineum*). The soils within wetland C are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland C: saturation in the upper 12 inches, inundation, drainage patterns, and oxidized root channels in the upper 12 inches. The source of hydrology for wetland C appeared to be from both runoff and groundwater. Therefore, the primary function of wetland C appeared to be *Groundwater Recharge/Discharge* due to ground water observed seeping out of the river bank of the Potomac River directly below wetland C. Secondary functions included *Sediment/Shoreline Stabilization* and secondary values included *Wildlife Habitat*.

Wetland D: Wetland D is a very narrow, forested wetland (PFO1) with an herbaceous understory that exists as a depressional area beyond the shoreline of the Potomac River but within the riparian/floodplain area of the Potomac River; a small drainage swale connects wetland D to an unnamed tributary to the Potomac River. Wetland D consisted of some hydrophytic vegetation (exactly 50 percent, not greater than 50 percent) with an overstory dominated by mature specimens of boxelder; and herbaceous species in the understory consisting of Japanese knotweed, dames rocket (*Hesperis matronalis*), ground ivy (*Glechoma hederacea*), garlic mustard (*Alliaria petiolata*), and Japanese stiltgrass. The soils within

wetland D are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland D: water marks, drift lines, and drainage patterns. Because of the presence of hydrology, sporadic wetland vegetation, and a defined connection to a nearby stream channel, this area was identified as a NPS wetland. The source of hydrology for wetland D appeared to be from both runoff and groundwater. However, the primary function appeared to be *Floodflow Alteration* because this area is a topographic depression and described as a vegetated drainage swale. Secondary functions included *Groundwater Recharge/Discharge*.

Wetland E: Wetland E is a narrow, forested wetland (PFO1) with an understory that is herbaceous in some areas and bare in other areas within the historic C&O Canal. This area has been historically disturbed due to the excavation and construction of the C&O Canal. Although this disturbance occurred in the 1830s, the canal has generally been left fallow since 1924. Wetland E consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of boxelder and slippery elm (*Ulmus rubra*); the vine layer was dominated by riverbank grape (*Vitis riparia*) and the herbaceous layer was dominated by Japanese knotweed, moneywort, fox sedge (*Carex vulpinoidea*), lizard's tail, and awlfruit sedge (*Carex stipata*). The soils within wetland E are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland E: water marks, drift lines, and drainage patterns. Although standing water was not observed in the canal during the July 2010 wetland delineation, standing water was observed in the canal during the spring terrestrial plant survey that was conducted in early June 2010. Noteworthy observations at wetland E included two wood turtles (*Clemmys insculpta*) observed within the canal during the July 2010 wetland delineation and three wood turtles observed within the canal during the June 2010 terrestrial plant survey. The primary value of this wetland was *Wildlife Habitat* due to the presence of numerous wood turtles observed in the wetland. The location of the wetland within the C&O Canal, also indicates that *Uniqueness/Heritage* is a primary value of wetland E. Secondary functions included: *Groundwater Recharge/Discharge*, *Floodflow Alteration* as well as *Sediment/Toxicant Retention* and *Nutrient Removal* (due to observations of culverts with runoff from highways that flow into the canal). Secondary values included: *Recreation*, *Educational/Scientific Value*, and *Visual Quality/Aesthetics*.

Riverine Wetlands F and I: Wetland F consists of a riverine wetland described as a perennial stream channel (R2SB4/5) identified as Tonoloway Creek from the Potomac River and inland until outside of the project area. Wetland I is a riverine wetland described as a narrow intermittent stream channel (R4SB4/5) with a forested overstory (beyond the stream channel) that is an unnamed tributary to the Potomac River. There are no impacts expected to riverine wetlands F or I; these stream channels are therefore not discussed further in this document.

Wetland G: Wetland G is a narrow, forested wetland (PFO1) with an understory that is herbaceous in some areas and bare in other areas within the historic C&O Canal. Similar to wetland E, this area has been historically disturbed due to the excavation and construction of the C&O Canal. Wetland G consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of boxelder and slippery elm; the vine layer was dominated by riverbank grape and the herbaceous layer was dominated by clearweed (*Pilea pumila*), smallspike false nettle, nodding smartweed (*Persicaria lapathifolium*), lady's thumb (*Persicaria maculosa*) and the following sedge species: *Carex vulpinoidea*, *Carex intumescens*, and *Carex rosea*. The soils within wetland G are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland G: water marks, drift lines, and drainage patterns. Noteworthy observations at wetland G included a total of five wood turtles observed during the 2010 wetland delineation and rare plant survey periods. The primary value of this wetland was *Wildlife Habitat* due to the presence of numerous wood turtles observed in the wetland. The location of the wetland within the C&O Canal, also indicates that *Uniqueness/Heritage* is a primary value if Wetland G. Secondary functions included: *Groundwater Recharge/Discharge*, *Floodflow Alteration* as well as *Sediment/Toxicant Retention* and *Nutrient Removal*

(due to observations of culverts with runoff from highways that flow into the canal). Secondary values included: *Recreation, Educational/Scientific Value, and Visual Quality/Aesthetics*.

Wetland H: Wetland H is a small, isolated forested wetland (PFO1) with an herbaceous understory that exists as a depressional area beyond the canal and near the southwestern portion of the maintenance area. Wetland H consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of boxelder, green ash (*Fraxinus pennsylvanica*), and slippery elm; the vine layer was dominated by poison ivy (*Toxicodendron radicans*), the shrub layer was dominated by spicebush, and the herbaceous layer was dominated by Japanese stiltgrass. The soils within wetland H are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland H: saturation in the upper 12 inches, water marks, drainage patterns, and water stained leaves. The source of hydrology for wetland H appeared to be runoff from the impervious surfaces at the maintenance area and parking lot. Therefore, the primary function of Wetland H was *Groundwater Recharge/Discharge* due to groundwater recharge and collecting water from a nearby impervious surface. A secondary function in *Sediment/Toxicant Retention* due to adjacency to the maintenance yard and possible treatment of runoff; a secondary value is *Wildlife Habitat*.

Wetland J: Wetland J is a narrow, forested wetland (PFO1) with an understory that is herbaceous in some areas and bare in other areas within the historic C&O Canal. Similar to wetlands E and G, this area has been historically disturbed due to the excavation and construction of the C&O Canal. Wetland J consisted of a predominantly hydrophytic vegetation overstory dominated by mature specimens of boxelder; numerous silver maple seedlings dominated the understory; the shrub layer was dominated by spicebush and the herbaceous layer was dominated by clearweed and lizard's tail. The soils within wetland J are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland J: saturation in the upper 12 inches, water marks, sediment deposits, drainage patterns, oxidized root channels in the upper 12 inches and water stained leaves. Although standing water was not observed in the canal during the July 2010 wetland delineation, standing water (between 6 in to 12 in deep) was observed in the canal during the spring terrestrial plant survey that was conducted in early June 2010. The western portion of wetland J ends at the mowed/maintained area of the canal and the eastern portion ends at culvert 174; beyond this area is outside of the project boundary. Due to the location of the wetlands within the C&O Canal, the primary value observed includes *Uniqueness/Heritage*. Secondary functions included: *Groundwater Recharge/Discharge, Floodflow Alteration* as well as *Sediment/Toxicant Retention* and *Nutrient Removal* (due to observations of culverts with runoff from highways that flow into the canal). Secondary values included: *Recreation, Educational/Scientific Value, and Visual Quality/Aesthetics*.

Wetland K: Wetland K is a narrow, forested wetland (PFO1) with an understory that is herbaceous that receives runoff from the nearby roadways and drains westward into the Tonoloway Creek. This wetland is outside of the study area and is not discussed further in this document.

Wetland L: Wetland L is a small, narrow, palustrine, emergent, persistent/nonpersistent wetland (PEM1/2) along the eastern shoreline of the Tonoloway Creek. This wetland exists as a pocket along the steep shoreline of the creek due to groundwater seepage from and down the banks, which supports both hydrophytic vegetation and hydric soils. Wetland L consisted of a hydrophytic vegetation dominated by pink knotweed (*Persicaria pensylvanicum*), clearweed, smallspike false nettle, and moneywort. The soils within wetland L are listed on both the National and local hydric soils list by USDA. The following wetland hydrology indicators were observed within wetland L: groundwater seeping from banks, saturated in the upper 12 inches, and free water observed in the soil pit. This wetland exists as a pocket along the steep shoreline of the creek due to groundwater seepage from and down the banks, which supports both hydrophytic vegetation and hydric soils. Therefore, the primary function of this wetland was *Groundwater Recharge/Discharge* as a result of groundwater discharging from bank to Tonoloway

Creek. The primary value of this wetland is *Visual Quality/Aesthetics* because the historic aqueduct can be viewed from shoreline. Secondary functions include *Sediment/Shoreline Stabilization* (shoreline stabilized with herbaceous vegetation) and secondary values include *Recreation* (can kayak and fish in creek), and *Uniqueness/Heritage* (wetland is within viewshed of C&O Canal NHP).

5.0 USE OF THE WETLANDS

5.1 HISTORICAL USE OF THE PARK

The C&O Canal NHP is the last towpath that remains fully intact from the mule-drawn barge transportation era in the United States. The NHP was established in 1971 and is located along 184.5 miles of the Potomac River's Maryland shoreline from the mouth of Rock Creek in Georgetown, Maryland to Cumberland, Maryland. The C&O Canal NHP is historically significant primarily because it embodies nineteenth-century engineering and architectural technology. The canal operated from the 1820s to the 1920s as a route for transporting coal, lumber, and agricultural products, such as grain, from western Maryland to the port of Georgetown and to the navigable lower reaches of the Potomac River. During this time, the C&O Canal provided jobs and opportunities for people throughout the Potomac River Valley. The canal included 74 lift locks, 11 stone aqueducts built to carry the canal prism over the Potomac River tributaries, and 241 historic culverts built to carry small streams and roads under the canal. Today the canal's remaining historical structures tell the story of the canal's important role in many aspects of American history, including transportation, engineering achievement, and commerce. The park also provides a place to recreate and enjoy nature.

5.2 PROPOSED USE OF THE PARK

The NPS is proposing to rehabilitate and restore historic structures of the C&O Canal NHP at Hancock, Maryland.

The purpose of this project is to expand visitor opportunities for learning about the C&O Canal NHP and canal operations in the 19th century. Physical improvements to the canal's historic structures and development of more extensive interpretive/educational opportunities would help the visitor more fully understand, appreciate, and enjoy the canal and its heritage. The project addresses the potential for development and rehabilitation of the following structures in and around the park's property:

- Bowles Property
- Lock 51
- Lock 52
- Canal prism from mile post (Mile) 122.12 to 124.59
- Tonoloway Aqueduct
- Parking Area at Little Tonoloway Picnic Area/Boat Ramp
- Park Maintenance Compound
- Little Warehouse and Stone Wall

These actions are needed to improve visitor experience and fully realize the potential of Hancock as an interpretive venue of C&O Canal NHP. This area of the park has had only basic preservation of historic structures and limited interpretive/educational opportunities. Mile 122.12 through 124.59 contains significant canal structures including two locks and an aqueduct, all of which are in disrepair. Interpretive

and educational services were located outside of the park until the May 2010 opening of a new visitor center at the Bowles House. The restoration and rehabilitation of historic structures would fulfill the vision of the park's 1976 *General Plan* that identified the location as a "National Interpretive Center." This concept is further supported by the 1989 *Hancock Development Concept Plan* (NPS 1989). Hancock contains historic restoration opportunities where visitors would be able to see a functioning canal in a historic setting. Hancock could become a destination location for students and canal enthusiasts. Furthermore, Hancock could also be a venue for those interested in transportation, industrial, and agricultural heritage in the United States.

6.0 INVESTIGATION OF ALTERNATIVES

For this project, a no-action alternative (alternative 1), a preferred alternative (alternative 2), and two additional action alternatives (alternatives 3 and 4) were considered and investigated. Along with the four alternatives considered, additional components of the alternatives were identified during the design process and internal and public scoping process. Some of these were determined to be unreasonable, or much less desirable than similar options included in the analysis, and were therefore not carried forward for analysis in the Environmental Assessment. The following suggestions of interpretive opportunities received during the public scoping period were considered but dismissed from further analysis:

- Mule pulled boat rides with mules being housed at Bowles Farm
- Off road vehicle trail
- Dog Park
- Children's Playground
- Swimming Area
- Petting Zoo
- Animal Hospital

7.0 WHY ALTERNATIVE 2 WAS IDENTIFIED AS THE PREFERRED ALTERNATIVE

While all of the alternatives were developed in a way that would fulfill the park's mission, alternative 2 was identified as the preferred alternative, as it best allows the park to accomplish the goals of the 1976 *General Plan* and the Development Concept Plan to increase visitor understanding of the operation of the canal and preservation of the historic resources. The General Plan identified the location as a "National Interpretive Center" and identified the Hancock area as Zone B, a Cultural Interpretive Zone. This zone identifies sections of the park containing a high density of historic resources that are not necessarily accessible by road or do not have adequate parkland surrounding them. The General Plan stated that rewatering of this section of the canal is desirable to recreate the historic scene as it passes near the historic town of Hancock, Maryland (NPS 1976). This concept was further supported by the *Hancock Development Concept Plan* (NPS 1989). Hancock contains major historic restoration opportunities where visitors would be able to see a functioning canal in a historic setting. Therefore, the park's mission would also be fulfilled by the preferred alternative through the preservation and protection of the cultural and historic resources of the park. In addition, alternative 2 gives the park the most options available for enhancing the Hancock area and is consistent with management plans and/or Environmental Assessments at other areas of the C&O Canal NHP such as Williamsport, Maryland and Cumberland, Maryland.

8.0 PROPOSED IMPACTS TO WETLANDS IN THE PROJECT AREA

Impact analysis and the conclusions for possible impacts to wetlands were based on review of existing literature and studies, information provided by park staff and other agencies, and on-site investigation. Where possible, locations of wetlands were overlain with the proposed actions to determine impacts to wetlands.

As a result of the wetlands impacted by the proposed project, a Joint Federal/State Application for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland would be submitted as well as applicable permits obtained from the Maryland Department of the Environment (MDE) and the USACE prior to initiating any construction activities. All regulated activities within waters of the U.S. and waters of the State, including the 100-year floodplain and jurisdictional wetlands, would be conducted in accordance with permit conditions and *Maryland's Waterway Construction Guidelines* (MDE 2000).

8.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, there would be no effect on wetlands, since wetlands would not be disturbed (table 4). The continued visitor use of the existing facilities is not expected to result in new impacts to the wetlands under existing management practices.

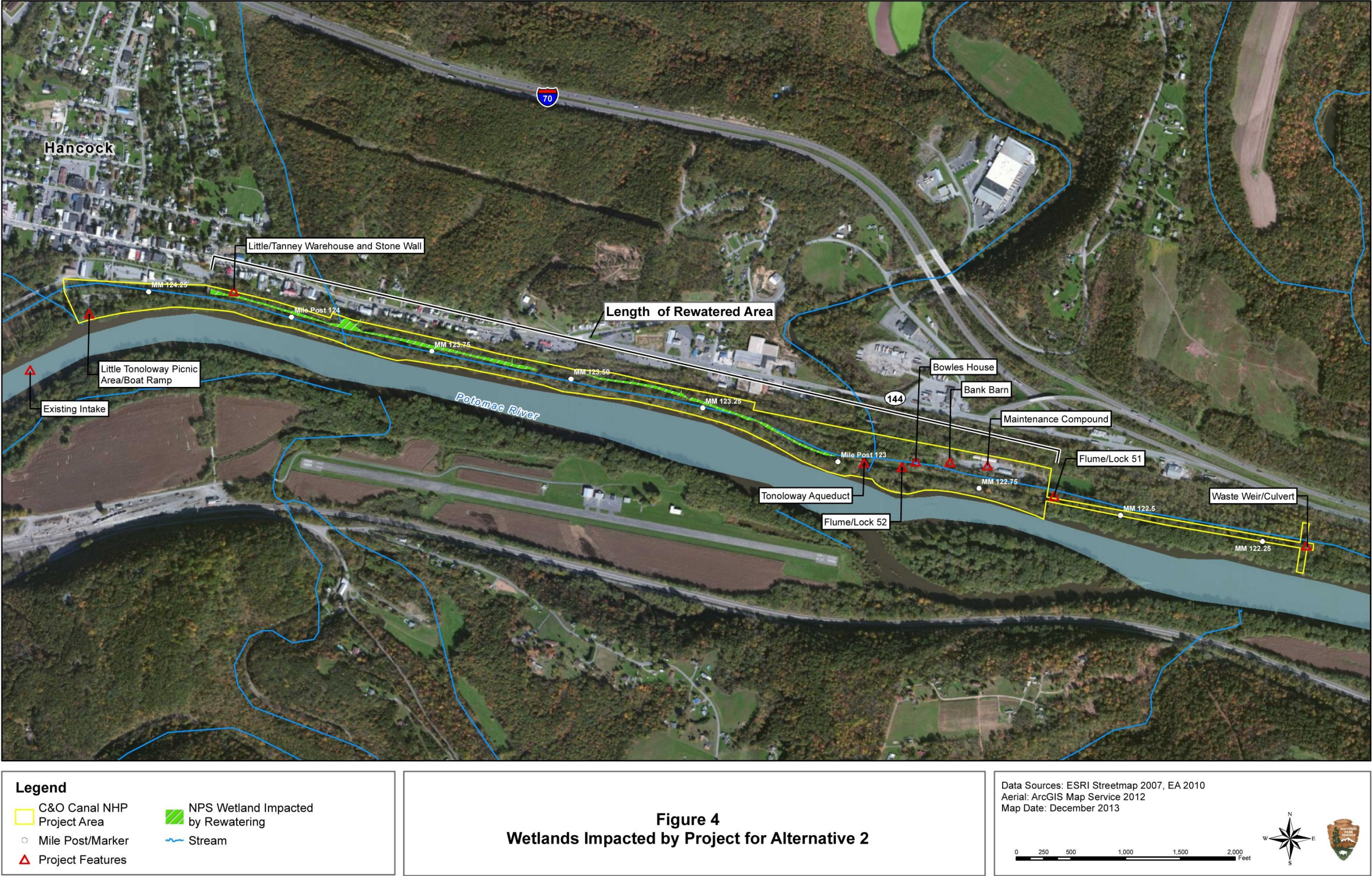
Table 4. Wetland Impacts by Alternative

Alternative	Wetland Name and Type	Project Component Affecting Wetland	Wetland Impacts (acreage) by Type	Total Impacts (acreage)
No Action	N/A	N/A	None	0
Alternative 2	Wetland A (PFO1/PEM1)	• water intake and outfall structures	<0.10	3.15*
	Wetland E (PFO1)	• restoring canal prism • rewatering canal	1.91	
	Wetland G (PFO1)	• restoring canal prism • rewatering canal	1.14	
Alternative 3	Wetland A (PFO1/PEM1)	• water intake and outfall structures	<0.10	0.10*
Alternative 4	N/A	N/A	0	0

* Wetland impacts to Wetland A along the Potomac River are expected. The design plans for these structures are not yet available so the exact acreage of impacts to Wetland A cannot be calculated at this time. These impacts cannot be completely discounted because they will not be zero since excavation would occur, but it is sufficient to say that a total of less than 0.10 acres of Wetland A would be expected as a result of these activities.

8.2 PREFERRED ALTERNATIVE (ALTERNATIVE 2)

Project components specific to alternative 2 that would adversely affect wetlands include restoring the canal prism and rewatering the canal from Mile 122.12 to Mile 124.10 and updating the town's existing water intake. Total wetland impacts associated with the activities described above are detailed in table 4 and figure 4, but it is important to note that wetland impacts discussed in this section represent the most current approximations at this time; however, this acreage may increase/decrease after final design. Under alternative 2, there are no impacts to wetlands B, C, D, F, H, I, J, or L.



Rewatering of the canal from Mile 122.12 through Mile 124.10 would impact the entire 3.05 acres of wetlands E and G which are currently within the footprint of the canal prism. The restoration of the canal prism would require the removal of the hydrophytic vegetation and other vegetation, along with some excavation of soils. It is estimated that 2,233 trees and saplings would be removed from the rewatering area. The majority (60%) of these trees have a diameter at breast height (DBH) of less than 10 cm; less than 1% were greater than 30cm DBH. The area would technically remain a wetland, as the water would be less than 2 meters deep, but would be converted in both form and function from a vegetated and forested palustrine wetland, to a riverine or lacustrine open water wetland. Habitat conversion is considered a wetland impact because most of the wetland functions and values would change (including fish and wildlife productivity and habitat, special status species habitat, vegetation habitat, water purification, and streamflow). Tree removal in the canal prism in the forested wetlands would change wetland functions and values through reduction of the vegetation canopy over these wetlands, which would reduce the biomass and change the species composition of the wetland (Cutlip 1986, cited in Jordan et al. n.d., 153). The reduction in biomass would potentially alter the vegetation and wildlife species that use this wetland. This shift in the vegetation could lessen available resources for wildlife species that depend on the conditions currently found in the wetland. The existing forested wetlands provide habitat for macroinvertebrates, wildlife, habitat for floral species, supports special-status species (wood turtle and Short's sedge, as described in the Special-Status Species section of the Environmental Assessment) and allows for groundwater recharge.

Once rewatered, the open water wetland of the canal would provide more habitat for macroinvertebrate and other aquatic species, including the potential for some SAV, but would provide less groundwater recharge and no emergent vegetation species. Therefore, measurable changes to the abundance and diversity of wetland vegetation would occur. These areas would continue to function as open-water wetlands, but there would be a reduction in the abundance and diversity of wetland vegetation, which could directly affect use of the area by wildlife and special-status species. The conversion of the wetland in the canal prism from vegetated to open water would require a USACE and MDE Joint Permit for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland. Impacts as a result of the rewatering the canal would have adverse impacts to wetlands E and G. However, numerous mitigation measures would be employed, including a wetland restoration within the park that is discussed in more detail in Section 9.

Although the restoration of the Tonoloway aqueduct crosses the Tonoloway Creek, the canal is dry and dominated by mowed/maintained grass and therefore not mapped as a wetland area and would not impact wetlands. In addition to restoring the aqueduct, wetland impacts (less than 0.10 acre) to wetland A along the Potomac River would result from restoring bypass flume and waste weirs, installing water intake and outfall structures (as described below), installing boat ramp at Bowles property, and improving the Little Tonoloway boat ramp.

Alternative 2 includes updating the town's existing water intake and pump facility near Mile 124.4. Updating the intake on the Potomac River may require amending the existing water supply and use permit from the state of Maryland. Additional waterway construction permits for disturbance in the Potomac River (which is a water of the United States) may also be needed. The pipe for the intake would be located along the narrow Potomac River shoreline wetland (wetland A), which is subject to NPS procedures for implementing DO # 77-1 (NPS 2011c). There is also SAV in the river in this area, with three commonly found SAV species: wild celery (*Apium graveolens*), hydrilla (*Hydrilla* spp.), and water stargrass (*Heteranthera dubia*). Impacts to the SAV and shoreline wetland would depend on construction methods, where the intake pipe is placed and how deep it is placed.

The design plans for the intake structure are not yet available so the exact acreage of impacts on wetland A cannot be calculated at this time. This activity would impact wetlands due to excavation in wetland A

that would occur as a result of this project component. These impacts cannot be completely discounted since excavation would occur, but it is sufficient to say that a total of less than 0.10 acres of wetland A would be impacted as a result of the updated intake structure. The updated intake structure would be permanent and may require some excavation activities prior to construction that may only be partially located within wetland areas. The updated intake structure is located in a small, discrete location along the Potomac River. Wetland A would continue to function as a shoreline wetland with buffering abilities and the Potomac River would continue to provide hydrological support to wetland A. The pipe for the updated intake located along the Potomac shoreline wetland (wetland A) may require some pipe footers that would be necessary for support within wetland areas.

Mitigation measures would be employed during construction when appropriate to minimize impacts on wetlands and are provided in more detail in Appendix C. Additional mitigation for the pipe and intake structure would also include a silt curtain, which would be placed in the river to prevent impacts on the aquatic environment from silt and sediment that might be stirred up during construction. Guidelines for waterway construction published by the MDE (*Maryland's Waterway Construction Guidelines*, MDE 2000) would also be followed. The park would keep the limits of the area disturbed by the intake to as minimal as possible. Installation of silt curtains immediately downstream of the project area would minimize offsite sedimentation impacts on downstream SAV. SAV is expected to reestablish naturally in all areas except where the permanent pipe structure and filter is placed, which is a very small area.

Overall, approximately 3.05 acres (+ less than 0.10 acres) of wetlands would be impacted as a result of all components of alternative 2. When considering the proposed mitigation measures, including the wetland restoration site, alternative 2 would result in overall adverse impacts. Although mitigation measures would be employed, the permanent conversion of wetlands in the canal from palustrine to open water, would result in a change to vegetation and hydrology, which affects the function and value of wetlands. This would cause a change in the resource, including the numerous trees of varying ages within the forested wetland in the canal prism that would be removed and the loss of wetland habitat within the canal that provides habitat for special-status species. However, the canal would remain characterized as a wetland and the wetland restoration site would create an additional wetland area within the park.

8.3 ALTERNATIVE 3

Impacts to wetlands under alternative 3 would occur from installing a new water intake. Installing a new intake to the Potomac River may require amending the existing water supply and use permit from the state of Maryland. Additional waterway construction permits for disturbance in the Potomac River (which is a water of the United States) may also be needed. The pipe for the new intake would be located along the narrow Potomac River shoreline wetland (wetland A), which is subject to NPS procedures for implementing DO # 77-1 (NPS 2011c). SAV including wild celery, hydrilla, and water stargrass are also found in the area. Impacts to the SAV and shoreline wetland would depend on construction methods, where the intake pipe is placed and how deep it is placed.

The design plans for the intake structure are not yet available so the exact acreage of impacts on wetland A cannot be calculated at this time. This activity would have an impact (less than 0.10 acres) on wetland A as a result of excavation. Wetland A would continue to function as a shoreline wetland with buffering abilities and the Potomac River would continue to provide hydrological support to wetland A. The pipe for the new intake located along the Potomac shoreline wetland (wetland A) may require some pipe footers that would be necessary for support within wetland areas. Under alternative 3, there are no impacts on wetlands B, C, D, E, G, H, J, or L.

Mitigation measures and BMPs as described in Appendix 2 of DO #77-1 would be employed during construction when appropriate to minimize impacts on wetlands. These BMPs would be similar to those described above for alternative 2.

Overall, the wetland impacts as a result of all components of alternative 3 (less than 0.10 acres) would result in a long-term negligible adverse impact. It is possible that a Joint Federal/State Application for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland may be required as well as applicable permits obtained from the MDE and the USACE prior to initiating any construction activities. All regulated activities within waters of the U.S. and waters of the State, including the 100-year floodplain and jurisdictional wetlands, would be conducted in accordance with permit conditions and *Maryland's Waterway Construction Guidelines* (MDE 2000).

8.4 ALTERNATIVE 4

Project components associated with alternative 4 would have no impact to wetland A through L, as noted in table 4.

9.0 MITIGATION MEASURES

Implementation of the preferred alternative would involve impacting wetland areas. During the construction activities for the preferred alternative, BMPs would be employed to minimize impacts to hydrology, water quality, threatened and endangered species, and cultural resources as described in detail in Chapter 5 of the Environmental Assessment to comply with both *PM #77-1: Wetland Protection* and *PM #77-2: Floodplain Management*. If necessary, a sediment and erosion control plan would be prepared prior to construction and submitted to appropriate local and state agencies. Whenever possible, construction activities, including heavy equipment use and stockpiling of materials, would be conducted outside of wetland areas.

For the purposes of implementing EO 11990, the NPS has determined that any area classified as wetland habitat according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* is subject to *DO #77-1: Wetland Protection* and the implementation procedures outlined in the *PM #77-1: Wetland Protection*. *DO #77-1* states that for new actions where impacts to wetlands cannot be avoided, proposals must include plans for compensatory mitigation that restores wetlands on NPS lands at a minimum acreage ratio of 1 to 1. For this project, the estimated impact to wetlands is estimated at 3.15 acres. The wetland impacts discussed in this section represent the most current approximations at this time; however, this impact and compensation acreage may increase or decrease after final design. Whenever possible, every effort is made to assure that the same wetland restoration proposal meets the compensation requirements of both the NPS and the USACE processes to avoid any duplication of effort. Additional mitigation measures, such as silt fencing and construction methods for waterways would be used, and the location and extent of any additional mitigation would be determined when permitting is completed.

Potential wetland mitigation sites have been located within the vicinity of the project, within C&O Canal NHP, and also in the nearby adjacent areas of the Potomac River. In April 2012, NPS staff visited various degraded wetland areas on park property to determine wetland restoration potential. Five disturbed areas were identified, that when restored could serve as compensation for wetlands that would be impacted as a result of the proposed project (NPS 2012b). The Canal Farm Ditch wetland was chosen for proposed wetland mitigation and restoration.

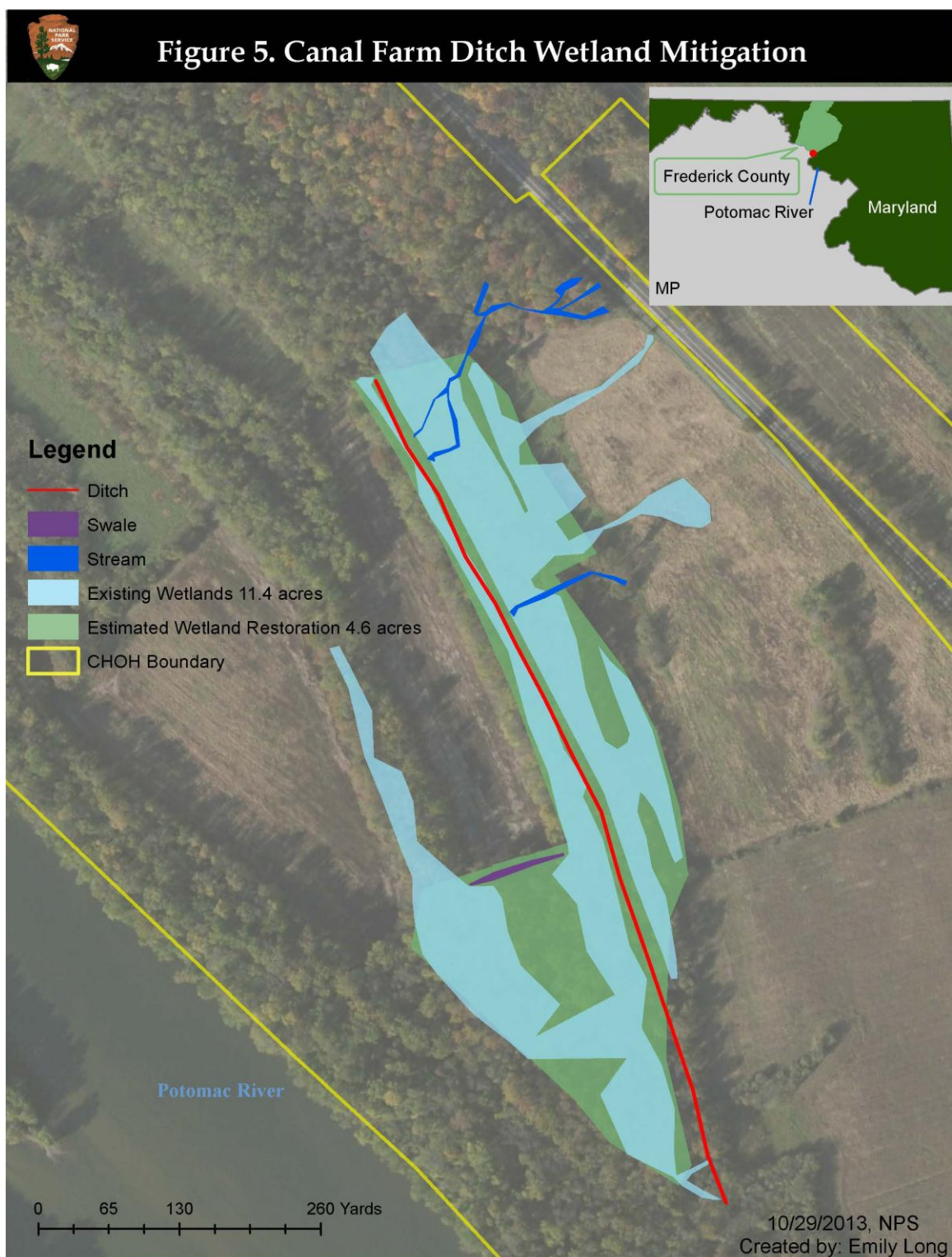
The Canal Farm Ditch wetland is an 11.42-acre site located at Mile 43 within the park (figure 5). This site contains a very old terrace in the floodplain of the Potomac River that has evolved into a broad depressional

area. European settlers cleared the fields on both sides of the low drainage area. In order to dry out and reduce the amount of groundwater holding capacity of the depressional area, landowners cut a ditch down the middle of the linear low area. There is no evidence that a stream or drainage channel existed before the landowner dug the ditch. Digging the ditch exposed the groundwater table and essentially created a conduit, or a path of least resistance, for the ground water to flow. The ditch is approximately 12 inches deep at one end and travels towards the Potomac River where it deepens to approximately six feet. An existing forested wetland is located above the start of the ditch. Draining the site allowed the landowner to narrow the width of the forested wetland area which in turn expanded the amount of arable land on either side of the drainage area. By dropping the groundwater elevation, the landowner also created dryer soils within the forested wetland. During the site visit, the area appeared to have a good potential source of hydrology due to the high water table at the site and evidence of bank full flows (NPS 2012b).

In May 2013 a wetland delineation was completed at the proposed restoration site by Dr. Peter J. Sharpe, a wetland scientist at NPS in the Natural Resources and Science Division in, Fredericksburg, VA. Tree species identified during the wetland delineation included boxelder, pin oak (*Quercus palustris*), and green ash, with paw paw (*Asimina triloba*) in the shrub layer. Herbaceous species included moneywort, *Carex* species, and Virginia wildrye (*Elymus virginicus*). The following wetland hydrology indicators were observed at the sampling site within the wetland area: sediment deposits, drift deposits, water-stained leaves, and geomorphic position. However, no water was found within 20 inch depth, as the site appears to be under the influence of the adjacent ditch and therefore lacks groundwater indicators of hydrology, but has wetland features.

Restoration at the Canal Farm ditch to reestablish the original hydrologic condition would include filling the existing ditch and eliminating the ground water drain, thus bringing the water table back to a near surface elevation and reestablishing the wetland character. Short segments of the ditch would be left intact to provide linear ponds. The area would then be revegetated with native wetland plant species appropriate to the region. Not only would the restoration convert upland on either side of the ditch into wetland and convert marginal wetland into a more functional system, it would also reconnect two functional wetland areas that are currently separated by a strip of upland created by the ditch. Restoration efforts would have beneficial impacts to wetlands within the Canal Farm area. The preferred alternative would constitute an adverse impact to 3.15 acres of wetlands. It is estimated that 4.6 acres of wetlands would be restored at the Canal Farm ditch wetland mitigation site, thus wetland compensation for this project would occur at a greater than 1:1 ratio.

The loss of forested wetlands within the canal prism in Hancock would create a loss of a variety of wetland functions, including shrub and tree canopy structure for wildlife habitat, water quality function, and aquatic wildlife habitat function. The restoration of the Canal Farm site could provide functions that would be similar to those lost at the canal prism impact sites. Therefore, the Canal Farm ditch compensation effort would be considered in-kind with the wetland functions being lost at the impact site. NPS would be required to obtain an USACE and MDE Joint Permit for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland. *PM #77-1: Wetland Protection* states that compensating for the loss of forested wetlands using restored forested wetlands is appropriate but may require more than one acre of restoration for one acre of impact (NPS 2012a). The USACE or MDE may also require more compensation per acre of impact to satisfy their regulatory and permitting needs. The exact ratio would be determined by the regulatory agency (USACE, or MDE) and based on the results of a function and value assessment applied to the impact and compensation site.



10.0 SUMMARY

The purpose of this project is to expand visitor opportunities for learning about the C&O Canal NHP and canal operations in the late 1800s. Physical improvements to the canal's historic structures and development of more extensive interpretive/educational opportunities would help the visitor more fully understand, appreciate, and enjoy the canal and its heritage. The project addresses the potential for development and rehabilitation of several structures in and around the park's property, including the Bowles Property, Locks 51 and 52, the canal prism from Mile 122.12 to Mile 124.59, the Tonoloway Aqueduct, and the parking area at Little Tonoloway Picnic Area. The project would restore, rehabilitate, and allow historic structures and cultural resources to be interpreted and enjoyed by visitors. This project would result in beneficial impacts to floodplains, socioeconomics, transportation, visitor use and experience. Adverse impacts would occur to vegetation, wetlands, and special-status species.

Approximately 3.15 acres of wetlands would be impacted as a result of all components of the preferred alternative. It is estimated that 4.6 acres of wetlands would be restored at the Canal Farm ditch wetland mitigation site, thus wetland compensation for this project would occur at a greater than 1:1 ratio.

As stated previously, the footprint of the preferred alternative as discussed in this document and the Environmental Assessment are approximate and may change during the more detailed design phase of this project. The wetland impacts discussed in this document represent the most current approximations at this time. The mitigation proposed in exchange for the wetland impacts would assure no net loss of wetlands and a greater than 1:1 compensation ratio. When considering the proposed mitigation measures, including the wetland restoration site, the preferred alternative would result in adverse impacts. Although mitigation measures would be employed, the permanent conversion of wetlands in the canal from palustrine to open water, would result in a change to vegetation and hydrology, which affects the function and value of wetlands. This would cause a change in the resource, including the numerous trees of varying ages within the forested wetland in the canal prism that would be removed and the loss of wetland habitat within the canal that provides habitat for special-status species. However, the canal would remain characterized as a wetland and the wetland restoration site would create an additional wetland area within the park at a greater than 1:1 wetland compensation ratio. The schedule for project completion, the funding sources, and other details relating to wetlands compensation will be determined at a later stage and in consultation with the NPS and appropriate resource agencies. The exact compensation ratio would be determined by the appropriate regulatory agency (USACE or MDE). The NPS therefore finds that the preferred alternative, as stipulated, is consistent with EO 11990 and the policies and procedures found in DO #77-1 and PM #77-1.

11.0 REFERENCES

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APPENDIX D: PROGRAMMATIC AGREEMENT

**PROGRAMMATIC AGREEMENT
AMONG
THE NATIONAL PARK SERVICE
ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND THE
MARYLAND STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF A PROGRAM FOR THE
RESTORATION OF CANAL OPERATIONS AT HANCOCK, MILEPOST 122.12 TO
124.59, CHESAPEAKE & OHIO CANAL NATIONAL HISTORICAL PARK**

WHEREAS, the United States Department of the Interior, National Park Service, (NPS) has stewardship responsibilities for the Chesapeake & Ohio Canal National Historical Park (PARK); and

WHEREAS, NPS proposes to rehabilitate the C & O Canal at Hancock from Milepost 122.12 to Milepost 124.59 and upgrade facilities along the canal (UNDERTAKING), and the concept for the rehabilitation is outlined in the Hancock, Maryland Development Concept Plan, the C & O CANAL, which formed the basis for the development of alternatives that were incorporated into an environmental assessment (EA) for this project; and

WHEREAS, the purpose of the UNDERTAKING is to fully realize the potential of Hancock as an interpretive venue along the C & O CANAL where visitors will be able to see a functioning canal in a historic setting; and

WHEREAS, NPS, in consultation with the SHPO, has determined the area of Potential Affect (APE) for the UNDERTAKING and a map depicting the project APE is appended to this document as attachment A; and

WHEREAS, C & O CANAL, a flat water canal chartered in 1825, was listed to the National Register of Historic Places on August 9, 1979, and contributing resources within C & O Canal National Historic District and the APE are listed in Appendix B of this programmatic agreement (PA); and

WHEREAS, NPS conducted a phase one archeological survey and identified two archeological sites (18WA590 and 18WA591) within the APE that are potentially eligible for listing in the National Register, but for which further research will be needed to confirm eligibility;

WHEREAS, NPS has determined that the potential wetland mitigation site at Chick Farm (also shown within the APE) is in close proximity to two known archeological sites (18FR102 and 18FR335) and will require archeological testing and evaluation prior to implementing any mitigation plan, as may any additional mitigation sites identified in the future; and;

WHEREAS, the UNDERTAKING will include actions such as; rewatering the canal between milepost 122.59 (Lock 51) and milepost 124.10, rehabilitating the Bowles Farm Property for use as a visitor center and staff offices, reconstruction of the Bank Barn, removal and relocation of the current maintenance facility to existing commercial space, reconfiguration of parking lots and enhancement or construction of picnic facilities at the maintenance facility and Little Tonolway Picnic Area, improvements to access and maintenance roads, and construction of a pedestrian bridge across the canal at Lock 52. As part of the UNDERTAKING, NPS will also

restore approximately 12 acres of wooded wetland within the park located near the confluence of the Potomac and the Monocacy rivers near Milepost 43. The UNDERTAKING is described in greater detail in the EA for this project; and

WHEREAS, the NPS applied the criteria of adverse effect and determined that the UNDERTAKING has potential to adversely affect historic properties (36 CFR §800.5); and

WHEREAS, the UNDERTAKING may be designed and completed in stages over a period of up to 15 years; and

WHEREAS, NPS has elected to defer, pursuant to 36 CFR Part 800.4(b)(2), final identification and evaluation of historic properties pending completion of the schematic design phase of the design process and has provided a process for that identification and evaluation effort in this agreement in accordance with 36 CFR Part 800.14(b)(1)(ii); and

WHEREAS, the NPS has consulted with the Advisory Council on Historic Preservation (Council) and the Maryland State Historic Preservation Officer (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act as amended (NHPA; 16 U.S.C. 470f) and Section 110 of the same Act (16 USC 470h-2); and

WHEREAS, the NPS pursuant to 36 CFR § 800.8 has conducted a review process in accordance with the National Environmental Policy Act of 1969 (as amended), for the development of an EA, and solicited public input on the review of potential effects the proposed UNDERTAKING may have on historic properties in both the EA and this programmatic agreement during that process; and;

WHEREAS, NPS has determined that there are no federally-recognized Indian tribes with a demonstrated interest in the C & O Canal; and

WHEREAS, NPS has provided the Council of Maryland Indian Tribes a draft copy of this programmatic agreement for review and comment;

NOW, THEREFORE, the NPS, SHPO and ACHP agree that, upon the NPS's decision to proceed with the UNDERTAKING, the NPS shall ensure that the UNDERTAKING is implemented in accordance with the following stipulations in order to take into account the effects of the UNDERTAKING on historic properties, and further agree that these stipulations shall govern the UNDERTAKING and all of its parts until this PA expires or is terminated.

STIPULATIONS

The NPS shall ensure that the following measures are carried out:

I. PHASING OF UNDERTAKING

The NPS expects to pursue the UNDERTAKING in phases. The NPS will have met its obligations under this agreement if it fulfills the requirements listed herein for each individual phase, independently of future phases. The NPS shall determine the area of potential effect for the portion of the project to be implemented (PHASE APE). The PHASE APE shall include all areas directly affected by construction, including but not limited to staging areas and mitigation sites for each phase at the beginning of that phase. NPS will consult with the SHPO to gain concurrence on the PHASE APE prior to implementing that project phase.

II. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

a) Historic Properties (non-archeological)

- (1) The UNDERTAKING has the potential to affect historic structures, objects, and districts listed on or eligible for listing in the National Register. Prior to implementation of any phase of the UNDERTAKING the NPS shall identify any historic properties with the PHASE APE, according to 36 CFR 800.4(c) before taking actions that may affect NRHP eligible properties.

b) Archeological Sites

- (1) The NPS shall ensure that an archeological survey to evaluate the eligibility of archeological sites 18WA590 and 18WA591 is conducted during the design phase for each project area and that mitigation sites are evaluated and tested for archeological potential. The survey/ies shall take into account the guidance found in NPS publication, *The Archeological Survey Methods and Uses* (1978) and the Maryland Historical Trust's *Standards and Guidelines for Archeological Investigations in Maryland* (1994).
- (2) Prior to the implementation of any future survey, a research plan will be submitted to the SHPO for review and comment. And after survey efforts are concluded, SHPO will receive a management memorandum outlining the results of the survey, followed by a draft report for comment, and final report for the SHPO files.

III. ASSESSMENT OF EFFECTS

- a) NPS shall make a determination of effect for each phase as design develops. For determinations of "No Historic Properties Affected" and "No Adverse Effect" that meet criteria for Streamlined Activities found in stipulation III.A. of the 2008 Nationwide Programmatic Agreement (NATIONWIDE PA) among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, no SHPO consultation will be necessary, however the park shall inform the SHPO that a phase of the project has been completed so that it can be assessed as part of the cumulative effect.
- b) For determinations of "No Adverse Effect" not meeting the criteria for streamlined activities, or determinations of Adverse Effect, NPS will submit documentation to the SHPO and for review and comment, in accordance with Stipulation VI below, of such determinations consistent with 36 CFR Part 800.8(a).
- c) As each phase is developed, NPS will take into account previous effects in order to determine the cumulative effect of the undertaking on historic properties.

IV. TREATMENT OF ADVERSE EFFECTS

a) General Provisions

- (1) When a historic property may be adversely affected, the NPS first will consult with the SHPO to seek a design solution that will minimize or avoid the adverse effect and meet the appropriate Secretary of Interior's Standards. If an adverse effect cannot be avoided or minimized to an acceptable level, the following mitigation measures will be implemented:

b) Historic Properties (non-archeological)

- (1) The NPS will consult with the SHPO to determine if recordation of the historic property will adequately mitigate the adverse effect and determine the level of recordation necessary. After the recordation is completed, the SHPO will receive a full copy with photograph, a copy will be produced for the park and a copy will be submitted to the NPS Technical Information Center for later retrieval.
- (2) The NPS will identify any significant architectural features related to a historic property that may be salvaged. When feasible and appropriate, significant architectural features shall be reused as part of the UNDERTAKING covered by this agreement or conserved for use in other undertakings. The NPS shall ensure that significant architectural features are salvaged before demolition or alteration and they are properly stored and protected.

c) Archeological Sites

- (1) Should any Native American burial sites, human remains, funerary objects, sacred objects, and/or objects of cultural patrimony be encountered, the NPS shall ensure they are treated with appropriate respect and according to federal law, including but not limited to the Native American Graves Protection and Repatriation Act (PL 101-601; hereinafter NAGPRA).
- (2) When data recovery is the preferred treatment option for a NRHP-listed or -eligible property within a PHASE APE, the NPS shall ensure that an archeological data recovery plan, based on an appropriate research design, is submitted to the SHPO, others (as appropriate) for review according to Stipulation VI below. Such data recovery plans shall be consistent with The Secretary of the Interior's Standards and Guidelines for Archeological Documentation and the Maryland Historical Trust's *Standards and Guidelines for Archeological Investigations in Maryland* (1994).
- (3) Except as provided for by NAGPRA, the NPS shall ensure that all records and materials resulting from identification and data recovery efforts are curated in accordance with 36 CFR Part 79.
- (4) The NPS shall ensure that all final archeological reports resulting from actions pursuant to this agreement will be provided to the SHPO and others (as appropriate), and NPS Technical Information Center. Archeological site locations shall be withheld from the general public as provided by the Freedom of Information Act (FOIA), PL 89-554 and 36 CFR 800.6(5). The NPS shall ensure that all such reports meet contemporary professional standards the Department of the Interior's Standards for Final Reports of Data Recovery Program (42 FR 5377-79), and the Maryland Historical Trust's *Standards and Guidelines for Archeological Investigations in Maryland* (1994). The NPS will provide a management memorandum, draft and final report to the SHPO and others (as appropriate), according to Stipulation VI below.

V. POST-REVIEW DISCOVERIES

If during construction previously unknown archeological resources are discovered, all work in the immediate vicinity of the discovery would be halted and the NPS will address the discovery and unanticipated effects in accordance with 36 CFR §800.13(b).

NPS shall ensure that all construction contracts contain a stipulation that requires that construction or excavation activities stop in the event that archeological deposits are encountered

during any construction or excavation within the PHASE APE and that the appropriate NPS official be notified immediately.

VI. SHPO REVIEW PERIODS

The NPS shall submit the results of all identification efforts, NRHP eligibility determinations, discovery plans, and treatment plans to the SHPO for a 30-calendar day review and comment period which starts when the submittal is received by the SHPO office. If the SHPO does not respond to the NPS within 30 calendar days of receipt of the submittal, the NPS may assume that the SHPO does not object to the NPS's findings and recommendations as detailed in the submission. If the SHPO does not respond, does not object, or propose changes that the NPS accepts, no further review is required for that phase of work and the NPS may proceed according to its findings and recommendations.

VII. REVIEW OF PROJECT PLANS

The NPS shall submit either schematic design or 60% design review documents to the SHPO for any activity related to the UNDERTAKING affecting one or more NRHP listed or eligible properties. NPS shall take SHPO comments into account when continuing with the design process and shall submit 90% design review documents for comment if there are substantial design changes between the two drafts or upon request. These documents will be submitted by the NPS to the SHPO for review and comment according to stipulation VI above.

Any rehabilitation or new construction of features associated with the UNDERTAKING will be in accordance with The Secretary of Interior's Standards for the Treatment of Historic Properties.

VIII. DISPUTE RESOLUTION

All disputes will be handled in accordance with stipulation X of the NATIONWIDE PA.

IX. AMENDMENTS

Any signatory party to this PA may propose that this PA be amended, whereupon the signatory parties to this PA will consult to consider such amendment. This PA may be amended only upon the written agreement of all the signatory parties. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

X. FAILURE TO CARRY OUT THE AGREEMENT

In the event the NPS does not carry out the terms of this agreement, the NPS will comply with 36 CFR Part 800.4 through 800.6 with regard to individual undertakings covered by this agreement.

XI. REVIEW OF THE AGREEMENT

- a) At a minimum, NPS will include a report on how it is carrying out its responsibilities under this PA at the Superintendents biannual review and monitoring meeting as provided in stipulation VIII. A (5)(d) of the NATIONWIDE PA. At the request of any party to this agreement, a meeting or meetings additional meetings may be held to facilitate review and comment or to resolve questions.
- b) The SHPO may monitor activities carried out pursuant to this agreement, and the ACHP will review such activities if so requested. The NPS shall cooperate with the SHPO in carrying out their monitoring and review responsibilities.

XII. TERMINATION

Any party to this agreement may terminate it by providing a 30 calendar day notice, excluding state and federal holidays, to the other parties provided that the parties will consult during the period prior to the termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the NPS will comply with 36 CFR Part 800.4 through 800.6 for individual undertakings covered by this programmatic agreement.

XIII. EXPIRATION

Unless terminated pursuant to stipulation XII, the duration of this PA is 15 years from the date of its execution. NPS shall initiate consultation with the other signatory parties to this PA approximately one year prior to the expiration date of the PA to reconsider its terms.

Reconsideration may include the continuation of the PA as originally executed, or termination.

XIV. EFFECTIVE DATE

The PA will take effect on the date that it has been executed by all signatories.

XV. ANTI-DEFICIENCY ACT

The NPS's obligations under this PA are subject to the availability of appropriated funds, and the stipulations of this PA are subject to the provisions of the Anti-Deficiency Act. The NPS shall make reasonable and good faith efforts to secure the necessary funds to implement its obligations under this PA. If compliance with the Anti-Deficiency Act alters or impairs the NPS's ability to implement its obligations under this PA, the NPS shall consult in accordance with the amendment and termination procedures found at stipulations IX and XII above.

EXECUTION of this PA, its subsequent filing with the ACHP, and implementation of its terms evidence that the NPS has taken into account the effects of this UNDERTAKING on historic properties and has afforded the ACHP an opportunity to comment on the UNDERTAKING and its effect on historic properties.

SIGNATORIES

National Park Service

Date: _____
Superintendent, Chesapeake & Ohio Canal National Historical Park

Maryland Historical Trust – State Historic Preservation Officer

Date: _____
Elizabeth Cole
State Historic Preservation Officer

Advisory Council on Historic Preservation

Date: _____

APPENDIX A AREA OF POTENTIAL EFFECT

Hancock Area APE



Wetland Restoration APE



APPENDIX B
IDENTIFIED HISTORIC PROPERTIES WITHIN THE APE

Historic Structures within the Chesapeake and Ohio National Register District[‡]

Structure No.	Structure Name	LCS ID	NR No. ^{**}	Primary Historic Function
122.00*	Mile 122-123, Towpath	045825		Canal
122.01*	Mile 122-123, Canal Prism	045822		Canal
122.25*	Culvert #174 & Wasteweir	012796	122.11 (50-33)	Culvert (Waste Weir)
122.49*	Culvert #175	012797	(50-34	Culvert (Waste Weir)
122.59*	Bypass Flume-Lock 51	017221	122.59 (51-2)	Water Works
122.60*	Lock 51	017233	122.59 (51-1)	Canal Lock
122.61*	Lockhouse-Lock 51-Ruins	017234	122.59 (51-3)	Single Family Dwelling
122.80A*	House--Yates, William Property **	049950	Determined Eligible 8/1/95	Single Family Dwelling
122.80B*	Smoke House/Wash House--Yates, William Property	049951	Determined Eligible 8/1/95	Utility Service Structure
122.80C*	Carriage House--Yates, William Property	049952	Determined Eligible 8/1/95	Equipment/Vehicle Storage
122.80D*	Carriage Steps--Yates, William Property	049953	Determined Eligible 8/1/95	Other
122.80E*	Barn Foundation--Yates, William Property ***	049921	Determined Eligible 8/1/95	Barn
122.80F*	Privy--Yates, William Property	049988	Determined Eligible 8/1/95	Other
122.89*	Bypass Flume-Lock 52 (1838)	011729	(52-2)	Water Works

Structure No.	Structure Name	LCS ID	NR No. ^{**}	Primary Historic Function
122.90	Lockhouse-Lock 52-Foundation (1840)	017235	122.89 (52-3)	Single Family Dwelling
122.91*	Lock 52 (1839)	011728	122.89 (52-1)	Canal Lock
122.92*	Great Tonoloway Creek Aqueduct (1839)	045772	(52-4)	Aqueduct
122.92*	Waste Weir at Great Tonoloway Creek Aqueduct (1838)	045777	(52-4)	Culvert (Waste Weir)
123.00*	Mile 123-124, Towpath (1835)	045829		Canal
123.01*	Mile 123-124, Canal Prism (1835)	045828		Canal
123.50	Bridge Over Canal in Hancock (1926)	049955		Transportation
123.84	Taney Warehouse and Dwelling (1875, 1900)	012883	(52-5)	Warehouse
123.90*	Hancock Boat Basin (1900)	011730	(52-6)	Water-Related
123.95*	Culvert 179 (1840)	011731	(52-7)	Culvert (Waste Weir)
124.00*	Mile 124-125 Towpath (1835)	045831		Canal
124.01*	Mile 124-125 Canal Prism (1835)	045830		Canal
124.02*	Rinehart Sumac Mill Ruins (1874)	049956	Determined Eligible 8/1/95	Manufacturing
124.14	Old Hancock Bridge-Stone Piers (1889)	011732	124.15 (52-8)	Road Bridge
124.38	Culvert 182 (1840)	011733	(52-9)	Culvert (Waste Weir)
124.59	U.S. Highway 522-Bridge Pier	045793		Road Bridge

*The following properties are listed in or eligible for listing in the National Register as contributing resources of the Chesapeake and Ohio Canal National Register District. Unless otherwise indicated, they are listed.

Structure No.	Structure Name	LCS ID	NR No. ^{**}	Primary Historic Function
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^{**} Mileage from the NR nomination is only included when it is different from the structure number in the LCS.

* Denotes resources that are within or immediately adjacent to planned project components.

^{**} The Yates Property/House is the William Bowles Property/House (also known as the William Little Property/House). The LCS describes the William Yates Property as the Preferred Structure Name. The William

^{***}Yates Barn is also known as the Bank Barn

Archeological Sites Identified within the APE

Site No.	Type	Dates	Status
18WA590 [‡]	Prehistoric and Historic associated with Bowles property & Bank Barn	Prehistoric: unknown Historic: Late 18th -20th century	Eligibility undetermined
18WA591 [‡]	Prehistoric and Historic associated with the Rinehart Sumac Mill	Prehistoric: unknown Historic: 19th -20th century	Eligibility undetermined
	<i>Other sites in wetland restoration area?</i>		

[‡] Sites were located as part of a survey for this project. See Botwick 2011, Phase I Archeological Survey for Enhancing the Visitor Experience at Hancock, Milepost 122.59 to 124.10, Chesapeake & Ohio National Historic Park