DELAWARE RIVERKEEPER NETWORK

April 7, 2016

Kristina M. Heister
Superintendent
Upper Delaware Wild and Scenic National Park
274 River Road
Beach Lake, PA 18405

Basil Seggos
Acting Commissioner,
New York DEC
625 Broadway
Albany, New York 12233-1011

Re: Damage from Pond Eddy Bridge Project for Sensitive Mussel Species

Dear Superintendent Heister and Commissioner Seggos,

Through a Right to Know request, the Delaware Riverkeeper Network has obtained a copy of the National Park Service section 7(a) review of PennDOT's Pond Eddy Bridge Replacement Project in Shohola Township, Pennsylvania. We are disappointed that NPS would so lightly accept the harm that the project will impose on sensitive and important mussel species of the Delaware River and urge you to revisit/reconsider your determination. And we urge NY DEC to please step in and take needed protective action in lieu of, or in addition to, NPS.

As you are aware this project requires the construction of two large causeways extending hundreds of feet into the Delaware River. The section 7 review has determined "..the potential long term effect of this project is the loss of hundreds, or even thousands of freshwater mussels." A 2011 U.S. Geological Survey cited in the review found the presence of alewife floater, a species ranked as "critically impaired" in New York state.

Although NPS is requiring the relocation of mussels impacted by the causeway the Delaware Riverkeeper Network believes this effort falls critically short in protecting this critical resource. A review of the plan by Danielle Kreiger, the Director of Science with the Partnership with the Delaware Estuary noted several deficiencies:

- Mussel relocation efforts aren't impossible, but the national record is woeful whenever monitoring of success is tracked. Most relocations end in failure, with majority mortality. PDE has had some success, but even we have found some challenges. The report says that a qualified malacologist be engaged to oversee the relocation. Since some malacologists are mainly taxonomists with little ecological training, it would be important for someone with specific training on mussel habitat suitability.

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- If I interpreted the impact/relocation area correctly, it appears to be just the immediate impact footprint plus a slight bit downstream. But if they build a road halfway across the river, that would directly impact mussels downstream of that hydrological blockage. Without knowing more about the depth and channels, it's hard to say how far downstream. But I would expect acute impacts from turbidity, lack of food, and elevated temperatures for at least 0.5 km along the shoreline of the causeway. Chronic impacts could occur much further downstream depending on turbidity and food conditions.

- What is the monitoring plan? For the relocated mussels, would they track survival and fitness for at least a year? PIT tags could be affixed to find the same mussels that are placed upstream to track shell lengths at a minimum. Any monitoring of mussels downstream in the shadow zone would be important too.

- Has anyone estimated what the net change in suitable mussel habitat will be before versus after? If constructed to not cause scour areas, bridges are not always bad for mussels. In fact, some bridges seem to increase mussel carrying capacity if they create refugia from flooding, or otherwise enhance habitats. But other bridges seem to create permanent dead zones for aquatic bottom fauna. Has anyone knowledgeable about mussel habitat been engaged to predict whether the bridge design will allow for mussels to become reestablished over time in the impact zone? If not, then this could result in a net decrease in suitable mussel habitat. If so, in the least, there should be mitigation.

- If mitigation is needed for any of the above, it should not take the form of surveys, studies, etc. There are so few mussels left in most areas, I am of the opinion that any impacts to mussels (whether common or rare) should be mitigated for by 1) actual replacements of mussels (e.g. from a hatchery), or less preferable 2) enhancement of mussel carrying capacity via habitat improvements.

- In summary, I think they should ensure that the impact area is large enough to capture acute and chronic impacts to downstream mussels, especially in the shadow zone of the causeway. Mussel relocations are sometimes unavoidable, but in my view they must be undertaken by experienced ecologists and then carefully monitored to track success. Any impact to any mussels (common or rare) has cascading impacts for water quality and ecological integrity, therefore true mitigation (not in kind) should be mandated if monitoring reveals any impacts for the relocated animals or the downstream animals.

In addition, the Delaware Riverkeeper Network is concerned that:

- No specific upstream areas for relocation are mentioned in this review or in a memorandum of agreement between the U.S. Geological Survey and PennDOT.

- There is no plan to relocate mussels downstream of the planned causeways that could be impacted if materials used for the structures are washed down river. A 2014 PennDOT bridge replacement project over the Tohickon Creek at the confluence with the Delaware River in Point Pleasant, Pennsylvania resulted in stone being washed downstream during high waters.

- The plan fails to include any agreement for PennDOT to reimburse the four states in the Delaware River Basin for freshwater mussels that may be lost because of this construction project – i.e. natural resource damages.

Freshwater mussels play a key role in filtering water and helping ensure water quality, a benefit all residents in the watershed share. The section 7 review and responsive plan proposed by NPS is woefully inadequate.

The section 7 review also discusses concerns about the impact of the project on Bald Eagles. Although no nests are located in the area and the project complies with the Bald Eagle Protection Act the construction area may be used by the species for foraging. There are no provisions for suspending work if Bald Eagles are present during construction.

DRN believes authorization for this project by both NPS and New York State should be suspended and the rehabilitation option for the Pond Eddy Bridge should be re-evaluated in order to protect these resources.

Respectfully,

Maya K. van Rossum

Maya van Rossum
the Delaware Riverkeeper

cc: Executive Director Steve Tambini, DRBC
Concerned members of the community

OS-2C (10-15)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

Mailing Date: March 24, 2016

Delaware Riverkeeper Network

MAR 2 8 2016

RECEIVED

Mr. Ed Rodgers
Delaware Riverkeeper Network
925 Canal Street, Suite 3701
Bristol, PA 19007

Re: Right to Know Law Request No. 16-0135

Dear Mr. Rodgers:

This letter follows the Pennsylvania Department of Transportation's ("PennDOT") correspondence acknowledging receipt of your written correspondence, which is being processed under the Pennsylvania Right-to-Know Law ("RTKL"), 65 P.S. § 67.101 *et seq*. Our Open Records Office logged your correspondence as received on February 16, 2016. We sent a letter to you on February 23, 2016 providing notice that we required a 30 days' extension, as permitted by the RTKL. This response is provided pursuant to that extension. A copy of your correspondence is enclosed.

Your correspondence stated, in pertinent part:

> At a January 21, 2016 meeting in Shohola Township, Pennsylvania consultants for PennDOT announced that safeguards such as relocation would be taken to protect threatened and endangered species of freshwater mussels in the Delaware River prior to and during construction of the Pond Eddy Bridge replacement project (SR 1011) between Shohola Township and Lumberland, Sullivan County, New York. Under Pennsylvania's Right to Know law the Delaware Riverkeeper Network requests a copy of all documents, notes, communications, emails, studies, reports and plans for mitigation to protect threatened and endangered species from this construction project from January 1, 2014 to February 16, 2016.

Your request is granted in part. Enclosed is the National Park Service Upper Delaware Scenic and Recreational River Evaluation pursuant to Section 7 of the Wild and Scenic Rivers Act and a Mussel Salvage Relocation Agreement with USGS. Also enclosed is an email responsive to your request pertaining to the January 21, 2016 township meeting.

We have determined that the responsive records contain information which is not subject to access by you, as well as information to which you may have access. The information which is not subject to access by you has been redacted by this agency.

Redaction is permitted under the RTKL. 65 P.S. § 67.706. The RTKL contemplates redaction of certain information exempt from access by a requester, including "[a] record identifying the location of an archeological site or an endangered or threatened plant or animal species if not already known to the general public." 65 P.S. § 67.708(b)(25). Consequently, we have redacted this information from the enclosed

records. Pursuant to the RTKL, our redaction of this information constitutes a partial denial of your request. 65 P.S. § 67.706.

Moreover, PennDOT has in its possession draft documents and correspondence among PennDOT employees, contracted consultants and agencies, all of which reflect or were utilized in the internal, predecisional deliberations of PennDOT and between agencies with which PennDOT is required to consult and coordinate. As stated in the RTKL, "[t]he internal, predecisional deliberations of an agency, its …employees or officials or predecisional deliberations between agency members, employees or officials and members, employees or officials of another agency, including predecisional deliberations relating to a … proposed policy or course of action or any research, memos or other documents used in the predecisional deliberations" is exempt from disclosure. 65 P.S. § 67.708(b)(10)(i)(A).

Also enclosed is an invoice for the cost to produce the copies and postage costs equal to the actual cost of mailing. Please remit payment to PennDOT at the address on the invoice within 30 days. Further, please note that failure to pay for records provided in response to a RTKL request to a Pennsylvania executive agency may preclude you from obtaining further records from any executive agency, pursuant to the provisions of Section 901 of the RTKL and our agency RTKL Policy, as published on our website at: http://www.dot.state.pa.us/public/PubsForms/Forms/Os-100.pdf.

You have a right to appeal this response in writing to the Executive Director, Office of Open Records (OOR), Commonwealth Keystone Building, 400 North Street, 4th Floor, Harrisburg, Pennsylvania 17120. If you choose to file an appeal you must do so within 15 business days of the mailing date of this response and send to the OOR:

1) this response;
2) your request; and
3) the reason why you think the agency is incorrect in its response.

Also, the OOR has an appeal form available on the OOR website at:

http://www.openrecords.pa.gov/Pages/default.aspx

Please be advised that this correspondence will serve to close your RTKL request with our office as permitted by law.

Sincerely,

Gay Fama on behalf of

E. Sheffey
Agency Open Records Officer
PENNDOT-RightToKnow@pa.gov

INVOICE

SEND PAYMENT TO:
PA DEPARTMENT OF TRANSPORTATION
OFFICE OF COMPTROLLER OPERATIONS
AR PENNDOT - NON-APRAS
PO BOX 15758
HARRISBURG, PA 17105

INVOICE DATE
03/24/2016
JOB NO.
722
INVOICE NO.
1801836479

Ship to:

Bill to: DELAWARE RIVERKEEPER NETWORK
925 CANAL ST STE 3701
BRISTOL PA 19007-3949

CUSTOMER ACCOUNT NO.	CUSTOMER ORDER NO.	CUSTOMER ACCOUNT CODE
77004640	RTK #16-0135	(717) 787.4050

JOB DESCRIPTION AND TERMS:
PA Department of Transportation for "Right to Know" - Reimbursement.
*** Include Invoice Number on your remittance or attach a copy of the invoice with your payment. ***
*** To Pay by Credit Card, Download a Form at ftp://ftp.dot.state.pa.us/public/PubsForms/Forms/C-4.pdf ***

DOC ID	DESCRIPTION	REFERENCE	AMOUNT
	RTK 8.5 x 11 BW		6.25
	POSTAGE		3.34

MAKE PAYMENT TO: PA DEPARTMENT OF TRANSPORTATION

TOTAL AMOUNT DUE 9.59

REVENUE CODE:
ACCOUNT CODE:

Upper Delaware Scenic and Recreational River
Evaluation of Proposed Water Resources Project
Pursuant to Section 7(a) of the Wild and Scenic Rivers Act

Project Name: ____Pond Eddy Bridge Replacement Project____

Submitted By: ____Kristina M. Heister, Superintendent _____

Prepared By: ___Don Hamilton, Chief of Natural Resource Management_____

Date: _____November 2, 2015_____

Review Team Members:

Name: Don Hamilton	Title: Chief of Natural Resource Management
Name: Carla Hahn	Title: Park Ranger, Management
Name: Gary Smillie	Title: Hydrology Program Lead, NPS
Name: Mike Martin	Title: Hydrologist
Name: Peter Sharpe	Title: Northeast Region Hydrologist

Permit application submitted to the U.S. Army Corps of Engineers? [X] Yes [ ] No

Determination of the effects of the proposed activity:

[ ] Insufficient information to make a final determination.

[X] The proposed activity **will not** have a direct and adverse effect on the free-flowing character of the river, the water quality and quantity of the river, or the values for which the Upper Delaware River was designated under the Wild and Scenic Rivers Act.

[ ] The proposed activity **will have a direct and adverse effect** on the free-flowing character of the river, the water quality and quantity of the river, or the values for which the Upper Delaware River was designated under the Wild and Scenic Rivers Act.

Project Measures: [ ] **Recommended** [X] **Required** [ ] **N/A**

Kristina M. Heister

Kristina M. Heister
Superintendent

11/16/2015
Date

I. Introduction

As part of the National Wild and Scenic Rivers System, the Upper Delaware Scenic and Recreational River includes the uppermost 73.4 miles of the main stem Delaware River that comprises the New York-Pennsylvania border. The longest and one of the cleanest free-flowing (undammed) rivers in the eastern United States, the Delaware maintains high water quality, ecological integrity, cultural, geological, recreational, and scenic values that are exceptional among the large river systems in this region.

This document, prepared by the National Park Service pursuant to Section 7(a) of the Wild and Scenic Rivers Act, is a determination of effect as to whether the proposed water resources project (replacement of the Pond Eddy Bridge) would have a direct and adverse effect on the Outstandingly Remarkable Values (ORVs) for which the Upper Delaware Scenic and Recreational River was established. ORVs are defined by the Wild and Scenic Rivers Act as the characteristics that make a river worthy of special protection.

The Interagency Wild and Scenic Rivers Coordinating Council has issued criteria for identifying and defining these values. The criteria guidance states that:

- An ORV must be river related or dependent. This means that a value must

    a. be in the river or on its immediate shorelands (generally within 0.25 mile on either side of the river),

    b. contribute substantially to the functioning of the river ecosystem, and

    c. owe its location or existence to the presence of the river.

- An ORV must be rare, unique, or exemplary at a comparative regional or national scale. Such a value would be one that is a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.

At UPDE, identified ORVs include the free-flowing condition, water quality, cultural, ecological, geological, recreational, and scenic values. These are described in detail in the Delaware River Basin Wild and Scenic Values report (NPS 2012) and the Delaware River Basin Wild and Scenic Values Workshop report (NPS 2011).

II. Description of Project Area

☐ Scenic Section ☒ Recreational Section ☐ Both Scenic and Recreational

Narrative:

The Pond Eddy Bridge spans the Delaware River at River Mile 265.5 (41° 26' 22.0" N, 74° 49' 13.0"W), and connects New York State Route 97, County Road #41 and Hollow Road in the Town of Lumberland,

Sullivan County, New York with PA State Route 1011 (Flagstone Road) and T-397 (Rosa Road) in Shohola Township, Pike County, Pennsylvania. New York State Route 97 is a state-designated Scenic Byway.

The project site area consists of approximately 8.9 acres, and includes a bridge span of 506' across the Delaware River at a location where the width of the river is 486' at the Ordinary High Water Mark. Steep densely-vegetated banks (with near 1:1 slopes) slope down approximately 15' from the roadways, with a good portion of the PA "bank" consisting of exposed bedrock. Narrow riparian floodplains are confined between the banks and the river. The project area contains 0.18 acres of riparian floodplain wetlands along the river. Stream conditions at this site are low gradient, pool/run habitat with slow to moderate velocities, high stability, and well-armored substrate consisting of gravel, cobble, predominantly large boulder, and bedrock in locations, with no evidence of channelization. There is not a well-defined thalweg (deepest point) in this cross section of the river, with much of the channel flowing 1-3' deep at normal summer flows.

This section of the Delaware River is within the *Special Protection Waters* designated by the Delaware River Basin Commission, and is specifically classified as "Outstanding Basin Waters" within the established boundaries of the Upper Delaware Scenic and Recreational River, in Zone 1B. Water uses protected include maintenance and propagation of resident game fish and other aquatic life, passage of anadromous fish, wildlife habitat, and recreation. This section of the Delaware River, according to the Pennsylvania Department of Environmental Protection's Chapter 93 Water Quality Standards, is protected as a warm water fishery (WWF), for the maintenance and propagation of fish species and additional flora and fauna that are indigenous to a warm water habitat, and for migratory fishes (MF) including the passage, maintenance and propagation of anadromous and catadromous fishes and other fishes that ascend to flowing waters to complete their life cycle. According to the New York State Department of Environmental Conservation, this section of the Delaware River is designated as a Class A best use water, to be protected for water supply, primary and secondary contact recreation, fishing, and fish propagation and survival.

The project and site are within the historic community of Pond Eddy NY-PA, a Delaware and Hudson Canal-era community. The Delaware and Hudson Canal and Gravity Railroad, a 124-mile-long transportation system between the Lackawanna Valley in Pennsylvania and Rondout (near Kingston) New York, on the Hudson River, was one of America's first million-dollar private enterprises. The construction of this transportation system was a significant engineering feat of pre-industrial America.

III. Description of Proposed Activity:

[X] Bridge Construction or Replacement [ ] Stabilization [ ] Infrastructure

[ ] Other (Please describe): _____

Narrative:

This project involves the replacement of the Pond Eddy Bridge with a new bridge constructed 55 feet upstream of the existing bridge, and the demolition and removal of the existing bridge. The replacement

bridge will be a 2-span truss that is 506' in length and 28'9" out-to-out truss width (22'4" out-to-out deck width) with two abutments and a center pier. The project will require the temporary installation of a causeway work pad, extending to half the river's width at any one point in time, to enable the construction of the new pier and bridge and the removal of the old pier and bridge. The rock causeway will occupy different locations in and adjacent to the river during the summer 2016-fall 2019 construction timeframe.

IV. Effects of the Proposed Project Within the Context of Park Outstandingly Remarkable Values

The Outstandingly Remarkable Values for which the Upper Delaware River was designated under the Wild and Scenic Rivers Act, in addition to free-flowing condition and water quality, are cultural, ecological, geological, recreational, and scenic. Potential impacts to each of these values are provided below and include a description of the time scale of effects (short and long-term).

1. Flow (including free-flowing condition, within-channel conditions, hydrological processes)

Impact Summary: Potential flow impacts from this project are expected to be minor and temporary.

ORV: Maintaining free-flowing conditions is integral to the designated status of the Upper Delaware Scenic and Recreational River under the Wild and Scenic River Act, supports the integrity of the UPDE ORVs, and is a key component of future management. (NPS 2012)

Description: Hydrologists from the National Park Service's Water Resources Division and Northeast Region reviewed the *Hydrologic and Hydraulic Report* and analysis for this project and provided their assessment and concerns. PennDOT and their consultants have followed U.S. Fish and Wildlife Service guidelines for temporary causeway construction, and have developed design alternatives for the causeways that pass flows (with half the river remaining open during the most restrictive hydraulic conditions of Stage 3C), minimize upstream flood risks, and allow for safe fish and boat passage during construction.

Short-term effects: Short term effects include a restriction of the channel width (but not by more than half the river's width) while causeways are in place, and an acceleration of flow velocities through those restricted channel widths. The causeways are designed to pass all flows either through the open channel or by overtopping the rock causeways during higher flows (great than 1-year storm events), allowing for the continuation of hydrological processes.

Long-term effects: The biggest concerns raised by NPS hydrologists centered on potential effects of the constricting causeways on natural channel morphology, scouring and erosion of the bed and banks of the river during higher magnitude flood events. A response from SAI Consulting Engineers explaining the causeway design to overtop for all events greater than 1-year storms events, allowing for velocity distribution more closely matching existing conditions, alleviated one concern. Additions to the plan now require: 1) pre-construction and post-construction survey and assessment of the streambed and stream banks to determine areas of significant scour, erosion, or deposition; and 2) restoration of streambed and stream banks, should impairment occur. Pay item specifications will now be included in

the contract bid documents for monitoring the streambed and stream banks, along with separate pay items for restoration. This alleviated further concerns of NPS hydrologists. In addition, the observed conditions of well-vegetated and bedrock outcrop banks, as well as a streambed dominated by very large boulders in this location, make scouring and erosion less likely. A similar bridge replacement project completed in 2007 (the Barryville-Shohola Bridge) eight miles upstream of the Pond Eddy Bridge was constructed using comparable causeways in the river. No long-term impairment of natural channel morphology, or scouring and erosion of the bed and banks of the river resulted from that project.

The proposed bridge replacement project has been developed to maintain the free-flowing condition of the Delaware River. The replacement bridge will maintain a similar opening to the existing structure with no increase in the 100-year water surface elevation. The proposed structure will have a single center-channel pier, similar to the existing bridge, but with a smaller pier width that will convey flows more efficiently through the bridge opening while reducing debris buildup potential.

2. Water Quality

Impact Summary: Potential water quality impacts from this project are expected to be minor and temporary.

ORV: Water quality of the Delaware and its tributaries is also integral to its designated status under the Wild and Scenic River Act, supports the integrity of the UPDE ORVs, and is a key component of future management. (NPS 2012) The Upper Delaware Scenic and Recreational River sets the standard for exceptional water quality in the Mid-Atlantic Region. (NPS 2014)

Description:

Short term effects: Short term water quality impacts from this project are expected to be temporary sedimentation and turbidity issues primarily resulting from in-stream/near-stream activities involved with the installation and removal of the causeway, and runoff from disturbed river banks and riparian areas. With the required implementation of an approved *Erosion and Sedimentation Pollution Control Plan* (E&SPC Plan), the use of Best Management Practices, and observance of proper construction sequencing, these erosion, sedimentation and turbidity issues are expected to be minimal. The use of compost filter socks, slope erosion protection matting and Geocell Confinement System slope stabilization methods should help to minimize adverse impacts. Use of equipment such as the WTS 2000 Portable Sediment Tank Dewatering System should help to ensure that clean water is being discharged to the river from any pumped dewatering operations. Clean, non-erodible (either sandstone or limestone, not silt stone), locally sourced rock will be used to construct the causeways. The plans also require timely restoration of the riparian area after removal of the causeways and access roads using Geocell Confinement System, topsoil, native live stake plantings, native grass plugs, Delaware River Seed Mix and mulch, and monitoring to ensure vegetative cover and stream bank stability.

Further water quality assurances include a prohibition on vehicles entering the Delaware River except in the event of unforeseen emergency circumstances, and then only if there is no contravention of water quality standards or the release of fuel or lubricants into the river, and provided that the contractor

notify all regulatory agencies of the action. The E&SPC Plan prevents the storing of fuel, equipment maintenance, or refueling of vehicles on causeways and anywhere within 50 ft. of surface waters or drainage facilities leading to surface waters on the project site. An exception will allow for refueling of vehicles on the causeway during Stages 3A and 3B, but only within a Temporary Portable Spill Containment Berm. The E&SPC Plan will be implemented to minimize impacts during all phases of construction. In addition, the contractor is responsible for developing a *Preparedness, Prevention, and Contingency (PPC) Plan* to address any potential discharge of pollutants.

Long-term effects: Long-term water quality impacts are expected to be minimal once vegetative cover is restored to riparian areas. The anchoring methods used for the Geocell Confinement System (including earth anchors, cables, tendons and pins) will enable it to withstand 20 feet/second flow velocities, exceeding 100-Year flood event flows. Precipitation collected on the new bridge will be directed to the NY and PA streambanks at the abutments, end drainage inlets will be constructed at each end of the structure to collect deck drainage, and outlets for these will empty onto scour protection along the bank and abutment. The banks will be stabilized with a mix of rock and vegetation.

3. Cultural Resources

Impact Summary and ORV: No cultural resources that are considered contributing features to the cultural ORV at UPDE will be impacted by this project.

The Pond Eddy Bridge was listed on the National Register of Historic Places on November 14, 1988 as a representative example of a multiple span Pennsylvania (Petit) through-truss bridge. This bridge is one of the few representative truss bridges located in northeastern Pennsylvania. Although the replacement of this bridge is considered an adverse impact based on review under Section 106 of the National Historic Preservation Act, the standard for review under Section 7(a) of the Wild and Scenic Rivers Act is different. The Pond Eddy Bridge is not considered a contributing feature to the cultural ORV at UPDE. This conclusion is based on the determination described in the ORV Workshop Report which indicated the bridge was not "associated with any individual or event" and are not one of a kind in the region or best of the best examples". (NPS 2011, p. 46) Therefore, no review was conducted related to the bridge resource itself under Section 7(a) of the Wild and Scenic Rivers Act.

It should be noted that Penn DOT agreed to ensure that an archaeological monitor, meeting the Secretary of the Interior's Professional Qualifications Standards per 36 CFR §61, will be present during construction activities adjacent to the area presumed to be the location of the D & H Canal to document any features that may be exposed as a result of earthmoving. If any unanticipated discoveries of historic properties or archaeological sites are exposed, all work will cease in the vicinity of the discovery. The PASHPO, the FHWA, Penn DOT and Tribal representatives, as appropriate, may conduct a joint field view within 72 hours of the notification to the FHWA. NYSHPO will be invited to attend. The FHWA, in consultation with the appropriate parties, will develop a treatment plan for the discovery prior to the resumption of construction activities in the area of the discovery.

Penn DOT also agreed to complete a report documenting the history of the 1904 structure.

4. Scenic Resources

Impact Summary: Potential scenic impacts from this project are expected to be significant but temporary.

ORV: Scenic resources are an ORV for UPDE. As stated in the NPS, Delaware River Basin Wild and Scenic River Values report (2012), "The diversity of historic bridges—suspension, stone arch, truss (several are included in the National Register of Historic Places)—is particularly notable."

Description: As part of the Section 106 Memorandum of Agreement, PennDot in coordination with NYSDOT formed a Design Advisory Committee (DAC) consisting of local interest groups to solicit input for the bridge type and the aesthetic treatments of the replacement structure. The DOTs considered the DAC options and decided to construct the 2-span truss as the replacement bridge. This bridge will maintain the scenic appeal of truss bridges from an earlier era, and have the functionality and safety of a modern day bridge.

Short-term effects: There will be short term effects on the scenic appeal and values that this bridge and section of river and roadway have during the construction of the bridge. A congested staging area for equipment and supplies may be visible from NYS Route 97 and the river. Additional traffic control signs and a flagging crew may be directing traffic near the bridge. The extensive rock causeways within and adjacent to the river, the construction equipment and vehicles throughout the site, and the deployment of buoys and warning signs in the river upstream of the site will be a real contrast to the placid scene normally found here. But this is temporary, and part of a modern day bridge building project.

Long-term effects: Once the bridge construction project is completed and vegetation cover is restored to the work site, the aesthetic appeal of the bridge in this setting should be evident. No adverse long-term effects are anticipated from this project.

5. Ecological Resources (including riparian vegetation and floodplain conditions, upland conditions, and hydrological and ecological/biological processes)

Impact Summary: Potential impacts on ecological integrity from this project are expected to be minor and temporary with the exception of potentially long-term impacts on freshwater mussels.

ORV: The Upper Delaware River exhibits some of the highest ecological integrity found in any of the large rivers of this region. As the least-developed section of the last major river on the Atlantic Coast, undammed the entire length of its mainstem, the Upper Delaware's wild and scenic, largely ecologically intact, free-flowing character supports key components and processes that contribute to the superb natural resources found here. Exceptional water quality, resulting from a predominately forested landscape, sustains high quality fish and aquatic insect assemblages. Excellent in-channel conditions result in an abundance of riffles, runs, and pools, and a diversity of in-stream habitats. These aquatic conditions, combined with good riparian habitat that is coupled with a functioning floodplain, provides great hydrological connectivity, structure, and function.

The diversity and extraordinary abundance of freshwater mussels is a primary contributing element to this ORV. As described in the Delaware River Basin ORV Workshop Report (2011) the Upper Delaware River is considered "exemplary for high water quality and integrity of ecological communities , for the full complement of freshwater mussels, and exceptional wintering habitat for bald eagles". (p. 53)

Description: Very narrow riparian floodplains (less than 100' wide on the NY side, less than 50' wide on the PA side) occur on either side of the Delaware, confined between the steep banks sloping down from the roadways and the river. These floodplains also comprise the floodway in this section of river. Small riparian floodplain wetlands, totaling 0.18 acres, are found on either side adjacent to the Delaware River. Their small size provides limited wildlife habitat and water quality functions. The limited extent of the floodplains here also somewhat compromises their function with and benefit to the river, as areas for sediment deposition, water filtration, aquifer recharge, wildlife habitat, inputs of coarse particulate organic matter (CPOM), and areas for dissipating flood flows of the Delaware River. Riparian vegetation within the floodplains/floodways is primarily reed canarygrass (a native grass that acts like an invasive), common rush, yellow rocketcress, sedge species, and multiflora rose, with some colonization by purple loosestrife nearer the water's edge. Woody vegetation on the steep banks leading up to the roadways consists of American sycamore, black willow, river birch, and red maple. On the NY side, the trees' orientation to (north of) the river provides little shading, but more river shading is provided on the PA side from the closer proximity trees, steeper terrain, and their orientation to (south of) the river.

River conditions at this site are low gradient, pool/run habitat with slow to moderate velocities, high stability, and well-armored substrate consisting of gravel, cobble, predominantly large boulder, and bedrock in locations, with no evidence of channelization. There is not a well-defined thalweg (deepest point) in this cross section of the river, with much of the channel flowing 1-3' deep at normal summer flows.

The Upper Delaware River provides habitat for 9 species of freshwater mussels and 51 species of fish. As the last major river on the Atlantic Coast undammed the length of its main stem, the Delaware provides important historic spawning and rearing habitat for sea-run migratory fish as found on few other rivers. Still significant runs of American shad and American eel play an important role in biogeochemical cycles, biomass interchange, and are an important riverine-marine ecological link that dates back thousands of years.

Consultation with the U.S. Fish and Wildlife Service (USFWS) regarding this project indicated potential concerns related to the presence of dwarf wedgemussels, a state and federally listed endangered species. The USFWS requested that an updated freshwater mussel survey be conducted, which was completed by U.S. Geological Survey biologists in September 2011. No state or federally listed threatened or endangered mussels were identified within the project site. One of the three mussel species found in the survey, however, was alewife floater (*Anodonta implicata*), a species ranked as "critically imperiled" in New York (Galbraith, 2011). The Delaware River remains a stronghold for this species, currently supporting the largest and healthiest population of alewife floater mussels in New York State (David Strayer, personal communication, 2014). A total of 4,080 mussels of three species were found at the site in the 2011 survey, 97% of which were eastern elliptio mussels.

Known for their ability to filter large amounts of water, freshwater mussels act as natural "biofilters" (Strayer et al. 1994, Strayer et al. 1999) contributing to the exceptional water quality of the Upper Delaware River. The estimated collective filtration ability of bivalves in the Delaware Estuary watershed exceeds 100 billion liters per hour (Kreeger et al. 2010). Mussels also perform other important functions in rivers (Vaughn and Hakenkamp 2001). In the process of filtering suspended particulate matter from the water column, mussels link benthic and pelagic compartments by transferring energy and nutrients from the water column to the sediment, biodepositing organic matter, and excreting nutrients (Vaughn and Hakenkamp 2001, Vaughn et al. 2004, Howard and Cuffey 2006, Elderkin et al. 2008). These energy and nutrient subsidies provided by mussels have ripple effects up food webs and stimulate both algal and macroinvertebrate production (Howard and Cuffey 2006, Spooner and Vaughn 2006, Vaughn and Spooner 2006b, Vaughn et al. 2007, Vaughn et al. 2008). Clearly, mussels play a very important role ecologically in rivers such as the Delaware, contributing to water quality and clarity, nutrient cycling, energy transfer and system productivity.

Maintaining abundant mussel populations within the Upper Delaware River is also important for the lower portions of the basin. As described by Anderson and Kreeger (2010), "based on the limited current distribution of mussels of any species in tributary streams (<10% in southeast PA, limited surveys elsewhere) [to the Delaware River], and the patchiness and low mussel abundance (<1m^2) within streams where they are found, the healthy assemblages that exist in the main stem and tributaries of the Upper Delaware are particularly valuable and require protection." (p. 3)

The USFWS had additional concerns regarding this project and potential impacts to bald eagles. No known bald eagle nests were determined to be near the project site, [redacted]. The Pond Eddy Bridge Replacement Project is compliant with the Bald Eagle Protection Act. The northern long-eared bat was listed as threatened under the Endangered Species Act in May 2015. The project was reviewed by the USFWS and it was determined that there were no conflicts at this location with the northern long-eared bat.

Short-term effects: The two small wetlands on either side of the river will be partially impacted temporarily during construction associated with the causeway. Temporary impacts will be limited to a total of 0.074 acres of wetlands. Geotextile matting will be laid over the wetlands prior to the rock being placed for the causeway, and this use of this matting will allow the causeway rock to be removed and the wetland area to return to pre-construction conditions after construction.

Much concern has been expressed regarding changes in river hydrology resulting from the causeways partially blocking and constricting the river, creating some higher velocity flows in the open channels that may be a barrier to fish passage, and blocking flows to other sections of the river downstream of the causeways. The Hydrologic and Hydraulic analysis provided demonstrates that upstream migration of American shad should not be impeded during average (mean monthly based on 10 years of data) flow conditions in any given year. Portions of the open channel have velocities less than the sustainable swim speed (5 feet/second) and burst swim speed (13 feet/second) of American shad. Higher storm events may result in flow velocities in excess of these speeds; however, their duration is typically 1-2 days, and refuge areas for fish are available both upstream and downstream of the project site. Such events will

likely be a temporary barrier to fish passage. The project site may not be much different from the other natural constrictions in the river caused by rock deltas such as those at the mouths of Hankins Creek and Ten Mile River, locations where the river is constricted to about half its width, which American shad and American eel have navigated successfully.

Another concern raised as a potential barrier to fish passage was in-stream work and the noise associated with it, causing fish to avoid the area. The plans now state that there will be a prohibition on work within the stream from April 15 to July 1 of each year, the primary timeframe for the American shad spawning run upriver. This prohibition includes activities such as the placement and/or relocation of causeway materials such as geotextile and rock.

Sections of the river downstream of the causeways will experience a lack of flowing water, may experience dewatering of some riverbed, and will likely experience rising water temperatures and lower dissolved oxygen concentrations in areas not dewatered. This would likely be fatal to relatively non-mobile freshwater mussels, some aquatic insects (depending upon life-stage), and fish eggs remaining in those areas. More mobile fish can move out of these areas, if not trapped in pockets of standing water. There may not be any good alternatives to the short term loss of viable river habitat downstream from the causeways other than to relocate mussels from these areas to suitable nearby habitat upstream of this project before the causeways are installed.

Other short term effects will be the causeways disconnecting the river from parts of its floodplain, the loss of some vegetation in the floodplain and on slopes leading down from the roadways, and perhaps some erosion and sedimentation prior to slopes being revegetated/stabilized. Eventual removal of the causeways will resolve the river's disconnection with its floodplain. Timely restoration of the banks after causeway removal with Geocell Confinement System stabilization, as well as the use of erosion control matting and compost filter socks, as planned, should minimize runoff and sedimentation. The planting of native live stakes and grass plugs, the use of Delaware River Seed Mix, and monitoring and maintenance requirements, for a year's time, to help ensure the success of these plantings (all as called for in plans and specifications) should keep these other impacts from becoming long-term effects.

Long-term effects: A potential long-term effect from this project is the loss of hundreds, or even thousands of freshwater mussels. This would likely result from the placement of 2.76 acres (35,439 cubic yards) of rock causeways in the river up to the ordinary high water mark, as plans call for. The effect of the causeways blocking water flow to sections of the river below them would also likely be fatal to mussels inhabiting those areas. As described by Anderson and Kreeger (2010), "once extirpated from a stream or reach, mussels are not able to recolonize easily, particularly if there is no longer broodstock nearby. Most mussels have a long lifespan (30-100 years) and don't reproduce until at least 8 years old. Therefore, even if conditions permit redistribution via fish hosts, recolonization and recovery can take decades. Remaining mussel beds in the Delaware River are vulnerable to spills and land-based development. Protection of the existing metapopulation includes ensuring that it does not become further fragmented, less able to disperse and exchange genes, and as a result, less resilient." (p. 4) Therefore, the potential loss of mussels in the existing mussel bed and the loss of the beneficial

ecosystem services they provide would be considered a long-term effect lasting well beyond the timeframe of this project.

Additional long-term ecological effects from this project are not envisioned if other aspects of the project proceed according to plans and specifications.

6. Geological Resources (including geomorphology, within-channel conditions, erosion and sedimentation, and other geologic processes)

Impact Summary: Potential geological impacts from this project are expected to be minor and temporary.

ORV: The Upper Delaware Scenic and Recreational River is an exceptional example of a deep, narrow river valley cutting across the Small Lakes section of the glaciated portion of the Appalachian Plateau. The overall landscape is a stream-cut landscape modified by stream derangements from glacial deposits burying portions of preglacial valleys. Examples of significant geologic features include sandstone cliffs, barbed tributaries, glacial deposits, glacial outwash terraces, diverse channel morphologies, exposed ancient bedrock, bedrock knobs, cutoff incised meanders, island complexes, gorges, and fossils.

Geological resources also support other ORVs at UPDE. Overall, the geologic processes and features of the Delaware River Valley support stable, mature, and complex biological communities. This resilient, healthy river ecosystem includes a variety of microclimates and habitats that support regionally rare plant and animal communities and optimal riverine macroinvertebrate and fish habitat. The geologic value of the Delaware River is further exemplified by its scientific importance. The river's complex geologic processes and formations provide geologists with a nearly complete record of fluvial deposition through the Holocene. (NPS 2012) Lastly, the picturesque gorges, rock outcroppings, steep forested slopes, and gently rolling hills of the Upper Delaware River also contribute to the regionally significant scenic quality of the Upper Delaware River. (NPS 2014)

Description: The proposed bridge replacement project is not expected to alter any local topographic features or Delaware River bathymetry, though short-term within-channel conditions will be influenced by the placement of temporary causeways during the construction period.

Short-term effects: There will be altered within-channel conditions resulting from placement of the causeways in the river. Higher flow velocities will be experienced in the open channels adjacent to the constricting causeways, while other river habitat downstream of the causeways will be deprived of flowing water. These conditions will last only as long as the causeways are in place.

Long-term effects: There are no long-term geological impacts anticipated from this project. The substrate of the river in this location, dominated by large boulders, is not expected to scour or experience changes in riverbed bathymetry due to increased flow velocities caused by the constricting causeways. The banks are also densely vegetated, or in some areas consist of exposed bedrock, and are not prone to scouring or erosion. However, if scouring or erosion should occur to the bed or banks, a required pre-construction and post-construction survey and assessment of the streambed and stream

banks, including repeat photo points, should identify any areas affected. The contractor will be required to submit a plan for restoration. Pay items and specifications are being added to the contract bid documents for monitoring the streambed and stream banks during construction, and for restoration of the streambed and stream banks if necessary.

6. Recreational Resources

Impact Summary: Potential recreational impacts from this project are expected to be minor and temporary.

ORV: The Upper Delaware Scenic and Recreational River corridor's pristine resources offer outstanding river recreation in close proximity to the most densely populated region in the United States. (NPS 2014) All other ORVs contribute to the value of UPDE as a recreational resource where visitors enjoy boating, biking, hiking, fishing, hunting, wildlife watching, fall foliage, and scenic touring through the cultural landscape. (NPS 2012)

Description:

Short-term effects: There will be short-term effects on local recreation as a result of this bridge replacement project. For sightseers and bicyclists on NYS Route 97, there may be traffic delays at times when lane closures necessitate traffic control and one-way alternating traffic in the open lane. These temporary delays may also be experienced by those interested in crossing the Pond Eddy Bridge to access Pennsylvania State Game Lands No. 209 in Pike County, PA.

A *Construction Boater Safety Plan* and Aids *to Navigation Plan* are required under a separate NPS prerequisite for a Special Use Permit to facilitate safe and open navigation on this section of river during the project. Under this permit, recreationists will be directed by buoys and signage to whichever side of the river is open to navigation while the causeways are in place. This will deprive them of access to one side of the river for a few hundred yards, but there are no anticipated closures for boating and navigation on the river through this section at this time.

Long-term effects: Once the construction is completed and the new bridge is open, there are no long-term adverse impacts to recreation anticipated from this project. Recreation will be improved by the addition of a pedestrian sidewalk on the new bridge.

V. Magnitude and Extent of Potential Off-Site Changes

The proposed replacement bridge will be constructed 55 feet upstream of the existing bridge, and will connect with NYS Route 97, in line with and directly across from the Hollow Road intersection with NYS Route 97. The existing bridge was lined up with County Road #41 and its intersection with NYS Route 97. This placement will maintain the existing intersection configuration and avoid the need for additional off-site changes to the existing connecting road network. The replacement bridge will connect with S.R 1011 (Flagstone Road) on the Pennsylvania side similar to the existing intersection. No additional off-site changes are anticipated.

VI. Conclusion

[X] The proposed activity **will not** have a direct and adverse effect on the free-flowing character of the river, the water quality and quantity of the river, or the values for which the Upper Delaware River was designated under the Wild and Scenic River Act.

[ ] The proposed activity **will have a direct and adverse effect** on the free-flowing character of the river, the water quality and quantity of the river, or the values for which the Upper Delaware River was designated under the Wild and Scenic River Act.

Project Measures: [ ] **Recommended** [X] **Required** [ ] **N/A**

Project Measures/Conditions:

North America was once home to 297 species of freshwater mussels, by far the highest diversity in the world. Today they are the most rapidly declining animal group in North America, with 213 taxa (71.7%) either extinct, endangered, threatened, or of special concern (Williams et al. 1993). Mussels play an integral role ecologically in rivers such as the Delaware, contributing to water quality and clarity, nutrient cycling, energy transfer and system productivity (Vaughn and Hakenkamp 2001).

As described by Anderson and Kreeger (2010), "based on the limited current distribution of mussels of any species in tributary streams (<10% in southeast PA, limited surveys elsewhere) [to the Delaware River], and the patchiness and low mussel abundance (<1m^2) within streams where they are found, the healthy assemblages that exist in the main stem and tributaries of the Upper Delaware are particularly valuable and require protection..... Once extirpated from a stream or reach, mussels are not able to recolonize easily, particularly if there is no longer broodstock nearby. Most mussels have a long lifespan (30-100 years) and don't reproduce until at least 8 years old. Therefore, even if conditions permit redistribution via fish hosts, recolonization and recovery can take decades. Protection of the existing metapopulation includes ensuring that it does not become further fragmented, less able to disperse and exchange genes, and as a result, less resilient." (p. 3-4)

Therefore, UPDE believes that conservation efforts are needed to mitigate the potential long-term impacts of this project on the existing mussel population and support the ecological integrity ORV for the park. This recommendation is also based on consultation with the New York Department of Environmental Conservation and US Geological Survey.

On Friday, November 13, 2015 the NPS met with project managers, regulatory agencies and others (e.g. U.S. Geological Survey) to discuss potential conservation options. It was concluded that mussel relocation was a reasonable action and that it would focus on areas of direct impact associated with the causeway and areas where there are high densities of alewife floater mussels. Within these areas all mussel species will be relocated. Specific details of the relocation effort will be provided in a Salvage

Plan to be submitted to NPS in spring 2016 prior to issuance of an NPS research and collecting permit. This effort is expected to occur prior to the start of construction and pose no threat to the project timeline or schedule. General guidelines are provided below for inclusion in the Salvage Plan.

Mussel Relocation:

1. All live mussels will be relocated from areas of direct impact associated with the causeway and areas where there are high densities of alewife floater mussels. NPS recommends a minimum area of 25 meters from the Pennsylvania shoreline, and extending 50 meters above, and 75 meters below the upstream side of the existing Pond Eddy Bridge (see Figure 1, cells 1-5). Mussels must be hand-collected and relocated to an appropriate pre-identified upstream segment of the Delaware River with suitable habitat by a qualified malacologist(s). Suitable habitats are areas that support a community of mussels similar to the area from which mussels were relocated. Suitable habitat may exist directly upstream of the project site. Care will be taken to ensure that mussels are relocated to sites such that densities do not lead to overcrowding and mortality.
2. The relocation shall occur between May 1st and September 30th, and during appropriate weather and stream conditions to ensure success in locating mussels, as well as mussel survival. All mussels will be identified to species, if possible. Care will be taken to reduce handling time for all mussels, and mussels will be kept submerged in flowing water as much as possible. Mussels will be hand-placed within relocation sites in a natural position/orientation.
3. A relocation report will be prepared following completion of all mussel relocation work describing the relocation, to include: date, environmental conditions, methods, relocation site conditions (substrate, mussel community), mapped area of relocation site, species numbers, problems and solutions, results and conclusions. This report will be submitted to the National Park Service Chief of Natural Resource Management at the Upper Delaware Scenic and Recreational River within three months of the relocation effort.
4. The malacologist(s) leading this relocation effort will obtain a research and collecting permit from the National Park Service at the Upper Delaware Scenic and Recreational River.

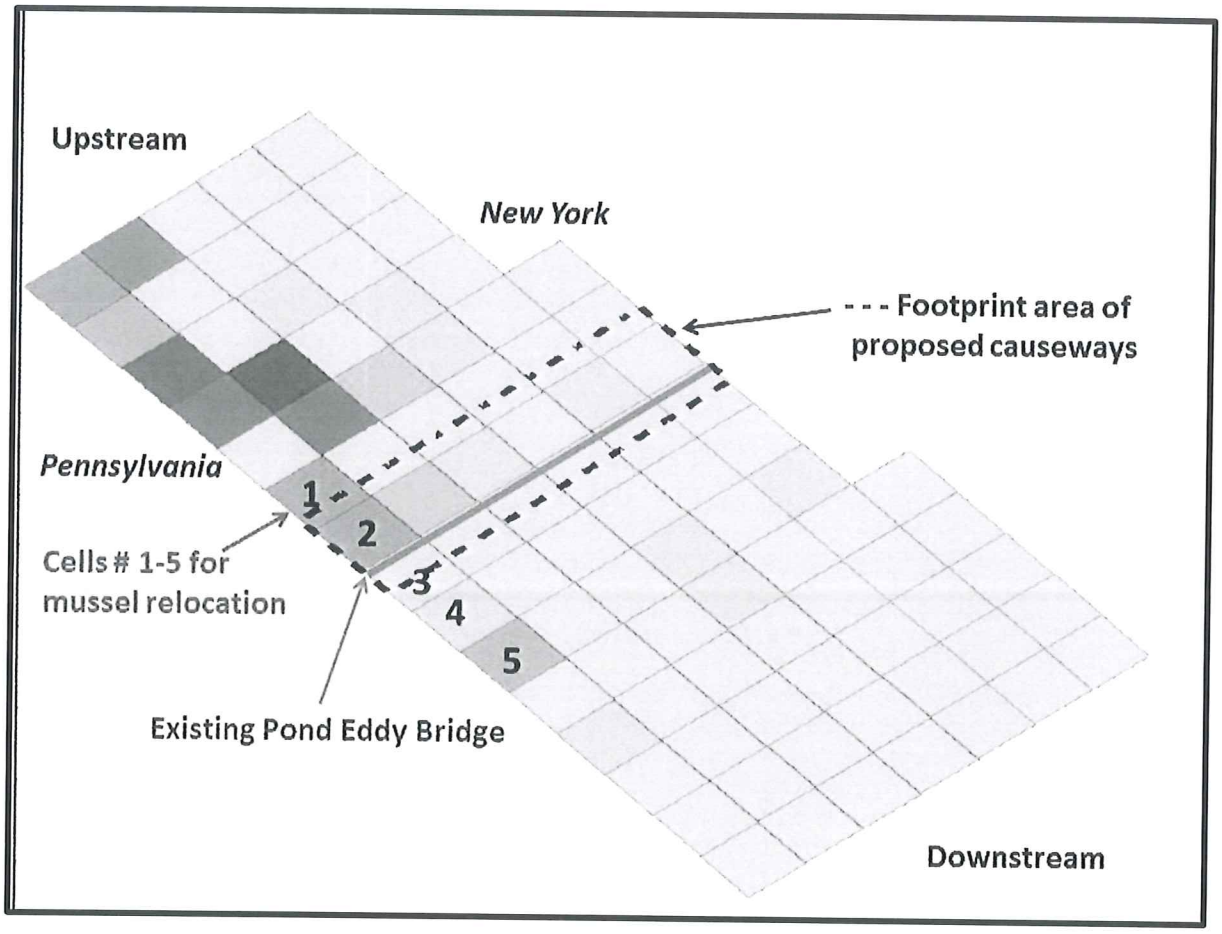

Figure 1. Recommended minimum area for mussel relocation associated with replacement of the Pond Eddy Bridge.

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Routing Slip

Work Order 1 Memoranda of Agreement 431042

Agreement No. 431042, Work Order #1
Pond Eddy Bridge Mussel Salvage and Relocation

Name	Action Reqr'd.	Rec'd. date	Completion date
Toni Zawisa BOPD - EQAD/District 2-0	Review and WO preparation	12/29/2015	12/29/2015
Greg Augustine/Susan Williams District 4-0	Initial/Signature as Department's Technically Responsible Person/Project Manager	Susan Williams 12/29/15	Susan Williams 12/29/15
ADE Design District 4-0	Signature for District Approval	12/29/15	12/29/15
Fiscal Unit District 4-0	Funds Commitment SAP Adjustment	12/29/15	12/29/15
Mark Lombard, EPDS, BOPD	Signature as Memorandum Coordinator	12/29/15	12/29/15
Comptroller's Office	Funds Available approval **(mail interoffice to Toni Zawisa, EPDS – at District 2-0 following completion)**		1/4/16
Toni Zawisa (EPDS) c/o District 2-0	For transmittal to USGS BRD		1/13/16
Heather Galbraith USGS Northern Appalachian Lab	Agency Project Manager Signature	01/19/16	01/19/16
Director Leetown Science Center USGS - BRD	Agency Acceptance Signature	01/21/2016	01/21/2016
Toni Zawisa EPDS/District 2-0	Distribution of Executed Work Order	2/1/16	2/3/16

Received By
PA Dept of Transportation

JAN 28 2016

District 2-0
Clearfield, PA 16830

Work Order/Work Order Amendment

MOA/MOU No.: 431042 State Project No. (SPN): P-00101104470-0440-321-1

Work Order/Amendment No.: 1 Federal Project No. (FPN): X044162M233

Effective on the date of this notice-to-proceed, the AGENCY PROJECT MANAGER is authorized to conduct work as detailed in the attached statement of work (template attached).

The purpose of the Work Order is to: **Conduct a limited mussel salvage and relocation for the Pond Eddy Bridge Replacement Project.** The total estimated cost for this 24-month effort is **$ 13,916.09.**

This work order may be extended for additional time with no additional cost by a letter from PENNDOT's authorized representative. Such no-additional-cost time extension must be initiated before the termination date of a work order and any extension must end within the contracts time period.

All terms and conditions of Agreement No. 431036 42 Act 1/4/16 shall remain in full force and effect and shall take precedence over any statements in the attached work plan.

Attest:

Agency Project Manager — Date: 01/19/2016

Agency Memorandum Coordinator or Designee — Date: 01/21/2016

SC 1/21/16

COMMONWEALTH

//ACZ 12/29/2015//

Work Order Manager/Project Manager — Date: 12/29/15

for District Engineer/Assistant District Engineer /Bureau Director or Division Chief — Date: 12/29/15

Memorandum Coordinator/Division Chief (EPDS) — Date: 12/29/15

Office of Comptroller
Funds Available — Date: 1/4/16

Memorandum of Agreement Amendment, Commonwealth of Pennsylvania, Department of Transportation and U. S. Geological Survey, Biological Resources Division Leetown Science Center for Multidisciplinary Biological Investigation

Agreement No. 431042, Work Order #1: Pond Eddy Bridge Mussel Salvage and Relocation

STATEMENT OF THE PROBLEM

Describe the purpose and scope of the project. What are the objectives of the project? What are the parameters?

The Pennsylvania Department of Transportation (PennDOT) will begin construction to replace the bridge crossing the Delaware River from Pond Eddy, NY (Sullivan County) into Pond Eddy, PA (Pike County). Pond Eddy is located within the Upper Delaware River Scenic and Recreational River and as such is regulated by the National Park Service (NPS) under the Wild and Scenic Rivers Act.

The Delaware River houses several populations of the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) (Lellis et al. 2001). In addition, populations of the NY state-listed brook floater (*Alasmidonta varicosa*) and critically imperiled (but unlisted) alewife floater (*Anodonta implicata*) have been found in the Delaware River. In the summer of 2011, a Phase I survey for dwarf wedemussel was conducted near the Pond Eddy Bridge at which time no individuals of this species were found (Galbraith, 2012). The eastern elliptio (*Elliptio complanata*), creeper (*Strophitus undulatus*) and the alewife floater were identified at this site.

Construction activities in or near water bodies can have significant effects on freshwater mussels through hydrological alterations and increasing siltation (Neves et al. 1997, Watters 2000). As a result, there may be incidental take of mussels as a direct result of construction efforts or indirectly via habitat alteration in the immediate vicinity of construction sites. Because of the potential impact to freshwater mussels, NPS has deemed it necessary to salvage and relocate all mussels within the area of direct impact of the causeway, particularly with higher densities of alewife floaters (NPS, 2015).

PROJECT WORK PLAN

Describe the proposed work to be done and general guidelines for the work. Details of each task and the deliverables should be described in detail below.

This project is being initiated under the MOA 431042 between the agencies as Work Order 1. This work order describes tasks required to salvage and relocate freshwater mussels within the zone of direct effect associated with the causeway for construction of the Pond Eddy Bridge replacement project, specifically within areas of high densities of alewife floater. The NPS recommended salvage of a minimum area of 25 meters from the Pennsylvania shoreline, and extending 50 meters above and 75 meters below the upstream side of the existing Pond Eddy

Bridge. Specifically, the tasks are: 1) develop a mussel salvage plan and conduct desktop research to identify potential relocation sites for salvaged mussels; 2) salvage and relocate mussels collected within the zone of direct impact as specified by NPS (NPS, 2015); 3) report salvage and relocation events stemming from this work order; 4) coordinate and meet with PennDOT, NPS, USFWS, PFBC, and NYDEC; and 5) monitor and assess relocation success of transplanted individuals.

Note: Appropriate state and federal permits will be obtained prior to initiating work described herein. Proper authorities will be notified prior to initiating work. All equipment (e.g., snorkel gear, survey gear) that will be used for this project will be inspected and sanitized prior to and following all work conducted in the Delaware River.

Task 1: Develop a mussel salvage plan and conduct desktop research to identify potential relocation sites for salvaged mussels

A detailed mussel salvage plan will be developed and presented to PennDOT within 30 days of the Notice to Proceed date. This plan will be presented by PennDOT to NPS and other necessary stakeholders and modified accordingly following PennDOT and stakeholder input. The salvage report will detail mussel collection methodology, mussel processing and handling procedures, and relocation site selection. Relocation site selection will be based off of desktop research conducted by USGS using previously collected survey data for the Delaware River basin.

Task 2: Salvage and relocate mussels collected within the zone of direct impact as specified by NPS

Mussel salvage and relocation activities will take place during the time frame outlined by NPS (May 1st to September 30th) and according to the approved salvage plan.

Task 3: Report salvage and relocation events stemming from this work order

Following salvage and relocation activities, a preliminary, informal summary of the salvage results will be communicated by email to PennDOT and associated stakeholders within 15 days of completion of the relocation. A full written report and summary of the findings of the salvage and relocation will be provided within 60 days of the project completion.

Task 4: Coordinate and meet with PennDOT, NPS, USFWS, PFBC, and NYDEC

Coordination with PennDOT and associated stakeholders will occur at all stages of this project. Written minutes of, and action items resulting from, project meetings will be provided by the USGS project manager to the PennDOT project managers and all participants within 10 working days of the meeting. All necessary state and federal permits will be acquired prior to completion of the salvage and relocation activities. Up to 3 meetings or conference calls are assumed for this task.

Task 5: Monitor and assess relocation success of transplanted individuals

During mussel salvage, individuals will be identified, measured, and tagged prior to relocation. Following relocation, USGS will regularly monitor transplanted mussels to assess any impacts on survival or body condition of translocated mussels. This will be completed by USGS as a cost-share activity. Data resulting from this study should provide meaningful information on the success of relocation for Delaware River mussel species which will be applicable to other construction projects and salvage operations in the basin.

Literature Cited

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COMMUNICATIONS, REPORTING AND DELIVERABLES

Oral or written communications that may affect the scope, deliverables, or time frame of the work order shall be documented and relayed immediately to the PennDOT project managers by telephone, e-mail, or memo for their consideration. Initial submissions are to be made to PennDOT solely and transmittal to other stakeholders will occur following PennDOT review.

Any scope changes or the addition of tasks shall only be effective through execution of a work order amendment or letter of no-additional cost time extension.

MANAGEMENT PLAN AND STAFFING

Insert the name of the USGS BRD-LSC project manager and all other permanent staff and explain each person's role. Note number of seasonal or temporary employees assigned to the project and their role(s).

Heather Galbraith*	Research Fisheries Biologist, USGS NARL, project manager
Kay Briggs	Branch Chief, USGS NARL
Carrie Blakeslee	Ecologist, USGS NARL, field assistant for salvage and relocation
Jeffery Cole	Ecologist, USGS NARL, field assistant for salvage and relocation
Sophie Weaver	Biological Science Technician, USGS NARL, field assistant for salvage and relocation

*Principal investigator

Work team members who have not yet been named in this work order must be identified when they join the team. When a new team member is named, the USGS project manager will notify the PennDOT project manager in writing prior to charging the person's time to this work order.

OVERALL PERFORMANCE TIMEFRAME

This work order will be completed 12 months from the Notice to Proceed date.

ESTIMATED BUDGET
Attached

BILLING

TO ASSURE PROMPT PAYMENT INVOICES FOR THIS WORK ORDER MUST BE SENT TO:

Susan Williams, P.E.
PennDOT Engineering District 4-0
55 Keystone Industrial Drive
Dunmore, PA 18512 Phone: 570-963-4253
Email: susawilliam@pa.gov

A COPY OF THE INVOICE MUST ALSO BE SENT TO:

Toni Zawisa
PennDOT Engineering District 2-0
70 PennDOT Drive
Clearfield, PA 16830
Phone: 814-765-0588
e-mail: azawisa@pa.gov

A. DIRECT PAYROLL COSTS

Task 1: Salvage plan development

Position	Rate	Hours	Subtotal
GS 12	50.84	10	508.40
Total Task 1			508.40

Task 2: Salvage and relocation (including travel time to site)

Position	Rate	Hours	Subtotal
GS 12	50.84	24	1220.16
GS 9	38.23	24	917.52
GS 9	32.52	24	780.48
GS 7	25.42	24	610.08
Total Task 2			3528.24

Task 3: Salvage report publication

Position	Rate	Hours	Subtotal
GS 12	50.84	20	1016.80
Total Task 3			1016.80

Task 4: Coordination meetings

Position	Rate	Hours	Subtotal
GS 12	50.84	3	152.52
Total Task 4			152.52

Task 5: Monitoring (1 mo, 6 mo, 1 yr)--*Cost share by USGS*

Position	Rate	Hours	Subtotal
GS 12	50.84	24	1220.16
GS 9	38.23	24	917.52
GS 9	32.52	24	780.48
GS 7	25.42	24	610.08
Total Task 5			3528.24

B. DIRECT NON-PAYROLL COSTS

Task 1: Salvage plan development

	Number	Rate	Days	Subtotal
				0.00

Task 2: Salvage and relocation

	Number	Rate	Days	Subtotal
Lodging	4	89	1	356.00
Per diem	4	51	2	408.00
Mileage		0.23 X 200		46.00
Equipment				1000.00
Total Task 2				1810.00

Task 3: Salvage report publication (USGS publication charges)

	Number	Rate	Days	Subtotal
				500.00
Total Task 3				500.00

Task 4: Coordination meetings

	Number	Rate	Hours	Subtotal
				0.00

Task 5: Monitoring--*Cost share by USGS*

	Number	Rate	Days	Subtotal
Lodging	4	89	2	712.00
Per diem	4	51	4	816.00
Mileage		0.23 X 200	2	138.00
Equipment				0.00
Total Task 5				1666.00

C. SUMMARY OF COSTS

Payroll costs	5205.96
Non-payroll costs	2310.00
Overhead (85.154%)	6400.13
Cost sharing (USGS contribution)	*5194.24*
Project Total	19110.33
Total requested funds	**13916.09**

From: Zawisa, Antonia
Sent: Thursday, February 18, 2016 3:26 PM
To: Williams, Susan (PENNDOT) <susawillia@pa.gov>
Cc: 'pdeangelo@skellyloy.com' <pdeangelo@skellyloy.com>; 'John Rautzahn' <JRautzahn@saiengr.com>; Shunk, Brian E <bshunk@pa.gov>; Atkins, Kevin <katkins@pa.gov>; Hazelton, Susan <shazelton@pa.gov>; 'camille.otto@dot.gov' <camille.otto@dot.gov>; Ames, John A (Drew) <johname@pa.gov>; Cassaro, Joseph P <jcassaro@pa.gov>; 'Gregory W. Soule' <GSoule@saiengr.com>
Subject: RE: Pond Eddy Right to Know Response

At the January 21, 2016 Public Meeting in Shohola Township, PA consultants for PennDOT announced that safeguards such as relocation would be taken for potential impacts to freshwater mussels. I want to clarify that a Phase 1 survey for threatened and endangered mussels was conducted in the summer of 2011, at which time no State or Federally listed T&E species were found.

The National Park Service, in conducting their jurisdictional review pursuant to Section 7 of the Wild and Scenic Rivers Act, stated that mussels play an integral role ecologically in rivers such as the Delaware, contributing to water quality and clarity. The National Park Service requested and the Department has agreed to conduct a salvage and relocation of all mussels within a focused area of higher densities of alewife floaters (an area extending out approximately 25 meters from the Pennsylvania shoreline and extending from 50 meters above to 75 meters below the upstream side of the existing Pond Eddy Bridge) within the area of direct impact of the causeway. The Department has made arrangements for the salvage and relocation to be conducted by the (USGS) US Geologic Survey, Leetown Science Center, Northern Appalachian Lab. Attached is the National Park Service Upper Delaware Scenic and Recreational River Evaluation pursuant to Section 7 of the Wild and Scenic Rivers Act and a Mussel Salvage Relocation Agreement with USGS.

Toni Zawisa
Regional Natural Resource Specialist
Pennsylvania Department of Transportation
Environmental Policy and Development Section
c/o Engineering District 2-0
70 PennDOT Drive
PO Box 342
Clearfield, PA 16830
814-765-0588
814-765-0837(fax)

"Live a lifestyle that promotes the preservation of our natural heritage."

16-0135 Rodgers

Logged as received on 2/16/16

From: Ed Rodgers
To: PD, PENNDOT Right To Know
Subject: Right Know Request regarding the Pond Eddy Bridge Project
Date: Tuesday, February 16, 2016 3:58:35 PM

COPY

Dear sirs and madams:

At a January 21, 2016 meeting in Shohola Township, Pennsylvania consultants for PennDOT announced that safeguards such as relocation would be taken to protect threatened and endangered species of freshwater mussels in the Delaware River prior to and during construction of the Pond Eddy Bridge replacement project (SR 1011) between Shohola Township and Lumberland,Sullivan County, New York. Under Pennsylvania's Right to Know law the Delaware Riverkeeper Network requests a copy of all documents, notes, communications, emails, studies, reports and plans for mitigation to protect threatened and endangered species from this construction project from January 1, 2014 to February 16, 2016. Please contact me if you have any questions.
Thanks.

Ed Rodgers
Delaware Riverkeeper Network
925 Canal Street, Suite 3701
Bristol, PA 19007
215-369-1188, X 111
c. 609/273-4453

REMEMBER THE RIVER-To remind us all to Remember the River in every decision we make;
And to hold our elected officials accountable to do the same.