OMB Control No. 1024-0026
Expiration Date 11/30/2023

APPLICATION FOR SPECIAL USE PERMIT

UPPER DELAWARE SCENIC & RECREATIONAL RIVER
274 RIVER ROAD
BEACH LAKE, PA 18405-4046
upde_permits@nps.gov, 570-729-7134

Please supply the information requested below. **Attach additional sheets, if necessary, to provide required information.** A nonrefundable processing fee of $100 will be billed separately via Pay.gov once we receive your application unless the requested use is an exercise of a First Amendment right. You must allow six weeks for the park to process your request; check with the park for guidelines. You will be notified of the status of the application and the necessary steps to secure your final permit. Your permit may require the payment of cost recovery charges and proof of liability insurance naming the United States of America an additional insured.

Applicant Information	Company/Organization Information
Applicant Name:	Company/Organization Name: PennDOT Engineering District 4-0
Social Security Number*: N/A	Tax Identification Number*:
Street Address:	55 Keystone Industrial Park
City:	City: Dunmore
State:	State: Pennsylvania
Zip Code:	Zip Code: 18512
Country:	Country: United States
Telephone Number:	Telephone Number: 570-963-3015
Cell Phone Number:	Contact Name: Susan Hazelton
Fax Number:	Fax Number: 570-963-4949
Email Address:	Email Address: shazelton@pa.gov

Activity Details

Description of Proposed Activity (attach diagram and/or additional pages, if necessary)

The Governor of Pennsylvania issued an Emergency Declaration for the bridge on 12/16/2024 which is attached in Appendix A.

Please see Appendix B for a full project narrative.

Location Details

Requested Location
S.R. 1002 (Skinners Falls W. Road) Bridge (BMS 63-1002-0230-0739) over the Delaware River between Damascus Township, Wayne County, Pennsylvania and the Town of Cochecton, Sullivan County, New York (41.669672 N, -75.058314°)

Equipment Details

Support equipment (list all equipment; attach additional pages if necessary)

See Appendix D for Project Plan and Cross Section

PA Abutment:
Concrete cap and fencing

Construction staging:
Temporary barrier on the PA approach
Channelizing devices to separate construction activities from public users at the NYSDEC boat launch
clean, washed stone and geotextile fabric for construction of access roads both north and south of the NY abutment

Causeway:
partial width causeway
turbidity curtain
ATON materials

Demolition:
on the causeway using excavators with hydraulic shears
loaders

Post-construction:
grading to create a natural appearance consistent with NPS recommendations
final site restoration in the NYSDEC parking lot including bollard installation and gravel placement
seeding, mulching, and plantings in disturbed areas over land

Trucks and equipment to be in DEC parking lot:
- Triaxle trucks
- Excavator
- Dozer
- High Flat trailers

Timing

Set-Up Begins	Activity Begins	Activity Ends	Removal Completed
Date: *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM
Date: *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM
Date: *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM	*Date:* *Time:* ☐ AM ☐ PM

Vehicles & Participants

If using any vehicles, attach a parking plan to this form.

Type	Maximum Number
Participants (best estimate)	15
Cars	5
Vans/Light Trucks	10
Utility Vans/Trucks	TBD
Buses/Oversized Vehicles	TBD

Support Personnel

List support personnel including addresses and telephones; attach additional pages if necessary

Name	Address	Cell Phone Number
Josh Smolinsky, PE - JD Eckman, Inc.		610-310-4474

Individual in Charge

Individual in charge of activity onsite who is authorized to make decisions related to the permitted activity

Name	Cell Phone Number
Katie Daniels, PE and Harold Hill, PE	570-963-4070 and 570-963-4013

Activity Questions

Is this an exercise of First Amendment Rights?	☐ Yes ☑ No
Have you visited the requested area?	☑ Yes ☐ No
Do you plan to advertise or issue a press release before the event?	☑ Yes ☐ No
Have you obtained a permit from the National Park Service in the past? (If yes, provide a list of permit dates and locations on a separate page.)	☑ Yes ☐ No
Will you distribute printed material?	☐ Yes ☑ No
Is there any reason to believe there will be attempts to disrupt, protest or prevent your event? (If yes, please explain on a separate page.)	☐ Yes ☑ No
Do you intend to solicit donations or offer items for sale? (These activities may require an additional permit.)	☐ Yes ☑ No
Is this permit to carry out a Good Samaritan Search and Recovery Mission?	☐ Yes ☑ No

You are encouraged to attach additional pages with information useful in evaluating your permit request including: staging, sound systems, parking plan, security plans, sanitary facilities, crowd control, emergency medical plan, use of any building, site clean-up, etc.

The applicant by his or her signature certifies that all the information given is complete and correct, and that no false or misleading information or statements have been given.

Name	Susan E Hazelton
Title	PennDOT ADE - Design
Signature	 2025.01.22 11:59:53 -05'00'
Date	01/22/2025

Skinners Falls Bridge
Emergency Project
Damascus Township, PA and Town of Cochecton NY
SR 1002 Section R24
Project Description
January 8, 2025

Introduction

The Pennsylvania Department of Transportation (PennDOT) District 4-0 has announced the emergency removal of the historic Skinners Falls Bridge over the Delaware River in the interest of public safety. This decision comes after thorough bridge inspections revealed significant structural concerns that pose an imminent risk to the boaters using the Delaware River and the community. PennDOT is committed to ensuring the safety of all residents, visitors and the boating public.

The project consists of the removal of the Skinners Falls Bridge (S.R. 1002) over the Delaware River in Damascus Township, Wayne County, PA and Town of Cochecton, Sullivan County, NY. The existing Skinners Falls Bridge is a single-lane, 466-foot 6-inch, two-span, Baltimore through truss bridge, which was constructed in 1901 and 1902 and is owned by the New York-Pennsylvania Joint Interstate Bridge Commission (JIBC). Multiple rehabilitation projects and emergency repairs have taken place since 1902. The bridge was closed to all traffic, including pedestrians, in October 2019 due to safety concerns.

The biennial NBIS inspection was performed using rope access and completed in mid-October 2024. Priority notifications were submitted to PennDOT on October 14, 2024 and the full inspection report was submitted to PennDOT on October 22, 2024. In summary, the inspection findings recommended the condition rating for the superstructure be lowered from a '4 - Poor' to a '2 - Critical' and for the substructure from a '2 - Critical' to a '0 – Failed'. The masonry substructure units were being monitored at an increased frequency due to loss of mortar and cracking through several courses of stone. It was noted that the crack length and width as well as loss of backfill material through the joint had advanced from the prior documented observations.

The project purpose is to address the failed condition of the existing structure and prevent its uncontrolled collapse. The project needs are:

1. The structure's current overall inspection condition rating is 0 (failed). The deck condition rating is 4 (poor). The superstructure condition rating is 2 (critical). The substructure condition rating is 0 (failed).
2. The existing condition poses a danger to public use of the Delaware River near/under the structure.

Activities Authorized under Emergency Permits. A partial causeway extending west from the New York banks within the Delaware River and extending beyond the central river pier will be installed. The partial width causeway allows for bridge demolition activities, including access by workers, small cranes and trucks. No pipes will be installed in the causeway. As part of the demolition, the PA truss span will be dropped into the Delaware River and dragged onto the causeway. The NY truss span will be dropped from its current location onto a causeway and the bridge components would be scrapped. Explosive charges are anticipated to be used to drop the bridge onto the causeway. Additionally, the NY abutment and the center river pier will be removed. The PA abutment will be stabilized with a concrete cap and a fence to restrict access.

Resources present:

Wetlands and Watercourses:

Based on a field view, the only resource present within the project area is the Delaware River. Based on Pennsylvania Code Chapter 93, the Delaware River is listed as Cold Water Fishes/Migratory Fishes (CWF). Within New York, the Delaware River and are classified under Standard A(T) for trout waters and classification A surface waters for drinking water supply under the NYS Surface Water Classifications in 6 NYCRR 701. Based on the Pennsylvania Fish and Boat Commission (PFBC) information, the Upper Delaware River is not stocked with trout, is not a naturally reproducing trout streams, and is not Class A Wild Trout Waters. Based on New York State Department of Environmental Conservation (NYSDEC) information, the Upper Delaware River is not stocked with trout.

Within the proposed LOD one Palustrine emergent wetland (PEM) was delineated in the northeast quadrant of the bridge on the New York side and a second PEM wetland located east of the bridge along the Pennsylvania banks. The wetland on the NY side is located within the floodplain of the Delaware River and partially within a maintained area used by a commercial river trip company. The wetland on the Pennsylvania side is located within the floodplain fringe of the Delaware River.

Threatened and Endangered Species

An online Pennsylvania Natural Diversity inventory (PNDI) search was executed for an area containing the half width causeway alternative on 12/3/2024. Potential impacts under the jurisdiction of the US Fish and Wildlife Service (USFWS) and Pennsylvania Fish and Boat Commission (PFBC) were identified by PNDI for this project. Although not listed on the PNDI, coordination with NYSDEC was also conducted as part of ongoing agency coordination. Coordination with the resource agencies have indicated that the main species of concern is the federally and state endangered dwarf wedge mussel (*Alasmidonta heterodon*), which is known to inhabit the Delaware River.

Using online GIS resources, the presence of federally regulated Bald Eagle (*Haliaeetus leucocephalus*) nests were screened. Based on USFWS PA Field Office Bald Eagle nest data, the nearest bald eagle nest on the PA side is approximately 2.9 miles south. Based on NY Natural Heritage Database GIS Information non-breeding habitat for bald eagle is located along the entire Delaware River Corridor. There are two nests nearby with the closest being named the Nobody Station nest 1.5 miles south. There is another nest, which is listed as a potential location that is named Perry Pond 2.1 miles southeast of the bridge.

Coordination and resolution of the threatened and endangered species conflict is ongoing and will conclude after the demolition. If there is an incidental take as determined by FHWA, the project team will initiate formal consultation under Section 7 of the ESA and US FWS will prepare an incidental take statement in a biological opinion. If there is no incidental take because of the project, as determined by FHWA, coordination for threatened and endangered species will be concluded.

Floodplain/Floodways

The project is located within the FEMA detailed Study Area for The Delaware River. The existing bridge is located within the defined floodway and within the 100-year floodplain zone AE (Elev 725 feet upstream of the bridge and 723 feet downstream of the bridge). The 100-year floodplain extends to the east, approximately 650 feet to the vicinity of the existing railroad tracks.

Upper Delaware Scenic and Recreational River NPS Unit

The entire study area is within the Upper Delaware Scenic and Recreational River unit as designated by the United States National Park Service (NPS). This NPS unit was designated in 1978 and extends from Hancock, NY, south to Mill Rift, PA. The unit encompasses 73.4 miles of the Delaware River, extending from the river to the adjacent ridgetop in both states. Unlike the majority of areas managed by the NPS, nearly all of the land within the Upper Delaware Scenic and Recreational River unit remains privately owned. In 1986, the Conference of Upper Delaware Townships (COUP) and the NPS published the *Final River Management Plan. Upper Delaware Scenic and Recreational River* (River Management Plan), which established the Upper Delaware Council (UDC) to oversee the implementation of the River Management Plan. The UDC includes representation from both states, the Delaware River Basin Commission, and up to 15 river towns and townships. Any project located within the Upper Delaware Scenic and Recreational River must comply with the Land and Water Use Guidelines, published as a part of the River Management Plan. Furthermore, the UDC reviews all development activities for compliance with those land use regulations and supports the NPS in determining whether the potential development is in substantial conformance with the Land and Water Use Guidelines included in the River Management Plan.

Federal Wild and Scenic River

In addition to the NPS designation, the Upper Delaware River also became a federal Wild and Scenic River in 1978. The federal Wild and Scenic Rivers Act, originally enacted in 1968, seeks to protect certain selected rivers and their immediate environments in their free-flowing condition for the benefit and enjoyment of present and future generations. This designation protects 73.4 miles of the Delaware River from Hancock, NY, to Mill Rift, PA. Under the Wild and Scenic Rivers Act, protection of "Outstandingly Remarkable Values" is required. The Upper Delaware Scenic and Recreational River unit's Outstandingly Remarkable Values consist of culture, ecology, geology, recreation, and scenery. The Skinners Falls Bridge is an element that supports the cultural and scenic Outstandingly Remarkable Values of the Upper Delaware Scenic and Recreational River unit. Projects within the Upper Delaware Scenic and Recreational River unit system must comply with Section 7 of the Wild and Scenic Rivers Act, which is also regulated by the NPS.

Cultural Resources:

Within the study area, aboveground historic resources consist of the Skinners Falls Bridge and the Milanville Historic District. Previous studies also indicate the presence of archaeological resources on the Pennsylvania side of the river. Both the aboveground historic resources and the archaeological resources are discussed below.

Skinners Falls Bridge:

The Skinners Falls Bridge was listed on the NRHP in 1988 under Criterion C for Engineering as a rare example of an intact multiple-span Baltimore through truss bridge of moderate length.

The primary character-defining features of the bridge are the two Baltimore through truss spans; truss configurations; and pin connections. Specifically, the structural members, including the top and bottom chords and the vertical and diagonal members, define the character of the truss configuration. Secondary character-defining features include the size and scale of the structure, portals, bracing, finials, decorative railings, bridge plaques, and decorative ornamentation. The structure retains its historic location over the Delaware River and its setting, which were cited in the original NRHP nomination as unique, as most Baltimore through truss bridges are found in other

regions of the state. The Pennsylvania State Historic Preservation Office (PA SHPO), with assistance from PennDOT, conducted evaluations of metal truss bridges in 2018 and created a preservation prioritization system that ranked NRHP-eligible or listed bridges as having an exceptional, high, or moderate preservation priority based on several attributes. Exceptional and high preservation priority bridges are usually rare, one-of-a-kind, or outstanding bridges within the remaining metal truss bridge population. The PA SHPO notes the historic preservation priority level of Skinners Falls Bridge as "Exceptional" because the bridge is one of only three representative examples of this type of truss bridge remaining in Pennsylvania. The New York State Historic Preservation Office (NY SHPO) notes it as "Significant" as it is the oldest example of an American Bridge Company Baltimore through truss highway bridge in the United States.

Milanville Historic District (Pennsylvania):

The Milanville Historic District was listed on the NRHP in 1993 under Criterion A for its association with the area's nineteenth- and twentieth-century industrial development, and under Criterion C for its noteworthy architecture of the same eras. The district's period of significance extends from 1815, reflecting the construction date of the earliest extant building, to ca. 1920, marking the end of the primary development period (Curtis 1992). Milanville was a center for lumbering, tanning, and wood distillation (creating industrial acids/chemicals from wood materials) during the nineteenth century, and played a key role in the history and development of the Upper Delaware Valley. The sawmill, tannery, and acid factory associated with these important industries are no longer extant; however, the residential and commercial buildings remain as evidence of the town's vitality during the period of significance (1815 to ca. 1920). The Milanville-Skinners Falls Bridge also contributes to the historic district, representing an intact example of a Baltimore through truss bridge constructed during the district's period of significance. The district retains integrity of location, materials, design, setting, association, and feeling from the period of significance (1815 to ca. 1920). The NRHP boundary includes the historic core of the village as well as the Skinners Falls Bridge.

Archaeology

Preliminary investigations performed for projects along the Pennsylvania side of the river resulted in the identification of two archaeological sites within the study area: the Skinners Falls Bridge Tollhouse and the Volney and Milton Skinner Sawmill. A geomorphology study conducted in December 2024 indicated the presence of approximately 2.5 ft of modern alluvium soils in the southeastern quadrant of the project area.

Navigable Waterways

Because the Delaware River is a recreationally navigable waterway, an Aids to Navigation (ATON) Plan was previously submitted to the Pennsylvania Fish and Boat Commission (PFBC), National Park Service (NPS), New York State Department of Conservation (NYSDEC) and US Coast Guard. The ATON was installed in Fall 2024 and will need to be amended as part of the permitting process.

Resource Impacts

A project impact plan has been prepared to show the water resource, floodway, and floodplain impacts associated with the project. The following discussions present the resource impacts under the jurisdiction of PADEP, within the boundaries of the Commonwealth of Pennsylvania, and are anticipated to occur from project related activities.

Delaware River:

Partial Width Causeway:

Temporary watercourse impacts to the Delaware River will occur as a result of the installation of the temporary causeway. The causeway will be constructed of rock riprap. It is anticipated that the portion of the causeway under the PA span could be removed once the PA span is removed

Temporary Waterway Impacts (Upper Delaware River)

i. 11,453.25 square feet (0.26 acres)

ii. 190 linear feet (longest dimension)

The center river pier will be removed while the partial causeway is in place, resulting in permanent impacts to the Delaware River.

Permanent Waterway Impacts

i. 2,313.65 square feet (0.053 acres)

ii. 137 linear feet (longest dimension)

The structure will be removed while the partial causeway is in place, resulting in permanent impacts to the Delaware River.

Permanent Waterway Impacts due to Bridge Removal

i. 2,830.5 sq. ft. (0.075 acres)

Palustrine Emergent Wetland:

Partial Width Causeway:

Temporary wetland impacts to the PEM wetland located on the western side of the River is anticipated as a result of the temporary partial width causeway. The causeway will be constructed of rock riprap.

Temporary Wetland 4 Impacts

i. 1,741.16 square feet (0.04 acres)

Permanent Wetland 4 Impacts due to Bridge Removal

i. 555 square feet (0.012 acres)

Floodway

Partial Width Causeway

This activity is the temporary placement of fill within the FEMA delineated floodway associated with the partial width temporary causeway within the Delaware River. The temporary fill is required for the placement of the temporary causeway which will be located above the water line, but within the floodway.

Temporary Floodway Impact

i. No impacts to the PA floodway are anticipated

Floodplain

Partial Width Causeway

This activity is the temporary placement of will within the FEMA delineated floodplain of the Delaware River associated with the fill needed for the temporary causeway staging and access outside of the floodway.

Temporary Floodplain Impact

i. 1,606.71 square feet (0.037 acres)

The impacts for Pennsylvania, New York, and the total for the project are shown in the table below:

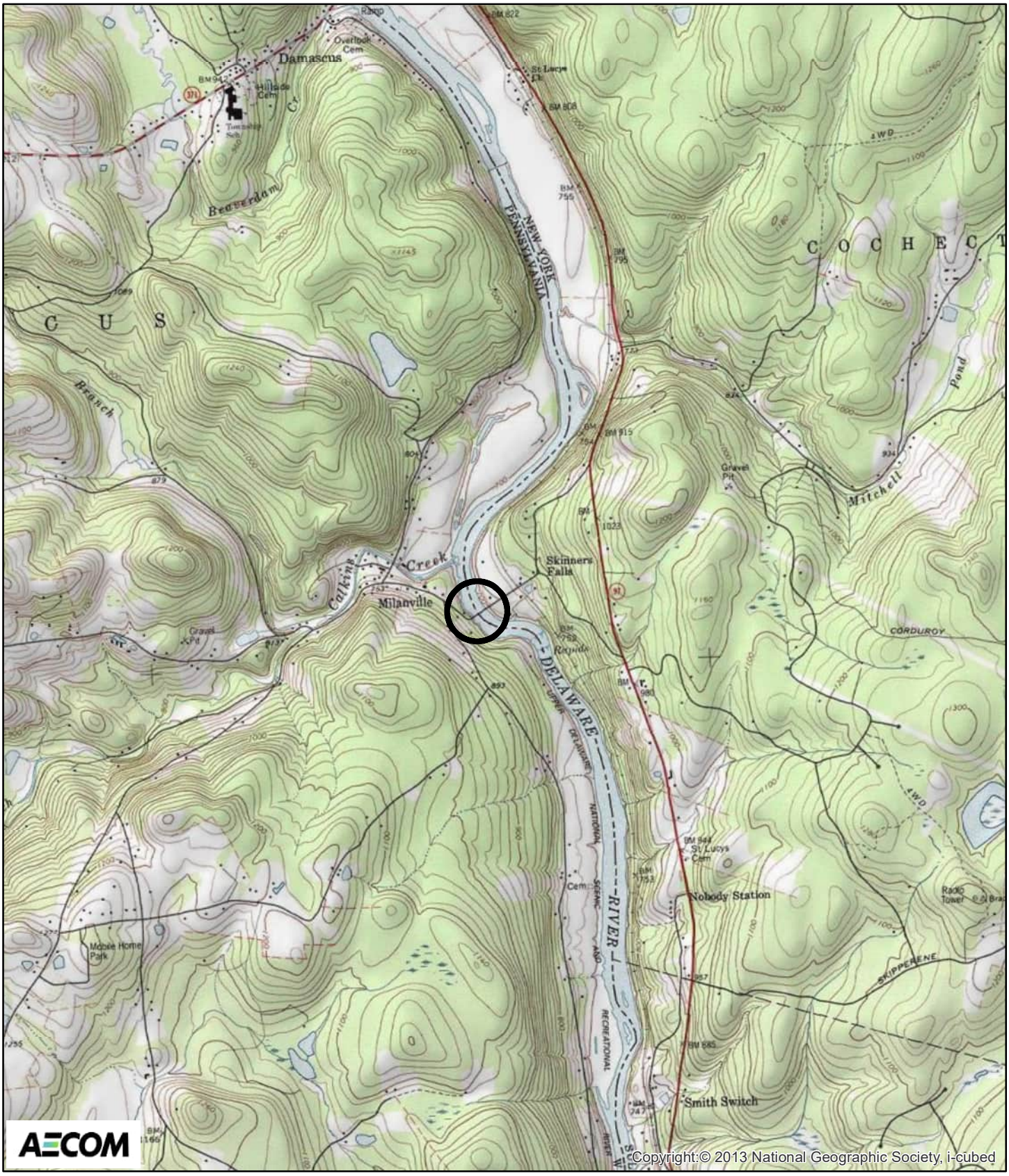
	Temp Water-course Impact	Temp Floodway Impact	Temp Wetland Impact	Temp Floodplain Impact	Perm Floodplain Impact	Perm Water-course Impact (Pier Removal)	Perm Water-course Impact (Bridge Removal)	Perm Wetland Impact (Bridge Removal)
PA	11,453.25 sq. ft. (0.26 acres)	0 sq. ft.	1,741.16 sq. ft. (0.04 acres)	1,606.71 sq. ft. (0.037 acres)	0 sq. ft.	2,313.65 sq. ft. (0.053 acres)	2,830.5 sq. ft. (0.065 acres)	555 sq. ft. (0.012 acres)
New York	25, 205.19 sq. ft. (0.58 acres)	2, 917.38 sq. ft. (0.067 acres)	439.77 sq. ft. (0.01 acres)	61,420.54 sq. ft. (1.41 acres)	9, 532 sq. ft. (0.22 acres)	6,765.64 sq. ft. (0.15 acres)	3,478 sq. ft. (0.08 acres)	0 sq. ft.
Total	36,658.44 sq. ft. (0.84 acres)	2, 917.38 sq. ft. (0.067 acres)	2,180.93 sq. ft. (0.05 acres)	63,027.25 sq. ft. (1.45 acres)	9, 532 sq. ft. (0.22 acres)	9,079.29 sq. ft. (0.2 acres)	6,308.50 sq. ft. (0.14 acres)	555 sq. ft. (0.012 acres)

Anticipated Mitigation:

1. **Federally and State Endangered Dwarf Wedge Mussel (*Alasmidonta heterodon*):**
   The project team has worked with members of the Pennsylvania Fish & Boat Commission, USFWS Pennsylvania Field Office, and New York Department of Conservation staff to review project level impacts to aquatic resources and its potential to affect fresh water mussel species. Temporary aquatic impacts associated with the installation of a rock causeway has been estimated at 38,706 SF (3410.10M^2). Using the Pennsylvania Fish & Boat Commission mussel conservation fund appears to be the desired mitigation opportunity for the project and is anticipated to support future mussel surveys within this section of the Upper Delaware River watershed. The formula to determine project impact costs is as follows: [Impact Area (m^2)] x [Cost($)/mussel] x [mussels/$m^2$] = Cost ($) Additional consultation with Pa Fish and Boat Commission, USWFS, and New York DEC is ongoing and will include further discussion and analysis as it relates to protected mussel species and applicable mitigation.

2. **Japanese Knotweed (*Fallopia japonica*) Invasive Species:**
   There is known presence of Japanese knotweed along the New York shoreline and floodplain. Japanese knotweed is an invasive species. Measures to minimize the spread of invasive species including cleaning of boots and equipment will be implemented.

3. **NYSDEC Boat Launch**
   Because the boat launch is proposed to be utilized as a staging area, there will be disturbance to this resource during construction. Following construction, measures to restore the boat launch including by replacing gravel in the disturbed areas of the parking lot. The project will continue to coordinate with NYSDEC and NPS regarding additional restoration to be implemented following the completion of construction activities.



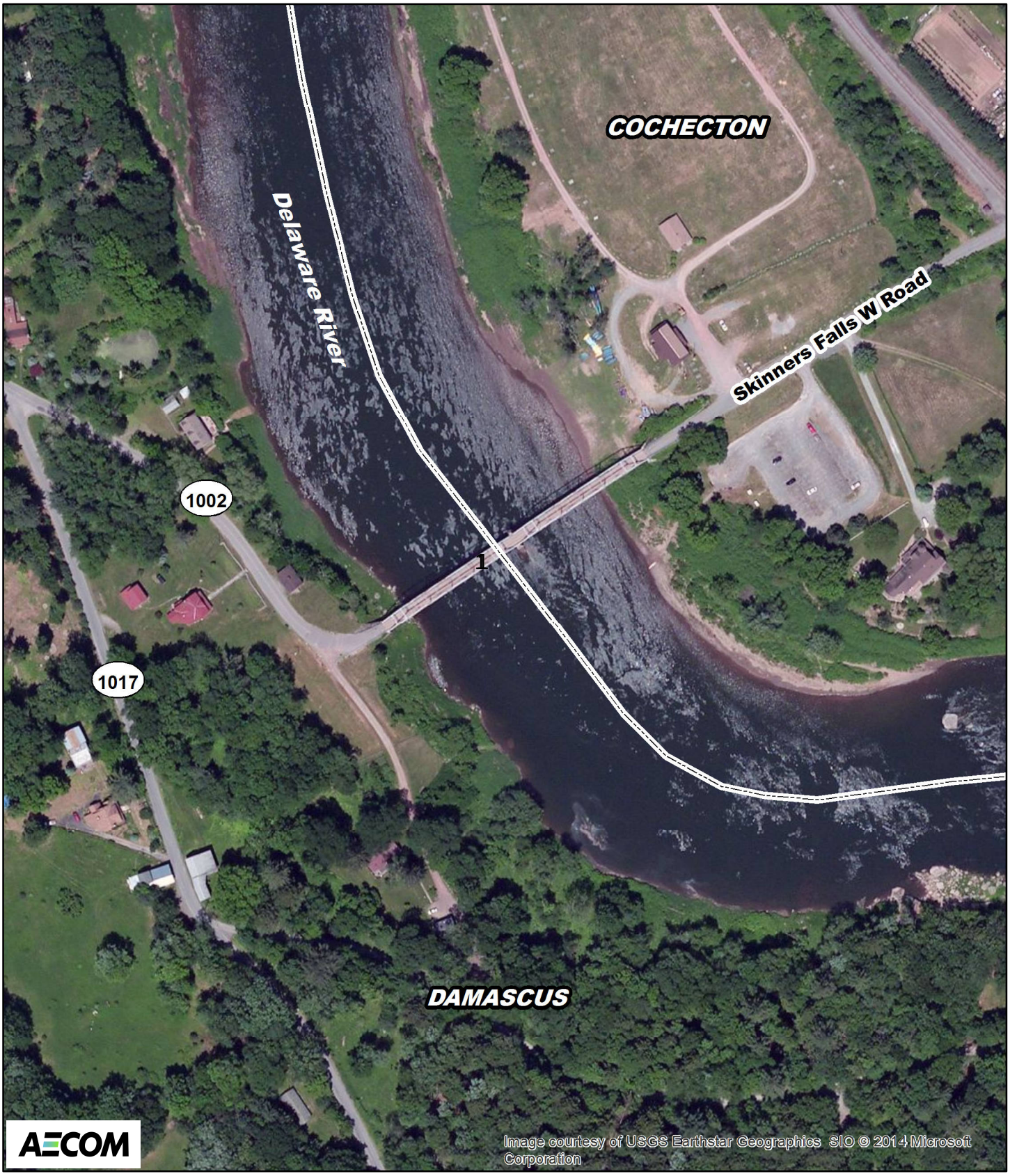
Skinners Falls Bridge
SR 1002-E24 over the Delaware River
FIGURE 1: PROJECT LOCATION MAP

Project Location

N

0 0.25 0.5
Miles

Source:2013 National Geographic Society, i-cubed



Skinners Falls Bridge
SR 1002-E24 over the Delaware River
EMERGENCY BRIDGE PROJECT
PHOTOGRAPH LOCATION MAP

N

0 100 200

Feet

Source: USGS Earthstar Geographics SIO, 2014 Microsoft Corporation.

S.R. 1002 (Skinners Falls Road) Emergency Bridge Project
Pennsylvania Department of Environmental Protection
Photographs

Photograph 1: Looking Downstream from Existing Truss Bridge (July 2023).

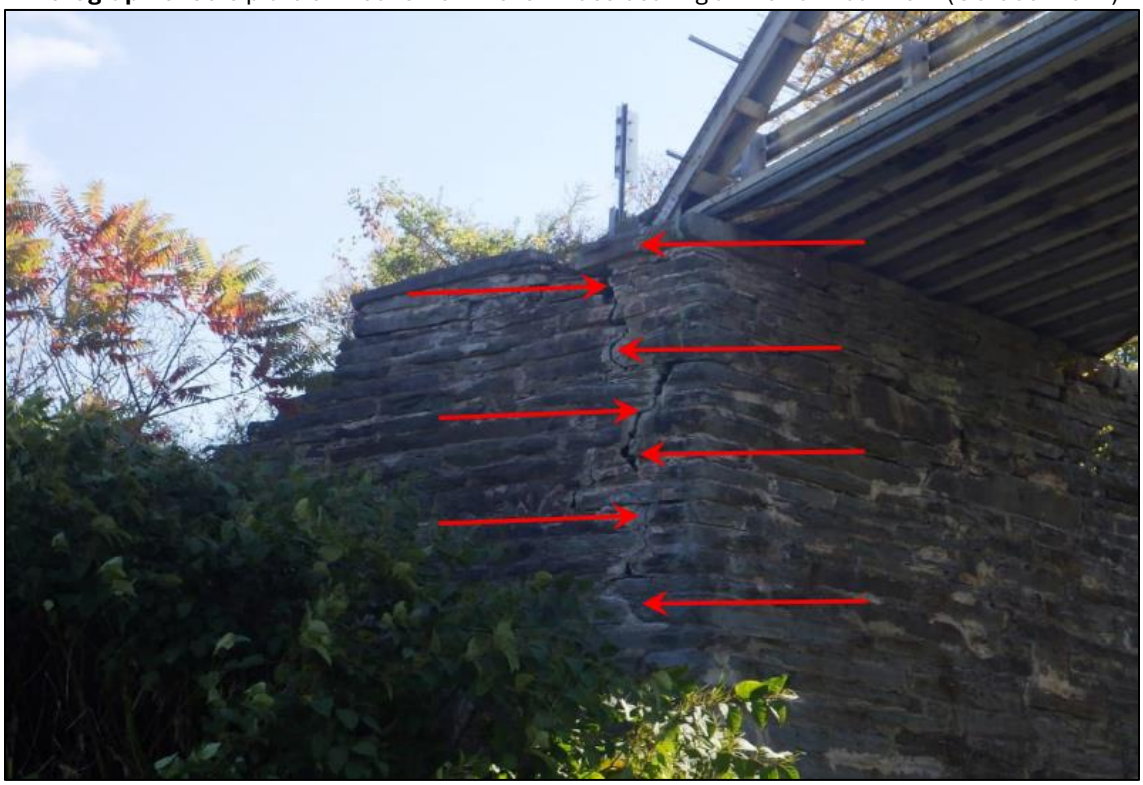
Photograph 2: Looking Upstream from Existing Truss Bridge (July 2023).

S.R. 1002 (Skinners Falls Road) Emergency Bridge Project
Pennsylvania Department of Environmental Protection
Photographs

Photograph 3: Looking Upstream at Existing Truss Bridge (September 2023).

Photograph 4: NY Riverbank and PA Shoreline from Lander's Campground Property (September 2023).

Photograph 5: Sole plate shifted left on the left truss bearing at the Far Abutment (October 2024).



Photograph 6: Crack with voids and loose stones at the Far Left wingwall (October 2024).

Photograph 7: Deteriorated cross bracing (October 2024).

Photograph 8: Drone Photograph looking Upstream at Existing Bridge (November 2024).

S.R. 1002 (Skinners Falls Road) Emergency Bridge Project
Pennsylvania Department of Environmental Protection
Photographs

Photograph 9: Drone Photograph looking Downstream at Existing Bridge (November 2024).


Total Temporary Watercourse Impact
Square feet: 36,658.44
Acres: 0.84
Linear feet: 190
NY Temporary Watercourse Impact
Square feet: 25,205.19
Acres: 0.58
Temporary Wetland 1 Impact
Square feet: 439.77
Acres: 0.01
Permanent Floodplain Impact
Square feet: 9,532
Acres: 0.22
PA Temporary Watercourse Impact
Square feet: 11,453.25
Acres: 0.26
PA Temporary Floodplain Impact
Square feet: 1,606.71
Acres: 0.037
Temporary Wetland 4 Impact
Square feet: 1,741.16
Acres: 0.04
NY Temporary Floodplain Impact
Square feet: 61,420.54
Acres: 1.41
Temporary Floodway Impact
Square feet: 2,917.38
Acres: 0.067
PA Permanent Watercourse Impact
Square feet: 2,313.65
Acres: 0.053
Permanent Watercourse Impact
Square feet: 9,079.29
Acres: 0.2
Linear feet: 137
NY Permanent Watercourse Impact
Square feet: 6,765.64
Acres: 0.15
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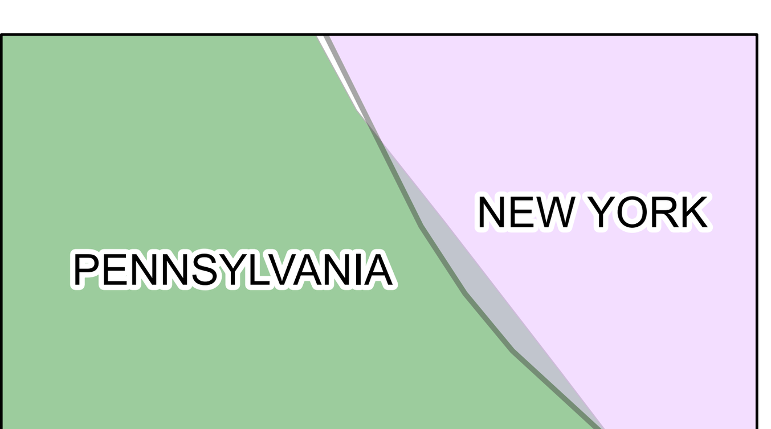


Skinners Falls Bridge
SR 1002-24R over the Delaware River
Figure 1: IMPACTS
Long / Lat. 41.669659, -75.058519

- LOD Boundary
- State Boundary
- Permanent Watercourse Impact
- Permanent Floodplain Impact
- Stream Flag Location
- Wetland Flag Location
- Delineated Waterways
- Delineated Wetlands

FEMA Floodzone
- AE, FLOODPLAIN
- AE, FLOODWAY

N

1 inch = 50 feet

pennsylvania
DEPARTMENT OF TRANSPORTATION
Engineering District 4-0
55 Keystone Industrial Park Road
Dunmore, PA 19512

AECOM
625 W Ridge Pike
Conshohocken, PA 19428

Date: 1/8/2025

1. PROJECT INFORMATION

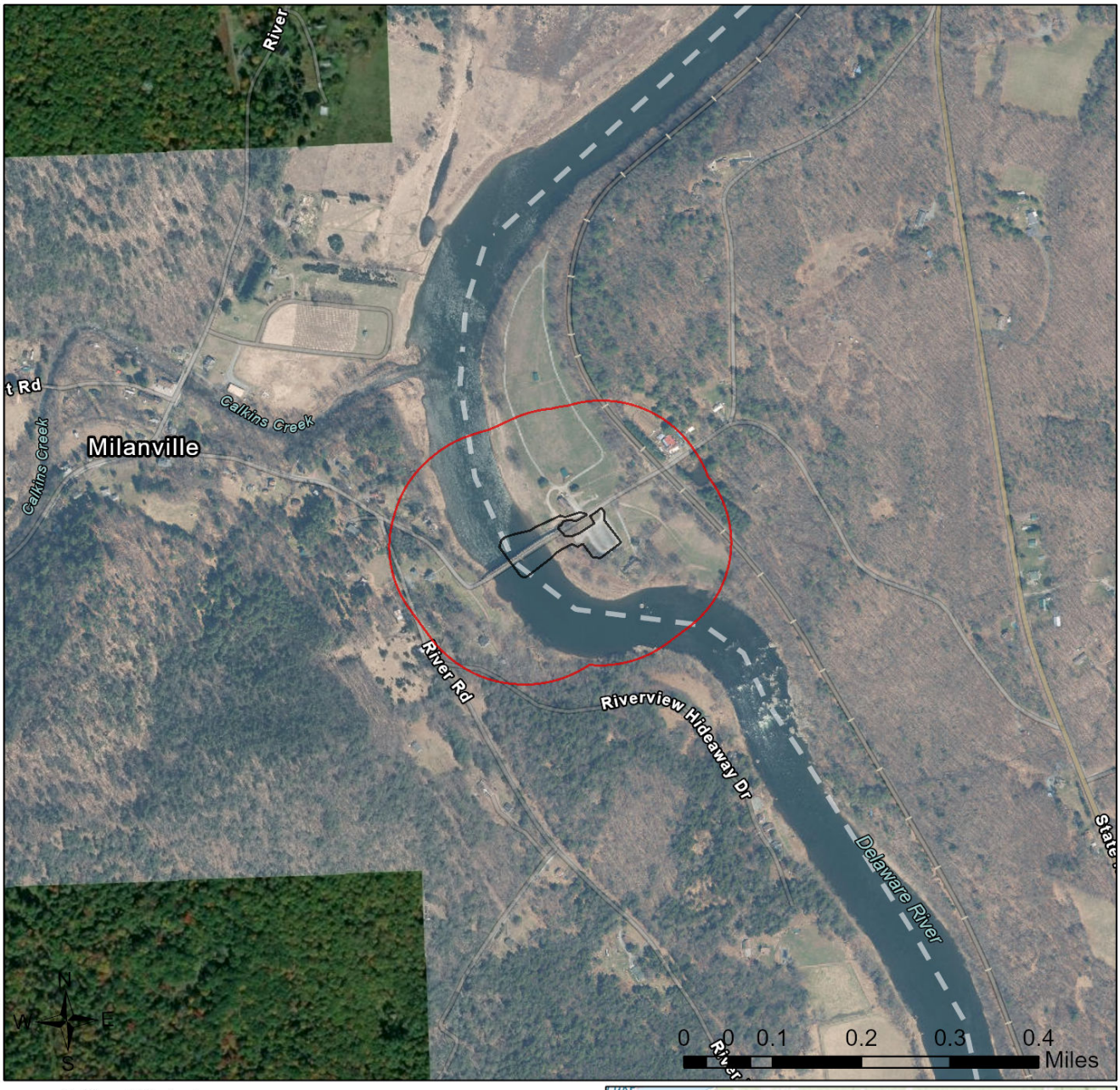
Project Name: **Skinners Falls Bridge Emergency Bridge Project**
Date of Review: **12/17/2024 11:47:35 AM**
Project Category: **Transportation, Structures and Bridges, Other**
Project Area: **2.45 acres**
County(s): **Wayne**
Township/Municipality(s): **Damascus Township**
ZIP Code:
Quadrangle Name(s): **DAMASCUS**
Watersheds HUC 8: **Upper Delaware**
Watersheds HUC 12: **Peggy Run-Delaware River**
Decimal Degrees: **41.669967, -75.057585**
Degrees Minutes Seconds: **41° 40' 11.8816" N, 75° 3' 27.3059" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**

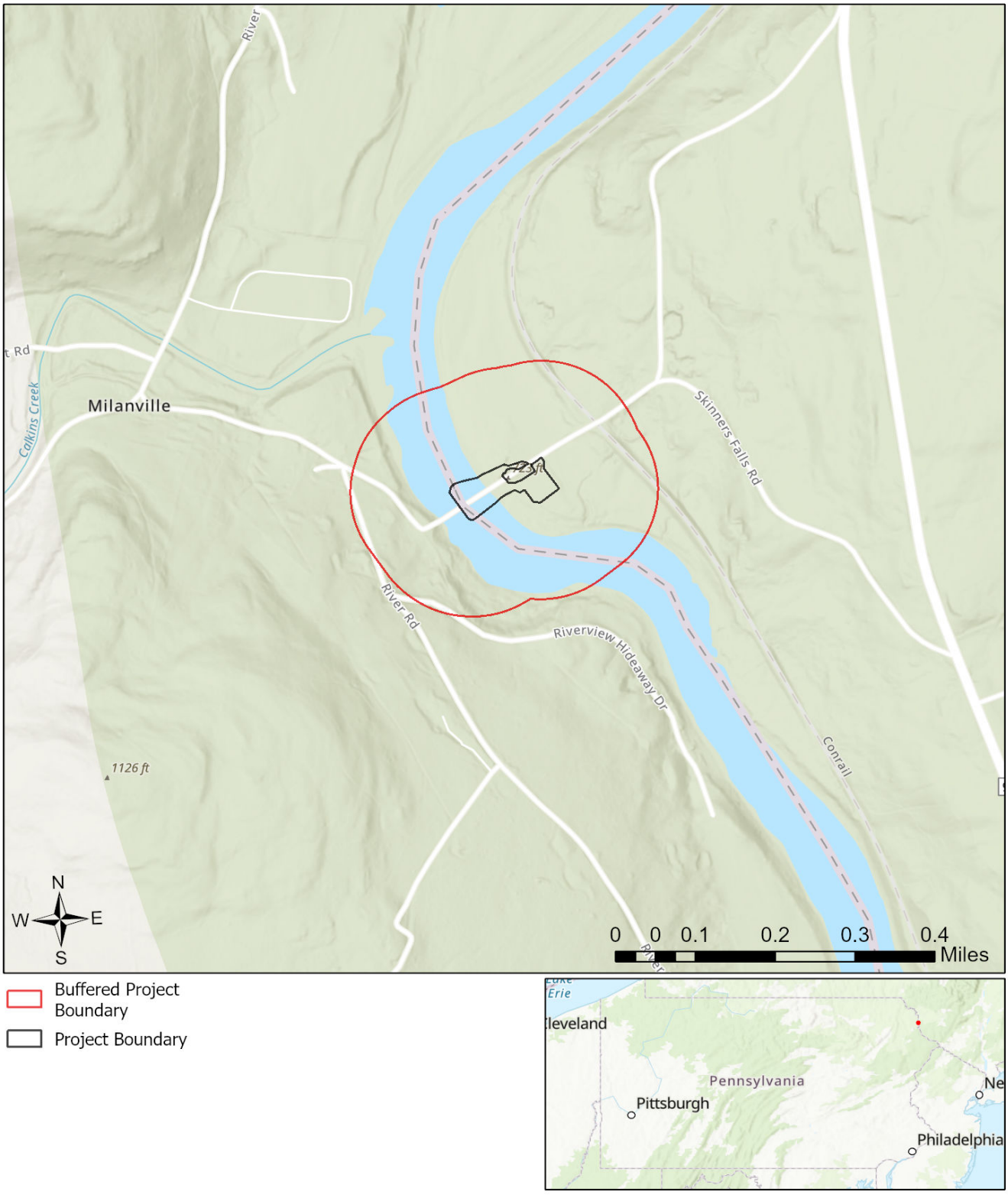
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Skinners Falls Bridge Emergency Bridge Project



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Skinners Falls Bridge Emergency Bridge Project



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Utterbackiana implicata	Alewife Floater	Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).
*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name:__Melina Mallory_____
Company/Business Name:____AECOM_____
Address:___1635 Market St #1000_____
City, State, Zip:_____Philadelphia, PA, 19104_____
Phone:(310) 739-8618_____Fax:(_____)_____
Email:__melina.mallory@aecom.com_____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Melina Mallory _____ _____12/17/2024_____
applicant/project proponent signature date

1. Background:

The Skinners Falls Bridge is a Baltimore Through Truss bridge that has a total length of 466' and is comprised of two 232' truss spans over the Delaware River. The truss spans have an approximate width of 18.5' and height of 38', respectively. In October 2024, the biennial National Bridge Inspection Survey (NBIS) inspection findings recommended the condition rating for the superstructure (the metal truss part of the bridge above the stone abutments on either side of the river and center stone pier) be lowered from a '4- Poor' to a '2- Critical' and for the substructure (the stone abutments and center stone pier) from a '2- Critical' to a '0 – Failed'. On December 16, 2024, Governor Josh Shapiro declared that the deterioration of the bridge creates an emergency in the county and that the immediate removal of the structure, while attempting to minimize impacts to the environmental resources, is vital to the security, well-being, and health of the citizen of Pennsylvania. The Federal Highway Administration concurred with the emergency declaration on December 17.

2. Project Purpose and Needs:

The project purpose is to address the failed condition of the existing structure and prevent its uncontrolled collapse. The project needs are:

- The structure's current overall inspection condition rating is 0 (failed). The deck condition rating is 4 (poor). The superstructure condition rating is 2 (critical). The substructure condition rating is 0 (failed).
- The existing condition poses a danger to public use of the Delaware River near/under the structure.

3. Alternatives Analysis

Since the inspection in October 2024, PennDOT has developed an engineering analysis and conducted resource agency consultation and public involvement to develop alternatives that address the problems with the bridge (that is, why the project is needed). Due to the historic nature of the bridge, PennDOT began an engineering analysis to develop an approach to safely lift each truss by crane, move them onto land and carefully disassemble and store them. As the alternatives analysis was progressing, PennDOT determined that the lifting and disassembly of the truss was not reasonable due to the length of time required to complete the removal given the emergency circumstances. PennDOT determined that a demolition alternative would remove the bridge in the most expeditious manner, and thus would best serve the project's purpose and need. This approach would minimize impacts to boating, allow recreational traffic to safely access and navigate the Delaware River, and would provide local and adjacent businesses with minimal impact during the recreational season.

Due to the emergency nature of the project, the alternatives were developed and revised rapidly in November and December of 2024. Multiple alternatives evolved based on input from the regulatory and resource agencies with jurisdiction over the resources in the study area. The development and screening of alternatives was additionally influenced by a greater and more detailed understanding of the engineering constraints that were revealed as the design progressed.

Finally, for an alternative to fully address the emergency, the bridge removal must be completed prior to the start of the recreational boating season, which typically starts on Memorial Day.

The impacts of the alternatives considered are shown in Table 1.

3.1. Alternatives Considered but Dismissed from Further Consideration

The Do Nothing alternative and all build alternatives would result in potential impacts to the Skinners Falls Bridge, the Milanville Historic District, the Upper Delaware Scenic and Recreational River and Management Unit, the Pennsylvania Fish & Boat Commission Water Trail (Delaware River), and the NYS DEC public boat launch/parking area aquatic resources, including threatened and endangered species, recreational businesses and users of the Delaware River.

3.1.1. Do Nothing Alternative

The Do Nothing Alternative would result in the eventual catastrophic collapse of the New York abutment. Once the abutment collapses, the New York span would likely fall into the Delaware River and suffer irreparable damage to the historic integrity of the truss. Should the New York truss fall into the River, the Pennsylvania span may also become unstable and fall into the river. This alternative would also be very dangerous to the recreational users in the area who would be at risk for serious injury or death in the event of a sudden catastrophic collapse. Additionally, PennDOT was notified on August 2, 2024, that parts of the bridge were falling off and dropping into the river. Under a Do Nothing Alternative, parts would continue to fall and would be a hazard to recreational users and the general public in river in the vicinity of the bridge.

Potential impacts associated with the Do Nothing Alternative are shown in Table 1. The Do Nothing Alternative does not address the failed condition of the bridge and does not eliminate the danger to the public due to falling debris or the risk of an uncontrolled bridge collapse and would not be reasonable. However, it is carried forward as the baseline against which to compare all other alternatives.

3.1.2. Temporary Bracing Alternative

The Temporary Bracing of the New York abutment was examined as an interim measure. This alternative would involve adding bracing to the New York abutment to slow the rate of continued deterioration. It would also require adding netting or protection under the bridge to capture deteriorated steel bridge members and other materials falling from the bridge.

Stabilization of the abutment as an interim measure was considered and cannot be safely and effectively implemented. Further rotation of the failed stone masonry abutment could be restrained through an engineered temporary measure, but without full rehabilitation, the stone abutment would continue to degrade causing settlement and posing an ongoing risk of collapse. Unlike a conventional multi-girder bridge, the bearing (support) location for this truss superstructure must be located at the existing joint and cannot simply be shifted along the truss line from the existing bearing location without independent and substantial structural framing to enable the load transfer to a temporary abutment.

Additionally, it is not possible to safely add netting under the bridge. The netting would need to be applied from the top of the bridge, at deck level. Because of the failed condition, the bridge is not safe, even for workers on foot to access and install the netting. Additionally, accumulation of ice on the netting during winter weather increases the dead load weight that the bridge must be able to support. It was determined that the netting would need to be removed prior to each icing event and as previously mentioned, the bridge is not safe to access from the deck. The trusses are currently in a deteriorated state and any further delay in their removal may result in collapse prior to removal or could occur during the removal operations and would not be reasonable.

3.1.3. Rehabilitation Alternative

As noted in the 2024 Planning and Environmental Linkages Study, the Rehabilitation Alternative would require complete disassembly of the trusses. A comprehensive rehabilitation of the truss spans would require complete disassembly due to the number of members framing into each pinned joint that are recommended for repair. This would allow for detailed assessment of each member and final determination for corrective action (shop repair or replacement). The disassembly work would be completed most expeditiously from temporary supports at ground level requiring the truss spans be lifted from the existing abutments and pier.

The Rehabilitation Alternative was dismissed because it requires disassembly of the bridge and none of the Disassembly Alternatives are reasonable as discussed below. The Rehabilitation Alternative would require the same causeway system as discussed below and would result in the concerns and impacts as the disassembly from causeway alternatives discussed below. Potential impacts associated with the Rehabilitation Alternative are shown in Table 1.

3.1.4. Disassembly Alternatives

3.1.4.1. Disassembly from Existing Bridge Alternative

For this alternative, the disassembly would occur on the bridge itself. No causeway would be required. Due to the existing failed condition of the bridge, no machinery or personnel would be permitted on the bridge at any point during construction activities. This alternative is not safe and given the failed condition of the bridge, it could not be implemented, therefore it was dismissed because it is not reasonable. Potential impacts associated with the Disassembly from Existing Bridge Alternative are shown in Table 1.

3.1.4.2. Disassembly from Full-Width Causeway

During the initial conversations regarding disassembly alternatives, a full wide causeway was discussed. The causeway would extend across the entire width of the river and under each span. Minimal laydown areas would be needed since the disassembly would occur in the trusses current position. The full width causeway was discussed with the permitting agencies in November 2024. The permitting agencies indicated that the alternative may not be permittable due to impacts to aquatic resources, fish passage, threatened and endangered species, recreational users and the adjacent businesses. This alternative was determined to be not reasonable due to the impacts to the aquatic resources, including federally endangered mussels and to the recreational users of the river. Potential impacts associated with the Disassembly Full-Width Causeway Alternative are shown in Table 1.

3.1.4.3. Disassembly from the Partial Width Causeway Alternatives

For the alternatives involving disassembly on a partial causeway, the truss spans would be removed from the existing abutments and pier using a single very large crawler crane with a smaller support crane and placed on temporary supports at the causeway elevation. These alternatives would require a walking pick (i.e. truss suspended in the air while crane slowly moves to another location) which would not be practical due to grade differentials. The large crawler crane would then be removed from the site and disassembly would proceed on the causeway using much smaller cranes and lifts. Due to the size of the crawler crane, an additional contractor laydown area would be required for equipment and material deliveries and assemblies. The causeway would extend into a portion of the river and overbank area within the floodplain. Due to the height and weight of the trusses, the causeway would extend to the west beyond the pier to allow for crane access to the western span. Similarly, the size of the causeway also would include space for the bracing and disassembly of the trusses, as well as access around the trusses. Two alternatives were examined for the staging/crane assembly area: north of the bridge and south of the bridge.

The anticipated sequence of construction would be:

- Construct the causeway and contractor staging area for crane assembly
- Assemble crane
- Prepare the truss spans for crane pick (potential removal of timber deck and addition of temporary bracing components)
- Pick and place truss spans on temporary supports at causeway level
- Brace truss spans for disassembly and to secure against storm events then demobilize large crawler crane
- Mark the truss members for future identification and proper storage
- Disassemble panel by panel and remove the members from the causeway to prepare for storage
- Remove pier and NY abutment
- Remove causeway and contractor staging area
- Remove all construction materials and restore site (signage, tree plantings, seeding/mulching, etc.)

This alternative could result in the simultaneous disassembly of both trusses if the causeway is sized appropriately. Once the PA span would be removed, the river could be re-opened to recreational users.

3.1.4.3.1. Staging Area Located North of Bridge

This alternative would require a widened access road in the bank area to overcome the existing grade differential for safe transport of the truss spans to the disassembly area in the campground in the northeast quadrant of the project area. While a portion of the causeway and access road on the bank could be removed, the staging area would remain on the adjacent landowner's boating and camping business for the remainder of the construction.

Considerations for northern staging area include:

- Would allow for simultaneous disassembly of the trusses
- Would require construction of access road and crane access road
- Would require the landowner who runs the businesses to voluntarily allow use of property
- Estimated length of construction is 6-9 months

A meeting was held with the property owner in November 2024, and it was determined that the campground could not be used as a proposed staging area because there is a buried septic drainage area and a water line. In addition, the property owner would likely not be able to open the business for the recreation season, which is 80% of his income.

The alternative would require a large causeway with an aquatic footprint greater than 1 acre and would remain in place for 6-9 months. This design would have a large and long-term direct impact to federally endangered mussels, host fish passage, and habitat associated with potential scour and ponding.

The Staging Area Located North of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances and to impacts to the buried septic field, federally endangered mussel habitat, the recreational users, and the businesses. Potential impacts associated with the Disassembly on Causeway- Staging Area North of the Bridge Alternative are shown in Table 1.

3.1.4.3.2. Staging Area Located South of Bridge

Staging Area South of the Bridge Alternative would require an approximately 37 foot wide access road from Skinners Falls Road to upstream from the NY abutment for use as a crane access road. The NYSDEC-owned parking lot for the adjacent boat launch is not large enough to accommodate the required space for the boom of the crane while it is being assembled or disassembled.

Considerations for southern staging area include:

- Would allow for simultaneous disassembly of the trusses
- Would require construction of access road and crane access road
- Potential impact to the emergency access road to Skinners Falls
- Would require improvement to Skinners Falls Road and the NYSDEC parking lot
- Would require landowner who operates the business to voluntarily allow use of property
- Estimated length of construction is 6-9 months

While this alternative results in a smaller staging area, it requires a large causeway with an in-stream footprint of almost 2 acres and would remain in place for 6-9 months. This design would impact federally endangered mussel-host fish passage and habitat associated with potential scour and ponding.

The causeway as shown in the conceptual plan would not have been large enough for the crane to maneuver while the trusses are sitting on the causeway. The staging area would also not be enough space for the support crane required for the placement of the counter weights onto the large crane. The parking area is not of sufficient size to assemble and disassemble the crane. These additional refinements to the plan were not made due to the dismissal of this alternative.

The Staging Area Located South of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances and due to impacts to federally endangered mussel habitat, the disruption to recreational users and the businesses and because the site was not large enough to accommodate the equipment. Potential impacts associated with the Disassembly on Causeway - Staging Area South of the Bridge Alternative are shown in Table 1.

3.1.4.4. Disassembly on the Floodplain – South of Bridge

For this alternative, the staging area for the crane assembly/disassembly would take place primarily on the floodplain/bank area south of the bridge and the trusses would be placed on/near the NYSDEC parking lot and on the bank area. A partial width causeway within the Delaware River extending beyond the central river pier would be required for crane access and movements to remove the trusses. The truss spans would be removed from the existing abutments and pier using a large crawler crane. Staging areas to the north of the bridge would be required for crane access, as the crane can only traverse a maximum three percent grade. The design had to be updated to show rather long crane access ramps using a three percent grade, which increased the limits of disturbance. The NY truss would be placed in the NYS DEC parking lot. A bench would be built up on the bank area between the Delaware River and the NYSDEC parking lot to provide enough area to place the PA truss and conduct the disassembly.

The anticipated sequence of construction would be as follows:

- Build causeway (and begin building bench & staging areas)
- Prepare trusses for disassembly
- Assemble crane
- Pick NY span and place on temporary supports in NYSDEC parking lot
- Reposition crane and pick PA span and place on temporary supports on intermediate bench
- Disassemble crane
- Disassemble trusses and prepare for storage
- Remove all remaining causeway, bench, staging area materials
- Restore site (signage, tree plantings, seeding/mulching, etc)

The anticipated overall construction duration is roughly 5-8 months from initial causeway construction to completion of site restoration. It is estimated that the lower causeway would be in place for first 3 months of construction. The bench would likely be in place for 3 to 4 months (built on top of or as part of lower causeway construction) starting in 1st month and then in place until disassembly operations are complete, and all temporary supports can be removed in 4th or 5th month of construction.

Considerations for staging in the NYSDEC parking lot south of bridge include:

- Concern with flood events while working on causeway
- Would allow for simultaneous disassembly of the trusses
- Would allow river may be reopened to users on PA side once spans are on causeway
- Would allow the trusses to be moved as far away from the river as possible
- Would require improvement to Skinners Falls Road and the NYSDEC parking lot
- May require a temporary access road to the bed and breakfast south of NYSDEC parking lot and to the emergency access road to Skinners Falls
- Would use entire NYSDEC parking lot for staging area and would be inaccessible to public
- Estimated length of construction is 5-8 months

This alternative resulted in the second longest duration of construction and the greatest disturbance of land. It would also render the NYSDEC parking lot and boat launch unusable for much of the summer boating season. It would also impact the adjacent businesses who rely upon access to the river.

The alternative would require a large causeway with an in-stream footprint greater than 1 acre and would remain in place for 5-8 months. This design would impact federally endangered mussel-host fish passage and habitat associated with potential scour and ponding.

The Disassembly on the Floodplain – South of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances, impacts federally endangered mussel habitat, and the disruption to recreational users and the businesses during the recreation season. Potential impacts associated with the Disassembly on the Floodplain – South of Bridge Alternative are shown in Table 1.

3.1.5. Demolition Alternative

These alternatives were investigated as alternatives of last resort. PennDOT determined that the time needed to design and implement a safe method to lift/pick/disassemble the bridge, is not reasonable given the bridge's rapidly deteriorating condition. In addition, with the information gathered to date, it remained uncertain that a lift/pick/disassemble alternative could be safely executed. Therefore, two demolition alternatives were examined: Demolition via a Full Width Causeway Alternative and a Demolition via a Partial Width Causeway Alternative.

3.1.5.1. Demolition Alternative via Full Width Causeway

This alternative would require a full width causeway across the Delaware River. The truss spans would be dropped from their current locations onto a causeway spanning the entire river. The causeway would be at least 120 feet wide in order to account for the trusses twisting or shifting laterally as they were dropped. Minimal laydown areas would be needed. Under this alternative, the bridge would be salvaged and scrapped rather than disassembled.

The full width causeway would allow for bridge demolition activities, including access by workers, small cranes and trucks. Twenty-five 6' diameter pipes would be installed in the causeway to allow for the passage of normal stream flows through the causeway. Explosive charges would be

anticipated to be used to drop the bridge onto the causeway. Additionally, the New York abutment would be removed in addition to the center river pier. The Pennsylvania abutment would be stabilized with a concrete cap and a fence to restrict access.

The anticipated sequence of construction would be:

- Construct the causeway
- Drop the PA and NY spans onto the causeway. Salvage and scrap bridge components beginning with PA Span
- Begin to Remove PA causeway
- Remove pier and NY abutment
- Remove the remainder of the causeway
- Remove all construction materials and restore site

Consideration for dropping the bridge and salvage alternative include:

- Would require a causeway which would span entire river
- Would require minimal lay down/staging areas
- Safer working conditions than a lift/pick/disassemble alternative
- More likely to be subjected to high river flows and/or ice flows
- Concern over ice jams in the pipes resulting in flooding
- Estimated length of construction is 4-5 months

The full width causeway alternative would result in the most impact to recreational users and aquatic resources, (including federally protected mussels), and fish passage. A full width causeway in the upper Delaware River in the winter could be subject to ice dams and subsequent flooding. This alternative was presented to state and federal permitting agencies on December 11, 2024. The agencies all expressed concerns about a full-width causeway. The permitting agencies were doubtful that they could issue a permit for a full-width cause. The agencies suggested that PennDOT examine an alternative that utilizing a partial causeway which would reduce impacts and eliminate the need to fully close the river. The full-width causeway alternative was determined not to be reasonable due to the inability to get the project permitted and due to impacts to the aquatic resources, including federally endangered mussels and to the recreational users of the river. Potential impacts associated with the Demolition Alternative via Full-Width Causeway Alternative are shown in Table 1.

3.1.5.2. Demolition Alternative via Partial Width Causeway

For the partial width demolition alternative, a causeway would be constructed to approximately 30 feet beyond the center pier. The NY truss would be dropped onto the causeway and the PA truss would be dropped into the Delaware River and pulled up onto the causeway for salvage. The causeway would be at least 120 feet wide in order to account for the NY truss twisting or shifting laterally as it is dropped and to allow room to pull the PA truss up on the causeway for demolition. Under this alternative, the bridge would be salvaged and scrapped rather than disassembled.

Explosive charges would be anticipated to drop the bridge onto the causeway. Additionally, the New York abutment and center pier would be removed. The Pennsylvania abutment would be stabilized with a concrete cap and a fence to restrict access.

The anticipated sequence of construction would be as follows:

- Construct the causeway and install debris catchment measures
- Drop the NY span onto the causeway and PA Span into river.
- Pull PA span onto causeway.
- Salvage and scrap bridge components.
- Remove pier and NY abutment.
- Remove the remainder of the causeway.
- Remove all construction materials and restore site.

Consideration for dropping the bridge and salvage alternative include:

- Would allow for part of river to remain open
- Would require a minimal lay down/staging areas
- Safer working conditions than a lift/pick/disassemble alternative
- Estimated length of construction is 3 months

The Demolition Alternative via Partial Width Causeway would result in the least impact to waterway resources, can be constructed in less time than any of the other alternatives, smallest limit of disturbance, and reduces impacts related to fish passage, recreational users, businesses and threatened and endangered species. Potential impacts associated with the Demolition Alternative via Partial Width Causeway Alternative are shown in Table 1.

This alternative is the selected alternative because it is the most expeditious for permitting and construction, would result in fewer impacts to aquatic resources, business owners and recreational users. It is the selected alternative, which meets the project's purpose and need, in the required NEPA, Section 106, Section 4(f) and all regulatory permit applications.

NEWELL TERESKA & MACKAY ENGINEERING

NTM Engineering, Inc.
130 W. Church St.
Suite 200
Dillsburg, PA 17019-1278

H&H MEMORANDUM

FROM: NTM ENGINEERING, INC.

SUBJECT: SKINNERS FALLS BRIDGE – TEMPORARY CONDITIONS

DATE: JANUARY 7, 2025

CC: PENNDOT DISTRICT 4-0; AECOM

The purpose of this memo is to summarize the H&H analysis of the SR 1002 (Skinners Falls) bridge over the Delaware River for the emergency waterway permit. This analysis evaluated temporary conditions for the removal of the Skinners Falls bridge trusses and pier. The site is located at 41°40'11" N latitude and 75° 03' 30" W longitude. The project is located in a detailed FEMA floodplain and floodway; the FEMA HEC-RAS model was obtained for the Delaware River.

The drainage area at the project site is approximately 1,900 square miles as delineated with the USGS StreamStats website. Peak flows were computed using a Bulletin 17B gage analysis of the Delaware River at Callicoon, NY gage (USGS 01427510). The Delaware River gage has a drainage area of 1,820 square miles and can be applied to the site per PennDOT Publication 13M, DM-2 Chapter 10. The gage record was transposed to the project site per the procedure outlined in DM-2, Chapter 10.6.C.4.a. A systematic record skew of 0.504 was determined from 48 years (1976 – 2023) of peak flow data. The USGS PeakFQ version 7.1 computer program, which follows the Bulletin 17B methodology, was used to perform the analysis. The peak flows used in the hydraulic analysis are provided in **Table 1**. The normal flow was determined from the monthly mean discharge data from the USGS 01427510 gage between 2003 and 2024, with April having the most conservative monthly mean flow (6,258 cfs).

Table 1: Estimated Flows at the SR 1002 (Skinners Falls) Bridge

Monthly Mean Discharge Gage Data	Bulletin 17B Gage Analysis		100-year FEMA Regulatory (cfs)
Normal Flow – April (cfs)	1-year (cfs)	2-year (cfs)	
6,258	13,503	37,799	139,250

The existing SR 1002 structure is a two-span through truss bridge. The pier has a 90-degree triangular nose with a width of 13.5 feet at the bottom and 5.67 feet at the cap. The overall span from left abutment to right abutment is 462.25 feet. The normal clear spans of the left and right spans, as measured from the abutment to the edge of the pier cap, are 228.00 feet and 228.58 feet, respectively. The out-to-out structure width is 18.3 feet, the average underclearance is 35 feet, and the hydraulic opening is approximately 16,150 square feet. The minimum low chord elevation is 733.93 feet at the upstream left abutment.

The hydraulic analysis was performed using the U.S. Army Corps of Engineers HEC-RAS River Analysis System program (Version 6.2). Existing and temporary conditions were modeled based on the surveyed cross sections, LiDAR, temporary causeway grading, and peak discharge calculations. Hydraulic cross sections 1 through 20 include approximately 4,300 feet of the modeled reach and were based on a combination of bathymetric survey within the channel, topographic survey in the immediate overbanks, and LiDAR in the overbanks. Cross sections 227775 through 246959 were

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Dillsburg, PA 17019-1278

obtained directly from the FEMA HEC-RAS model with no modifications and represent more than 20,300 feet of the upstream channel.

Roughness coefficients were based on aerial photographs, the FEMA model, and Table 3-1 in the HEC-RAS Hydraulic Reference Manual. Ineffective flow areas and contraction/expansion coefficients were included in the existing and temporary models immediately upstream and downstream of the bridge and causeway. Obstructions were coded at the locations shown on the hydraulic cross section map (Attachment 1). Steady flow analysis was performed using a subcritical flow regime for all profiles. Normal depth boundary conditions were applied for the 1-year, 2-year, and normal flow profiles using an average downstream stream bottom slope of 0.003 feet per feet. A single peak flow for each return period analyzed was applied to the reach (i.e., no flow changes. The effects of ice on the Delaware River were not considered in the HEC-RAS analysis.

AECOM designed a partial-width causeway to extend from the New York side (left bank) of the Delaware River to approximately 30 feet beyond the pier, as measured from the pier to the edge of the top of the causeway. The causeway has a top width of 120 feet and top elevation of 709 feet. The causeway design does not include pipes due to the potential for ice limiting their effectiveness and to expedite the placement and removal of the causeway. The temporary model coded the causeway fill into the HEC-RAS model by adjusting the channel elevation points of the internal bridge sections and the bounding bridge sections (XS 11, 11.5 BRD, 11.5 BR U, and 12). Additional ineffective flow areas were included in the sections immediately upstream and downstream of the causeway (XS 10 and 13).

The results of the temporary model indicate that the causeway will provide at least 6.3 feet of freeboard over the normal flow. The causeway will provide approximately 2.7 feet of freeboard over the 1-year event. The 2-year event will overtop the causeway by 5.5 feet.

The Joint Agency Guidance between PennDOT and PADEP requires the evaluation of the 2-year event for the risk of flooding during construction. A comparison of the existing and temporary results indicate that the maximum 2-year increase is approximately 4.4 feet, and the 2-year temporary increases are within 0.1 feet of the 2-year existing profile at approximately 18,900 feet upstream from the causeway. The 2-year temporary flood elevations are contained within the FEMA 100-year floodplain and will not affect buildings in the FEMA 100-year floodplain.

AECOM has designed the causeway to be constructed from R-8 rock with the top portion choked with R-4, as shown on the E&S plan. PennDOT Design Manual 4, Chapter 7, indicates R-8 rock can resist velocities up to ±17.5 ft/s. Greater velocity would be allowed for rock with specific gravity exceeding the minimum requirement of 2.65. The 2012 Pennsylvania Erosion and Sediment Control Manual Table 6.6 allows an average velocity up to 17.0 ft/s for unfactored average velocity for the purpose of channel design. HEC-RAS flow distribution results indicate maximum velocities from 14 to 18 ft/s in the event of a 2-year flood at the western end (nearest PA) of the causeway. The 18 ft/s result, however, appears to be an anomaly based on a non-convergence HEC-RAS warning message and the maximum channel velocities reported by the HEC-RAS flow distribution at the other cross sections around the causeway are below 15 ft/s. This information suggests, if a 2-year flood were to occur during causeway deployment, rock at the western end of the causeway would be near impending movement. According to the HEC-RAS flow distribution, 2-year velocities overtopping the causeway are much lower than the velocities in the channel. Causeway overtopping velocities and maximum

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channel velocities reported by the HEC-RAS flow distribution table for the 2-year event are included in **Table 2**.

Table 2: Temporary 2-year Channel Velocities at Causeway

Cross Section	Temporary 2-year Event Results from the HEC-RAS 1D Flow Distribution	
	Causeway Overtopping Velocity (ft/s)	Channel Maximum Velocity (ft/s)
13 (upstream of causeway)	-	5.62
12 (upstream edge of causeway)	6.15	13.75
11.5 BR U	6.25	13.81
11.5 BR D	5.94	14.35
11* (downstream edge of causeway)	6.90	18.01*

* The results at XS 11 are discounted due to a convergence warning in HEC-RAS and flow continuity limitations in the 1D model. Results at XS 11 are expected to be consistent with 11.5 BR D and 11.5 BR U.

Daily mean flow data from the Delaware River at the Callicoon, NY gage (USGS 01427510) was reviewed to determine the actual frequency of 2-year events that have occurred during the months that the causeway may be in place. A 2-year event was assumed to have occurred where the gaged daily mean flow met or exceeded the 2-year flow calculated from the Bulletin 17B analysis. The daily mean flows from 2003 to 2024 showed that a total of four (4) 2-year events have occurred at the USGS 01427510 gage during the months the causeway may be in place, January through May. While a 2-year event has a 50% probability of occurring in any given year - based on historical gage records, the 2-year event has a lower probability of occurring while the causeway is in place.

EROSION AND SEDIMENT CONTROL PLAN

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	1 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

CONSTRUCTION WASTES & WASTE DISPOSAL NOTES

REMOVE ALL BUILDING MATERIALS AND WASTES FROM THE SITE AND RECYCLE OR DISPOSE OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ. DO NOT BURN, BURY, DUMP OR DISCHARGE BUILDING MATERIALS AT THE SITE.

RECYCLING OR DISPOSAL OF MATERIALS

THE RECYCLING AND DISPOSAL OF MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS, COMPLY WITH AIR QUALITY, WATER QUALITY, AND SOLID WASTE MANAGEMENT POLICIES, ETC.

CONSTRUCTION WASTES MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

1. EXCESS SOIL MATERIALS.
2. TREES, SHRUBS, AND BRUSH REMOVED DURING CLEARING AND GRUBBING.
3. SANITARY WASTES.
4. PACKAGING MATERIALS (WOOD, PAPER, PLASTIC, STYROFOAM, ETC).
5. PETROLEUM PRODUCTS, PAINT AND THINNERS, CLEANING SOLVENTS, CURING COMPOUNDS, AND SIMILAR MATERIALS.
6. DEMOLITION DEBRIS.

WHERE POSSIBLE, WASTES SHALL BE RECYCLED. WHERE NOT PRACTICAL, WASTES SHALL BE PROPERLY DISPOSED OF AT A PERMITTED LANDFILL FACILITY.

PROVIDE THE FOLLOWING:

1. NEAT, ORDERLY, AND CENTRALIZED STORAGE OF MATERIALS AND WASTES.
2. CONTROL OF LITTER PROVIDING CONTAINERS WITH LIDS IF NEEDED.
3. REGULAR DISPOSAL.
4. PROMPT CLEANUP OF ANY SPILLS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS OR IN ACCORDANCE WITH REGULATORY REQUIREMENTS. UTILIZE A SPECIALTY FIRM IF REQUIRED.
5. PROMPT CLEANUP OF SEDIMENTS WITHIN THE SITE AND ONTO ADJACENT ROADWAYS.
6. KEEP DUST WITHIN TOLERABLE LIMITS BY USING WATER OR OTHER APPROVED DUST SUPPRESSORS.
7. PROVIDE CONTAINMENT OF ALL WASTES GENERATED DURING DEMOLITION. PROVIDE TARPS, VACUUMING, AND/OR OTHER MEANS TO CAPTURE METALS, PAINT CHIPS, SOLVENTS, PAINT REMOVER, LUBRICANTS, WASHWATER, OR ANY OTHER POTENTIAL POLLUTANTS. PRESENT A PLAN FOR POLLUTION CONTROL TO THE ENGINEER FOR ADVANCE APPROVAL.
8. MANAGE LEAD PAINT IN ACCORDANCE WITH GOOD PRACTICE AND AS INDICATED.

PROJECT CONTACTS

DEP NORTHEAST REGIONAL OFFICE
2 PUBLIC SQUARE
WILKES-BARRE, PA 18701-1915
PHONE: 570-826-2511

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 4-0
55 KEYSTONE INDUSTRIAL PARK
DUNMORE, PA 18512
PHONE: 570-963-4061

PENNSYLVANIA FISH AND BOAT COMMISSION
JOSHUA WISOR
595 EAST ROLLING RIDGE DRIVE
BELLEFONTE, PA 16823
PHONE: 814-359-5250

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3 HEADQUARTERS
21 SOUTH PUTT CORNERS ROAD
NEW PALTZ, NY 12561-1696
PHONE: 945-256-3000

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
REGION 9 OFFICE
44 HAWLEY STREET
BINGHAMTON, NY 13901
SULLIVAN COUNTY RESIDENT ENGINEER PHONE: 845-794-7450

PLAN PREPARER

AECOM (DESIGNER)

DAVID J. COOPER, PE
707 GRANT STREET
5TH FLOOR
PITTSBURGH, PA
PHONE: (412) 463-0805

EARTH DISTURBANCE SUMMARY:

TOTAL PROJECT AREA = 3.77 AC (WITHIN LIMITS OF CONSTRUCTION, LOC)
PROJECT AREA OUTSIDE 100-YR FLOODPLAIN = 0.15 AC
EARTH DISTURBANCE IN NY (ALL IN 100-YR FLOODPLAIN) = 0.75 AC
EARTH DISTURBANCE IN PA = 0.08 AC (0.03 OF THAT IS WITHIN 100-YR FLOODPLAIN)

PROTECTED SPECIES AVOIDANCE AND MITIGATION MEASURES:

COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION TO IDENTIFY SPECIAL CONSTRUCTION RESTRICTIONS.

CALL BEFORE YOU DIG

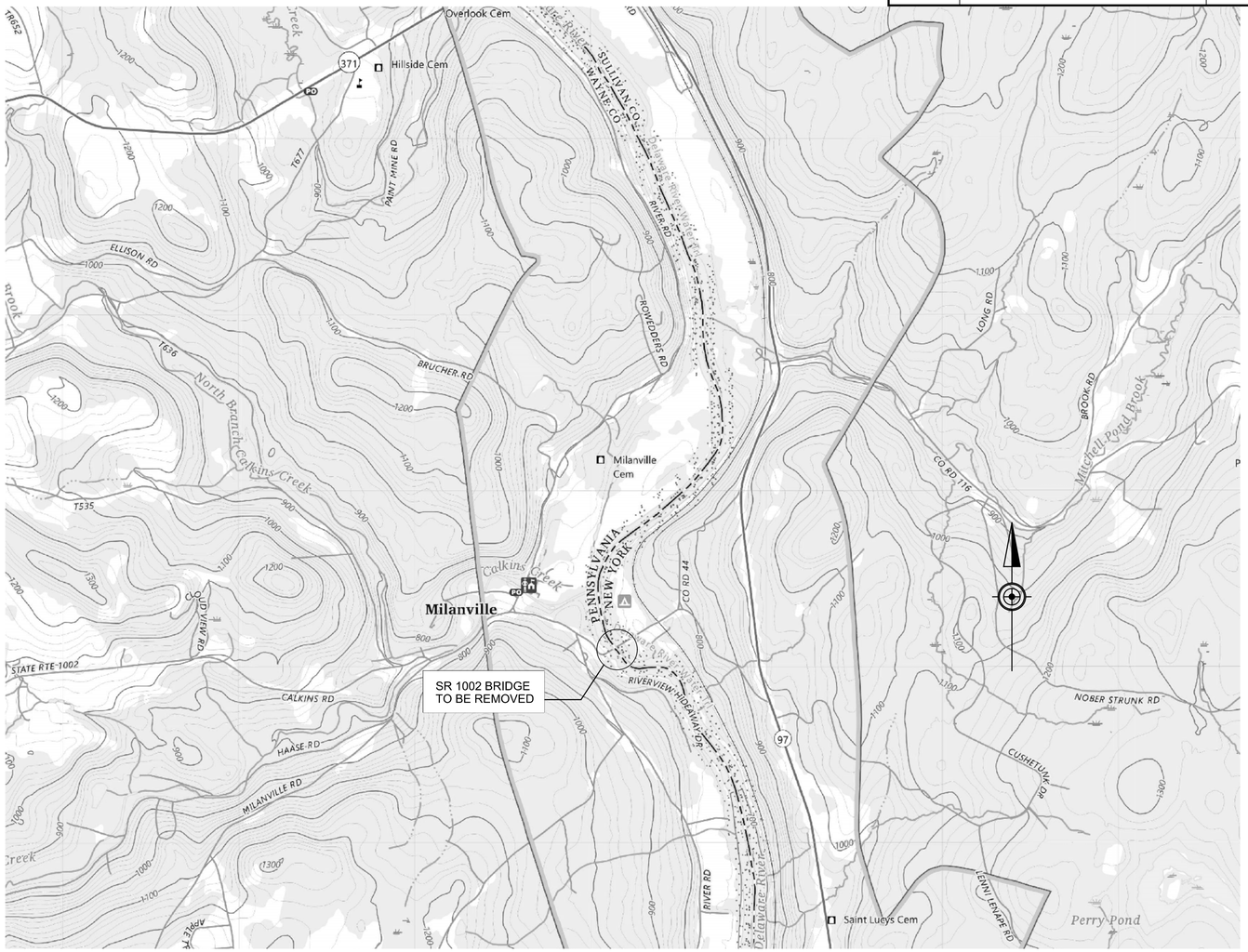
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE
FOR CONSTRUCTION PHASE FOR ROUTINE PROJECTS
AND 10 WORKING DAYS FOR COMPLEX PROJECTS
CALL PENNSYLVANIA ONE CALL AT 1-800-242-1776

CALL BEFORE YOU DIG

NEW YORK LAW REQUIRES 2 WORKING DAYS NOTICE
FOR CONSTRUCTION PHASE
CALL UDIG NY AT 811

CONTRACTOR MUST BE CERTIFIED BY UDIG FOR EXCAVATION

OBTAIN DESIGN SERIAL NUMBERS FROM ENGINEER FOR REFERENCE



LOCATION MAP

0 0.25 0.50 MILES

SHEET INDEX

TITLE SHEET

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GENERAL NOTES

1. IN ACCORDANCE WITH THE CURRENT POLICIES AND PRACTICES IN THE COMMONWEALTH OF PENNSYLVANIA TO CONTROL EROSION, IT IS REQUIRED THAT THE CONTRACTOR FOR THIS PROJECT CONFORM WITH THE FOLLOWING GUIDELINES AS THEY ARE APPLICABLE AND IN ACCORDANCE WITH THE INSTRUCTIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP), THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND THE PENNDOT AND NYSDOT REPRESENTATIVE.

2. KEEP A COPY OF THE APPROVED PLAN DRAWINGS STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY AT THE PROJECT SITE AT ALL TIMES.

3. FAILURE TO CORRECTLY INSTALL ESPC BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF ESPC BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY PADEP AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

CONSTRUCTION INSPECTION NOTES

1. INSPECT ALL E&SC BMPS ACCORDING TO THE SCHEDULES OUTLINED IN THIS PLAN. PERFORM ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK IMMEDIATELY, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE-MULCHING, AND RE-NETTING.

2. MAINTAIN A LOG ON SITE SHOWING DATES THAT E&SC BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED.

3. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, IMPLEMENT APPROPRIATE BMPS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE COUNTY CONSERVATION DISTRICT OR PADEP/NYSDEC. ALSO, IMMEDIATELY NOTIFY THE DEPARTMENT IN ACCORDANCE WITH PUBLICATION 408, SPECIFICATIONS, SECTION 110.02.

MISCELLANEOUS NOTES

1. CONDUCT ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS, IN ACCORDANCE WITH THE APPROVED ESPC PLAN.

2. LIMIT CLEARING, GRUBBING, AND TOPSOIL STRIPPING TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. DO NOT COMMENCE WORK IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE ESPC BMPS SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS DOCUMENT.

3. PUMP WATER FROM WORK AREA(S) TO UNDISTURBED VEGETATED AREAS AND ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN.
WATER PUMP AND ALL ACCESSORIES SHALL BE CLEANED BEFORE AND AFTER USE IN THE WATERWAY IN COMPLIANCE WITH AQUATIC INVASIVE SPIECIES PREVENTION BEST PRACTICES.

4. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

5. RETURN SEDIMENT THAT IS TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY AND DISPOSE OF PROPERLY. DO NOT WASH, SHOVEL, OR SWEEP THE SEDIMENT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

6. SPRINKLE OR APPLY DUST SUPPRESSOR OR KEEP DUST WITHIN TOLERABLE LIMITS AT THE SITE.

8. ADHERE TO AND ACCOMODATE ENVIRONMENTAL COMMITMENT MONITORING OF CRITICAL IN-WATER ACTIVITIES.

STABILIZATION NOTES

1. PLACE TOPSOIL AS INDICATED ON THE PLAN AND IN ACCORDANCE WITH PUBLICATION 408. TOPSOIL SUPPLIED BY STRIPPING AND RE-USING CLEAN EXISTING, ON-SITE TOPSOIL MATERIAL IS BEST. ANY ON-SITE TOPSOIL CONTAINING INVASIVE SPECIES SHALL NOT BE REUSED. ANY OFF-SITE TOPSOIL SUPPLIED SHALL BE CHECKED TO ENSURE IT IS FREE OF INVASIVE AND NOXIOUS WEEDS.

2. PERMANENTLY STABILIZE ALL GRADED AREAS IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED.

3. USE THE SPECIFIED ROLLED EROSION CONTROL PRODUCT(S) ON ALL SEEDED AREAS WITHIN 50 FT OF NON-SPECIAL PROTECTION SURFACE WATERS, WITHIN 100 FT OF SPECIAL PROTECTION SURFACE WATERS, AND WITH SLOPES 3H:1V AND STEEPER.

STABILIZATION NOTES (CONT.)

4. STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OF THE PROJECT. APPLY MULCH OR PROTECTIVE BLANKETING DURING NON-GERMINATING MONTHS. APPLY TEMPORARY STABILIZATION TO DISTURBED AREAS THAT WILL BE REACTIVATED WITHIN ONE YEAR; IF LONGER THAN ONE YEAR, APPLY PERMANENT STABILIZATION.

5. A DISTURBED AREA IS CONSIDERED PERMANENTLY STABILIZED WHEN IT IS COVERED WITH EITHER (1) A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION; OR (2) AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.

6. ENSURE THAT ESPC BMPS REMAIN FUNCTIONAL UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP.

FILL PROCEDURE NOTES

1. OBTAIN E&SC PLAN APROVAL FOR ALL OFF-SITE WASTE AND BORROW AREAS FROM THE CONSERVATION DISTRICT OR PADEP/NYSDEC, AND FULLY IMPLEMENT THE PLAN PRIOR TO ACTIVATING THE SITE.

2. CLEAR, GRUB, AND STRIP TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL FROM FILL AREAS.

3. KEEP ALL TOPSOIL STOCKPILED ONSITE IN THE LOCATION(S) SHOWN ON THE PLAN. PROVIDE THE AMOUNT OF TOPSOIL REQUIRED TO COMPLETE THE FINAL GRADING AND TO ESTABLISH VEGETATION. PROTECT STOCKPILE(S) AS SHOWN ON THE PLAN. PLACE STOCKPILES NO GREATER THAN 35 FT IN HEIGHT WITH SLOPES NO STEED THAN 2H:1V.

4. COMPACT ALL FILLS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC. IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. PLACE ALL EARTHEN FILLS IN MAXIMUM 9-INCH THICK COMPACTED LAYERS.

5. DO NOT PLACE FILLS ON SATURATED OR FROZEN SURFACES. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH CONSTRUCTION OF SATISFACTORY FILLS. DO NOT INCORPORATE SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILLS.

6. ENSURE THAT ESPC BMPS REMAIN FUNCTIONAL UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP.

CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE NOTES

1. THE DEPARTMENT WILL PROVIDE TO THE CONTRACTOR A COMPLETED DUE DILIGENCE FORM FOR EXCESS MATERIAL THAT NEEDS TO BE EXPORTED TO AN OFF-SITE LOCATION. THE CONTRACTOR WILL PROVIDE TO THE DEPARTMENT A DUE DILIGENCE FORM FOR ALL MATERIAL THAT COMES ONTO THE SITE.

2. ENSURE THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL, DEFINED AS UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOILS, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT (NOT INCLUDING MILLED OR PROCESSED FOR REUSE), BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH AND NYS UNLESS OTHERWISE AUTHORIZED.

3. ANY PLACEMENT OF CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL.

4. ENVIRONMENTAL DUE DILIGENCE MUST BE PERFORMED TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S AND NYS 6 CRR-NY 360.13'S MANAGEMENT OF FILL POLICY.

GENERAL NOTES

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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REVISION NUMBER	REVISIONS	DATE	BY

CONSTRUCTION SEQUENCE

STAGE 1 :GENERAL PRE-CONSTRUCTION STEPS - ALL STAGES AND AREAS:

1. AT LEAST 3 DAYS BEFORE STARTING ON-SITE WORK, HOLD A PRE-CONSTRUCTION MEETING AT THE SITE. PROVIDE AT LEAST ADVANCE INVITATION TO REPRESENTATIVES FROM PENNDOT, NYSDOT, PA DEPARTMENT OF ENVIRONMENTAL PROTECTION, NY DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NPS, AFFECTED PROPERTY OWNERS, AND UTILITY OWNERS.
2. STAKE LIMITS-OF-DISTURANCE AND LIMITS-OF-CONSTRUCTION SO THEY ARE READILY VISIBLE THROUGHOUT CONSTRUCTION.
3. INSTALL TEMPORARY PROTECTIVE FENCE AND GATE WHERE SHOWN. PROVIDE BARRIERS AS NEEDED TO PREVENT CONSTRUCTION EQUIPMENT FROM STRAYING BEYOND AND TO PREVENT UNAUTHORIZED ENTRY.
4. PLAN WORK SO AS TO MINIMIZE THE EXTENT AND DURATION OF ACTIVITIES WHICH MIGHT CAUSE SEDIMENT POLLUTION. MINIMIZE DAMAGE TO EXISTING TURF AND OTHER VEGETATION. AVOID COMPACTION OF SOILS IN AREAS TO BE VEGETATED TO THE EXTENT PRACTICAL.
5. NOTIFY PA ONE CALL AT 1-800-242-1776 AND UDIG NY AT 811 3 TO 10 BUSINESS DAYS PRIOR TO CONSTRUCTION. SEE TITLE SHEET FOR MORE INFORMATION. COORDINATE WITH UTILITY OWNERS TO AVOID CONFLICTS AND PROTECT FACILITIES.

STAGE 2: SET-UP TEMPORARY ACCESS ROADS AND CAUSEWAY:

1. ACCESS ROADS AND STAGING AREAS: LAY DOWN TEMPORARY GEOTEXTILE AND ROCK FILL (OR TIMBER MATS) FOR ACCESS ROADS AND STAGING AREAS. DO NOT DISTURB NOR EXCAVATE EXISTING GROUND. STITCH FABRIC PANELS TOGETHER TO BETTER ENABLE COMPLETE REMOVAL OF ROCK AFTER CONSTRUCTION. KEEP VEHICLES AND HEAVY EQUIPMENT ONLY ON AREAS PROTECTED WITH ROCK OR OTHERWISE STABILIZED. EXISTING PAVED AND GRAVEL-SURFACED STAGING AREAS WON'T NEED ADDITIONAL PROTECTION UNLESS RUTTING OR EXPOSURE OF MUD OCCURS. ADD ROCK WHERE NEEDED TO PREVENT RUTTING AND TURBID RUNOFF.
2. PREPARATION FOR WORK IN RIVER: IF RIVER IS ADEQUATELY CLEAR OF ICE, PROVIDE BATHYMETRIC MAPPING OVER THE CAUSEWAY AND DEMOLITION AREA TIED TO THE PROJECT VERTICAL DATUM TO SERVE AS A BASELINE FOR RESTORATION. FURNISH MAP OF ELEVATIONS AND A DIGITAL SURFACE MODEL TO REPRESENTATIVE.
3. BEGIN CAUSEWAY CONSTRUCTION: IF DIRECTED, THE MOST UPSTREAM PORTION OF THE CAUSEWAY (+/-30' TOP WIDTH) IS TO BE CONSTRUCTED FIRST TO DIVERT RIVER FLOW IN ORDER THAT TURBIDITY CURTAIN MAY BE INSTALLED AROUND THE REMAINDER. PLACE ROCK WITHIN THE RIVER POOL DURING LOW FLOW USING EQUIPMENT THAT ALLOWS CAREFUL PLACEMENT TO MINIMIZE TURBIDITY (E.G. EXCAVATORS WITH LONG REACH AND THUMBS IF NEEDED). EXCAVATORS AND TRUCKS SHOULD REMAIN ON ROCK THROUGHOUT THE PLACEMENT (AND SUBSEQUENT REMOVAL) OF THE CAUSEWAY. AS DIRECTED, PROVIDE A 500 GPM PUMP TO REMOVE TURBID WATER IN THE IMMEDIATE VICINITY OF ROCK PLACEMENT AND PUMP TO A PUMPED WATER FILTER BAG IN A WELL VEGETATED SPOT AT LEAST 100 FT FROM THE RIVER. SITUATE PUMP INTAKE AS CLOSE AS PRACTICAL TO SOURCE OF SILT PLUMES AND ADJUST CONTINUOUSLY. PROVIDE A CREW IN A BOAT IF NECESSARY TO POSITION PUMP INTAKE.
4. COMPLETE CAUSEWAY CONSTRUCTION: DEPLOY AND MAINTAIN TURBIDITY CURTAIN IN THE ZONE PROTECTED BY THE UPSTREAM PORTION OF THE CAUSEWAY. PLACE WEIGHTED TARP ON THE UPSTREAM FACE OF ROCK TO MINIMIZE FLOW THROUGH THE ROCK. ADJUST CONFIGURATION, ANCHORS, FLOATS, AND WEIGHTS IF NEEDED TO WORK BEST WITH RIVER CURRENTS. PROCEED WITH UNDERWATER ROCK PLACEMENT TO THE EXTENT POSSIBLE WITH CURTAIN IN PLACE. REMOVE TURBIDITY CURTAIN UND UPSTREAM TARPS WHEN THE UNDERWATER PORTION OF CAUSEWAY IS COMPLETE IN THE PROTECTED AREA. PLACE WESTERNMOST PORTION OF UNDERWATER ROCK AND COMPLETE CAUSEWAY.

STAGE 3: DEMOLITION OF SUPERSTRUCTURE AND PIER:

1. PA RIVERBANK PROTECTION IS REQUIRED WHEN SUPERSTRUCTURE IS REMOVED. PREPARE A PLAN FOR ADVANCED APPROVAL. POSSIBLE METHODS COULD INCLUDE THE USE OF TIMBER MATS, CABLE-TIED TIRES, AND/OR STEEL PLATES, TO ENSURE FALLING SUPERSTRUCTURE DOES NOT GOUGE THE RIVERBANK.
2. DEVELOP A PLAN TO CAPTURE DEMOLITION DEBRIS FOR ADVANCED APPROVAL. THE PLAN SHALL INCLUDE A FLOATING CONTAINMENT BERM WITH A WEIGHTED, DRAPED NET CAPABLE OF INTERCEPTING WOOD DECK FRAGMENTS AND OTHER DEMOLITION DEBRIS. IT SHOULD ALSO INCLUDE LIVE DRONE VIDEO TO TRACK FLOATING DEBRIS, AND A CREW(S) IN A BOAT(S) CAPABLE OF INTERCEPTING AND REMOVING ALL DEBRIS CARRIED BY THE CURRENT.
3. DEMOLISH SUPERSTRUCTURE. REMOVE PIECES FROM THE RIVER CHANNEL ONTO THE CAUSEWAY AS QUICKLY AS PRACTICAL IN A WAY THAT MINIMIZES GOUGING OF THE RIVER BOTTOM AND BANKS. IF ADEQUATELY CLEAR OF ICE, PROVIDE BATHYMETRIC IMAGING CAPABLE OF IDENTIFYING DEMOLITION WASTE TO CONFIRM COMPLETE REMOVAL.
4. DISMANTLE EXISTING SUPERSTRUCTURE ON THE TEMPORARY CAUSEWAY AND PROPERLY DISPOSE OF ALL ELEMENTS.
5. BEGIN DEMOLITION OF PIER. ONCE REMAINING PIER TO BE DEMOLISHED IS LEVEL WITH THE CAUSEWAY, BEGIN REMOVAL OF THE CAUSEWAY SIMULTANEOUSLY WITH PIER REMOVAL.
6. FILL VOIDS LEFT BY PIER FOUNDATION REMOVAL WITH NATIVE STREAMBED MATERIAL FROM AREA SURROUNDING THE PIER. LEAVE FINAL RIVERBED FLUSH WITH SURROUNDING CHANNEL.
7. AS DIRECTED, RESTORE TURBIDITY CURTAIN & UPSTREAM TARPS FOR REMOVAL OF UNDERWATER ROCK AND PIER. REMOVE ROCK FROM THE RIVER BOTTOM CAREFULLY TO MINIMIZE TURBIDITY. USE EXCAVATORS WITH LONG REACH, THUMBS, AND CLAWS INSTEAD OF BUCKET. PUMP TURBID WATER AT SOURCE FROM RIVER TO PUMPED WATER FILTER BAGS TO HELP CONTROL TURBIDITY. PROCEED WITH REMOVAL OF CAUSEWAY WITH TURBIDITY CURTAIN DEPLOYED AS LONG AS PRACTICAL.
8. PROVIDE BATHYMETRIC SURVEY FOR APPROVAL OF REPRESENTATIVE TO CONFIRM SUPERSTRUCTURE DEBRIS AND CAUSEWAY HAVE BEEN FULLY REMOVED AND RIVERBED HAS BEEN RESTORED AS INDICATED. RETRIEVE ANY UNWANTED REMNANTS BY LIFTING VIA BOATS OR LONG-REACH CRANE WITHOUT DRAGGING ON RIVERBED.
9. CONTINUE REMOVAL OF ROCK & GEOTEXTILE FROM STAGING AREAS AND ACCESS ROADS TO COMPLETION.

STAGE 4A: NY SITE RESTORATION:

1. REMOVE A MINIMAL AMOUNT OF TEMPORARY ROCK PROTECTION AND SET COMPOST FILTER SOCK AS INDICATED AND AS DIRECTED TO CAPTURE RUNOFF FROM ALL AREAS TO BE DISTURBED AND RESTORED BEGINNING JUST ABOVE SHORELINE. MAINTAIN SOCK ABOVE THE RIVER POOL.
2. INSTALL ROCK CONSTRUCTION ENTRANCE WITH WASH RACK OR 100' RUMBLE STRIP.
3. CONTINUE REMOVING TEMPORARY ACCESS ROAD AS NO LONGER NEEDED.
4. RESTORE WETLAND AREA IN ACCORDANCE WITH WATERWAY PERMIT. SEED WITH PENNDOT WETLAND CONSERVATION MIX OR AS DIRECTED. DELINEATE WETLAND BOUNDARY WITH STAKES AND RIBBON.
5. REMOVE ROAD PAVEMENT, ABUTMENT, AND EMBANKMENT AS INDICATED.
6. LOOSEN SOIL WITH SHALLOW OR HEAVY HARROWING OR DISKING IN AREAS WHERE SURFACE SOILS ARE COMPACTED OR WHERE ORIGINAL TURF CANNOT RECOVER. PROVIDE TURF AERATION AS DIRECTED IN AREAS WHERE ORIGINAL TURF IS EXPECTED TO RECOVER. APPLY SEED, SOIL SUPPLEMENTS, AND ROLLED EROSION CONTROL PRODUCT OR APPROVED HYDRAULICALLY APPLIED MULCH.

STAGE 4B: PA SITE RESTORATION:

1. SET COMPOST FILTER SOCK AS INDICATED AND AS DIRECTED TO CAPTURE RUNOFF FROM ALL AREAS TO BE DISTURBED.
2. REHABILITATE ABUTMENT. PROVIDE TIMBER MATS FOR EQUIPMENT THAT MUST BE LOWERED TO THE BASE OF WALLS.
3. RESTORE RIVERBANK AS DIRECTED. RESTORE WETLAND AREA IN ACCORDANCE WITH WATERWAY PERMIT. SEED WITH PENNDOT WETLAND CONSERVATION MIX OR AS DIRECTED. DELINEATE WETLAND BOUNDARY WITH STAKES AND RIBBON.
4. REMOVE PAVEMENT. LOOSEN SUBGRADE. APPLY TOPSOIL, AND REVEGETATE BEGINNING AT ABUTMENT AND WORKING BACKWARD SUCH THAT EXCAVATOR AND TRUCKS REMAIN ON CLEAN PAVEMENT.
5. SEED & MULCH.

POST-CONSTRUCTION STEPS - ALL STAGES AND AREAS:

1. SOIL TESTING: CONTACT CORNELL AGRICULTURAL EXTENSION TURF GRASS SPECIALIST FOR GUIDANCE ON REVEGETATION OF AREAS TO BE DISTURBED. COLLECT TOPSOIL SAMPLES FROM AREAS WHERE ROCK WILL BE TEMPORARILY PLACED AT THE TIME RECOMMENDED. COLLECT AT LEAST ONE COMPOSITE OF 4 REPRESENTATIVE SUBSAMPLES FROM EVERY 10,000 SF. SUBMIT SAMPLES FOR ANALYSIS AND RECOMMENDATIONS ON SOIL SUPPLEMENTS. SUBMIT PLAN OF SAMPLE LOCATIONS TO REPRESENTATIVE.
2. SOIL PREPARATION, SEEDING, & MULCHING ARE TO OCCUR IMMEDIATELY AS TEMPORARY COVER IS REMOVED OR AS THE FINAL GRADE IS REACHED.
3. WATER AND CULTIVATE RESTORATION AREAS UNTIL UNIFORM 70% VEGETATIVE COVER IS ACHIEVED THROUGHOUT THE WORK SITE.
4. PRIOR TO REMOVAL OF COMPOST FILTER SOCKS, SCHEDULE A MEETING WITH THE REPRESENTATIVE AND PERMITTING AGENCIES TO CONFIRM ADEQUACY OF SITE RESTORATION AND CLOSE PERMIT.
5. WHEN SATISFACTORY VEGETATIVE COVER IS ACHIEVED, COORDINATE WITH PROPERTY OWNER TO CUT COMPOST FILTER SOCKS AND DISPERSE COMPOST OR REMOVE THEM ENTIRELY FROM THE SITE IF DIRECTED. REVEGETATE AREAS UNDER COMPOST SOCK.

CONSTRUCTION SEQUENCE

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	4 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

FORMULA AND SPECIES	% BY WEIGHT	MINIMUM %		MAX % WEED SEED	SEEDING RATE (LB/1000 SQ. YD)
		PURITY	GERMINATION		
FORMULA B RESIDENTIAL MIX					42.0 TOTAL
PERENNIAL RYEGRASS MIXTURE (LOLIUM PERENNE). A COMBINATION OF IMPROVED CERTIFIED VARITIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL RYEGRASS COMPONENT	20	97	90	0.10	8.5
CREEPING RED FESCUE OR CHEWINGS FESCUE (FESTUCA RUBRA OR SSP COMMUTATE) (IMPROVED AND CERTIFIED)	30	97	85	0.10	12.5
KENTUCKY BLUEGRASS MIXTURE (POA PRATENSIS). A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL BLUEGRASS COMPONENT.	50	97	80	0.15	21.0
FORMULA L CLEAR ZONE MIX					48.0 TOTAL
HARD FESCUE MIXTURE (FESTUCA LONGIFOLIA). A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL HARD FESCUE COMPONENT	55	97	85	0.10	26.4
CREEPING RED FESCUE (FESTUCA RUBRA) (IMPROVED AND CERTIFIED)	35	97	85	0.10	16.8
ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)	10	95	90	0.10	4.8
FORMULA W WETLAND CONSERVATION MIX*					9 TOTAL
NURSERY CROPS					
OATS (AVENA SATIVA) (SPRING)	66.67	97	85	0.10	6
CEREAL RYE (SECALE CEREALE) (FALL)	66.67	97	85	0.10	6
PERMANENT SPECIES					
FOX SEDGE (CAREX VULPINOIDEA)	3.33	-	-	-	0.3
RIVERBANK WILDRYE (ELYMUS RIPARIUS)	1.67	85	70	0.2	0.15
PRAIRIE CORDGRASS (SPARTINA PECTINATA)	1.11	-	-	-	0.1
LURID SEDGE (CAREX LURIDA)	1.67	-	-	-	0.15
SOFT RUSH (JUNCUS EFFUSUS)	3.33	-	-	-	0.3
BLUE VERVAIN (VERBENA HASTATA)	5	-	-	-	0.45
SWAMP MILKWEED (ASCELEPIAS INCARNATA)	1	-	-	-	0.09
SNEEZEWEED (HELENIUM AUTUMNATE)	1.67	-	-	-	0.15
ALLEGHENY MONKEYFLOWER (MIMULUS RIGENS)	0.33	-	-	-	0.03
NODDING BUR MARIGOLD (BIDENS CERNUA)	1.67	-	-	-	0.15
SEEDBOX (LUDWIGIA ALTERNIFOLIA)	2.67	-	-	-	0.24
BONESET (EUPATORIUM PERFOLIATUM)	1.67	-	-	-	0.15
NORTHERN BLUE FLAG (IRIS VERSICOLOR)	1.11	-	-	-	0.1
FOWL BLUEGRASS (POA PALUSTRIS)	4.44	-	-	-	0.4
GREEN BULRUSH (SCRIPUS ATROVIRENS)	2.67	-	-	-	0.24
FORMULA T TEMPORARY GRASS MIX					6 TOTAL
OATS (AVENA SATIVA) (SPRING)	66.67	97	85	0.10	6
CEREAL RYE (SECALE CEREALE) (FALL)	66.67	97	85	0.10	6

FERTILIZER FORMULATION BY SEED MIX TYPE		
SEED MIX CATEGORY	FORMULATION	RATE OF APPLICATION
TURF GRASS (FORMULAS B,L,T)	10-20-20	140 LB./1000 YD²
TREE, SHRUB, & VINE INSTALLATIONS	20-10-5 AND 16-8-12	N/A
NATIVE UPLAND MIXES (FORMULAS C,N,P, WILDFLOWER & SLOPE ENHANCEMENTS)	DETERMINED BY SOIL TEST, SEE SECTION 804.3(E)1 IN PUB 408	
NATIVE WETLAND MIXES (FORMULAS R,W)	DETERMINED BY SOIL TEST, SEE SECTION 804.3(E)1 IN PUB 408	

ALL APPLICATIONS	
LIME RATE	800 LB PER 1000 SQ. YD
FERTILIZER TYPE AND RATE	COMMERCIAL TYPE 10-20-20 AT 140 LB PER 1000 SQ. YD

PERMANENT VEGETATIVE STABILIZATION APPLICATIONS		
APPLICATION	SEED	SOIL
FOR EMBANKMENT SLOPES NO STEEPER THAN 3H:1V	FORMULA B MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*
FOR EMBANKMENT SLOPES STEEPER THAN 3H:1V OR UNMOWED AREAS	FORMULA L MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*
FOR WETLAND RESTORATION	FORMULA W MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*

*PROVIDE TOPSOIL ONLY WHERE EXISTING TOPSOIL HAS BEEN INADVERTANTLY LOST DURING CONSTRUCTION.

TEMPORARY VEGETATIVE STABILIZATION APPLICATION	
APPLICATION	SEED
ALL	FORMULA T

SEED DATES	
FORMULA	DATES
FORMULA B, L AND T	MARCH 15 TO JUNE 1 AUGUST 1 TO OCTOBER 15
FORMULA C, N, AND W	NURSERY CROPS PORTION: ANYTIME NATIVE PORTION: OCTOBER 15 TO MAY 15

MULCHING*	
MULCH TYPE AND RATE	STRAW MULCH AT 1200 LB PER 1000 SQ. YD FOR TEMPORARY SEEDING AND BONDED FIBER MATRIX FOR PERMANENT SEEDING
ANCHORING METHOD	MULCH BINDER
ANCHOR MATERIAL AND RATE	RECYCLED CELLULOSE FIBER OR WOOD FIBER AT 160 LB PER 1000 SQ. YD

*PROVIDE PENNDOT ROLLED EROSION CONTROL PRODUCT TYPE 2D IN ADDITION TO MULCH WITHIN 100 FT OF JURISDICTIONAL WATERWAYS AND WETLANDS

SEEDING NOTES:

1. PLACE ALL SEEDING, SOIL SUPPLEMENTS, AND MULCHING ITEMS IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SPECIFICATIONS 804 AND 805 OR OTHER APPROVED SPECIAL PROVISIONS.
2. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED MUST BE STABILIZED AND MULCHED IMMEDIATELY AFTER SEEDING, DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY MIXTURE AND MULCH. DISTURBED AREAS WHICH ARE EITHER FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE IMMEDIATELY SEEDED AND MULCHED WITH A PERMANENT SEED MIXTURE AND MULCH.
3. ALL SEED MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED; INCLUDING ALL LABOR, MATERIALS, SEED MIXES, EQUIPEMENT, INCIDENTALS, AND CLEAN-UP.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.
5. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
6. NO SEED MIX SUBSTITUTIONS SHALL BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OR THEIR REPRESENTATIVE. WRITTEN PROOF OF SEED MIX UNAVAILABILITY MUST BE DOCUMENTED.
7. ALL SEED MIX SHALL BE PROPERLY INSTALLED ON PREPARED GRADE, IN CONFORMANCE WITH THE TYPICAL LANDSCAPE DETAILS. INSTALL ALL SEED MIX ON UNDISTURBED, NON-COMPACTED, PREPARED PLANTING SOIL.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUCCESSFUL ESTABLISHMENT OF SEEDED AREAS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF INITIAL SEEDING, WITHIN THAT TIME PERIOD, SEED AND MULCH SHALL BE REAPPLIED TO BARE SOIL AREAS IF THE VEGETATIVE COVER GROWTH IS BELOW UNIFORM 80% COVERAGE.
9. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN. IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SF, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOU BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE.
10. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM OF 3 TO 5 INCHES, OR 6 TO 12 INCHES ON COMPACTED SOIL, PRIOR TO PLACEMENT OF TOPSOIL.
11. AREAS WHICH ARE TO BE VEGETATED SHALL HAVE A MINIMUM OF 4 INCHES OF SCARIFIED TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF SCARIFIED TOPSOIL.

TREES & SHRUBS:

PLANT IN ACCORDANCE WITH PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, RC-91M AND STANDARD SPECIFICATION 808 AND/OR NYSDOT STANDARD DRAWINGS 0611-01, JAN 2014, AS DIRECTED.

SEEDING SPECIFICATIONS

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	5 OF 11
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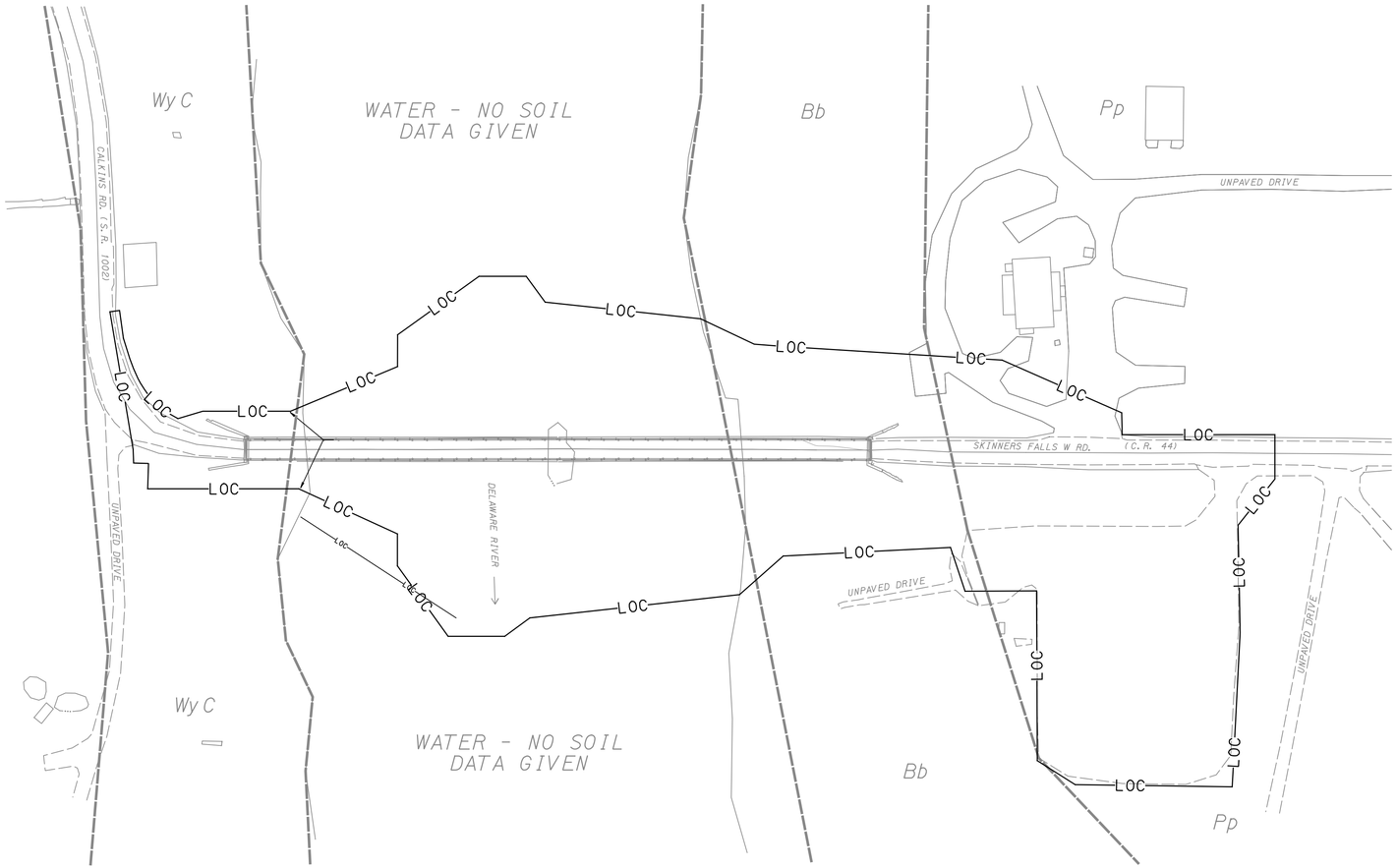
SOIL USE LIMITATIONS

SOIL NAME	SOIL TYPE	SOIL USE LIMITATIONS															
	SERIES AND MAP SYMBOL	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH/LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
BARBOUR LOAM	Bb	X	C	X		X	X	X				X	X				X
POPE VERY FINE SANDY LOAM, RARELY FLOODED	Pp	X	C/S		X	X		X	X	X	X	X	X				
WYOMING GRAVELLY SANDY LOAM 8 TO 15 % SLOPES	WyC	X	C/S				X	X	X	X	X		X	X			



SOIL UNIT BOUNDARY MAP

NOT TO SCALE

RESOLUTIONS

CUTBANKS CAVE
RESOLUTION - CUT AND FILL SLOPES ARE PROPOSED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERING REPORT (GER). CONSTRUCT IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

CORROSIVE TO CONCRETE/STEEL
RESOLUTION - ALTERNATE PIPE MATERIALS ARE PROVIDED. PLACE CONCRETE AND STEEL IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

DROUGHTY
RESOLUTION - ONLY USES COMPATIBLE WITH DROUGHTY SOILS ARE TO BE LOCATED IN THESE AREAS. AT LOCATIONS WHERE DROUGHTY SOILS ARE PRESENT, PROVIDE ADEQUATE MEASURES TO INCREASE SOIL MOISTURE CONTENT.

EASILY ERODIBLE
RESOLUTION - SOIL EROSION CONTROL DEVICES WILL BE USED WHERE NECEASSRY IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

FLOODING
RESOLUTION - ONLY USES COMPATIBLE WITH FLOODING ARE TO BE LOCATED IN FLOOD PRONE AREAS. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH FLOODING, STRUCTURES OR FACILITIES IN THESE AREAS MUST BE ELEVATED AT LEAST 1 FOOT ABOVE THE 100-YEAR FLOOD ELEVATION, OR FLOODPROOFED IN ACCORDANCE WITH CURRENT BUILDING CODES.

DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE
RESOLUTION - ONLY USES COMPATIBLE WITH A HIGH WATER TABLE ARE TO BE LOCATED IN THESE AREAS. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH A HIGH WATER TABLE, STRUCTURES OR FACILITIES IN THESE AREAS MUST BE DESIGNED TO WITHSTAND POTENTIAL SETTLEMENT DUE TO CONSOLIDATION (IF COHESIVE SOILS ARE PRESENT) AND DECREASED BEARING CAPACITY. APPROPRIATE DRAINAGE MEASURES ARE TO BE INSTALLED.

HYDRIC/HYDRIC INCLUSIONS
RESOLUTION - ONLY USES COMPATIBLE WITH HYDRIC SOILS ARE TO BE LOCATED IN THESE AREAS. FOUNDATIONS FOR STRUCTURES ON HYDRIC SOILS ARE TO BE APPROPRIATELY DESIGNED. PERFORM NECESSARY SUBSURFACE INVESTIGATION AND FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

LOW STRENGTH/LANDSLIDE PRONE
RESOLUTION - PERFORM NECESSARY SUBSURFACE INVESTIGATION AND FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

SLOW PERCOLATION
RESOLUTION - SOIL TESTS WERE PERFORMED FOR INFILTRATION BMP'S AND PLANTING SOIL WILL BE USED IN SPECIFIED BMP'S TO ALLOW FOR HIGHER INFILTRATION RATES.

PIPING
RESOLUTION - FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

POOR SOURCE OF TOPSOIL
RESOLUTION - IF THERE ARE NO SUITABLE ON-SITE SOILS FOR TOPSOIL, SUITABLE MATERIAL WILL NEED TO BE IMPORTED. SUITABLE MATERIAL IS TO CONFORM TO PENNDOT PUBLICATION 408, SECTION 802.2.

FROST ACTION
RESOLUTION - STRUCTURES OR FACILITIES LOCATED ON SOILS SUSCEPTIBLE TO FROST ACTION MUST BE PLACED AT A MINIMUM DEPTH TO PREVENT FROST ACTION. FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

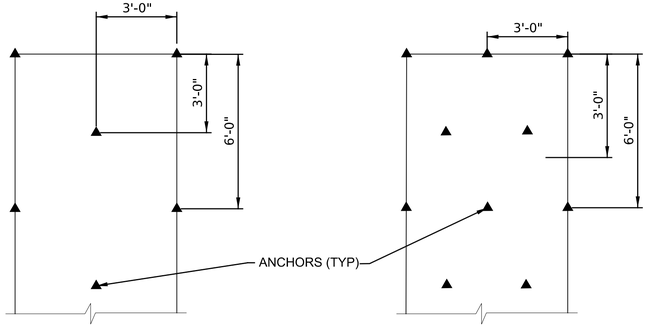
WETNESS
RESOLUTION - ONLY USES COMPATIBLE WITH WET SOILS ARE TO BE LOCATED IN AREAS WITH THESE SOIL TYPES. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH WET SOILS, STRUCTURES AND FACILITIES MUST BE DESIGNED TO ACCOMMODATE THE WET CONDITIONS AND APPROPRIATE DRAINAGE MEASURES ARE TO BE INSTALLED.

SOIL USE LIMITATIONS

$DATE$ $TIME$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	6 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

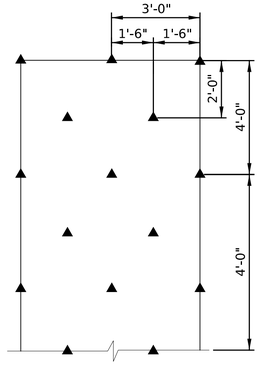


ANCHOR PATTERN FOR SLOPES FLATTER THAN 3:1

PLACE 1 ANCHOR/SY

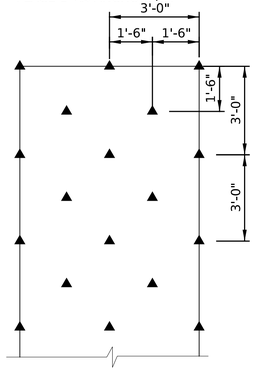
ANCHOR PATTERN FOR SLOPES BETWEEN 3:1 AND 2:1 (INCLUDING 3:1)

PLACE 1 5/64 ANCHORS/SY



ANCHOR PATTERN FOR SLOPES BETWEEN 2:1 AND 1:1 (INCLUDING 2:1)

PLACE 2 ANCHORS/SY



ANCHOR PATTERN FOR 1:1 OR STEEPER

PLACE 2 ANCHORS/SY

ANCHOR PATTERNS FOR SLOPES

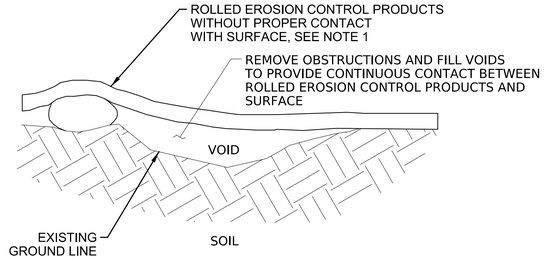


FIGURE 1

LACK OF CONTINUOUS CONTACT

NOTES:

1. ESTABLISH AND MAINTAIN CONTINUOUS CONTACT BETWEEN THE ROLLED EROSION CONTROL PRODUCTS AND THE SOIL.
2. PROVIDE ANCHORING DEVICES IN ACCORDANCE WITH PUBLICATION 408, SECTION 806.2(d).

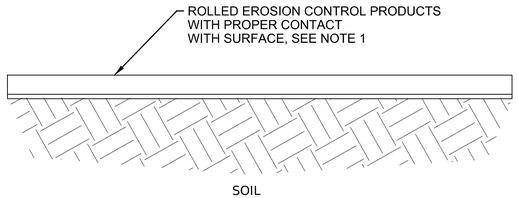
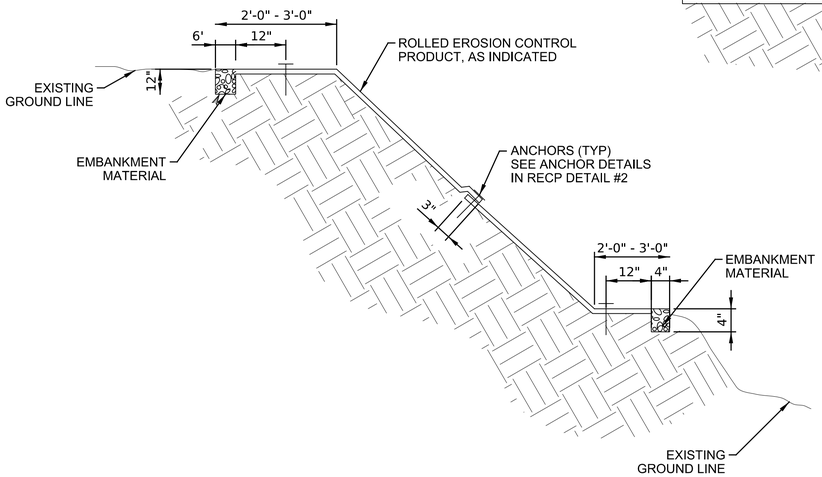


FIGURE 2

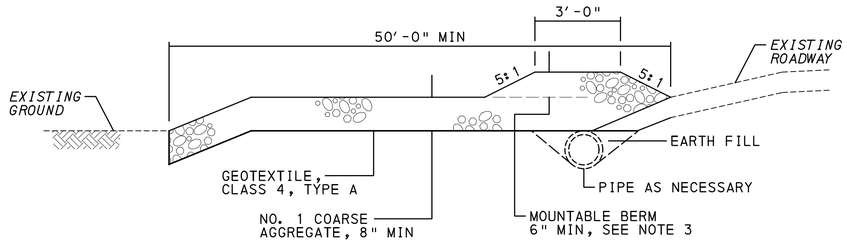
CONTINUOUS CONTACT



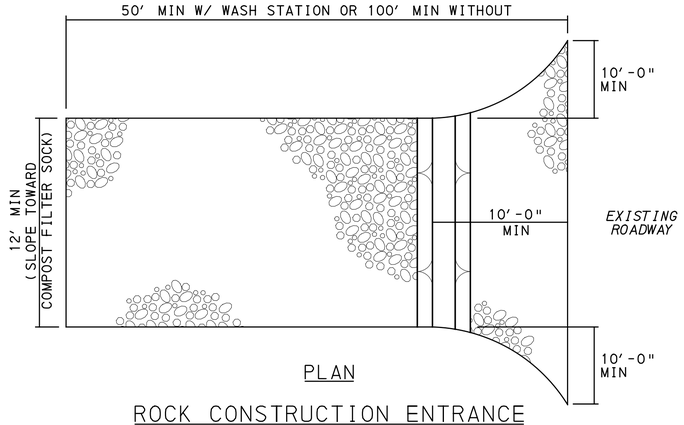
TYPICAL SLOPE CROSS-SECTION

ROLLED EROSION CONTROL PRODUCTS (RECP) DETAIL #1

NOT TO SCALE



PROFILE



PLAN

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

NOTES:

1. ROCK CONSTRUCTION ENTRANCES ARE NEEDED ONLY IF CONSTRUCTION VEHICLES AND EQUIPMENT MUST EXIT WORK AREAS WITH MUDDY TIRES.
2. IF USING WASH STATION OPTION, PROVIDE CATTLE CROSSING, GRATE, RUMBLE PADS, OR OTHER MEANS TO CHANNEL WASH WATER TOWARD COMPOST FILTER SOCK. WASH TIRES TO REMOVE MUD.
3. MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.
4. PRE-CONSTRUCTED RUMBLE PADS (SEE PA DEP MANUAL PAGE 17 FOR EXAMPLE PHOTO) MAY BE USED INSTEAD OF ROCK CONSTRUCTION ENTRANCES PROVIDED THEY ARE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND A SUFFICIENT NUMBER OF PADS ARE INSTALLED TO PROVIDE FOR A MINIMUM OF FOUR TIRE REVOLUTIONS WHILE ON THE PAD. MORE PADS MAY BE NEEDED DEPENDING ON SITE CONDITIONS.

TYPICAL DETAILS

$TIME$
$DATE$
$FILE$
$USER$
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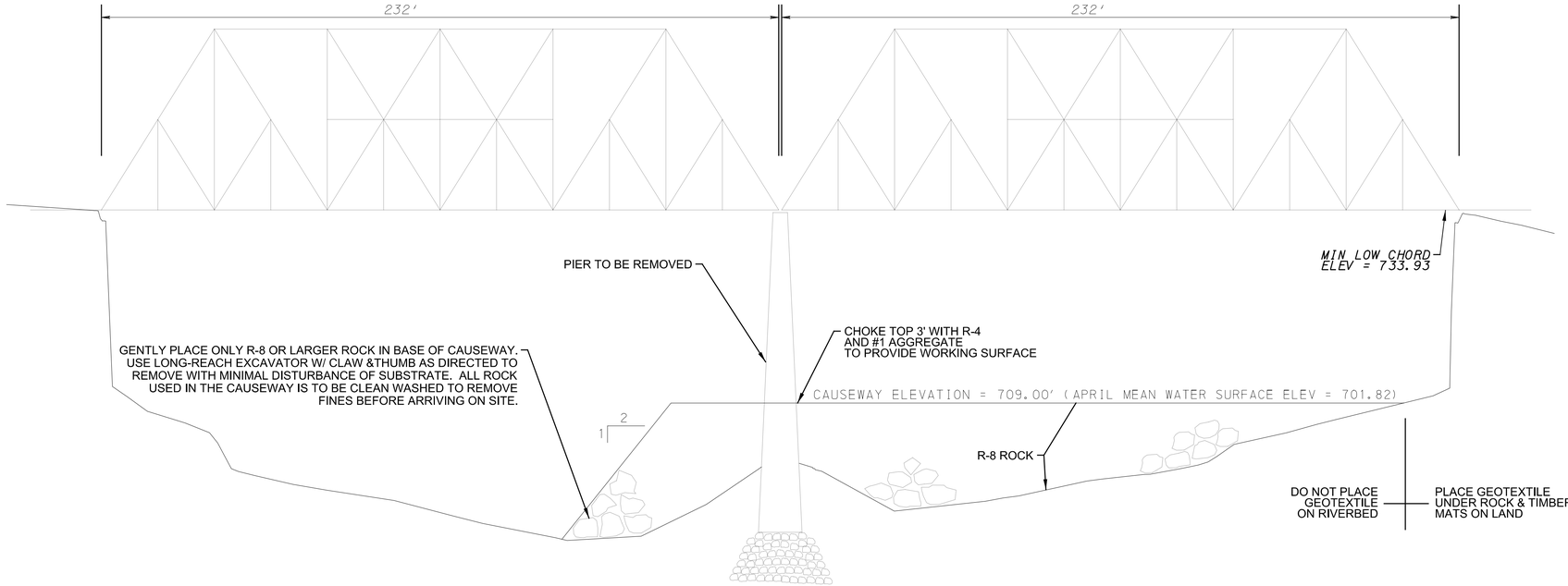
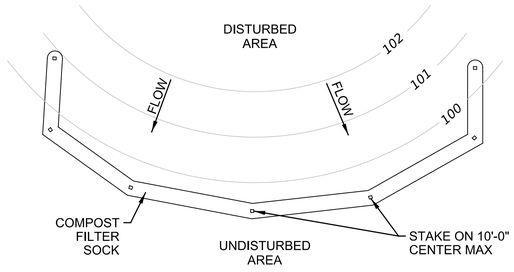
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	7 OF 11
9	SULLIVAN	CR 44	-	

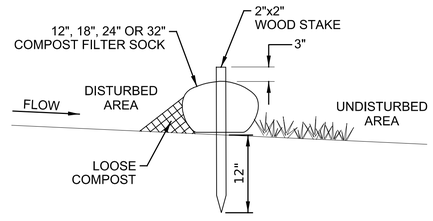
REVISION NUMBER	REVISIONS	DATE	BY



TEMPORARY CAUSEWAY PROFILE



PLAN VIEW



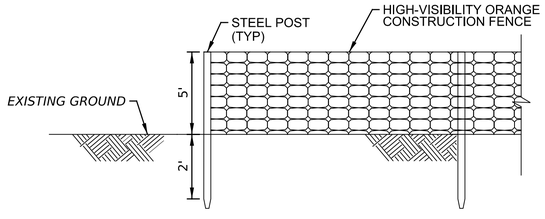
SECTION VIEW

NOTES:

1. REMOVE DEPOSITS WHEN SEDIMENT ACCUMULATION IS ONE HALF OF THE EXPOSED COMPOST FILTER SOCK.
2. REPLACE BIODEGRADABLE FILTER SOCK AFTER 6 MONTHS; PHOTODEGRADABLE AFTER 12 MONTHS. POLYPROPYLENE SOCKS ARE TO BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. TRAFFIC IS NOT TO BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
4. SOCKS ARE TO BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS ARE TO BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES ARE TO BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
6. PLACE COMPOST FILTER SOCK AT EXISTING LEVEL GRADE. EXTEND BOTH ENDS OF THE BARRIER AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

COMPOST FILTER SOCK

NOT TO SCALE



TEMPORARY PROTECTIVE FENCE

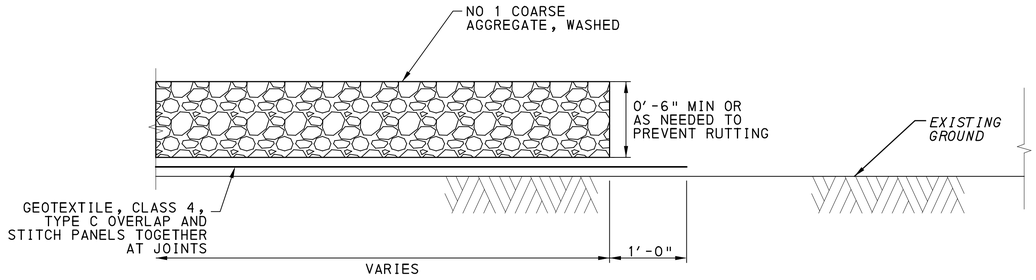
NOT TO SCALE
(ITEM 0811-0003)

TYPICAL DETAILS

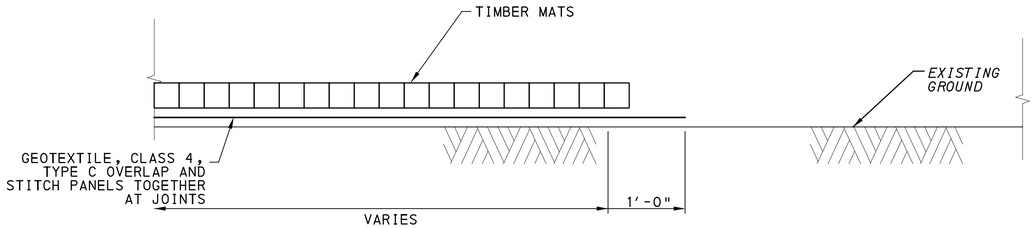
$DATE$ $TIME$ $FILE$ $USER$ AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	8 OF 11
9	SULLIVAN	CR 44	-	

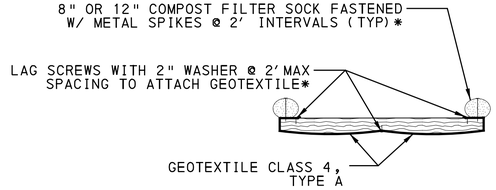
REVISION NUMBER	REVISIONS	DATE	BY



AGGREGATE OPTION

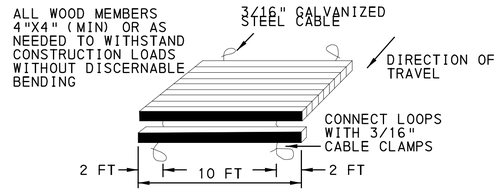


TIMBER MAT OPTION



CROSS SECTION LOOKING IN LONGITUDINAL DIRECTION

* THESE ARE ONLY NEEDED AT OUTER PERIMETER OF INSTALLATION. IF THE MAT SLOPES AWAY FROM THE PERIMETER AT LEAST 5%, THEN SOCK AND LAG SCREWS MAY BE OMITTED.



TIMBER MAT ISOMETRIC VIEW
NOT TO SCALE

TEMPORARY ACCESS ROAD
NOT TO SCALE
(PART OF 9000-0005 TEMPORARY CAUSEWAY)

NOTES:

1. GRAVEL AND TIMBER MATS MAY BE USED INTERCHANGABLY, EXCEPT ONLY TIMBER MATS MAY BE USED FOR TEMPORARY WETLAND PROTECTION.
2. IF TIMBER MATS ARE USED, SEE TIMBER MAT DETAIL FOR FURTHER INFORMATION.

THE FOLLOWING STEPS TO INSTALL AND REMOVE GEOTEXTILE FABRIC AND FILL MATERIAL MUST BE COMPLETED:

VEGETATION MUST BE CUT FLUSH WITH THE SURFACE OF GROUND

NO GRUBBING IS TO BE PERFORMED, LEAVE ALL ROOTS IN PLACE

EXCAVATION, GRADING, OR REMOVAL OF TOPSOIL IS NOT PERMITTED. BENCHING TO ALLOW FOR PROPOSED EMBANKMENT GRADING IS NOT REQUIRED.

CLASS 4, TYPE C GEOTEXTILE WILL BE PLACED BY HAND OVER THE AREA TO BE PROTECTED, THIS WILL ACT AS A BARRIER BETWEEN THE EXISTING GROUND SURFACE AND THE FILL MATERIAL. GEOTEXTILE IS NOT TO BE PLACED WITHIN WATERWAY.

THE EQUIPMENT PLACING THE FILL MATERIAL WILL RUN ON THE SURFACE OF THE PLACED FILL AND NOT ON THE ORIGINAL GROUND SURFACE.

TO AVOID DAMAGE TO THE ORIGINAL GROUND SURFACE THE FILL MATERIAL WILL NOT BE COMPACTED WITH VIBRATION EQUIPMENT.

AT THE COMPLETETION OF THE PROJECT, THE FILL MATERIAL WILL BE REMOVED IN A MANNER SIMILAR TO WHICH IT WAS PLACED.

THE EQUIPMENT REMOVING THE FILL WILL NOT RUN ON THE ORIGINAL GROUND SURFACE DURING THE REMOVAL PROCESS.

THE GEOTEXTILE MATERIAL WILL BE REMOVED BY HAND.

RE-SEED THE PROTECTED AREA USING AN APPROVED PENNDOT SEED MIXTURE.

TYPICAL DETAILS

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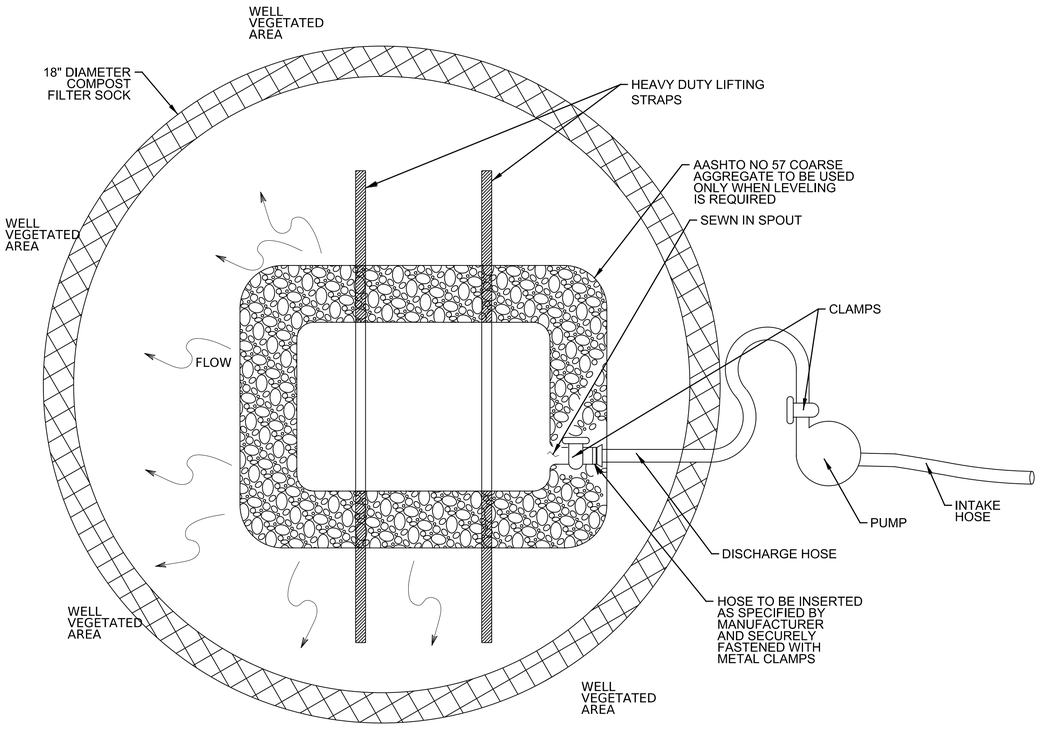
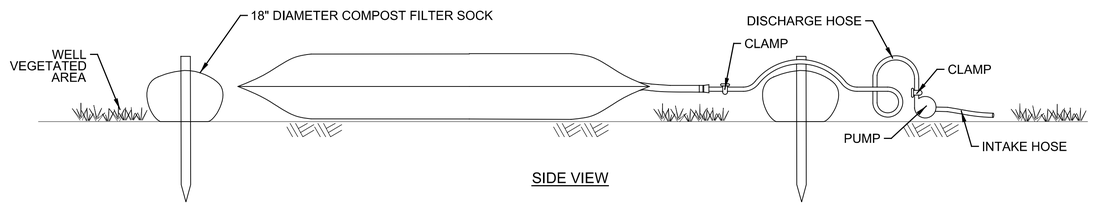
4-0	WAYNE	1002	230	9 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY



TOP VIEW



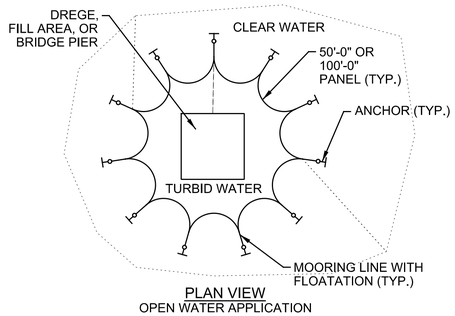
SIDE VIEW

NOTES:

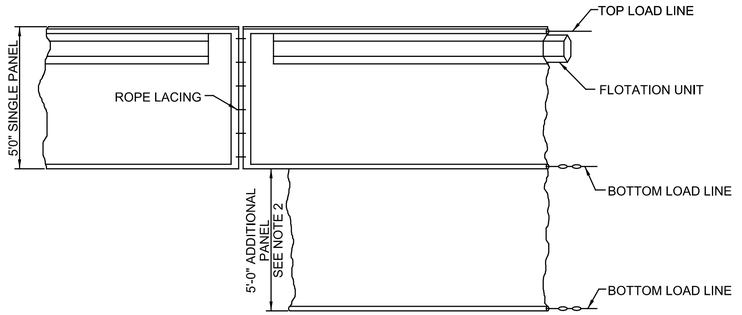
1. LOCATE BAG IN LEVEL AREAS (LESS THAN 5% GRADE). WHEN LEVEL AREAS ARE NOT AVAILABLE, PLACE AASHTO NO 57 COARSE AGGREGATE TO LEVEL THE BAG.
2. LOCATE BAG IN A WELL VEGETATED AREA. DISCHARGE ONTO A STABLE, EROSION RESISTANT AREA. WHEN VEGETATED AREA IS NOT AVAILABLE, PROVIDE A GEOTEXTILE (CLASS 4, TYPE A) LINED FLOW PATH TO A STABLE EROSION RESISTANT RECEIVING WATER COURSE OR A WELL VEGETATED AREA.
3. LOCATE BAG IN AN AREA ACCESSIBLE BY EQUIPMENT FOR MAINTENANCE AND REMOVAL PURPOSES.
4. DO NOT INSERT MORE THAN ONE HOSE INTO A BAG.
5. REPLACE THE BAG WHEN 50% OF THE SEDIMENT CAPACITY HAS BEEN FILLED AND/OR WHEN THERE IS A FAILURE. THE ADDITIONAL BAGS WILL BE PAID AS EACH.
6. REMOVE AND PROPERLY DISPOSE OF THE PUMPED WATER FILTER BAGS. RESTORE THE AREA IN ACCORDANCE WITH THE SPECIFICATIONS IN PUBLICATION 408. DO NOT CUT FILTER BAG OR DISTRIBUTE AND SEED SEDIMENT.
7. DO NOT PERMIT DISCHARGE FROM THE BAG TO DRAIN BACK INTO WORK OR ACCESS AREAS OF THE PROJECT.
8. PUMPING RATE IS NOT TO BE GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS.

PUMPED WATER FILTER BAG

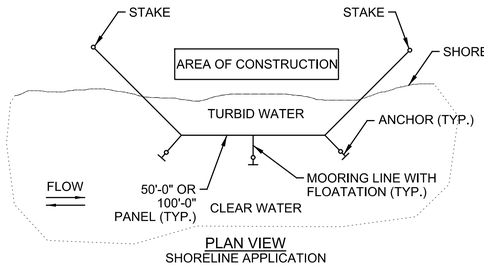
NOT TO SCALE



PLAN VIEW
OPEN WATER APPLICATION



ELEVATION



PLAN VIEW
SHORELINE APPLICATION

FLOATING TURBIDITY CURTAIN

NOTE:

1. ADDITIONAL PANEL REQUIRED FOR DEPTHS GREATER THAN 5'-0".
2. USE 2 TURBIDITY CURTAIN PANELS TO REACH BOTTOM DEPTHS OF 10'-0". SPECIAL DEPTH TURBIDITY CURTAIN PANELS ARE REQUIRED FOR DEPTHS GREATER THAN 10'-0" AND THEIR USE WITH BE CALLED OUT IN THE PLANS OR DIRECTED BY THE ENGINEER.

TURBIDITY CURTAIN

NOT TO SCALE

TYPICAL DETAILS

$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	10 OF 11
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REVISION NUMBER	REVISIONS	DATE	BY

33'-0"

LEGAL RIGHT-OF-WAY LINE

VEHICULAR GATE FOR TYPE 1 RIGHT-OF-WAY FENCE, 24-FOOT OPENING

0 — POB 0+00.00

TEMPORARY PROTECTIVE FENCE

SR 1002 CONSTRUCTION ℄

60'-0"

3+16' 60' LT

CAUSEWAY EL 709' 120' WIDTH

120'

N 56°27'59" E

LEGAL RIGHT-OF-WAY LINE

3+15' 60' RT

DEBRIS CONTAINMENT BOOM & NET

TC

LOC

30' ACCESS RD 10% MAX GRADE

20' ACCESS RD 10% MAX GRADE

83'-3"

PWF-B 18" CFS

TEMPORARY PROTECTIVE FENCE

VEHICULAR GATE FOR TYPE 1 RIGHT-OF-WAY FENCE, 24-FOOT OPENING

ROCK CONSTRUCTION ENTRANCE

30'-0"

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

ESTIMATED LEGAL RIGHT-OF-WAY LINE

RICHARD & LISA LANDER DEED BOOK 2008, PAGE 341 PARCEL 2

STEVEN D. IRCHA AND JANE IRCHA DEED BOOK 3503, PAGE 199 PARCEL 2

THE PEOPLE OF THE STATE OF NEW YORK DEED BOOK 758, PAGE 60

3 BOX-WIRE FENCE

LEGEND

690	EXISTING CONTOURS
700	PROPOSED CONTOURS
18" CFS	18" COMPOST FILER SOCK
24" CFS	24" COMPOST FILER SOCK
TC	TURBIDITY CURTAIN
LOC	LIMIT OF CONSTRUCTION
PWFB	PUMPED WATER FILTER BAG

NOTE: 100-YEAR FLOOD ELEV = +/- 723 TO 725

STAGES 1 - 3
PLAN SHEET - CAUSEWAY

$FILE$
$DATE$
$TIME$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	11 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

LEGEND

690	EXISTING CONTOURS
700	PROPOSED CONTOURS
12" CFS	12" COMPOST FILER SOCK
24" CFS	24" COMPOST FILER SOCK
LOC	LIMIT OF CONSTRUCTION
▨	PAVEMENT REMOVAL

STAGES 4A & 4B
PLAN SHEET - RESTORATION

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IMPLOSION TECHNOLOGIES LLC, Inc.

966 Calkins Road, Milanville, PA 18443
Phone: (570) 656 - 2273

Skinners Falls – Milanville Bridge
"Skinner's Bridge"
Blasting & Fall Safety Plan for
PA DOT
January 15, 2024

Description of Work

Dropping the structurally compromised "Skinner's Bridge" that spans over the Delaware River between Cochecton, New York and Milanville, Pennsylvania. The overall 466 feet span of the "Skinner's Falls" bridge will be divided into two pieces and vertically dropped within the same footprint. RDX shape charges will be used and strategically placed on the trusses and steel stringers at the PA abutment, NY abutment, and both sides of the center pier. The RDX shape charges are used to instantly cut the steel allowing the structure to fall vertically. The charges will be placed a distance beyond the toe of the abutments and pier avoiding any potential of the structure being wedged as it falls. Additional space may be needed so J D Eckman can maneuver the fallen structure as efficiently as possible. The exact distance will be field verified and determined by J D Eckman.

Upon completion of any required work platform installation and preparation, J D Eckman will cut small access holes in the top of each truss so the shape charges can be properly placed at an angle allowing for an unobstructed fall. The cuts in the truss will be completed within days of the demolition. The cuts will only be approximately 12 inches and will not weaken the bridge enough for integral concern. In the same timeframe the bridge deck, railings, and guardrail will be removed to a point just beyond the shape charge location or cuts in the truss to avoid any impedance of the vertical fall. Safety barriers will be set in place at both ends of the bridge. The placement of the shape charges and the detonation of the shape charges will be performed all on the same day. In an event an unforeseen situation occurred the "Blast Area" will be secured on both sides of the bridge with the respective State Troopers or Law Enforcement until which time the work can be completed. In that unforeseen circumstance the shape charges will not be wired together to avoid total structural failure from premature detonation.

For an added level of protection J D Eckman will wrap the shape charges in a double layer of geotextile. The geotextile will mitigate the potential for any flying debris. Flying debris is also mitigated with the placement of the shape charges and the detonation sequence of the shape charges. J D Eckman, at a minimum, will offer to place plywood over the windows as a third layer of protection at the two closest structures. J D Eckman can also stack storage containers adjacent to the closest structure to eliminate the potential for flying debris. All these efforts are being offered and implemented to protect the safety of the public and the adjacent assets. An exclusion zone of 1,000' from each charge will be established for the public. The adjacent residents have no obligation to leave the area, but they will be encouraged to do so for a brief period of approximately half of an hour. J D Eckman will have flagmen posted on the roads at the designated distances to stop traffic for no more than 15 minutes.

In sequence with preparing the site for the demolition, notification letters explaining the project and an offer to have a pre-blast inspection performed will be mailed and hand delivered by Don Haney of Implosion Technologies LLC.

The inspection radius of 500 feet of the charge locations has been established based on a Scale Distance formula and is an industry standard. The hand delivered notification will allow Don Haney to document the structures and answer specific questions in person to everyone adjacent to the demolition area. A copy of the pre-blast inspection will be submitted to the PA DOT prior to blasting. Seismic monitoring will also be performed at multiple sites and additional information can be seen in the Pre-blast Inspection and Seismic monitoring section.

Drilling & Blasting

Blasting operations will be conducted by Implosion Technologies LLC a demolition blasting service provider based in Milanville, PA.

The Project Manager and Primary Blaster will be Don Haney. Mr. Haney is the President of Implosion Technologies LLC. He has over 30 years' experience in the explosive industry and is a licensed demolition blaster. The blasting license, ATF license, and insurance information will be part of the Pennsylvania Department of Environmental Protection blasting application permit approval.

Seismographic Monitoring

Seismic monitoring will be performed as recommended by industry standards and the International Society of Explosive Engineers (ISEE) Seismic Guidelines and as recommended in project specification (*See ISEE Field Practice Guidelines for Blasting Seismographs)*.

Nomis Mini-Supergraph II seismographs are the instruments that will be used for seismic monitoring (S*ee Nomis Seismograph Instrument Data).*

Blasting Safety Plan

The Blaster-in-Charge (BIC) will do an inspection of the site. This will include a visual inspection of the surrounding structures, visual examination of the structural integrity, and steel thickness, and/or concrete boreholes. Based on this information along with the blast plan a loading plan and air-overpressure will determine.

The blast area will be demarcated with hi-visibility signage and cones:

1) **BLAST WARNING SIGNALS** sign will be posted.
    a. The sign will read: "BLAST WARNING SIGNALS, *2-long signals - 2-minutes before the blast, 1-long signal - 1-minute before the blast and 2-short signals - all clear*".
2) **BLAST AREA TURN OFF TWO-WAY RADIO** sign will be posted
3) **DANGER BLAST AREA** signs will be posted at the structure:

Only personnel and equipment directly related to the loading operation will be allowed in the blast area.

Prior to loading of the blast, the BIC and the site contractor will review the blast site security plan which will include the location of guards preventing access to the blast area. Guards will be instructed as to the specific details of their job and specific blast conditions. Two-way radio communication will be maintained between the BIC and personnel guarding the blast area.

Once the loading operation is completed, the BIC will establish a time-of-blast. Prior to blasting, the BIC will confirm that all access points to the blast area are guarded, and open communications exist. Two-

minutes before the blast an audible air-horn will be sound two-long signals. One minute before the blast an air-horn will be sounded one-long signals. Following the blast, the BIC will conduct a post-blast inspection. Blast site security will be maintained until this inspection is completed. Two short singles for the all-clear signal will be sounded with an air-horn and the guards will be notified the blast area is all-clear.

A complete outline of loading and blasting procedures is included in the Implosion Technologies LLC's "Blast Site Safety Manual".

Explosive Transportation

There will be no on-site explosive storage for this project. All explosives will be delivered to the blast and removed from the site after that day's blasting operations are completed. This will include removal of explosive packaging materials and waste. All the explosive trucks have been inspected and are approved by the appropriate regulatory authority. Transportation of explosives is conducted in compliance with all State and federal regulations for the transportation of hazardous materials.

A complete outline for procedures for the transportation of explosive materials is included in Implosion Technologies LLC's "Emergency Response Action Plan(s)"

Explosive Products
Explosive products that may be used for blasting on this project will include:

- Linear Shape Charges, RDX 600 and 1,200 GR/FT
- Nonelectric Detonators
- Electronic Detonators
- Cast Boosters
- Dynamite

Material Safety Data Sheets (available upon request)

Lightning Storms

Weather forecasts will be consulted to avoid blasting on days where thunderstorms are likely. Our blasters use Weather Bug (a cell phone app) that has a lightning map which tracks the approach of lightning. In the event of a lightning storm, the blast site will be evacuated, and blast area security will be maintained until the storm has passed. A copy of the Implosion Technologies LLC Blast Site Safety Manual is included.

Handling of Misfires

If a misfire is suspected the BIC will immediately notify the site contractor and Implosion Technologies LLC management. Blast area security will be maintained. A 30-minute wait period will be observed before any person enters the blast area. Once the cause of the misfire is determined a survey of the blast site will be conducted to determine if safe conditions exist to re-fire the blast. Re-firing of a misfired blast will not occur without the approval of Implosion Technologies LLC senior management. If the blast cannot be re-fired safely, other methods will be used to extract the stemming and undetonated explosives. This may include using compressed air, water or other suitable means. Misfire avoidance is achieved using redundant initiation systems and visual checks of the nonelectric detonator series. With electronic initiation, the system allows for the verification of the entire blasting circuit prior to blasting. Misfires pose a unique safety hazard. Every misfire is unique and must be handled by personnel that are

experienced with this process. For additional information see Implosion Technologies LLC's Misfire Procedures.

Fire Prevention Plan

Items related to fire prevention are in the following, included, Implosion Technologies LLC documents:
"Health & Safety Policy"
"Emergency Response Action Plan"
"Hazardous Communications Program"

PPE

All Implosion Technologies LLC personnel are required to wear the following PPE:

1) Hardhats
2) Safety Glasses
3) Hi-Vis Vests and/or Clothing
4) Steel-Toed Work Boots
5) Work Gloves
6) Fall Protection (if needed) including harness, lanyard and anchor.

Further information is detailed in Implosion Technologies LLC's Blast Site Safety Manual.

Spill Prevention and Response

Items related to spill prevention & response are in the following Implosion Technologies LLC documents:
"Health & Safety Policy"
"Emergency Response Action Plan"
"Hazardous Communications Program"

State, Local & Federal Regulations

All Implosion Technologies LLC field personnel have access to all applicable laws, regulations and ordinances via network computer files and internet access to state and federal web sites. All Implosion Technologies LLC blasters have laptop computers. Most Implosion Technologies LLC blasters carry printed copies of applicable regulations. Safety & Compliance and Technical Services personnel are available via telephone for immediate assistance should any questions arise during the project.

Emergency Response Plan

Included in this document is Implosion Technologies LLC's "Emergency Response Action Plan". All Implosion Technologies LLC blasters have a list of phone numbers for project Senior Management, Safety & Compliance, and Technical Service personnel. Implosion Technologies LLC blasters, on this project, will have phone numbers for the site contractor's management personnel.

General Blasting Plan Information

A single blast is planned for the bridge project. Steel cutting will be conducted with an arrangement of shape charges located in multiple locations as previously mentioned. The shape charges are used for an instantaneous cutting of the metal supports. The kicker charge (if needed) will be performed by a cast booster or dynamite and initiated at the same time as the shape charge. Each charge will be contained with sandbags, banded wooden boxes, or conveyer belt securely fastened to the structure and around the charges. This is done to avoid or mitigate potential for flying debris.

The nearest residential structure will be considered and dictate the maximum charge weight. The maximum explosive charge weight for the upper and lower cut with a kicker will be less than two pounds. The compliance predictions will be performed using the standard PPV predictive formula (PPV = $160(SD)^{-1.6}$) and the standard Air-overpressure predictive formula dB= $\sqrt[3]{SD}$. Blasts will be designed and MS delay timing will be used (if necessary) using industry established standards, to minimize air-overpressure and minimize ground vibration.

Blast Reports & Blast Documentation

The complete blast document package will include the blast report (with all blast design parameters, types of explosive used, seismic monitoring information, list of personnel and additional comments), blast diagrams, drill diagrams, copies of seismic records (from all monitoring locations), drill logs and explosive usage & transportation documents.

Pre-Blast Inspection & Seismographic Monitoring Plan

Pre/Post-Blast Inspection

Don Haney will conduct inspections of the specified properties immediately adjacent to the blasting area or below the Scale Distance (SD) below 50. The inspection will consist of documenting the existing condition of the interior and exterior of the structure by the following methods. The interior inspection will document cracks and defects using video equipment. An audible description of the location and pre-existing cosmetic conditions will be given when either is not obvious. The exterior inspection will also be performed using digital video equipment documenting cracks and defects. Don Haney will require the client to provide names and contact numbers for the properties to be inspected. The pre-blast inspection is a documentation of the preexisting cosmetic conditions of the structure only. The survey will not be an evaluation of the structural integrity of the structure. The conditions of the structure may change after the date of the inspection due to many factors such as weather, fire, moisture, leaks, and actions taken by the owners or others, or the passage of time. This inspection will deal with the condition of the structure at the time of the inspection.

The interior inspection will include but not limited to the cosmetic condition of the walls, ceilings, and floors. The exterior inspection to include but not limited to exposed foundations, siding, windows, walkways, driveways, steps, and the proximity of the construction site. The pre-blast inspection will document portions of the structure that are readily accessible and can be visually inspected. No inspection will be carried out in areas that are obstructed, concealed, closed off; or in areas that require dismantling, removal of any object, including but not limited to, floor and wall coverings, siding, ceilings, floors, appliances, and furniture.

Purpose

Measure the vibrations generated from construction and blasting activities and protect the structures located adjacent to the blasting operation. The seismic monitoring will be performed as recommended by industry standards and the International Society of Explosive Engineers (ISEE) Seismic Guidelines and as recommended in project specification. It is important to note, even structurally safe vibration levels may be perceptible. Perception is not a reliable indicator of vibration severity. Oftentimes, conditions go unnoticed by the owners until such time as blasting or other vibration producing events occur. This causes increased awareness on the part of the owner. This creates the need for an objective monitoring plan.

Monitoring Plan

Portable seismographic equipment will be installed at the adjacent structures in multiple directions to the blasting operation following USBM Guidelines and PA DEP Chapter 210 and 211. The critical issue is vibration levels at the receiver's location. It is not possible to closely predict vibration levels through closer measurements due to vibration in the soils, water table, ect. The best method is actual measurements at the receiver point. The vibration criteria, as discussed in the following paragraphs, will be applied to prevent even cosmetic damage to the existing structures.

The seismograph installation will adjust with the field conditions and may be anchored to the adjacent structures with a metal bracket or coupled either by burying or sand bagging. The seismographs will be installed following the Field Guidelines issued by the International Society of Explosive Engineers (see attached). Vibration will follow all the physical laws of science and attenuate with distance regardless of geology, terrain, or topography. For this reason, the seismograph locations will occasionally change to maintain a monitoring point that is at the closest distance to the vibration source.

The seismographs being used are the NOMIS Supergraph-Mini portable units. All the seismographs are annually calibrated to meet the manufactures specification and industry standards. The calibration certifies the seismograph was calibrated with equipment that can be traced back to the National Bureau of Standards. When monitoring, the seismographs continuously record the two horizontal and one vertical component of motion and instantly display the maximum peak particle velocity. The seismic units store all data in digital memory for downloading and analysis. The seismographs have a single event for blasting and continuous monitoring for construction vibration. The seismographs will perform a self-calibration test confirming the instrument is working properly each time the unit is turned on. The seismographs also have an LCD screen for instantaneous reading.

The seismographs will be downloaded immediately following the blast event. The downloaded events are then converted to an PDF format and sent electronically to Engineer within 24 hours of each detonation. No loading of explosives will ever be conducted until the previous detonation has been analyzed.

The seismogram is the documentation of the recorded events above the pre-determined trigger level. The information on the seismogram includes: 1) Location of the Seismograph 2) Seismograph Unit Number 3) Date and Monitoring Duration 4) Calibration Date 5) Highest Peak Particle Velocity (PPV) Recorded (on each perpendicular channel) 6) Exact Time the Highest PPV was Achieved (for each channel) 7) Vibration signature showing the Peaks during the monitoring period.

A remote seismic monitoring system will be implemented during the blasting operation and will provide analysis and reporting of ground vibration and air-overpressure data. The instrumentation will be installed days prior to blasting so ambient vibration will dictate trigger levels. The seismographs and cellular modems will be powered by an external power source and recharged using double solar panels. The cellular modems will allow instant access and reporting for compliance. The data will be forwarded in a PDF format via electronic mail.

The remote monitoring will be conducted using the NOMIS Mini-Seis for ground vibration and air-overpressure. The specification details for the seismographs are included at the end of the report. The cellular modems implemented for interrogation and transmittal of data to an office-based station are Airlink RV 50 and 55. Following the blast, each seismograph will be interrogated, uploaded, data analyzed and forwarded to the blasting contractor for submittal.

Vibration Specifications

It takes a substantial amount of vibration to cause damage to surface structures, residential structures, underground structures, pipelines, dams, sewers and water wells. Surface structures, underground structures and wells are dynamic in nature and as such are subject to a variety of internal and external forces such as settlement, weather, and changes in soil moisture, excavation, frost

levels, ect. The forces acting upon the aforementioned do not terminate upon the inception of vibration producing operations in the area. Damage is most easily demonstrated using seismographic or other geophysical data developed during the construction activities.

Over the years much research has been devoted to determining vibration levels capable of causing damage to structures. These investigations have been pursued by the United States Bureau of Mines, the National Research Council of Canada, insurance companies, and by seismological consultants. The consensus of this research is that a safe blasting vibration level is one in which a peak particle velocity of 2.0 inches per second in any one of three mutually perpendicular components is not exceeded by the ground motion at the structure of concern. This is so stated in the U.S Bureau of Mines RI- 8507.

The USBM has also established threshold levels for reinforced concrete to withstand particle velocities of well over 10.00 inches per second without cracking. Cracks in concrete are seldom found after blasting unless they are accompanied by surface rupture (inelastic fracture). To achieve this, the energy released by the blasting must rupture all the earth between the work site and the structure. This will not be the case because of the distance of the potential blasting and the surrounding structures.

These levels stated above are designed to prevent threshold damage. Threshold damage is defined as the formation or extension of fine drywall cracks in portions of a building at the weakest and most easily damaged components. The threshold cracks as referred to by the United States Bureau of Mines as those cracks that require special lighting or a magnifying glass to located and identify. With respect to vibration induced soil settlement, and underground structure and utility damage, other research has shown that vibration levels more than 5.0 inches per second are required for this to occur.

ISEE Field Practice Guidelines for Blasting Seismographs – Page 1

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This edition of *ISEE Field Practice Guidelines for Blasting Seismographs* was revised by the ISEE Standards Committee in 2020, and supersedes all previous editions. It was approved by the Society's Board of Directors in its role of Secretariat of the Standards at its 2020 meeting.

Committee Scope: This Committee shall have primary responsibility for documents on the manufacture, transportation, storage, and use of explosives and related materials. This Committee does not have responsibility for documents on consumer and display fireworks, model and high power rockets and motors, and pyrotechnic special effects.

Origin and Development of ISEE Standards for Blasting Seismographs

One of the goals of the ISEE Standards Committee is to develop uniform and technically appropriate standards for blasting seismographs. The intent is to improve accuracy and consistency in vibration and air overpressure measurements. Blasting seismograph performance is affected by how the blasting seismograph is built and how it is placed in the field.

In 1994, questions were raised about the accuracy, reproducibility and defensibility of data from blasting seismographs. To address this issue, the International Society of Explosives Engineers (ISEE) established a Seismograph Standards Subcommittee at its annual conference held in February 1995. The committee was comprised of seismograph manufacturers, researchers, regulatory personnel and seismograph users.
In 1997, the Committee became the Blast Vibrations and Seismograph Section. The initial standards were drafted and approved by the Section in December 1999. Subsequently, the ISEE Board of Directors approved two standards in the year 2000: 1) ISEE Field Practice Guidelines for Blasting Seismographs; and 2) Performance Specifications for Blasting Seismographs.

In 2002, the Society established the ISEE Standards Committee. A review of the ISEE Field Practice Guidelines and the Performance Specifications for Blasting Seismographs fell within the scope of the Committee. Work began on a review of the Field Practice Guidelines in January 2006 and was completed in February 2008 to produce the 2009 edition. A revision to the Performance Specifications was started in 2009 and completed in 2011.

The ISEE Standards Committee takes on the role of keeping the standards up to date every 5 years. This document is the result of the latest effort by the ISEE Standards Committee to keep the standards up to date with current field techniques and technology.

TABLE OF CONTENTS

Disclaimer: These field practice recommendations are intended to serve as general guidelines and cannot describe all types of field conditions. It is important that the operator evaluate these conditions and obtain good coupling between the monitoring instrument and the surface to be monitored. In all cases, the operator is responsible for documenting the field conditions and setup procedures in the permanent record for each blast.

PREFACE

Blasting seismographs are used to establish compliance with Federal, state and local regulations and evaluate explosive performance. Laws and regulations have been established to prevent damage to property and injury to people. The disposition of the rules is strongly dependent on the accuracy of ground vibration and air overpressure data. In terms of explosive performance the same holds true. One goal of the ISEE Standards Committee is to ensure consistent recording of ground vibrations and air overpressure between all blasting seismographs.

ISEE Field Practice Guidelines
for Blasting Seismographs
2020 Edition

PART I. GENERAL GUIDELINES

Blasting seismographs are deployed in the field to record the levels of blast-induced ground vibration and air overpressure. Accuracy of the recordings is essential. These guidelines define the user's responsibilities when deploying blasting seismographs in the field and assume that the blasting seismographs conform to the ISEE "Performance Specifications for Blasting Seismographs" [3].

1. Read the instruction manual and be familiar with the operation of the instrument. Every seismograph comes with an instruction manual. Users are responsible for reading the appropriate sections and understanding the proper operation of the instrument before monitoring a blast.

2. Seismograph calibration. Annual calibration of the seismograph is recommended.

3. Keep proper blasting seismograph records. A user's log should note: the user's name, date, time, place and other pertinent data.

4. Document the location of the seismograph. This includes the name of the structure and where the seismograph was placed on the property relative to the structure. Any person should be able to locate and identify the exact monitoring location at a future date.

5. Know and record the distance to the blast. The horizontal distance from the seismograph to the blast should be known to at least two significant digits. For example, a blast within 1000 meters or feet would be measured to the nearest tens of meters or feet respectively and a blast within 10,000 meters or feet would be measured to the nearest hundreds of feet or meters respectively. Where elevation changes exceed 2.5 horizontal:1 vertical, slant distances or true distance should be used.

6. Record the blast. When seismographs are deployed in the field, the time spent deploying the unit justifies recording an event. As practical, set the trigger levels low enough to record each blast.

7. Record the full time history waveform. Summary or single peak value recording options available on many seismographs should not be used for

monitoring blast generated vibrations. Operating modes that report peak velocities over a specified time interval are not recommended when recording blast induced vibrations.

8. Set the sampling rate. The blasting seismograph should be programmed to record the entire blast event in enough detail to accurately reproduce the vibration trace. In general the sample rate should be at least 1000 samples per second.

9. Know the data processing time of the seismograph. Some units take up to 5 minutes to process and print data. If another blast occurs within this time the second blast may be missed.

10. Know the memory or record capacity of the seismograph. Enough memory must be available to store the event. The full waveform should be saved for future reference in either digital or analog form.

11. Know the nature of the report that is required. For example, provide a hard copy in the field; keep digital data as a permanent record or both. If an event is to be printed in the field, a printer with paper is needed.

12. Allow ample time for proper setup of the seismograph. Many errors occur when seismographs are hurriedly set up. Generally, more than 15 minutes for set up should be allowed from the time the user arrives at the monitoring location until the blast.

13. Know the temperature. Seismographs have varying manufacturer specified operating temperatures.

14. Secure cables. Suspended or freely moving cables from the wind or other extraneous sources can produce false triggers due to microphonics.

PART II. GROUND VIBRATION MONITORING

Placement and coupling of the vibration sensor are the two most important factors to ensure accurate ground vibration recordings.

A. Sensor Placement

The sensor should be placed on or in the ground on the side of the structure towards the blast. A structure can be a house, pipeline, telephone pole, etc. Measurements on driveways, walkways, and slabs are to be avoided where possible.

1. Location relative to the structure. Sensor placement should ensure that the data obtained adequately represents the ground-borne vibration levels received at the structure. The sensor should be placed within 3.05 meters (10 feet) of the structure or less than 10% of the distance from the blast, whichever is less.

2. Soil density evaluation. The soil should be undisturbed or compacted fill. Loose fill material, unconsolidated soils, flower-bed mulch or other

unusual mediums may have an adverse influence on the recording accuracy.

3. The sensor must be nearly level.

4. Typical practice is to point the longitudinal/radial channel towards the blast site. However, other sensor orientations are allowed.
   a. For blast-by-blast sensor deployment, the longitudinal/radial channel should be pointed towards the closest blast hole. Records should indicate if this condition is met.

   b. For multiple-blast sensor deployment, the azimuth (0-360 degrees, +/- 5 degrees) of the longitudinal/radial channel relative to true north should be recorded.

5. Where access to a structure and/or property is not available, the sensor should be placed closer to the blast in undisturbed soil.

B. Sensor Coupling

If the acceleration exceeds 1.96 m/s² (0.2 g), decoupling of the sensor may occur. Depending on the anticipated acceleration levels spiking, burial, or sandbagging of the geophone to the ground may be appropriate.

1. If the acceleration is expected to be:
   a. Less than 1.96 m/s² (0.2 g), no burial or attachment is necessary.
   b. Between 1.96 m/s² (0.2 g), and 9.81 m/s² (1.0 g), burial or attachment is preferred. Spiking may be acceptable.
   c. Greater than 9.81 m/s² (1.0 g) , burial or firm attachment is required [7].

The following table exemplifies the particle velocities and frequencies where accelerations are 1.96 m/s² (0.2 g) and 9.81 m/s² (1.0 g).

Frequency, Hz	4	10	15	20	25	30	40	50	100	200
Particle Velocity mm/s (in/s) at 1.96 m/s² (0.2 g)	78.0 (3.07)	31.2 (1.23)	20.8 (0.82)	15.6 (0.61)	12.5 (0.49)	10.4 (0.41)	7.8 (0.31)	6.2 (0.25)	3.1 (0.12)	1.6 (0.06)
Particle Velocity mm/s (in/s) at 9.81 m/s² (1.0 g)	390 (15.4)	156 (6.14)	104 (4.10)	78.0 (3.07)	62.4 (2.46)	52.0 (2.05)	39.0 (1.54)	31.2 (1.23)	15.6 (0.61)	7.8 (0.31)

2. Burial or attachment methods.
   a. The preferred burial method is excavating a hole that is no less than three times the height of the sensor [1], spiking the sensor to the bottom of the hole, and firmly compacting soil around and over the sensor.
   b. Attachment to bedrock is achieved by bolting, clamping or adhering the sensor to the rock surface.
   c. The sensor may be attached to the foundation of the structure if it is located within +/- 0.305 meters (1-foot) of ground level [5]. This should only be used if burial, spiking or sandbagging is not practical.

3. Other sensor placement methods.
   a. Shallow burial is anything less than described at 2a above.
   b. Spiking entails removing the sod, with minimal disturbance of the soil and firmly pressing the sensor with the attached spike(s) into the ground.

   c. Sand bagging requires removing the sod with minimal disturbance to the soil and placing the sensor on the bare spot with a sand bag over top. Sand bags should be large and loosely filled with about 4.55 kilograms (10 pounds) of sand. When placed over the sensor the sandbag profile should be as low and wide as possible with a maximum amount of firm contact with the ground.

   d. A combination of both spiking and sandbagging gives even greater assurance that good coupling is obtained.

C. Programming Considerations

Site conditions dictate certain actions when programming the seismograph.

1. Ground vibration trigger level. The trigger level should be programmed low enough to trigger the unit from blast vibrations and high enough to minimize the occurrence of false events. The level should be slightly above the expected background vibrations for the area. A good starting level is 1.3mm/s (0.05in/s).

2. Dynamic range and resolution. If the seismograph is not equipped with an auto-range function, the user should estimate the expected vibration level and set the appropriate range. The resolution of the printed waveform should allow verification of whether or not the event was a blast.

3. Recording duration. Set the record time for 2 seconds longer than the blast duration plus 1 second for each 335 meters (1100 feet) from the blast.

PART III. AIR OVERPRESSURE MONITORING

Placement of the microphone relative to the structure is the most important factor.

A. Microphone Placement

The microphone should be placed along the side of the structure, nearest the blast.

1. The microphone should be mounted near the geophone with the manufacturer's wind screen attached.

2. The microphone may be placed at any height above the ground [2].

3. If practical, the microphone should not be shielded from the blast by nearby buildings, vehicles or other large barriers. If such shielding cannot be avoided, the horizontal distance between the microphone and shielding object should be greater than the height of the shielding object above the microphone.

4. If placed too close to a structure, the air overpressure may reflect from the house surface and record higher amplitudes. Structure response noise may also be recorded. Reflection can be minimized by placing the microphone near a corner of the structure. [6].

5. The orientation of the microphone is not critical for air overpressure frequencies below 1,000 Hz [6].

6. The microphone element must be kept dry to help maintain proper calibration and minimize the potential for corrosion. A common practice is to place a windscreen (typically provided by the manufacturer) on the microphone and cover it loosely with a thin plastic bag, or "rain shield." Other methods can be used to protect the microphone from moisture; however, the pressure around the microphone sensing element must be able to change in relation to the pressure change caused by the blast overpressure.

a. When using a plastic bag as a rain shield, the bag should be tied loosely around the microphone, allowing some exchange of air between the inside and outside of the shield. Completely sealing a rain shield could result in the following:

i. **Condensation** – water accumulates inside the shield. A small hole in the bottom of the shield can help mitigate this issue.
ii. **Static Pressure** – over time pressure could build in the shield.
iii. **Rain Triggers** – rain drops striking a tightly sealed shield will cause pressure pulses that could trigger the seismograph.

b. It is acceptable to keep microphones inside security boxes or other protective covers as long as the pressure change in the enclosure reflects the pressure change outside of the protective cover in the surrounding environment.

B. Programming Considerations
Site conditions dictate certain actions when programming the seismograph to record air overpressure.

1. Trigger Level – When only an air overpressure measurement is desired, the trigger level should be low enough to trigger the unit from the air overpressure and high enough to minimize the occurrence of false events. The level should be slightly above the expected background noise for the area. A good starting level is 20 Pa (0.20 millibars or 120 dB).

2. Recording Duration – When only recording air overpressure, set the recording time for at least 2 seconds more than the blast duration. When ground vibrations and air overpressure measurements are desired on the same record, follow the guidelines for ground vibration programming (Part II C.3).

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Nomis Seismograph Instrument Data– Page 1

NOMIS SEISMOGRAPHS

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Nomis Seismograph Instrument Data– Page 2

NOMIS SEISMOGRAPHS

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Technical Specifications

Seismic:

• Monitoring with Standard Triaxial Geophone	
• Range:	0 - 10in/s (0-254mm/s) - Standard
• Maximum Resolution:	0.00003 in/s (0.00078mm/s) @ 16-bit accuracy
• Accuracy:	+/- 3%
• Tranducer Density:	108 lbs/ft^3
• Frequency Response:	2 - 400 Hz (1Hz optional)

Sound:

• Weighting Scales:	Linear (flat)
• Linear Range:	92-148dB
• Linear Resolution:	0.00015625mb @ 16-bit accuracy
• Linear Accuracy:	+/- 1dB or +/- 10% whichever is greater
• Linear Frequency Response:	2 - 400Hz

Waveform Recorded Data:

• Record Modes:	Waveform, Combo & Manual
• Seismic Trigger Range:	0.02 - 10.24 in/s (0.508 - 260.096mm/s) X2 sensor low sensitivity
• Sound Trigger Range (Linear):	92 - 148dB, no trigger (other levels optional)
• Sample Rate:	1024 - 16384 Standard, higher rates optional
• Record Time:	Up to 895 seconds
• Cycle Time:	No wait time in between events
• Storage Capacity:	65k one second events standard @ 1024 samples/s

Bar Graph Data:

• Record Modes:	Bar Graph (Histogram)
• LCD readings:	Real time update 1-60 seconds
• Bar Recording Interval:	1,10,20,30,40,50,60 seconds
• Summary Interval:	5,15,30 minutes, 1,2,4,8,12,24 hours
• Summary Data:	Peak R,T,V + Sound & Frequencies for each

Physical Specifications

• Dimensions:	6 x 4.25 x 3 in/ (152 x 108 x 76 mm)
• Weight:	4.1 lbs. (1.9 kgs)
• Battery:	Up to 7 days duration per recharge (monitor mode) 8
• Display - LCD:	lines x 21 characters w/backlight
• PC Interface:	RS-232 & additional 15 pin auxilary connector / USB
• Auxilary Inputs & Outputs	External trigger & remote alarm
• Operating Temperature:	10 to 120° F (-12 to 50° C)
• Remote Communications:	Full function RS-232 port, compatible with telephone, GSM, satellite, RF
• Warranty:	2 years parts & labor

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Loading Procedure

1.0 Scope

This section defines the minimum standards for preparing a blast site, loading explosives and completing related activities.

2.0 Arrival at the Blast Site

Upon arrival at any blast site the Blaster in Charge must:

- Verify with the customer and/or contractor that the specific blast site is scheduled to be loaded and shot.
- Verify that the Blast Site is posted with proper warning signs.
- Verify that the blast site is marked or designated to prevent unauthorized traffic and personnel from entering the area.
- Conduct a thorough inventory of products, people and equipment available given the blast design, the blasting timetable, and the ability to secure the blast area.
- If any deficiencies are detected the Blaster in Charge shall take whatever necessary steps to correct the situation up to, if necessary, the postponement of the blast. Any deficiencies must be corrected in accordance with MSHA 30 CFR § 56/57.18002.
- Verify that proper stemming material or fly rock mitigation is available and preferably have it available on site prior to the start of loading the blast holes. This will prevent the equipment delivering the stemming material from having any contact with explosive materials and/or loaded blast holes.

3.0 Checking the Blast Design

If not already available, a drawing, preferably a scale diagram, should be made of the blast site. The diagram include all explosives placement location, burdens, spacings, hole depths in concrete, and abnormalities discovered. This diagram shall be submitted with the Blast Report.

4.0 Organizing the Blast Crew for Loading

The Blaster in Charge shall have a short tailgate meeting outlining the plan for loading the blast. Each person on the blast crew shall clearly understand his/her duties and be properly trained to perform such duties.

The loading of each bore hole should be clearly explained and consistent with the blast plan. The Blaster in Charge will specify the placement of each location.

The Blaster in Charge shall be notified of any necessary deviations from the plan.

5.0 General Principles while Loading

5.1 Never tamp a primer. Tamping should be understood to include hitting, pounding, impacting, striking, smashing, knocking, or even pushing with heavy and consistent pressure. (See MSHA § 56/57.6304)

5.2 After loading the primer in a hole, never tamp or drop explosives directly on a primer. If the

primer is in the dry portion of the bore hole, the next package of explosives shall be lowered into position. (See MSHA § 56/57.6304)

5.3 When loading explosives, the explosives column height shall be monitored continuously with a tape or a loading pole to ensure proper buildup of the explosive column and that the proper amount of explosives are being used. If the buildup exceeds the expected buildup, a void in the explosive column may have been encountered. Voids shall never be loaded with explosives. When a void is encountered, stem or backfill through the void, add an additional primer to the column above the void and resume normal loading.

5.4 If at any time during the loading process a bore hole becomes blocked, significant care must be taken during the attempt to unblock the bore hole to prevent damaging the primer, detonating cord, detonator leg wires, or detonator shock tubing. Always add an additional primer to the explosive column whenever there has been a chance of column separation or shift, or if there is suspected damage to the primer or detonator leads.

5.5 If at any time, it is necessary to push or apply pressure to a cartridge or column of explosive materials, a blunt, non-fitting end of a pole or plug specifically designed for pushing packages shall be used. (See MSHA § 56/57.6700 & 6701)

5.6 If at any time, it is necessary to use a powder retriever to retrieve a package of explosive material, the equipment shall be used specifically and exclusively for that purpose. The retriever shall be inserted into the package, turned one half turn and extracted. Further attempts to extract a package of explosive material shall not be made. (See also Manual Section - Retrieval.)

5.7 The Blaster in Charge shall be notified of any lodged explosives package and shall be involved in the attempt to dislodge such a package. If the package cannot be removed, the Blaster in Charge shall decide appropriate action.

5.8 A primer shall be prepared only at the time of loading.

5.9 If electric detonators are used, each detonator shall be tested using a blaster's multimeter or a blaster's ohm meter prior to stemming the bore hole, or whenever there is concern that the leg wires may have been damaged. After testing, the leg wires shall be shunted. If any electric detonator does not test to the desired resistance, the Blaster in Charge shall be notified. The bore hole shall be reprimed.

6.0 Stemming

6.1 When loading the bore hole has been completed, the bore hole shall be stemmed with suitable stemming material. The recommended particle size for suitable stemming is 0.1 0 x borehole diameter. Clay dummies, sandbags, or closed cell foam are recommended.

6.2 When stemming is poured into a vertical concrete borehole, the pouring shall be slow and deliberate to prevent bridging. Care shall also be taken to ensure that the wires or tubes from the detonators in the bore hole are not pulled into the hole by the pouring of the stemming.

6.3 Typically, the amount of stemming needed is a function of the burden and the competency and condition of the structure

Initiation System Inspection

1.0 Scope

This advisory provides guidelines and regulatory references for the inspection of the initiation system prior to the blast.

2.0 Inspection of Initiation System Before Tie-in

All initiation systems must be inspected by the Blaster in Charge before and after tie-in.

3.0 Inspection of Initiation System After Tie-in

3.1 Inspection Procedure

After the initiation system components have been tied-in, all surface lines and connections must be thoroughly visually inspected by the Blaster in Charge. All adjustments must be made before the final tie-in to the lead-in line.

If a nonelectric initiation system is used the inspection should ensure that:

- all components have been properly connected with no omissions.
- no damage has occurred to any of the system components.
- any surface connectors containing detonators are properly covered per manufacturer's recommendation.

If an electric initiation system is used the inspection should ensure that:

- All leg wires and connecting wires are properly spliced with no omissions.
- No damage has occurred to any of the wires.
- All splices are elevated from the ground and not lying in water.
- Proper circuit testing has been done in accordance with the Federal Regulations.
- circuit resistances are calculated and compared with blaster's meter readings, and necessary adjustments are made.

3.2 Regulatory Reference

3.2.1 MSHA 30 CFR §56/57 .6500, Damaged initiating material. A visual check of the completed circuit shall be made to ensure that the components are properly aligned and connected. Safety Fuse, igniter cord, detonating cord, shock or gas tubing, and similar material, which is kinked, bent sharply, or damaged shall not be used.

3.2.2 MSHA 30 CFR §56/57 .6501, Nonelectric initiation systems.

(a) When nonelectric initiation system uses shock tube--

(l) Connections with other initiation devices shall be secured in a manner which provides for uninterrupted propagation.

(2) Factory-made units shall be used as assembled and shall not be cut except that a single splice permitted on the lead-in trunkline during dry conditions.

(3) Connections between blast holes shall not be made until immediately prior to clearing the blast site, when surface delays detonators are used.

(b) When nonelectric initiation system uses detonating cord--

(l) The line of detonating cord extending out of a blast hole shall be cut from the supply spool immediately after the attached explosive is correctly positioned in the hole.
(2) In multiple row blasts, the trunkline layout shall be designed so that the detonation can reach each blast hole from at least two directions.
(3) Connections shall be tight and kept at right angles to the trunkline.
(4) Detonators should be attached securely to the side of the detonating cord and pointed in the direction in which detonation is to proceed.
(5) Connections between blast holes shall not be made until immediately prior to clearing the blast site when surface delay detonators are used.
(6) Lead-in lines shall be manually unreeled if connected to the trunklines at the blast site.

3.2.3 MSHA 30 CFR §56/57 .6507, Circuit Testing

A blasting galvanometer or other instrument designed for testing blasting circuits shall be used to test the following:
(a) Continuity of each electric detonator in the blast hole prior to stemming and connection to the blasting line.
(b) Resistance of individual series or the resistance of multiple balanced series to be connected in parallel prior to their connection with the blasting line.
(c) Continuity of blasting lines prior to the connection of electric detonator series.
(d) Total blasting circuit resistance prior to connection to the power source.

3.2.4 MSHA 30 CFR §56/57 .6507, Shunting - Except during testing--

(a) Electric detonators shall be kept shunted until connected to the blasting line or wired into a blasting round.
(b) Wired rounds shall be kept shunted until connected to the blasting line.
(c) Blasting lines shall be kept shunted until immediately before blasting.

4.0 FINAL TIE-IN

The final tie-in of the lead-in-line to the blasting machine shall be done only after a thorough inspection of the blast initiation system and after the blast area has been cleared and secured.

Post-Blast Procedures

1.0 Scope

This advisory sets guidelines for the inspection of a blast area after the blast has been detonated.

2.0 General

The inspection should be performed by the Blaster in Charge only after it is safe to do so. No activities should start in the area until the blaster gives the "all clear" signal. Any hazards identified during the post blast inspection should be immediately communicated to the appropriate personnel so that remedial action can take place to remove or isolate the hazard.

2.1 MSHA 30 CFR

57.6306 Loading, blasting, and security
(3) All access routes to the blast area shall be guarded or barricaded to prevent the passage of people or vehicles.
(g) Work shall not be resumed in the blast area until a post-blast examination addressing potential blast-related hazards has been conducted by a person with the ability and experience to perform the examination.

3.0 Re-entry of blast area

At least 15 seconds should be allowed for all fly rock to drop. Immediately after this, the blaster shall remove the leads from the blasting machine and, if electric initiation is used, shunt the blasting circuit. Adequate time should be allowed for the dust and fumes to dissipate before returning to the blast site. In locations where the blast site is located when the air movement is limited, extra time should be allowed. Many fumes are invisible to the eye and "clear" air does not mean that fumes are not present.

If explosives are suspected to be burning in a blast hole, a minimum I hour waiting period must be observed. (See MSHA 30 CFR 56/57.6903 - Burning Explosive Material.)

3.1 IME Advisory

IME SLP#4.

ALWAYS assume toxic fumes are present from all blasts or burning explosive materials and stay away until they have dissipated.

ALWAYS comply with applicable federal, state, and local laws and regulations for safe fume levels before returning to blast area.

ALWAYS spray the muck pile with water in accordance with federal, state, and local laws and regulations.

4.0 Inspection of Blast Site

4.1 Identify Misfires

Unfired explosives may be visible on or near the surface of the spoils,
However, it is more likely that any unfired explosive lies deep within the broken material. Leg wires, detonating cord, or shock tube extending from a borehole may indicate a misfire. Another indicator is an area of the blast that has not broken or pulled properly or an unusual shape of the muck pile. Other people must not be permitted into the blast area until it is certain that no hazards exist.

4.2 Handling Misfires

Refer to - Misfire Handling Advisory

5.0 Examination of Structure Stability

The structure in the immediate area of the blast should be examined by the blaster-in-charge to identify any loose material that presents a potential hazard. The operator shall promptly initiate appropriate action to correct such conditions (See MSHA 30 CFR § 56/57.18002). In the case of surface operations, this would include severe overbreak areas, as defined in the glossary, along the blast limits. The examination of structure stability should be conducted from several vantage points. When performing a post-blast examination, do not approach to adjacent structures or

travel around any areas that appears unstable.

6.0 Equipment inspection

After each blast, the equipment and tools used during the loading and initiating of the blast shall be inspected. Any defective or missing items shall be identified, and steps taken to repair or replace the item before the next blast area are to be loaded.

1.1 Personal Protective Equipment

1.1.1 General: Each Blaster in charge and, where appropriate, shall determine the work areas where fall protection equipment be worn. Fall protection items must be compatible and appropriately interlocked. Each item of the fall protection apparatus shall be visually inspected prior to each use. Apparatus which shows any signs of fraying or of broken straps or lines, broken rings or safety latches, or any other defect must be replaced immediately. Fall protection equipment shall be readily available if work within the danger zone is anticipated. Work within the danger zone shall not be undertaken without proper fall protection.

1.1.2 The Body Belt: Use a body belt designed specifically for the purpose.
Those employees who will regularly work in the danger zone shall be assigned a body belt so that it properly fits them. The body belt should be adjusted properly in order to ensure proper performance and best possible protection for the wearer. Remember the use of a body belt is for Fall Prevention and is to be used for positioning only. Where Fall Arrest is anticipated a Full Body Harness is required.

2.3.3. The Shock Absorber: If the fall protection apparatus includes a shock absorber specifically designed for the purpose of absorbing the impact of a potential fall, it should be compatible to attach by rings, and/or safety latches to the body belt at one end, and the lanyard at the other end.

2.3.4. The Lanyard/Rope: The fall protection apparatus shall include a lanyard or rope specifically designed for use with a fall protection system. It should be able to be attached securely to the shock absorber and the anchoring point. The lanyard may be designed to be adjustable, or a fixed length. An adjustable lanyard is suggested if the distance from the anchoring point to the work area varies from site to site.

2.3.5 The Rope Grab: A rope grab and rope may be used in lieu of an adjustable or retractable lanyard.

2.3.6 The Anchor: The anchor must be specifically designed for use with a fall protection system. If the anchor is designed to be lowered down a bore hole, it should consist of suitably sturdy material which will not bend and should be of sufficient length and weight to prevent the anchor from tipping or coming out of the bore hole. The anchor may only be used in an empty bore hole. Anchorage for Fall Prevention may support more than one person; however, no more than one person may be tied off to one anchor or tie off point for Fall Arrest, unless such anchor or tie off point has been specifically designed for multiple use and stamped or clearly marked for the rated capacity.

2.3.7 Tying off to a Vehicle: Subject to the following, a vehicle may be used as a tie off if no other means is available.

A The vehicle must be parked parallel to the crest of the bench.

B The vehicle must be turned off and appropriately locked out. The keys, (and those being the only set of keys at the site), must be in the pocket of the individual using the fall protection gear.
C The parking or emergency brake of the vehicle shall be set.
D The wheels to the vehicle shall be chocked.
E Generally, no more than one person should be tied off to one vehicle.

2.0 Guidelines For Training

2.1 Minimum Training Objectives: All employees who may be exposed to elevated work hazards must be appropriately trained. The training shall include as a minimum:
* The contents outlined in this advisory.
* Recognition of work areas or locations where there may be a danger of falling beyond those specifically defined.
* Engineering controls to reduce the hazard.
* Work rules to reduce the hazard.
* Personal protective equipment, selection, use and care, including proper anchoring.
* Company and/or site-specific emergency action plans including methods of communicating and summoning help.

3.0 Overall Safety Principles and Evaluation of Other Work Areas

3.1 Working alone in the “Danger Zone” should be avoided if possible

3.2 Working where there may be a danger from falling from equipment or other elevated work areas.

* Remember to evaluate all work areas for fall hazards and use the appropriate fall protection equipment.
* Remember the Three Points of Contact rule.

IMPLOSION TECHNOLOGIES LLC.

EMERGENCY REPSONSE ACTION PLAN

for

Vehicles Carrying Packaged Explosives

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1.1 OBJECTIVE

This Emergency Response Action Plan may be reviewed with local First Responders (police, fire and medical) to assure a full understanding of Implosion Technologies LLC's explosive-carrying trucks that may be operating under DOT-SP 11156 and to communicate the appropriate emergency response procedures as may be required. This is a living document and will be reviewed periodically by Implosion Technologies LLC to determine its accuracy and functionality and new versions may be written and communicated as may be necessary.

1.2 SCOPE

This document will provide guidance for first responders concerning actions to be taken in the event of an accident involving a transport vehicle carrying explosives, packaged blasting agent and packaged blasting agent transported in accordance with DOT-SP 11156 both in the absence of fire and if a fire results from the accident. This plan includes employees of Implosion Technologies LLC.

1.3 BACKGROUND OF THE ISSUER

Implosion Technologies LLC is a Pennsylvania corporation that is currently licensed by the State of Pennsylvania, Department of Environmental Protection (PADEP) and the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to own and possess industrial explosives.

1.4 MATERIALS TRANSPORTED ON PACKAGE TRUCKS

The materials or products transported on these vehicles are commercial explosives that are legally sold to only valid licensed purchasers or used in blasting services. The commercial explosives transported on these vehicles may vary.

Blasting agents are very insensitive explosives that cannot be initiated with a detonator. They require a primer or booster for detonation due to their inherent lower sensitivity to initiation. Blasting Agents are DOT classified as 1.5 D. Blasting agents carried in these vehicles are package products and include bagged Ammonium Nitrate/Fuel Oil (ANFO), watergels, and emulsions. Bagged ANFO is shipped in accordance with DOT SP 11156.

High Explosives are explosives that can be described as detonator-sensitive. These explosives include, but are not limited to dynamites, cast boosters and detonator-sensitive emulsions and water gels and detonating cord.

Dynamites are high explosives that contain nitroglycerine and/or EGDN (nitroglycerine equivalent) as their sensitizer. Dynamites are DOT classified 1.1D.

Cast boosters are high explosives usually comprised of molecular explosives such as PETN, TNT, Composition B, Tritonal, in various binary proportions. Cast boosters are used mostly to initiate other types of explosives called blasting agents. Cast boosters are DOT classified 1.1D.

Detonator-sensitive emulsions and water gels are explosives comprised of non-explosive fuels, oxidizers and sensitizers. These products usually contain significant contents of water and ammonium nitrate in their oxidizer phases. Detonator-Sensitive emulsions and water gels are DOT classified as 1.1 D.

Detonating cord is a linear explosive with a core load per foot ranging from as low as 7 grains to as high as 400 grains per foot. The detonating cords are DOT classified as 1.1D.

Detonators are initiating explosives. They are used to initiate high explosives products. Detonators can be categorized by their signal--electric, electronic or non-electric. Electric and electronic detonators require an electrical signal for initiation while non-electric detonators require a non- electric signal for initiation. These signals are specific to each product. Detonators may be DOT classified as 1.1 B, 1.4 B or 1.4S.

All electric, electronic and non-electric detonators are always transported in specially constructed containers (IME SLP-22 Containers) and are affixed to the vehicle separately from the bulk tanks or bins and on the opposite side of the vehicle from an IME Container containing other explosives.

1.5 INCIDENT OR ACCIDENT IN THE ABSENSE OF FIRE

In case of accident:

- Warning signals shall be placed as required by 49 CFR 392.22(b).
- Don't move injured persons unless there is a danger of fire or explosion.
- Summon aid and notify authorities.
- Notify Implosion Technologies LLC's Main Office.
- Remain at the accident site until the situation is controlled and the appropriate authorities have arrived.

If packaged explosives are spilled:

- The area should be isolated.
- Keep people and unauthorized personnel away.
- Eliminate all ignition sources (no smoking, flares, sparks of flames in the immediate area.
- Loose explosives and intact packages should be gathered and placed in a secure area. When the situation allows an inventory of spilled explosives should be conducted and reconciled with the vehicles HazMat Shipping Paper. This should be considered a priority.
- Never leave explosives unattended unless evacuation is required.

If the vehicle carrying explosives and/or blasting agents are entangled with another vehicle:

- Do not attempt to separate the vehicles
- Safely transfer the explosives and packaged blasting agents into vehicles capable of safely transporting each.

1.6 INCIDENT OF ACCIDENT THAT INVOLVES FIRE

If fire has reached the cargo **DO NOT attempt to fight the fire**. All traffic should be stopped and the area cleared for not less than 2500' (approximately ½ mile) in all directions. DO NOT attempt to

move the vehicle or cargo.

- If it is evident that the fire is contained to the vehicle (engine, battery or cab) or tire(s) flood with plenty of water. If water is not available, use CO2 or dry chemical extinguishers or dirt.
- If possible and without risk use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to the cargo.
- Pay special attention to tire fires as re-ignition may occur. Stand by with the extinguisher ready.

1.7 FIRST AID MEASURES, FIRE-FIGHTING MEASURES AND ACCIDENTAL RELEASE MEASURES SPECIFIC TO 1.5 BLASTING AGENTS

FIRST AID MEASURES:

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical attention (show the product label where possible).
Inhalation: When symptoms occur: go into the open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. Seek medical attention.
Skin: Remove contaminated clothing and shoes. Rinse with plenty of water. Seek medical attention if you feel unwell. Wash contaminated clothing before reuse.
Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Seek medical attention if irritation persists.
Ingestion: Rinse mouth. DO NOT induce vomiting. Seek medical attention immediately.

FIRE-FIGHTING MEASURES:

DO NOT fight fires involving explosives. Evacuate the area in all directions for 1 mile or more if any amount of explosives is involved in a fire. There is an extreme risk that explosives involved in a fire may detonate, especially if confined. Evacuation is recommended if the initial (incipient) fire, not involving explosives, becomes intense. General extinguishers may be used on the initial fire, not involving explosives, such as electrical equipment fires, tire fires or a general plant fire. Water may be used to cool explosives not involved in the initial fire.

Suitable Extinguishing Media: None.

Unsuitable Extinguishing Media: Dry chemical, foams, steam and smothering devices are not effective and can lead to possible explosions and must not be used to fight a fire near explosives.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: There is an extreme risk of explosion from fire.

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Reactivity: ‘Oxidizing’: substances and preparations which exhibit highly exothermic react ions when in contact with flammable or combustible materials during a fire.

Advice for Firefighters

Precautionary Measures: It is recommended that the amount and location of explosives stored near a fire be determined prior to committing firefighters to fight the fire.

Protection During Firefighting: Firefighters should wear full protective gear when fighting or downwind of initial fire not involving explosives.

ACCIDENTAL RELEASE MEASURES:

Methods for containment: Contain any spills with absorbents or other inert materials.

Methods for cleaning up: Avoid the use of metal tools containing iron and/or copper.
Collect products in suitable containers for recovery or disposal. Prevent products from entering drains. Notify applicable government authorities if release is reportable or could adversely affect the environment.

1.8 ACCIDENT REPORTING (49 CFR 171.15, 171.16; Part 390, Subpart B)

- The U.S. Department of Transportation (49 CFR 390.5) defines “accident” as an occurrence (not loading/unloading or boarding/alighting) involving a commercial motor vehicle operating on a public road which results in:
    1. a fatality.
    2. bodily injury requiring immediate medical treatment away from the scene; or
    3. disabling damage to one or more vehicles, requiring the vehicle to be transported away from the scene by a tow truck or other vehicle.
- A “register” of accidents must be maintained and be available to appropriate authorities for a period of three years after an accident occurs. (49 CFR 390.15) The register must include the date of the accident, location, driver’s name, number of injuries, number of fatalities, and any release of hazardous material other than fuel from the vehicle’s tanks.
- If hazardous materials packaging fails, there are reporting requirements as found in 49 CFR 171.16. Within 30 days of an incident a written report (Form F 5800.1) must be sent to the DOT, even if a call was made under requirements of 49 CFR 171.16.
- Transportation incidents involving hazardous materials have immediate reporting requirements (49 CFR 171.15) if, as a direct result of the hazardous material:
    1. A person is killed;
    2. A person is hospitalized;
    3. Estimated damage exceeds $50,000;
    4. An evacuation occurs or a major transportation artery is closed for over one hour.

HAZARD COMMUNICATION PROGRAM

To ensure that information about the dangers of all hazardous chemicals used by Implosion Technologies LLC is known by all affected employees, the following hazardous information program has been established.

All work units of the company will participate in the Hazard Communication Program. This program will be made available in the office for review by any interested employee.

1. Container Labeling

The Director, Safety and Compliance, will verify that all containers received for use will be clearly labeled as to the contents, note the appropriate hazard warning and list the name and address of the manufacturer.

Site Managers will ensure that all secondary containers are labeled with either an extra copy of the original manufacturer's label or with labels that have the identity and the appropriate hazard warning. Contact the Director, Safety and Compliance, for assistance.

The Director, Safety and Compliance, will review the company labeling procedures periodically and update as required.

2. Safety Data Sheets (SDS)

The Director, Safety and Compliance, is responsible for establishing and monitoring the company SDS program by:

- ensuring procedures are developed to obtain the necessary SDS's and review incoming SDS's for new or significant health and safety information.

- distributing new information to all affected employees.

- contacting manufacturers in the event an SDS is not received for a new or modified chemical, logging the date and time of the contact, and contacting the appropriate OSHA office if the SDS is not received in a timely manner.

Electronic copies of all SDS's are maintained on the server and accessible by blasters and Site Managers. Copies of the SDS's are maintained in each Site Manager's office and areas readily available to all employees during each work shift.

The Director, Safety and Compliance, will replace older versions of an SDS with updated editions as received and ensure downstream customers are provided with updated SDS's as appropriate.

3. Employee Training and Information

The President is responsible for the company employee training program and ensures that all program

elements are carried out.

Prior to starting work, each new Implosion Technologies LLC employee will attend a health and safety orientation that includes the following information and training:

- An overview of the requirements contained in the Hazard Communication Standard.

- Hazardous chemicals are present and their workplaces.

- Physical and health risks of the hazardous chemicals.

- The symptoms of overexposure.

- How to determine the presence of hazardous chemicals released in their work area.

- How to reduce or prevent exposure to hazardous chemicals using control procedures, work practices and personal protective equipment.

- Procedures to follow if employees are overexposed to hazardous chemicals.

- How to read labels and review SDS's to obtain hazard information.

- Location of the SDS file and written hazard communication program.

Prior to introducing a new chemical hazard into any section of this company, each employee in that section will be given information and training as outlined above for the new chemical hazard. The training format shall include an introduction to the SDS, basic properties, and the hazards of the new chemical. All employees will receive training prior to exposure.

4. Hazardous Non-Routine Tasks

Periodically, employees are required to perform hazardous non-routine tasks. Some examples of non-routine tasks are: confined space entry, tank cleaning, and painting bulk chemical storage bins. Prior to starting work on such projects, each affected employee will be given information by the Director, Safety and Compliance, concerning the hazardous chemicals they may encounter during such activity. This information will include specific chemical hazards, protective and safety measures the employee should use, and steps the company is using to reduce the hazards, including ventilation, respirators, presence of another employee and emergency procedures.

Example of non-routine tasks performed by employees of the company:

Task	Hazardous Chemical
Spill Clean-up	Diesel Fuel

5. Informing Other Employees

It is the responsibility of the Safety Director to provide other employers with information about hazardous chemicals their employees may be exposed to on a job site and suggested precautions for the employees. It is the responsibility of the Director, Safety and Compliance, to obtain information about hazardous chemicals used by other employers to which employees of this company may be exposed.

Other employers will be provided with SDS's for hazardous chemicals generated by this company's operations. SDS's will be provided to other employers in the following manner: A letter informing other employers of the SDS and copies of each SDS applicable to their operation.

In addition to providing a copy of an SDS to other employees, other employers will be informed of precautionary measures needed to be taken to protect their employees who are exposed to operations performed by this company.

Also, other employers will be informed of the hazard labels used by the company. If symbolic or numeric labeling systems are used, the other employers will be provided with information to understand the labels used for hazardous chemicals for which their employees may have exposure.

6. List of Hazardous Chemicals

The following pages are all known hazardous chemicals used by our employees. Further information of each chemical may be obtained by reviewing SDS's located at the Coopersburg Office.

<u>SDS Identity</u>

Chemicals not already on the list are added to the list (together with the date the chemicals were introduced), within 30 days of introduction into the workplace. To ensure that the chemicals is added in a timely manner, we have introduced the following procedures: each new chemical requiring an SDS will not be used or sold until the Director, Safety and Compliance has secured the appropriate SDS.

7. Chemicals in Unlabeled Pipes

Work activities are sometimes performed by employees in areas where chemicals are transferred through unlabeled pipes.

Prior to starting work in these areas, the employee shall contact their immediate supervisor for information regarding:

- The chemical in the pipes.
- Potential hazards.
- Safety precautions which should be taken.

8. A copy of this program will be made available, upon request, to employees and their representatives.

9. The following methods will be used to inform other employers who have employees who may be exposed to hazardous chemicals used by employees of this company:

- Safety Data Sheet's will be provided to other employers via letter.
- Appropriate precautionary methods will be related to other employers to safeguard their employees.
- Other employers will be informed of the labeling system in use.

HEALTH AND SAFETY POLICY STATEMENT

TO ALL EMPLOYEES:

Implosion Technologies LLC shall make every attempt to provide safe working conditions and take whatever steps may be necessary to ensure compliance with safety rules and standards.

The prevention of accidents and injuries to the public, customers, and employees shall be the highest priority of every work activity.

Each employee is expected to maintain a safe working environment to comply with all safety rules and standard operating procedures.

Donald L Haney, Pres.

HEALTH AND SAFETY POLICY

Implosion Technologies LLC Health and Safety Policy

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GENERAL RULES AND INSTRUCTIONS

1. All new hires must complete safety training (Hazard Communication, Hazardous Materials, and MSHA New/Experienced Miner Training) prior to working with, or around hazardous chemicals or entering MSHA-regulated property.

2. Report any potentially dangerous condition, unsafe practices, or faulty/defective equipment to your supervisor immediately and do not perform tasks unless you task trained and/or qualified to operate equipment. Task competency shall be documented and filed in the employee's training record.

3. Report injuries, near misses, and accidents to your supervisor immediately and get first aid treatment promptly. Incident statements must be completed and forwarded to the Safety Department as soon as practical. Safety will investigate each injury or accident to determine a cause and implement corrective actions/preventive steps to eliminate re-occurrences.

4. Report all major accidents to the Safety Division by telephone or in person as soon as possible. Report all minor accidents by written report within 24 hours of the accident.

5. ALL accidents, or near accidents, require a written report and investigation to be submitted to the Safety Division.

6. Attend safety meetings as required. Newly hired personnel shall receive a site safety orientation during MSHA New Miner Training within the first 3 days of hire.

7. Maintain strict cleanliness and order in your work area.

8. Keep your mind on your work and take time to be safe.

9. Obey all warning tags and signs.

10. All containers of hazardous materials must be properly labeled for content and precautions to be taken in use.

11. Standard Operating Procedures (SOP) are required for all "hazardous" operations. Employees working in these areas must learn and follow the prescribed procedures.

12. Operations that are designated "hazardous" by management shall require at least two employees.

13. Smoking is strictly prohibited on company property except in designated areas.

14. Matches or other flame producing devices are strictly forbidden in any hazardous operating area.

15 Intoxicating liquors and narcotics, or any person under the influence of them, shall not be permitted on company property.

16. Firearms, or articles of similar nature, are strictly forbidden on company property without a permit signed by an officer of the company.

17. Workmen must not enter, remain in, or go near buildings other than those necessary for the performance of their duties.

18. Before any excavating, digging, or other earth-moving activity is conducted, care must be taken to ensure there are no underground gas, electric, sewer, etc. lines present. Call 811 and follow the instructions PRIOR to performing any of the above activities.

19. Personnel limits shall always be observed.

20. Exits must be always kept clear.

21. Safety Department personnel will perform routine no-notice audits of blasting operations to ensure compliance with all Mine Safety and Health Administration regulations. Each site will be audited for safety compliance with MSHA or OSHA regulations, as appropriate, at a minimum of twice per calendar year. Deficiencies must be corrected in a timely manner.

22. Failure to adhere to safety and health policy may result in disciplinary action up to, and including, termination.

DRUG AND ALCOHOL POLICY

Implosion Technologies LLC has a vital interest in maintaining a safe and productive environment for its employees and customers. Therefore, an employee shall not sell, distribute, possess, or have the presence of illegal drugs in his/her system during working hours or while on company property or premises. Employees on prescribed medication should discuss with tier supervisor what effects, if any, there may be on the safety or productivity of their work.

Employees shall not be under the influence of alcohol while on company premises or property or during working hours. Violators of this policy are subject to corrective action up to and including termination.

The use, sale, or possession of intoxicating liquors or drugs during working hours, including lunch and rest periods, is strictly forbidden by the company (not including drugs taken pursuant to prescriptions and under the supervision of the employee's physician). Violations will result in immediate disciplinary action or possible termination.

Testing: All employees that possess a commercial driver's license (CDL) and are currently qualified to drive commercial trucks for Implosion Technologies LLC are subject Federal Motor Carrier Safety Administration (FMCSA) drug and alcohol testing regulations. All non-CDL employees are subject to reasonable suspicion, post-accident, and/or post-injury testing per Implosion Technologies LLC's Drug and Alcohol Policy.

Testing results are kept confidential. The Designated Employer Representative (DER) shall:

a) Develop rosters of CDL drivers subject to FMCSA testing requirements.
b) Provide rosters to a third party company (Med Review) that provides random selections.
c) Notify randomly selected individuals of selection and schedule with approved collection facilities.
d) Notify senior management of positive test results and notify employees testing positive that they are prohibited from performing safety sensitive functions.
e) Ensure all Area and Site Managers are trained in Reasonable Suspicion process.
f) Coordinate any reasonable suspicion testing with managers.
g) Complete annual reporting requirements.

The Safety and Compliance Manager is designated at the DER.

Questions concerning drug and alcohol policy and/or testing should be referred to the Safety Department.

FIRST AID

1. Every employee is encouraged to be proficient in standard first aid principles.

2. If an employee has been seriously injured, it is necessary to begin first aid treatment at once. Send a supervisor immediately. It is the supervisor's responsibility to see that the proper emergency equipment is called for and that emergency responders are notified concerning the condition of the injured party.

3. The person holding the highest degree of first aid training shall administer the first aid work necessary until relieved by the arrival of first responders.

4. Injuries should be reported promptly to the appropriate supervisor so proper care may be administered.

5. It is the responsibility of each employee to know the location of all first aid equipment. The following first aid information contains helpful steps to follow in the treatment of most common injuries:

I. HEAVY BLEEDING

(Loss of blood from heavy bleeding can kill an injured person in 3 – 5 minutes.)

A. Don't waste time!

1. Direct pressure – pad of the cleanest material available, preferably sterile gauze, should be placed directly over the wound and held in place with firm pressure until a pressure bandage can be applied. Most bleeding can be stopped using this method. For the sake of speed in an emergency, use your bare hand or fingers to apply pressure until a compress can be applied.
2. Elevate the bleeding part higher than the rest of the body if possible.
3. Treat the victim for shock.
4. Call 911 to activate an emergency response.

Warning: Use a tourniquet only if the victim's life may be lost if bleeding continues.

II. SHOCK

Shock will usually accompany severe pain or injury associated with bleeding, stroke, heart attack,

heat exhaustion, food or chemicals poisoning or extensive burns.

A. Signs of shock:
1. Cold and clammy skin, with beads of perspiration on the forehead and palms of hands.
2. Pale face.
3. Complaint by victim of chilled feeling or even shaking chills.
4. Frequent nausea or vomiting.
5. Shallow breathing.

B. Treatment
1. Correct cause of shock if possible (e.g., control bleeding).
2. Keep victim lying down.
3. Keep the victim's nose and mouth open. If they vomit, turn their head to the side. Remove any foreign objects from their mouth to prevent obstruction of breathing.
4. Control body temperature (Not too warm, not too cold).
5. Reassure victim.

III. ARTIFICIAL RESPIRATION

When a person is unconscious or not breathing due to drowning, electric shock, or being overcome by gas fumes, call 911 and begin CPR if adequately certified. Only people certified in CPR should attempt to resuscitate a non-breathing victim.

IV. BURNS

Burns are injuries caused by heat, electricity, or chemicals.

A. Thermal burns and scalds (first degree)
1. For localized areas, as on an extremity, cool by showering or immersing the injured part in cool water, then apply appropriate burn ointment.
2. For second- and third-degree burns, or for an extensive burn area, lay victim down and treat for possible shock.
3. Cover the burned area with cleanest and driest available material.
4. Never put grease, oil, or butter on a burn.
5. Chemical burns (acids, alkalines, and corrosive materials)
6. Remove contaminated clothing. Remove the chemical at once by showering or immersing in running cold water for at least 15 minutes
7. Use a chemical neutralizer if available.
8. Treat as a burn.
9. Call 911 or transport to an emergency center depending on severity.

V. EYE CONDITION

A. Precautions
1. Keep victim from rubbing his eyes.
2. Wash your hands thoroughly before examining the victim's eye.
3. Do not attempt to remove a foreign object by inserting a match, toothpick or other instrument.
4. Refer victim to a physician.

B. Removal of a foreign object

1. Pull down the lower lid to determine whether the object lies on the inner surface.
2. If the object lies on the inner surface, lift it gently with the corner of a clean handkerchief or paper tissue.
3. If the object has not been located, it may be lodged beneath the upper lid. Repeat the process for lower lid with upper lid.

C. Penetrating injuries of the eye.

1. Make no attempt to remove the object or wash the eye.
2. Cover both eyes with loose bandage (avoid pressure to the affected eye).
3. Take the victim immediately to a hospital emergency center or call 911 depending on the severity of the injury.

D. Chemical burns of the eyes

1. Corrosive or irritating chemicals in the eyes shall be irrigated immediately with copious amounts of water or neutralizer solutions.
2. Take the victim immediately to a hospital emergency center or call 911 depending on the severity of the injury.

VI. SKIN CONDITIONS

Any skin conditions that are directly related to working conditions should be referred to a physician.

1. Corrosive or irritating chemicals in the eyes shall be irrigated immediately with copious amounts of water or neutralizer solutions.
2. Take the victim immediately to a hospital emergency center or call 911 depending on the severity of the injury.

VII. MOVING THE INJURED

Never move an injured person before a physician or experience ambulance crew arrives. If there is danger of his receiving further injury by being left at the accident site, observe the following general rules: Pull the injured person's feet first, NOT SIDEWAYS. Make certain that the head is protected. If the injured must be lifted before a check of injuries can be made, you must support every part of his body, keeping his head and neck in a straight line – not bent.

VIII. Contacting Emergency Responders:

Call 911. When calling for this emergency service, remain calm. Don't not disconnect the call until you are instructed to do so. Questions you should be prepared to answer are:

1. What is your name?
2. Where is the victim?
3. What are victim's injuries?
4. How will the victim be transported?

BLOODBORNE PATHOGENS

1. Definition: Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

2. Transmission: Bloodborne Pathogens can be transmitted when blood or body fluid from an infected person enters another person's body via needle-sticks, human bites, cuts, abrasions, or through mucous membranes.

3. Prevention: Wear appropriate personal protective equipment: gloves, goggles, etc. as required by the accident. When performing CPR, always use a pocket mask equipped with a one-way valve to prevent contact with potentially infectious body fluids. Contain spills immediately, then clean up and disinfect the area.

Personal Protective Equipment, to include gloves, can be found in the first aid kits located in various locations around each site.

Always treat an injured person as if they may be infected with Bloodborne pathogens.

Use copious amounts of water/bleach to disinfect any areas contaminated with blood and/or body fluids.

4. Reporting: When encountering blood and/or body fluids while rendering first aid, complete a company incident form and notify the Safety Department immediately. Referrals for medical screening will be made as necessary.

5. Training: Bloodborne Pathogen training is accomplished during the initial 24-hour Mine Safety & Health Administration (MSHA) New Miner training within the mandatory first aid training. Annual training is covered during the 8-hour MSHA refresher training conducted each year. Training topics include diseases carried in blood, transmission, and prevention when responding to injuries involving blood or body fluid.

Refer to OSHA 1910.1030, Bloodborne Pathogens standard for detailed requirements.

PERSONAL PROTECTION

1. Safety Equipment

A. Eye Protection:

1. Safety glasses must be worn on all customer property and on company property when there is a risk of eye injury.
2. Face shields should be worn where jobs present unusual hazards to the eyes and face, such as flying objects or splashing liquids.

B. Hard hats and safety shoes will be worn on all customer property and in designated areas on company property.

C. Hearing protection will be used in all areas where noise levels exceed 85 decibels (dBA). If you must shout to be heard, there is a high probability you're in a hazardous noise environment.

1. All new employees shall receive hazardous noise training during MSHA-mandated New Miner Training. Hazardous noise exposure at all company and mine locations is intermittent and below a 85 dBA, 8-hour time-weighted average. Implosion Technologies LLC employees are NOT enrolled in a hearing conservation program.

2. Disposable (foam) ear plugs are readily available for all employees that may be exposed to non-routine hazardous noise.

D. Respirators will be used whenever the job presents an exposure to harmful vapors, or dusts. No person will ever be exposed to an unknown atmosphere unless proper precautions have been taken. Respirators shall only be used when approved by a supervisor or Safety Department personnel.

E. Acid suits, gloves, aprons, and rubber boots will be supplied for employees whose work involves caustics, acids, abrasives, and/or any other material harmful to the skin when exposed.

F. Safety belts and lines will be worn while working where there is danger of falling, unless other protection against falling is provided such as a catwalk with railing.

2. Employees will be held responsible for the condition of their safety equipment. Equipment will be inspected before and after each use. If defects are found, report those to your immediate supervisor.

A. Shoes with loose soles or heels must be replaced

B. Glasses, goggles or face shields will be replaced when, due to wear, visibility is affected.

C. Respirators will be always kept clean and sanitary. Replace all defective parts immediately to insure the proper seal.

3. Supervisory personnel will be responsible for seeing that personal protective equipment is issued and used.

Selection of proper protection is critical.

Training in the proper used and storage of respiratory equipment supplied to each user is required by law.

<u>RESPIRATOR PROTECTION PROGRAM</u>

Currently, Implosion Technologies LLC, Inc., and Implosion Technologies LLC Sales Inc. do not utilize any chemicals with a respirable hazard that is above the OSHA action level (one half the permissible exposure limit which is an 8- hour time weighted average). Therefore, a respiratory protection program is not required. However, the following respirator policy remains in effect in the event future chemicals are

introduced that would exceed the action level for respirable hazards.

MEDICAL EXAMINATION AND FIT TESTING

1. Medical examinations are required to medically qualify an employee to use respiratory protection. Examinations will be scheduled at any approved occupational medical provider. No employee shall be permitted to use respirators without medical clearance.

2. Upon being medically cleared to use filter-type half-face or full-face respirators, employees must be fit tested by a qualified fit-tester. No employee, medically cleared or otherwise, shall be permitted to use respirators without approved fit testing.

CARE OF RESPIRATORY PROTECTIVE DEVICES

1. Reparatory devices will be stored in a cool, dry, clean cabinet or closet. New respiratory devices will be kept in original containers.

2. Previously used units will be stored in plastic bags to prevent contamination.

3. Respirators (excluding filters and cartridges) will be disassembled on a regular basis and vigorously washed with soap and water.

4. Respirators must be washed and sterilized before being transferred from one employee to another.

5. All filters and canisters will be replaced at the time of cleaning or at intervals based on contaminant and use.

INSPECTION OF RESPIRATORY PROTECTIVE DEVICES

1. All devices shall be inspected before and after each use.

2. All respiratory protective devices will be inspected for quality of equipment by the responsible supervisor on a bi-monthly basis.

3. Record will be kept on:

   a. Inspection dates.
   b. Condition of equipment.
   c. Corrective actions taken.

USE OF RESPIRATORS

1. Before use, each respirator shall be fitted to the employee to ensure proper face seal. Seal is tested by putting the respirator in place and then plugging the air intake area. Once this is accomplished, the wearer should attempt to inhale. If leakage occurs around face piece or elsewhere, fit is improper. Every measure shall be taken to ensure adequate fit. The area of the face where respirator fits shall be clean shaven to improve fit.

2. Respirators, when not in use, can be carried around the employee's neck, but the respirator shall be carried so contaminant cannot get into the face piece.

3. Respirators must be used as per manufacturer's instructions.

SAFETY CONSIDERATIONS

1. Respirators do nothing to eliminate or reduce the hazard.

2. No person shall ever be admitted to an area containing contaminant unless that contaminant is fully known as to type and concentration.

3. Filter respirators must never be worn in an oxygen deficient environment or an environment so contaminated that failure of the device would constitute an immediate life-threatening situation.

4. In areas where failure of the respirator would allow the wearer to be overcome by a toxic or oxygen deficient atmosphere, at least one additional man shall be present. Communication between personnel should be maintained.

5. Respirator selection shall be made with the aid of the specific Safety Data Sheet described in the Chemical Handling section of this manual.

NOTE: Training Procedures for exposure to silica dust.

Employees are not routinely exposed to the action level for silica dust exposure. However, new employees shall be trained on the hazards associated with silica dust and are provided N-95 respirators to control exposure to nuisance dust at work sites. Annual refresher training, which includes dust exposure and its hazards, is provided to all employees.

OTHER

Working conditions will dictate the use of personal protective equipment such as gloves, splash aprons or full body protective suits. Areas where special protection is needed shall be appropriately posted.

See Personal Protection section of "General Safety Rules" for additional information.

FIRE PREVENTION

1. Each employee must help prevent fires by the proper handling, storage, and use of flammable or explosive materials. All possible sources of ignition; sparking points, friction points or faulty wiring, etc., should be reported and eliminated immediately.

2. Each employee should acquaint himself with the location and use procedures of all fire extinguishing materials.

3. Fire protection equipment shall always be accessible. Fire extinguishers shall have a three-

foot clearance to avoid blocking access and visibility. Blocking fire lane is prohibited.

4. Extinguishers, hoses, reels, nozzles and all other fire prevention equipment will be inspected monthly and always maintained in serviceable condition.

5. If an extinguisher or other fire extinguishing equipment is used, the area supervisor will be notified at once so that replacement can be made. Never place an exhausted extinguisher back on its original hook or rack.

6. Observe and obey all – NO SMOKING – areas and signs. Smoking is permitted only in designated smoking areas. Matches and other flame producing devices are prohibited from company property except in said designated areas.

7. Spillage of materials of any kind would be kept to a minimum. Unavoidable spills will be thoroughly and promptly cleaned up.

8. Call the Fire Department in event of all fires, no matter how large the fire is. It can get larger and to out of control.

9. In the event of a fire, notify the Safety Department as soon as possible.

10. All new employees shall receive fire prevention and protection training during initial New Miner Training. All current employees shall receive annual refresher training which includes fire protection training. At a minimum, fire prevention/protection training will discuss:

- Fire extinguisher inspection and use including P.A.S.S. (Pull the pin. Aim at the base of the fire. Squeeze the trigger. Sweep from side to side.).

- Notifying proper authorities in the event of a large fire.
- Never fight explosives fires and adequate evacuation distances.

EMERGENCY RESPONSE PLAN

Each magazine site has its own Emergency Response Plan (ERP). New employees must review the ERP for their assigned work location within 30 days of hire. Documentation of training shall be placed in the employee's training record.

The ERP specifically covers response to:

a) Fire
b) Theft of explosives/breach of security
c) Terrorist threats.

In the event of any perceived emergency, notify the site manager and dial 911 for emergency services, if warranted. The site manager oversees all emergency responses.

DO NOT FIGHT EXPLOSIVES FIRES!

Fire in, or near, explosives storage areas warrant immediate evacuation to locations identified in individual site plans. Small fires involving combustibles may be extinguished using ABC fire extinguishers located at multiple locations throughout each site and on all commercial trucks.

Employees engaged in loading explosives at mine sites are directed to follow the mine's ERP. Instructions for emergency response to fire, accident, and extreme weather, are covered during mandatory annual site-specific training at each mine we service.

PROTECTION FROM WEATHER EXTREMES

What to Do In Extreme Heat

Avoid Too Much Sun

Sunburn slows the skin's ability to cool itself. The sun will also heat the inner core of your body resulting in dehydration. Use a sunscreen lotion with a high sun protection factor (SPF) rating.

Dress Appropriately

Wear loose-fitting, lightweight, light-colored clothing that will cover as much skin as possible. Lightweight, light-colored clothing reflects heat and sunlight and helps maintain normal body temperature. Cover as much skin as possible to avoid sunburn and over-warming effects of sunlight on your body. Protect face and head by wearing a wide-brimmed hat. A hat will keep direct sunlight off your head and face. Sunlight can burn and warm the inner core of your body.

Drink Plenty of Fluids

Drink plenty of fluids even if you do not feel thirsty. Injury and death can occur from dehydration which can happen quickly and unnoticed. Symptoms of dehydration are often confused with other conditions. Persons who have epilepsy or heart, kidney, or liver disease; who are on fluid-restrictive diets; or who have a problem with fluid retention should consult a doctor before increasing liquid intake.

Especially Drink Water

Drink plenty of water regularly and often. Your body needs water to keep cool. Water is the safest liquid to drink during heat emergencies. Avoid drinks with alcohol or caffeine in them. They can make you feel good briefly but eventually they will make the heat's effects on your body worse. This is especially true of beer which actually dehydrates the body.

Eat Small Meals

Eat small meals and eat more often. Large, heavy meals are more difficult to digest and cause your body to increase internal heat to aid digestion, worsening overall conditions. Avoid foods that are high in protein, such as meats and nuts, which increase metabolic heat. Avoid using salt tablets unless directed to do so by a physician. Salt causes the body to retain fluids resulting in swelling. Salt also affects areas of your body that help you sweat, which would keep you cool. Persons on salt-restrictive diets should check with a physician before increasing salt intake.

Take a Break

Take frequent breaks if you must work outdoors. Frequent breaks, especially in a cool area or to drink fluids, can help people tolerate heat better. Use a buddy system when working in extreme heat. Partners can keep an eye on each other and can assist each other when needed. Sometimes exposure to heat can cloud your judgment. Chances are if you work alone, you may not notice this.

What to Do in Extreme Cold or Damp Weather

Dressing for the weather

Wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent. Wear insulated gloves and ensure they remain dry. Wear a hat/hood. Cover your mouth with a scarf to protect your lungs.

Recognizing symptoms of cold weather exposure

Confusion, dizziness, exhaustion and shivering are signs of possible hypothermia. If you experience any of these symptoms, or observe others suffering from these symptoms, seek medical attention immediately.

Gray, white or yellow skin discoloration, numbness or waxy skin are symptoms of frostbite. If you experience any of these symptoms, seek immediate medical attention.

In the case of overexposure to freezing temperatures, remove wet clothing and immediately warm the body with a blanket or warm fluids like hot cider or soup.

HANDLING AND STORAGE OF MATERIAL

1. Good housekeeping shall be practiced in all operations.
2. Do not try to handle or lift too much. If you need help, ask for it.

3. Learn to lift properly. Always bend the knees, keep the back straight and hold the load close to the body while standing up. If the load cannot be lifted in this manner with reasonable ease, get help.

4. When two employees are carrying a load, one should not drop his share of the load without first warning the other. When several workmen are lifting an object together, have an agreed signal to pick up or let down. Avoid placing a strain on one man or dropping the load on him.

5. Make sure there is adequate room and sufficient light to enable you to carry out the work safely.

6. If the work involves handling harmful chemicals or rough, heavy objects or packages, wear

a type of glove that will afford protection to the hands and wrists.

7. All walkways, ramps, stairways and platforms must be kept clear of any objects that may cause a tripping hazard.

8. When using stairs, always keep one hand free with which to grasp the rail.

9. Do not trap yourself in corners so you will be unable to get out of the way if something should go wrong.

10. Your safety shoes afford protection to your toes in the event objects all or are dropped. Always were them.

11. Bend over or remove all protruding nails in boards.

12. Pile materials in a safe manner. Use care not to block exits, fire doors, aisles, sprinklers, or fire-fighting equipment.

13. Pipe and similar materials shall be stored on specially designated sills or racks and shall be blocked to prevent rolling.

14. Flammable materials, such as paints, oils, varnish, etc. shall be stored in a separate building or approved flammable storage cabinet.

HAZARD COMMUNICATION

In order to ensure chemical safety in the workplace, information about the identities and hazards of the chemicals must be available and understandable to workers. OSHA's Hazard Communication Standard (HCS) requires the development and dissemination of such information: Chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels and safety data sheets to convey the hazard information to their downstream customers;

All employers with hazardous chemicals in their workplaces must have labels and safety data sheets for their exposed workers, and train them to handle the chemicals appropriately.

Implosion Technologies LLC's Hazard Communication Program policy to ensure that information about the dangers of all hazardous chemicals used by Implosion Technologies LLC are known by all affected employees. All work units of the company will participate in the Hazard Communication Program. The program includes:

1. Written Program: Addresses HazCom requirements at each site, explains Implosion Technologies LLC's compliance with the standard, is accessible at the Coopersburg office or through each Blaster's laptop computer. The Safety Department ensures currency and compliance with the program.

2. Container Labels: All containers of hazardous chemicals must be labeled as to the contents, appropriate hazard warnings, and the name and address of the manufacturer.

Transfer (secondary) containers that are kept for more than one shift must also be labeled. Labels that are faded, torn, or removed must be replaced expediently. Labels are supplied via the Safety Department and applied to bulk containers if needed. No bulk containers of hazardous chemicals shall be unlabled.

3. Safety Data Sheets (SDS): SDS for each hazardous chemical must be maintained at each site the chemical is stored or used. Site managers must ensure that new employees are briefed on the SDS location. SDS binders must be located in a central location at each site and be readily accessible by all employees. SDS information can be obtained by calling the supplier of the chemical or searching the manufacturer's website.

4. Employee Training: All new employees must receive training on the Hazard Communication Program prior to beginning work with hazardous chemicals. This training includes:

a) An overview of the requirements contained in the standard.
b) Hazardous chemicals present at their work places.
c) Physical and health risks of the hazardous chemicals.
d) Symptoms of overexposure.
e) How to determine the presence of release of hazardous chemicals in their work area.
f) How to reduce or prevent exposure to hazardous chemicals through use of work practices and personal protective equipment.
g) Steps the company has taken to reduce or prevent exposure to hazardous chemicals.
h) Procedures to follow if employees are overexposed to hazardous chemicals.
i) How to read labels and review SDS to obtain hazard information.
j) SDS location at each site.

Prior to introducing a new chemical hazard into any section of the company, each employee in the section with be given information and training as outlined above for the new chemical hazard.

5. Non-routine Tasks: Non-routine tasks include such tasks as those tasks involving hazardous chemicals that are not routinely performed by the employee. They can include, confined space entry, tank cleaning, and/or painting of facilities, storage areas, or equipment.

6: Hazardous Chemical Inventory: Each site must maintain a separate list of all hazardous chemicals utilized on that site in accordance with 29 CFR 1910-1200, Hazard Communication Standard. The list must be updated as needed by adding new chemicals and removing hazardous chemicals no longer used/stored. An SDS must be maintained for each chemical on the inventory. All hazardous chemicals will be included on the inventory.

SILICA DUST EXPOSURE

Crystalline silica is a basic component of soil, sand, granite, and many other minerals. Quartz is the most common form of crystalline silica. Cristobalite and tridymite are two other forms of crystalline silica. All three forms may become respirable size particles when workers chip, cut, drill, or grind objects that contain crystalline silica.

Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal.

The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis. Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust.

Employees of Implosion Technologies LLC may be exposed to small amounts of silica dust during loading of explosives in quarries and mines but are not exposed to hazardous levels of silica dust.

However, employees receive training on silicosis and prevention during MSHA New Miner Training.

Respirators are not authorized for use by Implosion Technologies

LLC personnel. Steps to limit exposures to dust include:

1. Stand up wind from dust sources when possible.

2. Change out of dusty clothing as soon as practical following exposure to dusty conditions.

3. Machine wash dusty clothing as soon as possible.

OFFICE

1. Do not leave desk or file drawers opened and unattended.

2. Never open more than one drawer on a file cabinet at a time. Too many open drawers may cause the cabinet to tip toward you.

3. Before moving any office equipment, be sure that there are no obstructions in the way and that it is unplugged. Do not hand a machine to another person nor push it to change locations.

4. Office machines should be anchored when possible and not place near the edge of a desk nor on sliding desk shelves.

5. Do not overload electrical circuits. Have defective electrical cords repaired at once.

6. Never throw cigarette butts or matches into waste paper basket. They should be disposed of in ash trays or other proper receptacles.

7. Never stand on a chair to reach an upper shelf. Use a step ladder.

8. eep floors and aisles clear of materials that could cause falls.

9. Walk – DO NOT RUN – up and down stairs. Use the handrails.

10. Never place electrical cords, etc., across walkways where someone may trip over them.

11. The use and storage of flammable liquids for cleaning shall be strictly regulated. Oily cleaning rags shall never be kept in drawers.

SHOPS AND GARAGES

1. All floors shall be free of oily rags, grease and debris at all times.

2. Self-closing, metal containers shall be placed in convenient locations as receptacles for waste and/or oily rags.

3. Tools and materials shall not be scattered around the work area where they can cause or create a tripping hazard.

4. Tools shall not be left in an overhead position where they can fall off and strike someone.

5. Tools and hand equipment shall be hauled up or down with hand lines or carried in a suitable container secured to the body.

6. Tools shall not be placed on a ladder or left where they might fall, causing injury.

7. All electric hand tools shall be properly grounded. Any lock-on type switch shall be replaced with a pressure switch that will automatically shut off when pressure is released.

8. Only proper ladders equipped with grippers or cleats in good condition shall be used.

9. Portable ladders shall be tied fast at the top or attended and held by another employee when there is danger of slipping.

10. When climbing up or down a ladder, a person shall face the ladder and use both hands.

11. Ladders shall be properly stored when not in use.

12. Defective and unsafe material shall be reported to the manager.

13. All grinding wheels and moving belts shall be guarded.

14. Face shields shall be worn when doing electric welding, and approved tinted safety glasses shall be worn by employees working in the vicinity. (See also section on Welding.)

15. Employees shall not stand or walk under loads suspended from hoists.

16. Hoist operators shall not move loads over areas occupied by employees.

17. Only authorized personnel shall operate hoists, or hook up loads to the hoist. Standard signals shall be used to control lifts.

18. Lifts shall not be made beyond the capacity of hoists, slings or chains.

19. All slings and chains shall be stored when not in use.

20. Employees shall not run or idle internal combustion engines in shops or garages unless windows and doors are open, or exhaust fumes are carried away by other means of suction ventilation.

21. Gasoline shall not be used for cleaning parts. Cold cleaning, non-toxic solvents with a high flash point shall be used.

22. Employees shall not work under equipment that is not properly blocked.

23. When jacking up trucks or equipment, wheels shall be chocked to prevent rolling.

24. Motors on all equipment shall be stopped while filling fuel tanks. Care should be taken to prevent overflow of fuel. The nozzles of the fuel pump shall be kept in direct contact with the tank to guard against ignition of fuel by static electricity.

25. “No Smoking” signs shall be posted in all areas containing flammable or explosive material.

26. No person shall be permitted to smoke in or about a vehicle when the gasoline tank is being filled or drained.

27. Only authorized electricians shall work on live circuits and not less than two men shall do this type of work.

28. All electrical equipment, such as motors, conduits, switch boxes, etc., shall be grounded.

29. All voltages shall be considered dangerous even though they may not be great enough to produce a serious injury. Even contact with low voltages may result in death.

30. When circuits are opened for repairs, alterations, or examinations, the control devices shall be locked out or tagged.

PNUEMATIC TOOL SAFETY

1. Use the right tool for the job and review the manufacturer’s instructions before using any tool.

2. Do not operate the tool at a pressure above the manufacturer’s rating.

3. Wear safety glasses or a face shield, safety shoes or boots, and hearing protection.

4. Set up screens or shields in areas where nearby workers may be exposed to flying fragments, chips, dust, and excessive noise.

5. Ensure that the compressed air supplied to the tool is clean and dry. Dust, moisture, and corrosive fumes can damage a tool. An in-line filter, regulator, and lubricator may increase the life of the tool.

6. Keep tools clean, lubricated, and maintained according to the manufacturer's instructions.

7. Disconnect tools when not in use, before servicing, when clearing a jammed fastener, and when changing accessories such as bits and cutters.

8. Use only the attachments that the manufacturer recommends for the tools you are using.

9. Attachments, such as chisels on a chipping hammer should be secured with a safety clip or retainer to prevent them from being unintentionally ejected during tool operation.

10. Make sure that the tool is fastened securely to the hose. A short wire or positive locking device attaching the air hose to the tool serves as an added safeguard.

11. Reduce physical fatigue by supporting tools with a counterbalance whenever possible.

ABRASIVE WHEEL GRINDERS

Abrasive wheels and grinding machines come in many styles, sizes, and designs. Both bench-style and pedestal (stand) grinders are commonly found in many industries. These grinders often have either two abrasive wheels, or one abrasive wheel and one special-purpose wheel such as a wire brush, buffing wheel, or sandstone wheel. These types of grinders normally come with the manufacturer's safety guard covering most of the wheel including the spindle end, nut, and flange projection. These guards must be strong enough to withstand the effects of a bursting wheel. In addition, a tool/work rest and transparent shields are often provided.

Hazards

Bench-style and pedestal grinders create special safety problems due to the potential of the abrasive wheel shattering; exposed rotating wheel, flange and spindle end; and a naturally occurring nip point that is created by the tool/work rest. This is in addition to such concerns as flying fragments, sparks, air contaminants, etc. Cutting, polishing, and wire buffing wheels can create many of the same hazards.

Grinding machines are powerful and are designed to operate at very high speeds. If a grinding wheel shatters while in use, the fragments can travel at more than 300 miles per hour. In addition, the wheels found on these machines (abrasive, polishing, wire, etc.) often rotate at several thousand rpms. The potential for serious injury from shooting fragments and the rotating wheel assemblies (including the flange, spindle end, and nut) is great. To ensure that grinding wheels are safely used in your workplace, know the hazards and how to control them.

Solutions

Abrasive wheels used on bench and pedestal grinding machines must be equipped with safety guards. The safety guard encloses most of the wheel - covering the flange, spindle end, and nut projection - while allowing maximum exposure of the wheel periphery. The exposure of the wheel should not exceed 90 degrees or one-fourth of the periphery.

Because the safety guard is designed to restrain the pieces of a shattered grinding wheel, the distance between the safety guard and the top periphery of the wheel must not be more than ¼”. If this distance is greater because of the decreased size of the abrasive wheel, then a "tongue guard" must be installed to protect workers from flying fragments in case of wheel breakage. This "tongue guard" should be adjustable to maintain the maximum ¼” distance between it and the wheel.

An adjustable tool/work rest must also be installed and maintained at a maximum clearance of 1/8” between it and the face of the wheel. (Failing to maintain this maximum of 1/8" is one of the most common OSHA citations.) In addition to offering a stable working position, this small clearance must be maintained to prevent the operator's hands or the work from being jammed between the wheel and the rest, which may cause serious injury or wheel breakage. Plastic glass (Plexiglas) shields are optional. They are not a substitute for eye/face protection and are not included as a part of the guard (unless they are adjusted accordingly and have strength equal to that of the safety guard). OSHA's regulation at 1910.243 goes into detail on the type of equipment and the guarding required.

All abrasive wheels must be closely inspected and ring-tested before mounting to ensure that they are free from cracks or other defects. Wheels should be tapped gently with a light, nonmetallic instrument. A stable and undamaged wheel will give a clear metallic tone or "ring." If a wheel sounds cracked (dead), do not use it. This is known as the "ring test."

The spindle speed of the machine must also be checked before mounting the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.

Portable abrasive grinders

These types of grinders normally come with the manufacturer's safety guard covering most of the wheel. Abrasive grinder exposure must not exceed a maximum angle of 180 degrees and the top half of the wheel must be enclosed at all times. The guard must be mounted so it maintains proper alignment with the wheel.

Vertical "right angle" grinders must have a 180 degree guard between the operator and wheel. The guard must be adjusted so that pieces of a broken wheel will be deflected away from the operator. Cup wheel grinders must be guarded as described above or be provided with special "revolving cup guards," which mount behind the wheel and turn with it.

Note: There are exceptions in the OSHA standards for guarding based on work practices and for other grinders. (See 1910.243(c)(1)(i) and (c)(1)(ii)) Always follow the manufacturer's recommendations.

HAND-HELD POWER TOOLS

Appropriate personal protective equipment such as safety goggles and gloves must be worn to protect against hazards that may be encountered while using hand tools.

Workplace floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

Power tools must be fitted with guards and safety switches; they are extremely hazardous when used improperly. The types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.

To prevent hazards associated with the use of power tools, workers should observe the following general precautions:

- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
- Keep all people not involved with the work at a safe distance from the work area.
- Secure work with clamps or a vise, freeing both hands to operate the tool.
- Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
- Maintain tools with care; keep them sharp and clean for best performance.
- Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance when operating power tools.
- Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
- Remove all damaged portable electric tools from use and tag them: "Do Not Use."

CONFINED SPACE ENTRY

Purpose

This Code of practice outlines what is necessary to ensure the Safety & Health of all individuals at all times while entering and working in a confined space. This includes the responsibilities of all parties involved to ensure proper confined space identification, preparation, authorization and communication before and during the confined space entry and confined space work.

Scope

This Code of Practice is applicable to all Implosion Technologies LLC personnel, contractors, and any other groups providing services at a Implosion Technologies LLC site.

Definitions

Confined Space
A “confined space” is any work area which is not intended for continuous worker occupancy, and has, by design, structure, location, limited or restricted entry and/or exit and may contain or produce dangerous accumulations of hazardous gases, vapors, mists, dusts, fumes or biological agents and enrichment of, or lack of, oxygen in the confined space. The only confined spaces Implosion Technologies LLC enter are bulk emulsion tanks on IME SLP 23 trucks. No other confined spaces are to be entered by Implosion Technologies LLC personnel.

Entry into a Confined Space
Entry into a confined space is defined as the action by which a person passes through a limited opening into a restricted or potentially hazardous work area. Entry is considered to occur as soon as any part of the entrant's body breaks the plane of the entry point into the confined space.

Competent Worker
- Adequately qualified, - Suitably trained, - With sufficient experience; to safely perform the work, with a minimal degree of supervision.

Hazards
Anything, by its nature that will or may, endangers the safety or health of a worker. Hazards may include;
- Toxic vapors, mists, or dusts from welding, cleaning, or powder coating.
- Explosive atmospheres.
- Lack of Oxygen, causing asphyxiation.
- Electrical shock from powered tools or lights.
- Physical hazards such as slipping or falling.
- Entering a confined space without testing the atmosphere.
- Leaking cutting/welding hoses inside the confined space.
- Improper use, or not using, Personnel Protective Equipment.
- Noise
- Temperature extremes.
- Insufficient rescue equipment or procedures.
- Not following confined space entry procedures.

Confined Space "Safe Entry Tag"
The "Safe Entry Tag", is Implosion Technologies LLC's Space Entry Permit and this tag is used to ensure that the existing hazards of a confined space have been properly identified, assessed (evaluated) and that necessary preventive and protective measures and procedures are put into place for the safety and health of workers involved in confined space work.

Responsibilities

Supervisor

- The supervisor in charge of the area for which the confined space entry will occur, is responsible to ensure that all preparations are in place for the safe entry of any worker.
- Ensure workers involved in the confined space are trained in the conditions of entry and the nature of any hazards they may be exposed to.
- Ensure the appropriate PPE is available and in good working order.
- Ensure rescue procedures, equipment and trained rescue personnel are in place.
- Ensure a Confined Space "Safe Entry Tag" is completed.
- Identify the "Class" of Confined Space.
- Assign a safety watch person on the outside of the tank.
- Periodically check the confined space entry jobs to ensure all Health & Safety procedures are

being followed.
- To immediately shut down any unsafe confined space entry job.

Worker and any other Personnel entering the Confined Space

- The worker prior to entering the confined space will ensure that all necessary precautions and procedures are in place to their satisfaction and then sign the Confined Space “Safe Entry Tag”.
- Will wear all Personal Protective Equipment assigned to them, to ensure their safety and health according to the hazards of the confined space job.
- Will inspect and use equipment and tools required to do the jobs inside the confined space, according to safe work practices and procedures.
- Will monitor conditions inside the confined space and if conditions should change inside that are not accounted for on the “Safe Entry Tag” they will discontinue the work and exit the confined space until the new hazards have been addressed.

Safety Watch

- The qualified Safety Watch will ensure that all conditions on the “Safe Entry Tag” are complied with, prior to allowing anyone into the confined space.
- Ensure all of the names of workers who will enter the confined space are on the “Safe Entry Tag”.
- Will establish the communication system to be used with those workers who will enter the confined space.
- Will know the location of the Confined Space Entry Rescue equipment.
- Will sound the emergency alarm should workers inside the tank need to be rescued.
- ** Safety Watch personnel will never enter the confined space for any reason.

Rescue Personnel

- Only workers properly trained and equipped for confined space rescue shall attempt a rescue by entering a confined space.
- A gas test of the confined space atmosphere must be done prior to any rescue personnel entering a confined space.
- When workers in a confined space are wearing a safety harness and lanyard, Rescue Personnel can work from the outside, without having to enter the confined space.
- Rescue Personnel must be physically capable of carrying out a rescue, and must be trained in First Aid/CPR.
- Communications must be available at the worksite to emergency response organizations i.e.; Fire Department, Ambulance. Dial 911 if an emergency situation develops.

PROCEDURE FOR CONFINED SPACE ENTRY

1. Identifying the work area as a confined space.

2. Conduct a hazard assessment of the confined space.

3. Classify the confined space as an A, B, or C confined space.

4. Post the confined space classification at/near the confined space.

5. Train the workers in confined space entry procedures and review the hazard assessment for the confined space.

6. Notify Fire Department that a confined space entry will occur and provide any requested information.

6. Prepare the confined space for entry by purging or ventilating the tank if there are hazardous atmosphere toxins, lack of oxygen or oxygen enriched environment. Note; Oxygen content must be between 19.5% and 21.4%. Utilize a MSA Alert 4X monitor to continuously monitor for atmospheric changes.

7. Complete a “Safe Entry Tag” that will put into action Gas tests, Safety Procedures, Equipment to be used i.e. (ventilation, electrical with (GFI), tools), Personnel Protective Equipment, Potential hazards, Location of vessel/tank, Description of work, Lockout required, Safety watch required, Communication system to be used, Rescue equipment and personnel in-place, Duration of confined work, Date and time of entry, Names of all workers entering the confined space, Signature of qualified “Safe Entry Tag” issuer, Safety watch and the signature of a qualified worker accepting the “Safe Entry Tag”.

8. Once all criteria on the “Safe Entry Tag” has been completed, the worker(s) can enter the confined space.

9. Once the confined space work has been completed, the “Safe Entry Tag” issuer will inspect the confined space to ensure all workers, tools and equipment have been removed.

10. The “Safe Entry Tag” issuer will then sign-off on the tag, that this confined space work has been completed.

11. All completed “Safe Entry Tags” will be filed and kept by month and year.

Training for Confined Spaces

The nature of the hazards encountered in confined space work requires that all individuals who will supervise, issue “Safe Entry Tags”, perform the work, be assigned as a safety watch or rescue person, be trained in the following;

1. Identification of Confined Spaces.
2. Fundamentals of confined space hazard / risk assessment.
3. Classification of confined spaces.
4. Use of, “Safe Entry Tag” permit system.
5. Lockout procedures.
6. Monitoring equipment and atmospheric monitoring results.
7. Use of applicable respiratory protective equipment.
8. Other personnel protective equipment use.
9. Use of ventilation equipment.
10. Explosion proof lighting.

11. Type of work to be performed.
12. Entry / Exit methods.
13. Noise.
14. Temperature extremes.
15. Human Factors.
16. Emergency evacuation procedures.
17. Communication techniques.
18. First Aid and CPR requirements.
19. Fire safety.
20. Rescue procedures.

- This training will be conducted prior to anyone entering a confined space.
- All workers must sign off they understand the confined space entry procedures.
- Periodic re-testing will be done to ensure workers and supervisors maintain their understanding of confined space entry procedures.
- Competent, qualified trainers will do training in Confined Space.
- Trained workers will always adhere to these confined space entry procedures.
- Any untrained workers trying to access a confined space must be refused and the incident reported to their supervisor immediately.

WELDING

1. Only electric welding equipment that conforms to the requirements of the National Electric Manufacturers Association and/or Underwriters Laboratories, Inc., shall be used.

2. All welding equipment shall be inspected regularly and maintained in good condition.

3. Frames of all electric welding machines operated from power circuits shall be effectively grounded with No. 8 gauge wire or heavier.

4. When lengths of cable are coupled as a welding circuit, insulated connectors shall be used on both the ground and electrode lines.

5. Adequate eye protection shall be provided for the welding operator and for others required to work in the area.

6. Electric welding operators shall wear the following protective clothing:

A. Flame-resistant gloves.

B. Welder’s overalls and/or fire resistant leggings.

C. Fire resistant caps or shoulder covers while performing overhead work.

7. Arc welding shall be screened from the view of nearby persons.

8. Welding cables shall be run in such a manner that they do not create obstructions that interfere with a safe passage of workers.

9. Keep hoses and gauges clean and wipe them off before storing.

10. The hoses shall be neatly coiled and hung up when not in use.

11. Always protect the hoses from being run over or trampled upon and avoid tangles and kinks. Do not let hoses contact oil or grease.

12. Blow out both hoses before connecting the torch. Always see that hoses are securely clamped to the blow pipe and regulator fittings before using.

13. CAUTION – IMPORTANT – USE NO OIL – never allow oil or grease to come in contact with oxygen.

14. Never handle oxygen or acetylene tanks roughly.

15. Do not use hooks to move cylinders.

16. Cylinders must be kept away from radiators.

17. If valves are frozen, do not use fire or steam in thawing them. Report the situation to your supervisor.

18. Never tamper with, or attempt to repair, cylinder valves.

19. When handling or moving cylinders, see that valves are closed and the protective caps are in place.

20. Always stand cylinders on end when using or storing them. All cylinders, full or empty, shall be chained.

21. Never open acetylene cylinder valves more than one and one half turns.

HAND TOOLS

1. Tools shall be inspected, cleaned, and lubricated regularly.

2. When tools are not in use, they shall be properly stored where they will present no tripping hazards.

3. All damaged and worn tools shall be promptly repaired or replaced.

4. Only employees who are trained and instructed in the use of special tools shall operate them.

5. Hand tools shall be used for the job that they were intended and not substituted for hammers and crowbars.

6. When using hand tools, be sure they are used properly so no injury will occur.

7. Do not use cheaters on wrenches unless authorized to do so by your supervisor.

8. All power cables shall be checked frequently for breaks in the insulation, especially at the socket and at the point of attachment to the tool.

9. Electric tools shall be disconnected when changing attachments, making minor adjustments or repairs.

10. All electric circular saws shall be equipped with a fixed guard over the upper half of the blade and that movable guard that completely overs the lower half of the blade. Guards shall never be removed or blocked.

LADDERS

1. Before using a ladder, make sure that it is in first-class condition. If you find a defect, take it out of service and report it to a supervisor for repair or replacement.

2. In some buildings, ladders are required for a certain job at a particular place. These should be fastened securely and not be removed or used for any other purpose.

3. All ladders should be of some standard manufacture, equipped with hooks or nonslip feet.

4. Power-driven tools should not be used from ladders. This work should be done from a scaffold or other secure footing.

5. Materials or tools should not be thrown up to or down from ladders. They should be drawn up or let down.

EXCEPTION: Items may be thrown down, if necessary, when an observer is below to signal.

6. When about to work from a ladder, make sure it is properly placed. The distance from the foot of the ladder to a plumb line dropped from the upper resting place must be slightly over one-quarter of the height of the ladder to the resting point. If a ladder cannot be so placed, it must be held by another person.

7. When climbing up or down a ladder, face the ladder and keep a good grip on it. Both hands should be free for climbing.

8. When work is being done in elevated locations, the lower levels must be roped off and signs placed, such as, “DANGER—MEN WORKING OVERHEAD”.

MACHINE GUARDING

1. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards, such as those created by point of operation, in-going nip points, rotating parts, flying chips and sparks.

2. All guards must be in place before beginning work around dangerous openings or operating machinery.

3. Guards must never be removed except when such action is necessary for repairs. After repairs, they must be replaced and properly fastened before the machine is placed in operation.

4. Machines must be locked out and tagged out when taken out of service for repairs.

FORKLIFT SAFETY

The supervisors and operators of the forklifts are responsible for enforcing forklift safety rules. The following are general rules.

1. Forklifts shall be equipped with an overhead canopy guard. The guard should not interfere with good vision. Openings in the guard should be no larger than the smallest item likely to fall on it.

2. A daily, pre-operation check will be performed on all forklifts before use.

3. All forklift operators shall be trained in the following before operating a forklift for the first time:

A. Forklifts are always steered by the rear wheels.

B. Steering effort changes with load size.

C. Forklifts are often driven in reverse as much as in forward gear.

D. Operators must be sure no obstructions are in the way before moving forklift.

E. Street driving and horse play shall not be permitted. Forklifts are not designed to be driven fast. Maximum speed shall be 5 MPH.

F. Passengers are not permitted to ride on forklifts, unless a seat by the driver is provided.

G. Gasoline powered forklifts shall not idle for long periods of time without adequate ventilation.

H. All starts and stops should be easy and gradual to prevent the load from shifting.

I. Loads shall not be raised or lowered enroute.

J. When loaded or empty the forks shall be carried as low to the floor as possible.

K. Forklifts should be backed down a grade with the load following and go up a grade with the load ahead.

L. The operator shall check bridge plates and flooring of all boxcars and trucks for strength before driving over them.

M. Never add counterweights to the forklift for balance; reduce the load.

N. The forks shall be lowered flat to the floor when forklift is not in use.

O. A forklift shall not be used as an elevator unless an approved platform is provided.

P. Follow company procedures regarding personal protective equipment when operating forklifts.

Q. Forklifts shall not be stored or parked in magazines or explosive production buildings.

MOTOR VEHICLES/TRANSPORTATION

1. Vehicle operators shall comply with rules, state laws, local ordinances, and other regulations governing motor vehicle operations.

2. All motor vehicles carrying explosives or other hazardous materials must comply with the standards set forth in the Department of Transportation Regulation, Code of Federal Regulation, and Title 49.

3. No vehicle will be driven if in the opinion of the driver it is unsafe. They should report the condition to maintenance so repairs can be made. The maintenance manager is responsible for investigating all reported complaints before that vehicle is released for service. Vehicles are not to be released for service until all unsafe conditions are corrected.

4. All company vehicles shall carry a five pound fire extinguisher. All company vehicles transporting explosives or hazardous materials shall have two 10-pound dry chemical extinguishers attached to the vehicle, in a conspicuous place.

5. Lights, battery, horn, starter, service and emergency brakes, steering gear, and windshield wipers must be tested daily and maintained in good condition.

6. All trucks used for hauling hazardous materials shall be cleaned of all extraneous materials before being loaded.

7. All truck cabs will be kept clean of materials that could interfere with the driver's ability to control his vehicle. This may include soft drink bottles or cans, tools or other small materials that could lodge under the gas or brake pedals.

8. All gasoline connections and the carburetor must be checked when vehicle is sent to the garage for periodic preventive maintenance.

9. All vehicles, used for hauling hazardous materials, shall be equipped with three emergency reflector triangles, other safety equipment as needed.

10. All trucks, tractors and automobiles will have seat belts for each occupant and be used by each occupant.

11. Refueling of a vehicle shall not take place while the engine is running.

12. The driver will be the responsible party for the correct loading of his or her vehicle.

13. No vehicle shall be loaded beyond its rated capacity for transit on public roads.

14. Before loading and unloading a truck, the brakes must be securely set and the wheels chocked.

15. Wheel chocks must be used when parked on a grade.

16. Be alert for pinch points when loads are being pulled, hauled or lifted.

17. Explosives will be separated from other cargo by the use of adequate blocking and bracing materials.

18. All loads which may shift during transportation will be blocked and braced.

19. When cargo consists of explosives, they will be totally enclosed by trailer or tarpaulin.

20. While operating a vehicle on a public road or highway, a red flag and warning sign must be attached to the extreme end of any materials extending beyond the body of the truck.

21. No one is allowed to ride in the back of any truck at any time.

22. When backing a vehicle, be sure that persons and machinery are not obstructing the road. Always use a spotter, when available, to help back up safely.

23. Employees will follow Department of Transportation guidelines for hours of service when driving commercial vehicles. Non-commercial drivers may not drive a company vehicle over 10 straight hours without adequate rest and sleep.

24. No persons shall smoke in a commercial vehicle, including while transporting hazardous materials or empty.

25. When hauling hazardous materials over the highways, drivers will maintain a separation distance of 1,000 feet from any truck or carrier hauling other hazardous materials.

26. Operators of motor vehicles within a plant area shall drive at all times at a speed consistent with conditions, keeping in mind their own safety and that of others.

EXPLOSIVES

To establish and maintain the highest safety standards in the handling of explosive materials, all phases' concerned -- manufacturing, storage, transportation, and use -- must be accorded the same degree of consideration. Everyone involved with any aspect of explosive handling must realize that proper handling promotes safe handling.

COMMERICAL EXPLOSIVE MATERIALS

Commercial explosive materials include a wide variety of products used for mining, quarrying, construction, geophysical prospecting and agricultural blasting. Basically, explosive materials are products that undergo rapid decomposition, accompanied by the development of extremely high temperature and pressure.

Common types of commercial explosive materials are as follows:

DYNAMITE

Dynamite, as invented by Alfred Nobel, consisted of nitroglycerin absorbed in an inert base, kieselguhr. This original dynamite was known as guhr dynamite. Subsequently, straight dynamite was developed by replacing the inert kieselguhr absorbent with active absorbents that entered into the explosive reaction and contributed to the energy of the dynamite.

Today there are four general types of dynamites:

- Straight dynamite
- Extra or ammonia dynamite
- Gelatin dynamite
- Extra or ammonia gelatin dynamite.

As previously noted, the straight dynamite consists of nitroglycerin absorbed in an active base. The strength of straight dynamite is expressed by the percentage of nitroglycerin that it contains. Thus, 50% straight dynamite contains 50% of nitroglycerin.

In extra or ammonia dynamite, a portion of the nitroglycerin has been replaced by a sufficient amount of ammonium nitrate to maintain the grade strength. For example, 40% extra or ammonia dynamite is supposed to have the same strength as 40% straight dynamite but it does not contain 40% nitroglycerin.

Gelatin dynamite contains a gelatinized sensitizer which is made by dissolving nitrocotton in nitroglycerin. This gelatinizing sensitizer is then combined with the types of active dopes found in straight dynamites.

Extra gelatin or ammonia gelatin dynamite is essentially gelatin dynamite in which a portion of the nitroglycerin has been replaced by ammonium nitrate.

In addition to the four grades of dynamites mentioned above, semi-gelatin and low density dynamites are produced by further altering the formulation of the extra and extra gelatin dynamites.

Permissible dynamites are explosives which have been tested by MSHA and approved for use in gassy and dusty coal mines. Permissible explosives are designed to produce a flame or flow temperature, small size and short duration to reduce the possibility of igniting gas or dust when used under permissible blasting conditions.

Dynamites are produced in a wide range of strengths and detonation velocities. These two properties, along with the characteristics in selecting a dynamite for a particular application. Water resistance, fume properties and sensitivity are also characteristics that must be evaluated when materials are to be used for wet work, in underground mining operations or for propagation ditching.

Manufacturers normally supply dynamites in cartridges from seven-eighths to eight inches in diameter, but smaller or larger diameter cordites may be manufactured for special purposes. Although the eight inch length cartridge has long been the “standard” of the industry, cartridges are also manufactured in four, six, twelve, sixteen and twenty-four inch lengths. Small diameter (less than four inch) cartridges are usually packaged in fiberboard cases having a nominal net weight of 50 points. Large diameter cartridges (four inch or larger) are, as a rule, shipped uncased. Individual large diameter cartridges can weigh from about 10 to 60 pounds each (depending on diameter and length) and are shopped as single units or bundled to form units of 50 pounds or more.

EMULSION, SLURRIES AND WATER GELS

Emulsions, slurries, and water gels are explosive materials that contain fuels, oxidizers, water, sensitizers and gelling, crosslinking or emulsifying agents. While some are sensitized with high explosives, other contain aluminum or other metals, special rules or oxidizers and/or microscopic air bubbles.

Emulsions, slurries, and water gels that pass the test criteria for blasting agent as outlined in 49 CFR can be shipped and stored as blasting agents. However, any product that will detonate, unconfined, when initiated by a No. 8 test cap must be shipped and stored as an Explosive, Class A, even though none of its ingredients themselves are classified as high explosives.

Although emulsions, slurries and water gels may be premixed and packaged at an off-site mixing plant, some operations mix the materials at the blast site immediately before lading into the blast hole. Packaged materials range from conventional paper cartridges to flexible plastic tubes with metal clips or heat sealed closures at each end. Rigid plastic, self-coupling seismic cartridges, continuous length tubing and plastic tubes with woven plastic or spiral wound, fiberboard overwraps are available for special applications. In addition to on-site mixing, bulk loading operations may also utilize pumper trucks which are supplied from premixed storage tanks. For underground loading or the loading of small diameter holes, pressure pot type loader are employed. These loaders are usually supplied by dumping bulk or large size packaged material into their holding tanks.

For detailed information on the handling of emulsions, slurries, and water gels, the following publications should be consulted:

The National Fire Protection Association Publication No. 495
"Manufacture, Transportation, Storage and Use of Explosive Materials"

IME Safety Library Publication No. 3
"Suggested Cod of Regulations for the Manufacture, Transportation, Storage, Sale, Possession and Use of Explosive Materials"

BLASTING AGENTS

A blasting agent is an explosive material which meets prescribed criteria for insensitivity to initiation.

For storage, Title 27 CFR, Section 55.11 defines a blasting agent as any material or mixture, consisting of fuel and oxidizer, intended for the blasting, not otherwise defined as an explosive. Provided that the finished product, as mixed for use or shipment, cannot be detonated by means of a No. 8 test blasting cap when confined (BATF regulation).

For transportation, Title 49 CFR defines a blasting agent as a material designed for blasting which has passed six tests prescribed in Section 173.114a and found to be so insensitive that explosion or of transition from deflagration to detonation. Blasting agents that contain no ingredients other than prilled ammonium nitrate and fuel oil are only required to pass the cap sensitivity test.

As previously noted, a number of bulk and Cartridge emulsions, slurries, and water gels are classified as blasting agents. Perhaps the most common blasting agent is the mixture of ammonium nitrate and fuel oil generally referred to as ANFO. ANFO is available as a premixed, free running, bagged material that can be poured or blown into blast holes or as a product that is bulk loaded directly into blast holes.

Open pit operations employing bulk loading of ANFO may obtain the prills and oil separately and do their own mixing, either at a fixed location or in portable equipment at the loading site.

Bulk ANFO is also supplied by explosive material manufactuers who deliver and/or load premixed material or material that is mixed on the blast site by special ANFO mixing trucks.

When used for underground operations, ANFO is usually loaded by pneumatic equipment which blows the ANFO directly into the blast hole. Regulations prohibit the mixing of ammonium nitrate/fuel oil in underground locations. ANFO used underground is of the premixed variety and may contain a special oil and/or additives to enhance its fume characteristics.

ANFO type blasting agents are characterized by low density and poor water resistance making them ill-suited for wet hole blasting. They can be used for wet work, however, by crushing the ammonium nitrate, adding densifying agents to increase density and packaging the finished product in a dimensional, water resistant cartridge. Cartridged ANFO products will perform satisfactorily if water conditions are not too sever, exposure time is not excessive, cartridges are loaded intact and the column of cartridges is adequately primed and boostered.

For detailed information on the safe handling of ANFO and other blasting agents, consult

the following:

National Fire Protection Association No. 495
"Manufacture, Storage, Transportation and Use of Explosive Materials"
IME Safety Library Publication No. 3
"Suggested Code of Regulations for the Manufacture, Transportation, Storage, Sale, Possession and Use of Explosive Materials"

BOOSTERS

Boosters are units of explosive materials, usually of high strength and high detonation velocity, used to enhance the initiation of less sensitive explosive materials. When a means of initiation (detonator or detonating cord with detonator) is attached to a booster, the unit becomes a primer.

Explosive materials most commonly used as boosters include:

1) Cylinders of cast explosives (Pentolite, TNT, Composition B or other military type explosives) which usually contain cap wells and/or tunnels to facilitate their use with electric or non-electric detonators or detonating cords.
2) Cartridges of high velocity, high density dynamites.
3) Units of cap sensitive emulsions, slurries or water gels.

Insensitive blasting agents and cartridges blasting agents used for wet work require high detonation pressure primers and boosters to assure maximum efficiency. Since a combination of high density and high detonation velocity will produce the desired detonation pressure, booster as a rule are high velocity, high density explosives.

In recent years there have been marked changes in initiation and delay systems, and special boosters, initiators and delay devices have been developed. Components of all initiation and delay systems are not compatible with all boosters. Booster and initiating system manufacturers should be consulted regarding the use and application of their particular products.

FUSE DETONATORS (BLASTING CAPS)

Fuse detonators (blasting caps) are copper or aluminum shells approximately one quarter inch in diameter and about an inch to inch and a half long. One end of the shell is closed and contains a charge of a dense, high strength explosive. The other end is open to allow the insertion of a safety fuse.

The safety fuse is inserted into the open end of the detonator with the end of the fuse resting on the explosive charge in the closed end of the detonator. Using a special tool (cap crimper) the detonator is crimped to the fuse to retain it in place.

The spit of the lighted fuse initiates the detonator which in turn will initiate cap sensitive explosive materials such as dynamite, detonating cord, cast boosters, emulsions, slurries or water gels.

Fuse detonators will mass detonate and are also very sensitive to flame, heat, friction and

shock. They should never be carried in clothing pockets and must never be stored with other explosive materials.

ELECTRIC DETONATORS

Electric detonators, instantaneous and delay, comprise closed aluminum or copper shells approximately one quarter inch in diameter. Instantaneous electric detonators are in inch or two inches long while the delay electric detonators may be as long as four inches. Tow leg wires are attached to one end of the detonators through a plug that has been crimped into the end of the detonator to provide a waterproof closure.

Inside the detonator, the two legwires are connected to an ignition system that is positioned over the priming charge. The ignition system consists of a bridgewire connected across the legwire ends and surrounded by a heat-sensitive pyrotechnic material. When electric current is applied through the legwires, the bridgewire heats up and ignites the surrounding pyrotechnic material which, in turn, ignites the priming charge. The priming charge undergoes transition from deflagration to detonation and initiates a base charge located next to it in the detonator. The explosives in which the detonator is imbedded. In delay detonators, a delay element is positioned between the ignition system and the priming charge to introduce a predetermined delay between the application of firing current and the detonation of the detonator.

Delay electric detonators are available in regular and millisecond delay series. The regular delays have normal delay intervals of one half to one second while the millisecond delays range from 25 milliseconds (25 thousandths of a second) to 150 milliseconds (150 thousandths of a second) per delay interval.

Electric detonators are sensitive to flame, heat, shock, or friction and should not be handled roughly or carried in clothing pockets. They are also subject to accidental detonation by stray current or other source of electrical energy and should be kept shunted at all times except when being tested or hooked into the blasting circuit.

For ease of identification, all detonators manufactured in the USA have the safety warning, “Blasting Cap – Explosive Dangerous”, printed on the shell.

SAFETY FUSE

Safety fuse is a flexible cord containing an internal burning medium by which fire or flame is conveyed at a continuous and uniform rate from the pint of ignition to the point of use, usually a fuse detonator.

Safety fuse as made in the United States has an approximate burning speed of 40 seconds per foot. Since manufacturing tolerances, storage, weather, atmospheric pressure, mishandling and condition of use affect the burning speed, it should be checked at frequent intervals on the job by timing a 3 foot section from that part of the supply roll to be used.

A minimum of 3 feet of safety fuse is recommended for use with each detonator.

IGNITER CORD SYSTEM

Ignitor cord, a flexible, small diameter pyrotechnic cord that burns at a uniform rate with an external flame, is used to ignite a series of safety fuses.

Igniter cord connectors are small metal capsules containing an ignition compound. In use a connector is crimped to the fuse. The igniter cord is inserted under the “lip” of the connector and the lip is pressed closed with the thumb. As the igniter cord burns along its length it ignites each connector which in turn starts each fuse burning.

Single fuses are best ignited in this fashion as well. A fuse and connector assembly is made up and then a short length of igniter cord is pressed into place under the connector lip. The igniter cord is then lighted which in turn ignites the connector and subsequently the fuse.

Safety fuse, when used with igniter cord and igniter cord connectors, allows the ignition of multi-hole blasts, with the holes ignited in sequence without having to cut different lengths of safety fuse. With this system the safety fuse is cut in equal lengths and the desired timing accomplished through the burning speed of the igniter cord.

Detailed information on the igniter cord system can be obtained from an explosive materials supplier.

DETONATING CORD

Detonating cord is a flexible cord containing a center core of high explosives used to initiate other explosives. Detonating cords supplied for commercial blasting contain coreloads of 4.5 to 60 grains of explosive per foot. The core load may be covered by textiles, waterproofing compounds, and plastic designed to protect the explosive core from damage by water or oil penetration. The explosive core can be initiated by a detonator (fuse cap, electric blasting cap or nonelectric blasting cap). Detonating cords with coreloads greater than 18 grains per foot can be initiated through knotted connections as recommended by the manufacturer.

The detonation velocity of detonating cord is fairly consistent (approximately 22,000 feet per second) for all coreloads. However, the ability to initiate other explosives is a function of the coreload density and users should consult the manufacturer to determine compatibility with cast boosters, nitroglycerin dynamite, emulsions, slurries, water gels, and blasting agents.

SHOCK TUBE SYSTEM

The shock tube system consists of a small diameter, plastic tube that contains a reactive filament or a thin coating of a reactive material on the inside surface. When initiated, this material reacts and transmits a shock wave at approximately 6,000 feet per second though the tube. For field use, factory assembled units consisting of instantaneous or delay detonator or other type delay devices crimped to lights of shock tube are employed to provide in-the-hole or surface delays. These units can be used by themselves or in conjunction with other delay and initiation devices. Shock tube can be initiated by detonating cord, electric or non-electric detonators or special starter equipment.

GAS INITIATION SYSTEM

In the gas initiation system, instantaneous or delay non-electric detonators are initiated by an explosive gas that is conveyed to the detonators through thin, hollow plastic tubing. Each of the detonators has two of the empty plastic tubes crimped into one end making the unit look somewhat like an electric detonator. In practice, the detonators are deployed much the same as electric detonators using lengths of empty plastic tubing and special non-explosive connectors to connect from hole to hole in series or series-in-parallel circuits. After the entire circuit is hooked up, an explosive gas is introduced into the tube and ignited. The initiation wave of the gas in the tubing travels at approximately 8,000 feet per second initiating each detonator in the circuit.

The gas initiation system can be checked for leaks, continuity and blockages prior to firing. It requires special charging and firing units and special tubing and connectors for hooking up circuits.

MINIATURIZED DETONATING CORD SYSTEM

The miniaturized detonating cord system is comprised of a low energy (2.4 grains per foot coreload) detonating cord, instantaneous starters for connection with downlines and trunklines and millisecond “surface” delays and “in-hole” delay detonators. Surface delays may be used with conventional detonating cord downlines or combined with “in hole” delay detonators to produce a range of delay timings. The miniaturized detonating cord is not compatible with nitroglycerin sensitized explosives but is compatible with most emulsions, slurries, water gels, and blasting agents.

FIELD USE OF SHOCK TUBE, GAS INITIATION AND MINIATURAIZED DETONATING CORD INTIATION SYSTEMS

The manufacturers of shock tube, gas initiation and miniaturized detonating cord initiating systems publish technical data sheets which describe, in detail, the components of their systems. Detailed information is also available on the utilization and application of the systems. For more specific information, the user should contact a representative of the manufacturer of the system.

MANUFACTURE OF EXPLOSIVE MATERIALS

1. Smoking is prohibited on the plant site, except where notices permitting it are posted. Smoking is also prohibited by individuals whose clothing is contaminated with explosive materials or other materials to the degree that safety or personnel is endangered.

2. No individual shall carry matches or other flame-producing devices into explosive materials areas without a written permit signed by an authorized supervisor. Such a permit shall apply only to matches or other flame-producing devices of the kind approved by plant management.

3. All employees in explosive materials operations shall be subject to periodic match searches, including all clothing, lunch boxes, lockers, etc.

4. Intoxicating beverages and narcotics or dangerous drugs are prohibited on the premises.

Any person under the influence of alcohol, or narcotics or dangerous drugs shall not be permitted on the premises.

5. Lunch buckets, food, tobacco products, and chewing gum (except tobacco products and chewing gum placed in the mouth prior to entering). Shall not be taken into the explosive materials manufacturing buildings unless approved by management.

6. No person shall carry or have in his possession firearms, ammunition, or articles of a similar nature on the premises without written permission from management.

7. Flashlights shall not be permitted in explosive materials areas, except flashlights of the type approved by the plant management.

8. Horseplay shall not be permitted on the plant site.

9. Fires involving explosive materials shall not be fought, except where special instructions have been issued for fighting fires involving explosive or highly flammable materials at specific locations. Employees wearing clothing contaminated with ignitable materials shall not go near a fire.

10. Each employee involved in explosive materials operations shall were clothing which is approve by management.

11. When required by exposure, a shower bath shall be taken at the end of each shift.

12. A separate procedure, or “disaster plan”, shall be developed to handle emergency conditions, such as electric power outages, created by a major fire, explosion, hurricane, tornado, etc.

13. The land within 25 feet of any manufacturing or mixing plant shall be kept clear of rubbish, brush, dried grass, leaves, dead trees, all live trees less than 10 feet high and other combustible materials.

14. Personnel exits in explosive materials buildings shall be kept clear at all times.

15. Personnel and explosive materials limits shall be posted for operating buildings.

16. Operating rules or practices shall be developed and approved by management and posted for each explosive material operation. No deviations shall be permitted without management approval.

17. Opening personnel shall receive training in pertinent rules and practices before working in explosive materials operations.

18. Explosive materials contaminated by foreign matter or any combustible material contaminated by explosive materials shall be disposed of by procedures approved by management.

19. Personnel shall not enter, remain in or go near explosive materials manufacturing

buildings unless necessary for performance of duties.

20. Procedures shall be taken and manufacturing equipment shall be designed to prevent entry of foreign objects or materials.

21. Excess explosive materials and packaging contaminated with explosive materials shall be placed in approved marked containers, shall be kept separate from all other materials and shall be disposed of or reworked in accordance with established procedures.

22. Floors and traffic areas shall be kept clean to prevent accumulation of explosive materials.

23. Tools and equipment shall be kept in an approved location when not in use during operations.

24. Mixers, pumps, valves and related equipment shall be designed to permit regular and periodic flushing, cleaning, dismantling, inspection, and maintenance.

25. All electrical equipment, including wiring, switches, controls, motors and lights, shall conform to the requirements of the National Electric Code.

26. All electric motors and generators shall be provided with suitable overload protection devices. Electrical generators, motors, proportioning devices and all other electrical enclosures shall be electrically bonded. The grounding conductor to all such electrical equipment shall be effectively bonded to the service-entrance ground connection and to all equipment ground connections in a manner so as to provide a continuous low resistance path to ground.

27. During the approach and progress of an electrical storm, all explosive material manufacturing operations shall be suspended and personnel withdrawn to a safe location.

28. Ventilation equipment, where required, shall be operating and all personnel exits unlocked before operations are begun.

29. Watches, tie pins or clips, earrings, and all other jewelry, including finger rings, etc., shall not be worn in operating buildings.

30. Repairs to explosive material processing machinery shall not be made without prescribed clean-up, decontamination and approval by authorized supervisory personnel.

31. All new, or newly repaired, process equipment used in explosive equipment operations shall be examined and test-operated before being placed into routine service.

32. Only tools approved by management shall be used for construction, maintenance and repairs in explosive material operations.

33. Process temperatures and contacting equipment surface temperatures shall be less than the decomposition temperature of any ingredient or mixture used.

34. Spills of explosives, or materials containing explosives, shall be cleaned up immediately.

35. Depending on the properties of the ingredients employed, additional safety requirements may be necessary and should be adopted on an individual basis.

+TRANSPORTATION OF EXPLOSIVE MATERIALS

1. The transportation of explosive materials over all highways shall be in accordance with regulation of the U.S. Department of Transportation.

2. Explosive materials shall not be transported through any prohibited vehicular tunnel, or subway, or over any prohibited bridge, roadway or elevated highway.

3. No one shall smoke, or carry matches or any other flame-producing device, or carry any firearms or cartridges while in or near a motor vehicle transporting explosive materials; except the [authority having jurisdiction] may authorize the use of a separate container (for smoking materials and flame producing devices ONLY) to be placed on the outside of the vehicle away from the cargo area. This container must be labeled as to the contents and have a lock.

4. No one shall drive, load or unload a motor vehicle transporting explosive materials in a careless or reckless manner.

5. Explosive materials shall not be carried or transported in or upon a public conveyance.

6. Explosive materials shall not be transferred from one motor vehicle to another on any public highway, street or road within the [name of city, county, state or other area] without informing the fire and police departments thereof. In the event of breakdown or collision, the local fire and police departments shall be promptly notified of the location and type of cargo. Explosive materials shall be transferred from the disabled vehicle to another vehicle only under proper and qualified supervision.

7. Detonators may be transported with other explosive materials in the same motor vehicle only in accordance with Title 49 of the Code of Federal Regulations.

STORAGE OF EXPLOSIVE MATERIALS

1. Explosive materials shall be stored in magazines unless they are:

a. in process of manufacture
b. being used
c. being loaded or unloaded into or from transportation vehicles or while in the course of transportation.

MAGAZINE OPERATIONS

1. Storage within Magazines

a. A competent person shall be in charge of a magazine. The person shall be at least 21 years of age and conversant with and responsible for the enforcement of all safety precautions.

b. All magazines containing explosive materials shall be inspected at intervals of not greater than seven days to determine whether there has been an unauthorized entry or attempted entry into the magazines, or unauthorized removal of the magazines or their contents.

c. Magazine doors shall be kept locked when the magazine is unattended.

d. Current safety rules covering the operations of magazines shall be posted on the interior of the magazine.

e. When explosive material is removed from a magazine for use, the oldest usable stocks shall be removed first.

f. Corresponding grades and brands shall be stored together and in such a manner that brand and grade marks are visible. All stocks shall be stored so as to be easily counted and checked.

g. Packages of explosive materials shall be stacked in a stable manner, not exceeding eight feet in height.

i. Packages of damaged explosive materials shall not be unpacked or repacked in, or within 50 feet of, a magazine or in close proximity to other explosive materials.

j. Magazines shall be used exclusively for the storage of explosive materials and such other blasting materials as may be permitted by [the authority having jurisdiction].

k. Magazine floors shall be swept regularly, kept clean, dry, free of grit, paper and rubbish. Sweepings from floors of magazines shall be disposed of in accordance with the instructions of the manufacturer.

l. When explosive materials have deteriorated to an extent that they are in an unstable or dangerous condition, or any liquid leaks from any explosive materials, the person in possession of such explosive materials shall immediately contact its manufacture. Only experienced persons shall direct the work of destroying explosive materials.

m. Magazine floors stained with liquid shall be dealt with according to instructions obtained from the manufacture of the explosive materials stored in the magazine.

n. When magazines need interior repairs, all explosive materials shall be removed and the floors cleaned before and after making repairs.

o. In making exterior magazine repairs, when there is a possibility of causing a fire, all explosive materials shall first be removed from the magazine.

p. Explosive materials removed from a magazine under repair shall either be placed in another magazine or placed a safe distance from the magazine, where they shall be completed. Upon completion of repairs, the explosive materials shall be promptly returned to the magazine.

q. Smoking, matches, flame-producing devices, open flames, and firearms or cartridges shall not be permitted inside, or within 50 feet of magazines.

r. The land within 25 feet of any magazine shall be kept clear of rubbish, brush, dried grass, leaves, dead trees and all live trees less than ten feet high.

s. Combustible materials shall not be stored within 50 feet of magazines.

t. Explosive materials recovered from blasting misfires shall be placed in a magazine until an experience person has determined the method of disposal.

u. The premises upon which all outdoor magazines, except Type 3, are located shall be posted with signs reading “Explosives – Keep Off”. These signs shall be in contrasting colors with the minimum letter size of 3-inch height with ½-inch brush stroke. All signs shall be located so that a bullet passing through the sign will not strike a magazine and no sign shall be attached to a magazine.

USE OF EXPLOSIVE MATERIALS

1. Personnel handling explosive materials shall be at least 21 years of age and possess a permit, or be at least 18 years of age and be supervised by a holder of either a user’s or blaster’s permit.

2. While explosive materials are being handled or used, smoking shall not be permitted and no one near the explosive material shall possess matches, open light or fire or flame-producing devices, except that the blaster may possess a device for the specific purpose of igniting the safety fuse. No one shall handle explosive materials wile under the influence of intoxicating liquors, narcotics or dangerous drugs.

3. Original containers or containers as prescribed by 49 CFR, 177.835 (g) (2) (i), shall be used for transporting detonators and other explosives from storage magazines to the blast site.

4. When any blasting is done, precautions shall be exercised to prevent damage and to minimize earth vibrations, air blasts and thrown fragments.

5. When conducting blasting operations, the holder of the blaster’s permit shall use reasonable precautions, including but not limited to warning signals, flags, barricades, or mats as may be required or appropriate to maximize safety.

6. Surface blasting operations shall be conducted during daylight hours only, except by permission of [the authority having jurisdiction].

7. During the approach and progress of an electrical storm, loading shall be suspended in surface and underground blasting operations and personnel withdrawn to a safe location.

8. Whenever blasting is being conducted in the vicinity of any utility line, the blaster shall notify the appropriate representatives of such utilities at least 24 hours in advance of blasting, specifying the location and intended time of such blasting. Oral notice shall be confirmed with written notice. In an emergency, this time limit may be waived by [the authority having jurisdiction].

9. Precautions shall be taken to avoid accidental initiation of electric detonators from current induced by radar, CB and other radio transmitters, lightning, adjacent power lines, dust and snow storms, or other sources of extraneous electricity. These precautions shall include but not be limited to the following:

a. The posting of signs on all roads warning against the use of mobile radio transmitters with 1,000 feet of the blasting operations.

b. Compliance with the latest recommendations of the Institute of Makers of Explosives, Safety Library Publication No. 20 entitled, “Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Electric Blasting Caps”.

10. Empty signle-trip containers and paper and fiber packing materials which have previously contained explosive materials, other than detonators, shall not be used again for any purpose but shall be destroyed by burning at an isolated location outdoors and all personnel shall remain at a safe distance after the burning has started.

11. Containers of explosive materials shall not be opened in any magazine or within 50 feet of any magazine, except as proved for in “Magazine Operations”, paragraph h.

12. Explosive materials or blasting equipment that are deteriorated or damaged shall not be used.

13. No explosive materials shall be intentionally abandoned in any location for any reason nor left in such a manner that they may easily be obtained by children or other unauthorized persons. All unused explosive materials shall be returned to proper storage facilities.

14. Explosive materials shall be loaded and used in a manner that is consistent with any recommendations or instructions for the manufacturer for that explosive material.

WARNING REQUIRED

No blast shall be fired until the blaster in charge has made certain that all surplus explosive materials are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and that an adequate warning signal has been given.

HAZARDOUS NOISE

Hazardous noise is sound that may damage an employee’s hearing and cause other health effects such as stress, hypersensitivity to noise, increased blood pressure and increased heart rate. Hazardous noise can also interfere with communication at work, which could lead to accidents and/or failure to hear warning signals.

If you need to raise your voice to speak to someone 3 feet away, noise levels might be over 85 decibels (dB). Few tasks performed by Implosion Technologies LLC result in prolonged hazardous noise and employees are not required to enter a Hazardous Noise Testing Program. Intermittent hazardous noise sources such as mechanic’s air tools, grinders, drills, etc., and bulk truck operation may exceed 85 dB for short periods. During periods when hazardous noise is present, you should wear hearing protection.

Implosion Technologies LLC supplies disposable foam ear plugs for use at each location. Employees shall receive training on hazardous noise, use, and fitting foam earplugs at initial safety training.

Questions regarding hazardous noise and hearing protection devices should be referred to the Safety Department

Individual Section 4(f) Approach
Skinners Falls Bridge
Damascus Township, Wayne County, Pennsylvania
Town of Cochecton, Sullivan County, New York
January 14, 2025

There are five resources afforded protection under Section 4(f) within the Skinners Falls Bridge emergency project area:

- Skinners Falls Bridge — National Register of Historic Places (NRHP) Listed
- Milanville Historic District — NRHP Listed
- Upper Delaware Scenic and Recreational River (Delaware River)
- Pennsylvania Fish and Boat Commission (PAFBC) Water Trail (Delaware River)
- New York State Department of Environmental Conservation (NYSDEC) Parking Lot and Boat Launch

Initially PennDOT began to prepare four Programmatic or De Minimis Section 4(f) Evaluations for the resources:

- Historic Bridge Programmatic Section 4(f) Evaluation for Skinners Falls Bridge and Milanville Historic District
- De Minimis Section 4(f) Evaluation for Upper Delaware Scenic and Recreational River (Delaware River)
- De Minimis Section 4(f) Evaluation for PAFBC Water Trail (Delaware River)
- De Minimis Section 4(f) Evaluation for NYSDEC Parking Lot and Boat Launch

Upon further consideration, FHWA decided that, at least for some resources, the project does not fully meet the criteria for a de minimis or programmatic Section 4(f) approach. FHWA and PennDOT decided to prepare one Individual Section 4(f) Evaluation that includes all five of the resources. Due to the project being declared an emergency by the Pennsylvania governor, and in keeping with FHWA policy, the Individual Section 4(f) Evaluation will be prepared as the project progresses.

The Individual Section 4(f) Evaluation will be prepared in accordance with:

- Department of Transportation Regulations (23 CFR 774),
- FHWA's Section 4(f) Policy Paper, (https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.aspx),
- and PennDOT's *Publication No. 349: Section 4(f)/Section 2002 Handbook* (https://www.pa.gov/content/dam/copapwp-pagov/en/penndot/documents/public/pubsforms/publications/pub%20349.pdf).

The Evaluation will include a description of the proposed action, the project purpose and need, description of the Section 4(f) resources, alternatives analysis (including the assessment of least overall harm), and coordination with the Officials with Jurisdiction (OWJ).

The OWJs for the project are:

- Skinners Falls Bridge — Pennsylvania State Historic Preservation Office (SHPO) & New York State SHPO
- Milanville Historic District — Pennsylvania SHPO
- Upper Delaware Scenic and Recreational River — National Park Service
- PAFBC Water Trail — Pennsylvania Fish and Boat Commission
- NYSDEC Parking Lot and Boat Launch — New York State Department of Environmental Conservation (NYSDEC).

The Individual Section 4(f) Evaluation is currently being prepared but will not be finalized until the Section 106 process is completed. PennDOT and FHWA will coordinate with all the OWJs as the evaluation is prepared to ensure that the use of the resources and mitigation are fully documented. The coordination will be documented via meeting minutes and included as part of the evaluation.

The Draft Individual Section 4(f) Evaluation will be circulated to the OWJs and the public for a 45 day comment period which will also serve as the public comment period.

PennDOT and FHWA will address the comments received in the Final Individual Section 4(f) Evaluation. The Final Categorical Exclusion Evaluation will also be sent to the OWJs.

Skinners Falls Bridge Emergency Project Mitigation
Tuesday, January 21, 2025

Activity Description	MPMS	Activity Status	Activity Phase	Resource Category	PS&E Reference	Start Date	End Date	Spec Prov
Design the causeway to allow for migratory fish passage (American eel, shad species, alewife, and striped bass) by not spanning the entire width of the river Read less	122260	Active	Final Design	Wildlife - Wildlife and Habitat	USFWS Coordination email 12/20/2024			
Minimize the footprint of the causeway to reduce the amount of mussel crushing and impacts to streambed habitat, including indirect impacts upstream and downstream of the structure. Read less	122260	Active	Final Design	Wildlife - T&E	USFWS Coordination email 12/20/2024			
NYSDEC Part 502 Floodplain Management Criteria for State Projects approval will be required for a State-funded action that may result in potential flooding related impacts to other property owners as a result of this project. This approval will be included in the NYSDEC Emergency Permit Authorization. Read less	122260	Active	Final Design	Aquatic Resources - Floodplain	NYSDEC Permit comments 12/19/2024			
Obtain a Temporary Revocable Permit from the NYSDEC for use of the DEC boat launch parking area adjacent to the project site prior to construction. Read less	122260	Active	Final Design	Land - Parks (including recreation grants)	NYSDEC Permit comments 12/19/2024			
Obtain coverage under the current SPDES General Permit for Stormwater Discharge from Construction Activity (GP-0-20-001), and a Stormwater Pollution Prevention Plan (SWPPP) must be developed which conforms to requirements of the General Permit, prior to the expiration date of the EA. Read less	122260	Active	Final Design	Aquatic Resources - Streams	NYSDEC Permit comments 12/19/2024			
01.Implement the approved Aids to Navigation (ATON) plan prior to the start of construction. Inspect daily to ensure the plan elements (buoys, signs, etc.) are in the proper place according to the plan. Comply with requirements of ATON general conditions. Notify NPS if river users do not comply with ATON. Read less	122260	Active	Construction	Aquatic Resources - Streams	ATON Plan			
02. Notify the USFWS if a petroleum hydrocarbon spill/release, overtopping of the causeway, or other unplanned events occur that may result in additional upstream and/or downstream harm and mortality of mussels so that these events may be documented. Read less	122260	Active	Construction	Aquatic Resources - Streams	n/a			
03. Collect intact mussel shell(s) or freshly dead specimens to aid in assessing the existing mussel community during entire project duration. Read less	122260	Active	Construction	Wildlife - T&E	n/a			
04. Comply with the blasting control and monitoring requirements including but not limited to seismograph use and notification o f scheduled work to land owners and agencies. Read less	122260	Active	Construction	Other	Blasting Control and Monitoring specification			

Activity Description	MPMS	Activity Status	Activity Phase	Resource Category	PS&E Reference	Start Date	End Date	Spec Prov
05. Should the scope of the project be amended to include additional ground-disturbing activity and/or should you be made aware of historic property concerns regarding archaeological resources, notify PennDOT archaeologist (Steve McDougal at smcdougal@pa.gov). Use of the Pennsylvania shoreline and areas outside of paved SR 1004 roadway are not permitted. Read less	122260	Active	Construction	Cultural Resources - Historic Resources	n/a			
06.[to be updated upon receipt of blasting and demo plan] Conduct pre and post blast surveys for residential and commercial structures. Protect structures within a 500-foot radius or immediately at blast site Replace broken glass as required. Read less	122260	Active	Construction	Other	Pre and post blast survey specification			
07. Develop and implement a Plan to capture demolition debris for advanced approval. The Plan shall include a floating containment berm with a weighted draped net capable of intercepting wood deck fragments and other demolition debris. It shall also include live drone video to track floating debris and a crew(s) in a boat(s) capable of intercepting and removing all debris carried by the current. Read less	122260	Active	Construction	Aquatic Resources - Streams	Erosion and Sedimentation Control Plan Sheet 3			
08.PennDOT will provide environmental commitment monitoring of critical in-water activities including regular visits by a qualified individual during project kickoff, causeway construction / removal. Read less	122260	Active	Construction	Wildlife - T&E	n/a			
09. The contractor will utilize specific environmental commitment measures including active sonar, bathymetry survey or other appropriate method to identify debris, identify causeway materials are removed, and riverbed is consistent with pre-construction conditions. Read less	122260	Active	Construction	Wildlife - T&E	n/a			
10. Use an excavator with adequate reach, thumbs and claws instead of a bucket alone to remove rock from the river bottom to minimize impacts to the Delaware River. Read less	122260	Active	Construction	Aquatic Resources - Streams	Erosion and Sedimentation Control Plan Sheet 3			
11. Reseed Temporarily impacted wetlands with Wetland Seed Mix W.	122260	Active	Construction	Aquatic Resources - Wetlands	Erosion and Sedimentation Control Plan Sheet 3			
12. PennDOT will conduct an underwater habitat inspection of the site prior to contractor demobilization to ensure causeway and bridge materials have been effectively removed and the site restored to natural grades. Read less	122260	Active	Construction	Wildlife - T&E	n/a			

Activity Description	MPMS	Activity Status	Activity Phase	Resource Category	PS&E Reference	Start Date	End Date	Spec Prov
13. Security Plan During the first week of construction, during active construction (mobilization and materials moving in, et c) assistance from both PA and NY state police on site on both sides of the bridge. From there on if no issues (of protesting or concerns), the contractor would hire a private security firm to guard each side of the bridge. This requirement may be for 24 hours or during off hours (during non-active construction). In this case, during construction, the construction or department personnel will secure site. Upon any trespassing by non-construction personnel, state police will be called. During the timeframe of the actual demolition of the bridge (blasting operation or cut and pull/push method), state police assistance on site will be required. The timeframe for either the blast or cut and pull/push method is anticipated to take 1-2 days for each span. Blasting details are defined in “BLASTING CONTROL AND MONITORING” and “PRE_BLAST AND POST BLAST SURVEY”. During demolition and other times when the approved ATON plan requires the river to be closed to all boating traffic, private security staff or law enforcement officers will look for river traffic approaching the Skinners Falls Bridge and warn boaters not to approach the bridge. If private security firm staff encounter boat traffic attempting to approach the bridge when the river is closed, they will contact the State Police. The timeframe to pull each span from the river or causeway is anticipated to be up to 4 weeks. During this time security will be provided by the contractor for non-active construction duration. It should be noted that PennDOT has discussed with the contractor to work 24/7 as feasible as possible. Orange fencing will be installed along the perimeter of the construction site, see plan. The perimeter of the construction site will be signed as “ACTIVE CONSTRUCTION ZONE KEEP OUT”. Read less	122260	Active	Construction	Other	n/a			
14. NYSDOT will coordinate with local municipalities and obtain any necessary local road user agreements.	122260	Active	Construction	Other	n/a			
15. Contractor will set aside pieces of the truss after demolition. The pieces will not be removed from the trusses prior to demolition and will be recovered in the condition they are in after the truss is removed from the water/causeway. These pieces are to be from “decorative” sections of the structure (i.e. railing, portal lattice pieces) and no larger than 3 FT. in length. These recovered fragments will be set aside on-site and the District 4-0 CRP will contact local historic agencies to inquire if they would like to own the pieces. Read less	122260	Active	Construction	Cultural Resources - Historic Resources	n/a			
Develop of a Memorandum of Agreement (MOA) with the state SHPOs. The MOA will identify mitigation measures to be incorporated in to the project. Read less	122260	Active	Post-Finalization Monitoring	Cultural Resources - Historic Resources	PASHPO concurrence letter 12/19/2024			
Include the ACHP in all future correspondence with all consulting parties to address the bridge's demolition and FHWA's proposed measures to resolve and hopefully prevent recurrence of this type of outcome. Read less	122260	Active	Post-Finalization Monitoring	Cultural Resources - Historic Resources	ACHP response email 12/20/2024			
Payment into the PA Mussel Conservation Fund to offset impacts to general mussel resources in the area, even though no federal species are known from the site at this time. Read less	122260	Active	Post-Finalization Monitoring	Wildlife - T&E	Letter to USFWS 1/7/2025			
Post construction monitoring consisting of mussel surveys to determine presence of listed species and the effects of the project on mussel resources and habitats. Habitat monitoring to evaluate the projects long germ habitat effects on the Delaware River Read less	122260	Active	Post-Finalization Monitoring	Wildlife - T&E	Letter to USFWS 1/7/2025			

SKINNERS FALLS BRIDGE SECURITY PLAN

DESCRIPTION – This plan is for the security of the construction site during construction.

PLAN – During the first week of construction, during active construction (mobilization and materials moving in, etc) assistance from both PA and NY state police on site on both sides of the bridge.

From there on if no issues (of protesting or concerns), the contractor would hire a private security firm to guard each side of the bridge. This requirement may be for 24 hours or during off hours (during non-active construction). In this case, during construction, the construction or department personnel will secure site. Upon any trespassing by non-construction personnel, state police will be called.

During the timeframe of the actual demolition of the bridge (blasting operation or cut and pull/push method), state police assistance on site will be required. The timeframe for either the blast or cut and pull/push method is anticipated to take 1-2 days for each span. Blasting details are defined in "BLASTING CONTROL AND MONITORING" and "PRE_BLAST AND POST BLAST SURVEY".

During demolition and other times when the approved ATON plan requires the river to be closed to all boating traffic, private security staff or law enforcement officers will look for river traffic approaching the Skinners Falls Bridge and warn boaters not to approach the bridge. If private security firm staff encounter boat traffic attempting to approach the bridge when the river is closed, they will contact the State Police.

The timeframe to pull each span from the river or causeway is anticipated to be up to 4 weeks. During this time security will be provided by the contractor for non-active construction duration.

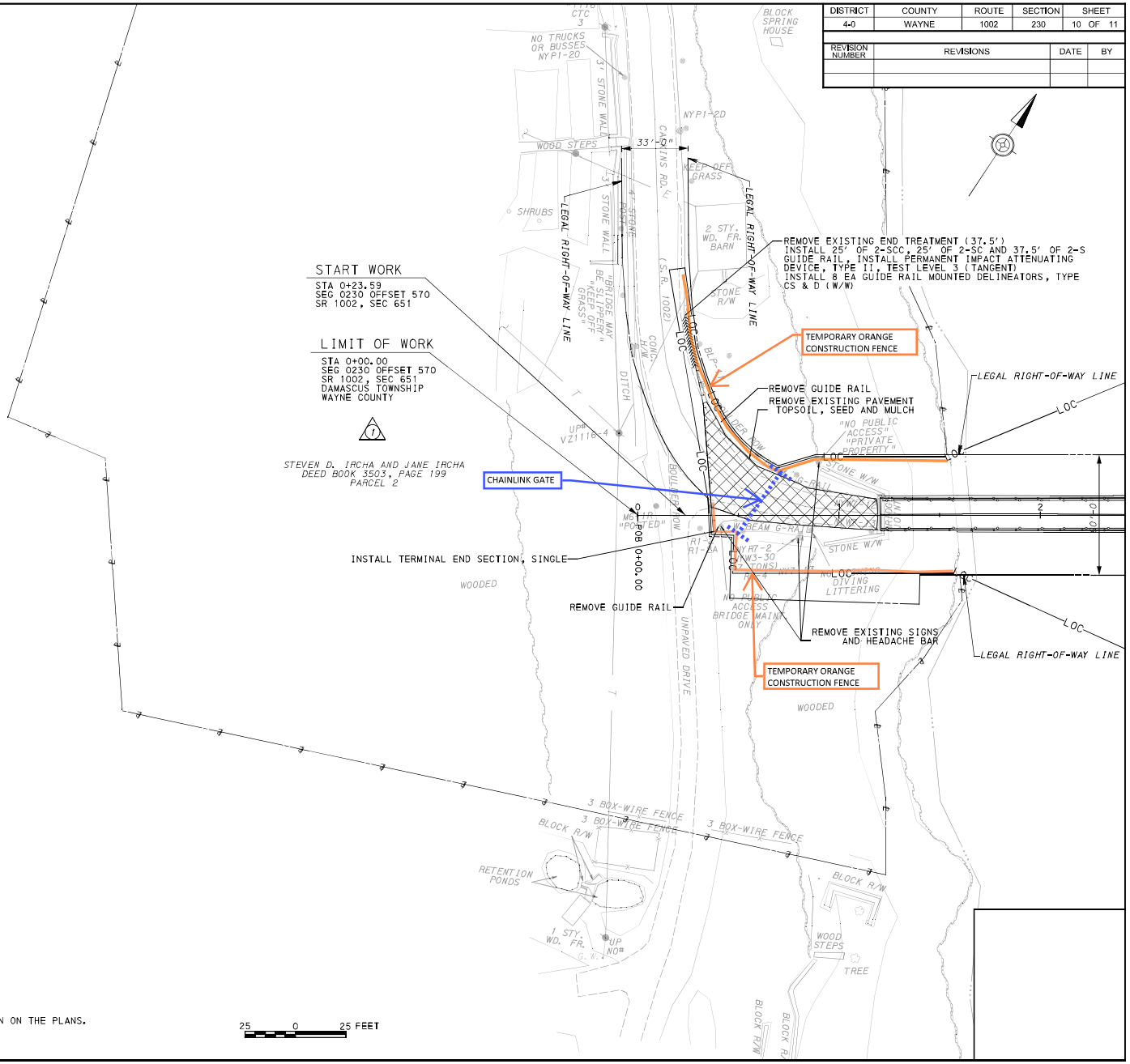
It should be noted that PennDOT has discussed with the contractor to work 24/7 as feasible as possible.

Orange fencing will be installed along the perimeter of the construction site, see plan.
The perimeter of the construction site will be signed as "ACTIVE CONSTRUCTION ZONE KEEP OUT".

***TEMPORARY ORANGE CONSTRUCTION FENCE IS TO BE PLACED ON INSIDE OF LIMIT OF CONSTRUCTION (LOC)**

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	10 OF 11

REVISION NUMBER	REVISIONS	DATE	BY



NOT FOR CONSTRUCTION

NOTES:

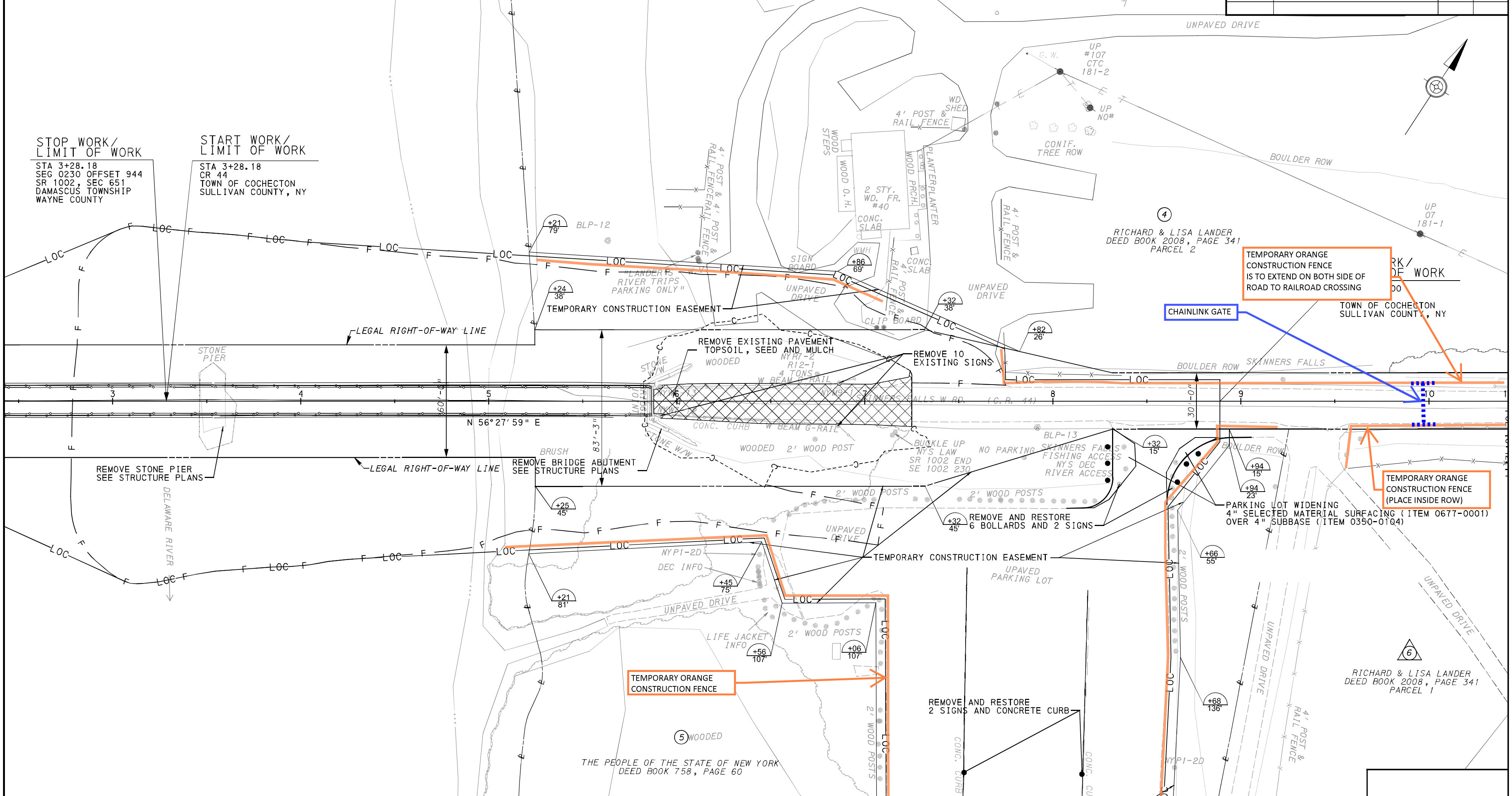
1. CONFINE ALL STAGING, STOCKPILING, CONSTRUCTION AND OTHER ASSOCIATED ACTIVITIES AND EQUIPMENT WITHIN THE LIMIT OF CONSTRUCTION (LOC) AS SHOWN ON THE PLANS.
2. SEE STRUCTURE PLANS FOR PENNSYLVANIA ABUTMENT REPAIR AND CAPPING.

STIMES SDATES SFILES SUSSERS AECOM

***TEMPORARY ORANGE CONSTRUCTION FENCE IS TO BE PLACED ON INSIDE OF LIMIT OF CONSTRUCTION (LOC)**

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	11 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY



STOP WORK/ LIMIT OF WORK
STA 3+28.18
SEG 0230 OFFSET 944
SR 1002, SEC 651
DAMASCUS TOWNSHIP
WAYNE COUNTY
START WORK/ LIMIT OF WORK
STA 3+28.18
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY
1 STY. BLOCK BATHROOMS
CONC. SLABS
UNPAVED DRIVE
BOULDER ROW
CONIF. TREE ROW
2 STY. WD. FR. #40
RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 2
TEMPORARY ORANGE CONSTRUCTION FENCE IS TO EXTEND ON BOTH SIDE OF ROAD TO RAILROAD CROSSING
CHAINLINK GATE
TOWN OF COCHECTON
SULLIVAN COUNTY, NY
TEMPORARY CONSTRUCTION EASEMENT
LEGAL RIGHT-OF-WAY LINE
REMOVE EXISTING PAVEMENT
TOPSOIL, SEED AND MULCH
REMOVE 10 EXISTING SIGNS
STONE PIER
N 56°27′59″ E
REMOVE STONE PIER
SEE STRUCTURE PLANS
REMOVE BRIDGE ABUTMENT
SEE STRUCTURE PLANS
DELAWARE RIVER
SKINNERS FALLS
NO PARKING
REMOVE AND RESTORE
6 BOLLARDS AND 2 SIGNS
TEMPORARY ORANGE CONSTRUCTION FENCE (PLACE INSIDE ROW)
PARKING LOT WIDENING
4" SELECTED MATERIAL SURFACING (ITEM 0677-0001)
OVER 4" SUBBASE (ITEM 0350-0104)
UPAVED PARKING LOT
UNPAVED DRIVE
LIFE JACKET INFO
TEMPORARY ORANGE CONSTRUCTION FENCE
REMOVE AND RESTORE
2 SIGNS AND CONCRETE CURB
RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 1
THE PEOPLE OF THE STATE OF NEW YORK
DEED BOOK 758, PAGE 60
LOC

NOT FOR CONSTRUCTION

25 0 25 FEET

NOTES:

1. CONFINE ALL STAGING, STOCKPILING, CONSTRUCTION AND OTHER ASSOCIATED ACTIVITIES AND EQUIPMENT WITHIN THE LIMIT OF CONSTRUCTION (LOC) AS SHOWN ON THE PLANS.
2. SEE E&S PLANS FOR NEW YORK APPROACH GRADING AND ABUTMENT REMOVAL.

BLASTING CONTROL AND MONITORING

DESCRIPTION - This work is the use of blasting methods for various demolition purposes. Blasting will only be permitted for demolition of the existing superstructure. Blasting will not be permitted for demolition of the existing substructure or excavation. See special provision titled PRE-BLAST AND POST-BLAST SURVEY for survey requirements.

MATERIAL -

Portable seismograph, three-component, as approved.

A. Electric initiating devices are prohibited in the conditions referenced in OSHA 1926.906(a) and (r).

B. Post and maintain all current licenses required for blasting and explosive handling. A qualified blaster licensed in the Commonwealth of Pennsylvania and New York State must perform all blasting. The Blaster must have 3 years minimum experience in the explosive demolition of reinforced concrete and steel structures. Provide a professional resume and a list of 5 successfully completed projects for the review and approval by the Department.

C. Provide a Certificate of Insurance showing that the blasting Contractor carries the required insurance to the limits to meet all local, State, and Federal regulations.

CONSTRUCTION -

General.

A. Conduct all blasting, explosive handling, and monitoring operations in accordance with the latest Occupational Safety and Health Act (OSHA) standards, 29 CFR Parts 1926.900 through 1926.914 and Pennsylvania Code, Title 25 Environmental Resources, Article IV - Chapter 77, Chapter 210 and Chapter 211 and in compliance with all local requirements. Also conduct blasting in compliance with all relevant and pertinent Federal, State and local ordinances and regulations. Maintain a copy of these standards on site and make available to any inspector upon request.

B. Obtain any and all permits from utility companies, and Federal, State and local authorities or agencies.

Notification of Scheduled Work.

A. Perform blasting surveys in accordance with special provision titled PRE-BLAST AND POST BLAST SURVEY. No blasting is to occur until pre-blast surveys have been performed and reports accepted by the Department.

B. Obtain a list and notify utility owners having structures or other installations (if any) above or below ground within one-thousand-five hundred (1,500) feet of the blasting operation. Such notice must be given a minimum of seven (7) days in advance of blasting, to enable the utility owners to take such steps as deemed necessary to protect their property from damage.

C. Before blasting adjacent to or in the vicinity of existing roads, utilities, power lines, railroad or dam structures, secure special permits and/or agreements from the official having jurisdiction thereover and submit a copy to the Representative for information at least seven (7) working days prior to the commencement of blasting operations near such facilities. In addition, the railroads require up to forty-five (45) days to review all blasting submissions. Up to an additional thirty (30) days will be required to review any subsequent submissions returned not approved. Submissions regarding blasting shall include, but not be limited to, the maximum anticipated peak particle velocity for the proposed blasting (vibration, debris, etc.) and if necessary, provide details for any proposed blast shielding for protecting railroad property. A plan which indicates the proposed location(s) for seismic monitoring equipment shall also be provided. The blasting submission must be in accordance with the project specific construction requirements, railroad construction submission criteria and railroad special provisions. In addition, the

blasting submission must be approved in writing by the railroads prior to any blasting with the potential to impact the railroads.

D. A minimum of seven (7) days prior to the commencement of blasting operations and on the day of blasting, obtain a list and notify the National Park Service and all residents within 1,500 feet of blasting operations.

Notify the National Park Service and these residents that blasting signals will be used to warn of blasting.

Test Blasting.

A. Design and conduct a test blasting program with the objective of demonstrating the adequacy of the proposed blast plan. Determine the type and weight of charge, location, spacing and delays, etc., which are commensurate with the peak allowable particle velocity and sound level.

B. At least two (2) weeks prior to the anticipated blasting operations, or at any time a change in the blasting method is proposed, arrange a meeting with the Representative and the licensed blaster to discuss the blasting operation. One (1) week prior to the meeting, submit a general control blasting plan and a DEP approved blasting plan to the Representative for review.

C. The general control blasting plan should include, as a minimum, details found in "Production Blasting, Section F, 1-10".

D. Upon completion of test blasting, expose the test area for the Representative to examine and evaluate the results. The Contractor should use this information to determine the spacing and cartridge strength to be used for the full-scale blasting operations.

E. The Representative's acceptance or approval of the testing blasting program and techniques and procedures associated with the test blasting program or production blasting will not relieve the Contractor of any responsibilities to employ appropriate safety measures, and exercise proper supervision of blasting operations. The Contractor is solely responsible for damage or injury to persons, property, or utilities as a result of the use of explosives. Perform all necessary repairs in a satisfactory manner, to roadway, structures, dwellings, utilities, or any property damage as a result of blasting, at no cost to the Department.

F. Maintain the peak particle velocity below two (2) inches per second. Do not generate a particle velocity which results in damage to any person, property, structure, or utility. Measure particle velocities in three (3), mutually perpendicular directions (longitudinal, transverse, and vertical). Maintain sound level below 129 dB. Monitor and document sound levels at the nearest structures.

G. For existing utilities, monitor particle velocities at the utility in a location nearest to the blast.

H. After each test blast, review the particle velocities and sound levels documented. Make adjustments to the blasting procedures, modifying the equation W = (D \ 50)2, and conduct subsequent test blasts until the desired parameters are met and approved by the Representative. Establish the relationship of the scale distance concept with respect to peak particle velocity to control ground vibration. If any test blast results in damage or injury to property, person or utility, immediately cease all blasting activity until written permission to resume is received from the Department.

Production Blasting.

A. Blasting operations are not permitted during a holiday period or between sunset and sunrise.

B. No blasting will be permitted within fifty (50) feet of any structure, dwelling or utility; unless, through a Test Blast Procedure the Contractor can:

- At a scaled distance, less than forty (40): [SD = D/W^0.5]

- Maximum peak particle velocities DO NOT EXCEED TWO (2) IN/ SEC. Measured at four (4) locations or more; at nearby structures, utilities, dwellings, etc.
- Maximum airblast does not exceed limits given in table - see Section I.

C. Furnish and use sufficient approved mats or similar containment systems to prevent scattering of blast debris and subsequent damage. Protect structures within a 500-foot radius or immediately at the blast site. Perform all necessary repairs to roadway, dwellings, utilities, and any property damaged as a result of the blasting at no cost to the Department. Be liable for all injuries to or deaths of persons and/ or farm/ domestic animals and damage to property caused by blasts or explosives.

D. Determine the existence of and comply with any local laws and/or ordinances concerning blasting.

E. During blasting operations, all traffic must be stopped in accordance with Section 901 and as follows:

1. Coordinate with the Representative to arrange for temporary closure of roadways during blasts. During blasting operations for the roadway all traffic must be stopped when blasting adjacent to existing roadways. Traffic may be halted for periods not to exceed fifteen (15) minutes. Time duration between stoppages will be as required for existing traffic conditions. Generally, successive stoppages may occur only after traffic has returned to its normal flow following the preceding stage. Do not halt traffic during unsatisfactory weather conditions, as determined by the Representative.

2. Notify the Representative of intent to stop traffic at least forty-eight (48) hours in advance of the scheduled work and have sufficient personnel (flaggers and\or police) available during these periods. When traffic is stopped for blasting, monitor the traffic back-up. Provide a vehicle- mounted flashing warning light, one each direction, 350 feet in advance of the last vehicle as the length of the queue increases.

3. Furnish, erect, and maintain on all affected roadways, appropriate standard signing in advance of and through the area warning of "Blasting." Conform to the requirements of the Pennsylvania Department of Transportation for size, color, legend, location, and mounting of signs. Appropriate signing includes the following:

PENNDOT Designation	Legend	Location	Size
W22-1	Blasting Zone Ahead	2,000' – Advance	48" x 48"
W22-2	Turn Off 2-Way Radio	1,000' - Advance	42" x 36"
W22-3	End Blasting Zone	1,000' - Beyond	42" x 36"

*Payment for signs incidental to Item "Maintenance and Protection of Traffic During Construction"

4. Drive patrol vehicles, one each direction, through the project and post patrols up and down stream to ascertain that the site has been completely cleared before the blast is detonated.

5. As soon as advised by the blaster that the blast is complete, inspect the work area for any unsafe conditions. Only after this inspection is completed and any unsafe conditions are rectified can the blast debris begin to be cleared, as necessary. Have the patrol vehicles return through the site prior to opening the roadway to traffic.

6. Have all necessary equipment on standby prior to the blast in order to pull the Pennsylvania Truss (Span 1) from the river immediately following inspection of the work area, by the Blaster.

F. Submit to the Representative a site- specific blast plan for review a minimum of seventy- two (72) hours before blasting. This plan should include information found in the general control blasting plan, any changes made as a result of test blasting and any site- specific details. Do not begin production blasting

until the Representative has reviewed and approved the site- specific blasting plan. Include the following information in the blasting plan:

1. General Information

- Signature and license number of the licensed blaster responsible for the plan
- Company name
- Contract Number
- County
- Township
- Experience qualifications of the blasting Contractor with evidence of similar contracts carried out, including names and references

2. Dwellings and Structures

- Distance to nearest dwelling or structure, from the area where blasting is to occur
- Maximum peak particle velocity
- Maximum airblast

3. Utilities, Pipeline, Storage Facilities - Identify any of the following which are located within two- hundred (200) feet of the area where blasting is to occur. If any are within two hundred (200) feet, describe any precautionary measures that are to be taken.

- Disposal wells
- Gas or oil collection lines
- Petroleum or gas storage
- Water and sewage lines
- Municipal water storage
- Utilities
- Fluid transmission pipelines
- Gas or oil wells

4. Blast Loading Plan - Include the following information if applicable:

- Blast location pattern
- Maximum amount of explosives per delay interval
- Scale distance (maximum and minimum) SD = D/W^0.5
- Maximum number of delay intervals to be used
- Method of blast initiation
- Anticipated range (minimum and maximum) of Powder Factors or Energy factors to be utilized.

5. Public Notice of Blasting Schedule

- Include copy of blasting schedule, indicating day of the week and time of day.
- Describe the public alert and warning system.
- Provide a copy of the notarized proof-of-application of the blasting schedule that is published in a newspaper of general circulation in the Pennsylvania and New York localities of the area where blasting is to occur. Also describe public alert and warning system.
- Provide the names of residents, owners of dwellings or other structures, local governments, agencies, and public utilities that are located within one-thousand-five hundred (1,500) feet of the area where blasting is to occur, who received copies of the blasting schedule. (Note: These residents and agencies are to be sent a copy of the blasting schedule.)
- Submit a dated copy of the notice sent to residents and agencies, informing them of the blasting operations, pre- blast survey and estimated dates of surveys.

6. Pre-blast Survey - Conduct and distribute Pre-blast Surveys in accordance with Special Provision - PRE-BLAST AND POST-BLAST SURVEY.

7. Explosive Storage - If explosives are to be stored within the proposed permit area provide current magazine storage license numbers and submit a copy of approved plans if a Class A or Class B magazine is to be constructed. Cost for plan approvals is the responsibility of the Contractor.

8. Explosive Purchase - Supply permit numbers under which explosives are to be purchased.

9. Blasting Monitoring Plan - Include equipment to be used and locations of equipment.

10. Name and qualification of the independent seismographic monitoring company, and name and qualifications of the specific personnel responsible for the actual monitoring.

11. Special Conditions - Describe any site-specific conditions that apply to this blasting area; but not limited to the following:

- Any public building or school within 1,500 feet
- Active underground mines within 500 feet
- Abandoned underground mines within 500 feet
- Streams within 100 feet
- Landfills
- Historical structures
- Other

Describe any precautionary measures necessary for any site-specific conditions.

As per Chapter 211 of PA Code Title 25, do not blast within 800 feet of a highway or public roadway unless due precautionary measures are taken to safeguard the public. In these cases, submit your intended traffic control measures to the Representative, indicating your proposed method to protect the traveling public.

12. Revisions - Any and all changes to the original blast plan are to be described in a letter signed by a representative of the permittee and become part of the permit.

G. Airblast is not to exceed the maximum limits listed in the following table at the location of any dwelling, public building, school, church, community building, or institutional building:

Lower Frequency Limit of Measuring System in Hz (+ 3 dB)	Maximum Allowable Levels in dBL
0.1 Hz or Lower - flat response *	134 Peak
2.0 Hz or Lower - flat response	133 Peak
6.0 Hz or Lower - flat response	129 Peak

* Only when approved by the Representative

H. Maximum Peak Particle Velocities:

1. The maximum peak particle velocity is not to exceed two (2) inches per second in any of the three (3) measured components, measured in or at any adjacent existing structure or facility at 40 Hz or greater. The maximum velocity must be decreased for frequencies below 40 Hz or as necessary to avoid damage.

2. Peak particle velocity at structural concrete not to exceed the limits given in the following table dependent of the age of freshly placed concrete and powder charge per delay.

Concrete Age	Maximum Peak Particle Velocity (inches per second)
Less than three days	0.2
Between three and seven days	1.0
Over seven days	2.0

3. Calculate values of maximum powder charge per delay permissible using a scaled distance of forty (40) at specified intervals of distance between the point of detonation and all critical structures.

I. Prepare a record of each blast sequentially numbered to include annotated seismograph records and all information required by Chapter 211, Pennsylvania Code, Title 25 Rules and Regulations. Prepare seismograph analyses and noise level reports of each blast. Provide seismograph and blast records to the Representative with 24 hours following a given blast or prior to the next blast, whichever is sooner. Have field records of blasting activities available for inspection on the job site.

J. Provide a minimum of four (4) currently calibrated portable seismographs for each blast. Monitor and record peak particle velocity, frequency, air blast pressure, and sound level at the structures closest to the blasting operations. Monitor all directions (approximately north, south, east and west) around the blast area. Monitor and record at other structures as necessary to establish control boundaries in all directions from blasting operations.

K. Monitoring, recording, and interpreting of vibration are to be by approved personnel provided by the Contractor with oversight by the Department's representatives.

L. Any blasting that will occur within five- hundred (500) feet of an active utility subsurface line must be coordinated with the respective utility company. A minimum of seven (7) days' notice must be provided since, in some instances, the utility companies will require a representative to be on site at the time of the blast. In addition, any blast that will occur within five hundred (500) feet of a utility line must be monitored by a seismograph placed directly above the utility line at the closest point to the blast. The peak particle velocity measured at the utility line cannot exceed two (2) inches per second on any one of three (3) mutually perpendicular components of ground motion (transverse, vertical, or longitudinal). Also, the requirements set forth in Chapter 211, Pennsylvania Code, Title 25, must be followed. Provide to the Department a list of all utility and building owners within one-thousand-five hundred (1500) feet of the blast.

M. In the event that an emergency prevents a blast from being made within the permissible hours and the blast areas are loaded, set off the blast as soon as safety allows. In the event blasting is found necessary during restricted hours, inform the Department and local residents prior to firing. In addition, report in writing the following day to the Representative the conditions which required blasting during the restricted hours. Do not leave blasting materials in blast locations for extended periods of time.

N. Store explosives on the site only during the blasting hours specified in the preceding paragraph. Track all explosives to the site at the start of each work day from a magazine located remote from populated areas and return surplus explosives to the magazine at the close of each work day. Keep an accurate daily record and account for each piece of explosive, detonator and equipment from the time of delivery until used or removed from the site. In the event of loss or misplacement of blasting materials, immediately notify the Representative and local authorities having jurisdiction in such matters.

O. Provide an accurate topographic map showing the blast area. Denote physical site features such as roads, homes, and water courses as shown on a U.S.G.S. Quadrangle Topographic Map. Roadway centerline, station locations and the section boundaries need to be identified on this map. The map must be submitted to the Representative and approved before the start of blasting operations. Seismograph placement and its distance to/from the blast zone should be determined using the scale of the aforementioned map. A copy must be maintained in the field by the blaster and used in referencing blast locations with respect to the nearest structure.

P. The licensed blaster is responsible for blasting records as to accuracy, legibility and completeness.

Q. Post and maintain any and all licenses required for blasting and explosive handling.

Post Blast Survey.

Subsequent to the completion of blasting operations, conduct a post- blasting survey of the structures, dwellings, utilities, etc. Perform a post-blasting survey at all structures where a pre-blast survey was completed. Follow procedures described under "pre- blasting survey." The purpose of this survey is to document any damage or injury which may have resulted from the blasting activities. Conduct the survey in the presence of a representative of the Department, and a representative of the owner(s) of structures, dwellings, and utilities being surveyed. Submit the duly witnessed survey report to Department. Include in the report any diagrams or photographs of rooms or structures indicating size and location of cracks or separations in foundations, walls, ceilings, floors, etc.

MEASUREMENT AND PAYMENT -

All material, explosives, labor, tools and equipment needed for the blasting operation including monitoring and survey activities are incidental to Item 1018-0048 REMOVAL OF PORTION OF EXISTING BRIDGE, and will not be paid for separately.

PRE-BLAST AND POST-BLAST SURVEY

DESCRIPTION - This work consists of conducting pre- blast and post-blast surveys. Reports are to be prepared by a professional engineer, registered in the Commonwealth of Pennsylvania and New York State using PA form TR-42 or approved equal. A structural survey report is to be prepared for all residential and commercial structures which, wholly, or in part, lie within the specified limits, or as directed.

LIMITS - Conduct pre-blast surveys on all structures within 1500 feet of any blasting operations or that fall within the scaled distance of 40 as computed by the following equation:

SD = D \ W^0.5 SD = Scaled Distance, D = Actual distance, W = Maximum Charge Wt./Delay (lbs.)

If no structure lies within these limits, conduct a survey on the closest structure(s) in all directions (approximately north, south, east, and west) within 0.5 miles of the blasting operation. If no structure lies within 0.5 miles of blasting operations, at least one survey may be required as directed by the Department on the closest structure within one mile.

MATERIALS - Provide all materials and equipment necessary to perform the work.

CONSTRUCTION –

Submit to the Engineer a list of structures to be surveyed/inspected for approval. Conduct a pre-blast condition survey of existing structures with the Representative prior to the commencement of any blasting activity. Conduct survey under the direction of a Professional Engineer, registered in the Commonwealth of Pennsylvania.

Survey and inspect structures on approved list. Obtain permission from building structure owners and occupants for entry for the purposes of conducting the inspection and taking photos. Do not enter a building structure without prior written permission from the owner. Notify the Representative if access cannot be obtained. Furnish names and phone numbers to be contacted for information on problem resolution. Conduct public contact in a courteous and informative manner designed to emphasize the measures being taken for protection of the interests of all concerned.

Submit a report that summarizes pre- blast conditions of building structures and that identifies areas of concern. Include survey documentation of all visible exterior and interior surfaces above and below grade level. Indicate in detail (by engineering sketches, video tape, photographs, and/or notes) any structural, cosmetic, plumbing, and/or other distress condition. Identify structures and note all cracks, displacements, and structural deficiencies as to location, length, size, thickness, etc., in the report per sketch. Photograph the structures and indicate particular existing cracks or structural deficiencies. Include photographs of overall condition appearance of each structure. Document the conditions of appurtenances, such as pipes, cables, downspouts, water systems, transmission lines, etc. Include high resolution photographs, having camera generated date display, in digital photography format, in proper focus and exposure to properly determine subject matter. Include in the report descriptions of the contents of each photograph identifying the structure, description of deficiency, location in/on structure and date of photograph. Index the descriptions to the photograph number on the print. Provide in report for building structures to be inspected the structure description, street address or location, name and address of owner, and name of occupant if not owner occupied.

Submit an electronic copy of preconstruction condition survey report with photographs to the Representative for review and approval prior to blasting operations. Allow 2 weeks review period.

Perform post- blast survey of those structures which have previously been pre-surveyed, following the completion of the blasting activities. Prepare and submit reports as specified for pre-construction condition survey and report requirements.

MEASUREMENT AND PAYMENT – This work is included with Item 1018-0048 – REMOVAL OF PORTION OF EXISTING BRIDGE and will not be paid for separately.

U.S. Department of Transportation
Federal Highway Administration

Pennsylvania Division

30 North Third Street, Suite 700
Harrisburg, PA 17101-1720
Pennsylvania.FHWA@dot.gov
(717) 221-3461

January 8, 2025

Sze Wing Yu
Transportation Liaison
US Fish and Wildlife Service, Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801

RE: Skinners Falls Bridge Emergency Disassembly Project, USFWS Project # 2022-0090460, PNDI-828250, SIR

Dear Sze Wing:

Per our call Monday January 6, 2025, I would like to summarize the work done to date and proposed next steps as they relate to impacts to freshwater mussel resources including the potential presence of the federally and state listed Dwarf Wedgemussel (*Alasmidonta heterodon*) mussel species within the impact area of the subject emergency project.

Summary of Avoidance and Minimization Measures

1. The alternatives analysis conducted for the project evaluated a range of alternatives. Multiple alternatives were evaluated that would have used a causeway in the New York side of the river extending (depending on the specific alternative) either north or south of the bridge and west beyond the center pier. These "disassembly on partial width causeway alternatives" called for causeways that had a large aquatic footprint (greater than 1 acre) and would take a long time to build and to remove. The original duration of construction was estimated to be 5-9 months. This design would have certainly impacted mussel-host fish passage and likely had risks associated with scour and ponding. The disassembly on a partial width causeway also required the use of a large crawler crane or a combination of large crawler cranes to pick and remove the existing superstructure and relocate the spans either onto the causeway or floodplain. These alternatives, which include the use of cranes to remove the bridge structures and place them carefully down to be disassembled, included some risk of catastrophic failure during the crane picks. This level of failure would result in additional environmental impacts and serious safety hazards.

   The alternatives analysis also evaluated a full width causeway spanning the width of the Delaware River. This design included pipes installed within the causeway to allow the passage of normal flows. The estimated length of construction was estimated at 4-5 months. This alternative was dismissed due to permitting agency concerns regarding overall impacts.

2. The demolition on a partial width causeway provides the following significant improvements:
   a. A reduced construction duration from 4-5 months for the full causeway alternative, and 5-9 months from the disassembly alternative to just 3 months.
   b. A large reduction (a minimum of 41%) in causeway footprint and in-stream impact from the disassembly alternatives from approximately 54,450 - 63,086 square feet (depending on the alternative) to 38,700 ft^2 (3,595 m^2).
   c. A partial-width causeway that allows for fish passage and reduced risks of scour and flow impacts.

d. Removal of the existing pier and associated pier protection and timber footer, resulting in a net increase in overall mussel habitat and returning the stream to a more natural condition.
e. The location of the proposed causeway is located on the depositional side of the river and, unlike the full-width causeway, does not block the stream thalweg (area of highest river discharge) which reduces the risk of flow impacts by the causeway.
f. The location of the causeway includes an area of poor/marginal mussel habitat along the New York bank near shore that has a lower likelihood of supporting mussels, and this area also had relatively few mussels in the 2013 mussel survey. Although the causeway also impacts areas of higher mussel concentrations, it is balanced by these areas of poor/marginal habitat (see Figures 1a, 1b and 1c).

PennDOT and FHWA are of the opinion that this project could be considered as a "may affect, but not likely to adversely affect" thanks to these avoidance, minimization, and site restoration measures. This was discussed during an inter-agency meeting on 1/6/2025 and we will continue to discuss this approach with the US Fish and Wildlife Service. In addition to the previously mentioned improvements to the project design, PennDOT and FHWA have committed to the following additional environmental commitments:

1. Payment into the PA Mussel Conservation Fund to offset impacts to general mussel resources in the area, even though no federal species are known from the site at this time.
2. Environmental Commitment monitoring of critical in-water activities including regular visits by a qualified individual during project kickoff, causeway construction / removal.
3. The contractor will utilize specific environmental commitment measures including active sonar, bathymetry survey or other appropriate method to assist with the removal and re-grading of underwater materials.
4. An underwater habitat inspection of the site prior to contractor demobilization to ensure causeway and bridge materials have been effectively removed and the site restored to natural grades.
5. Post-construction Monitoring
    a. Mussel Surveys: Because the existing structure is not safe to work under or adjacent to, no pre-construction mussel surveys will be performed as part of this project. However, PennDOT and FHWA have committed to performing a mussel survey post construction of similar scope to the 2013 survey to determine:
        i. Presence of listed species
        ii. Effects of the project on mussel resources and habitat (comparison to 2013 survey)
    b. Habitat Monitoring: Re-survey of four or more in-stream and near-stream cross sections post construction (2 events) to evaluate the project's long term habitat effects (including pier removal) on the Delaware River (Figure 2).

Next Steps:

1. FHWA and PennDOT will move forward with the emergency project under the guidance of USFWS's 12/20/2024 email correspondence and implement the conservation, avoidance, minimization measures and mitigation (mussel conservation fund) listed above.
2. FHWA and PennDOT will continue to discuss with USFWS and agency stakeholders the proposed approach to confirm that, with the changes to project design and proposed minimization/conservation measures, the project does not represent a take of federally listed mussels.
3. The FHWA and PennDOT will carefully document and monitor the effects of the project on threatened and endangered species and their habitats and implement the proposed conservation, avoidance, and mitigation measures. At the end of the project or if any new information becomes

available, the FHWA and PennDOT will provide the US Fish and Wildlife Service with a recommendation for a species' effect determination for USFWS review.

4. If a federal listed species is detected or becomes listed during construction or the post-construction mussel survey, then FHWA / PennDOT will initiate informal and potentially formal consultation depending on the location of the listed species relative to the project.
5. Similarly, coordination with the NPS, PADEP, PFBC, and NPS is anticipated to be ongoing.
6. Ongoing coordination will occur regarding potential impacts to mussels and mussel habitat with the NYDEC as part of the permit application required by that agency when their emergency authorization expires.

Should you have any questions or require additional information, please do not hesitate to contact me at (717)-221-3701 or via email benjamin.harvey@dot.gov .

Sincerely,

Benjamin Harvey
Environmental Protection Specialist

Attachments

Attachment 1: Figures
Attachment 2: Email correspondence from USFWS dated December 20, 2024

Attachment 1

Figure 1a. Project causeway location relative to marginal mussel habitat (yellow).

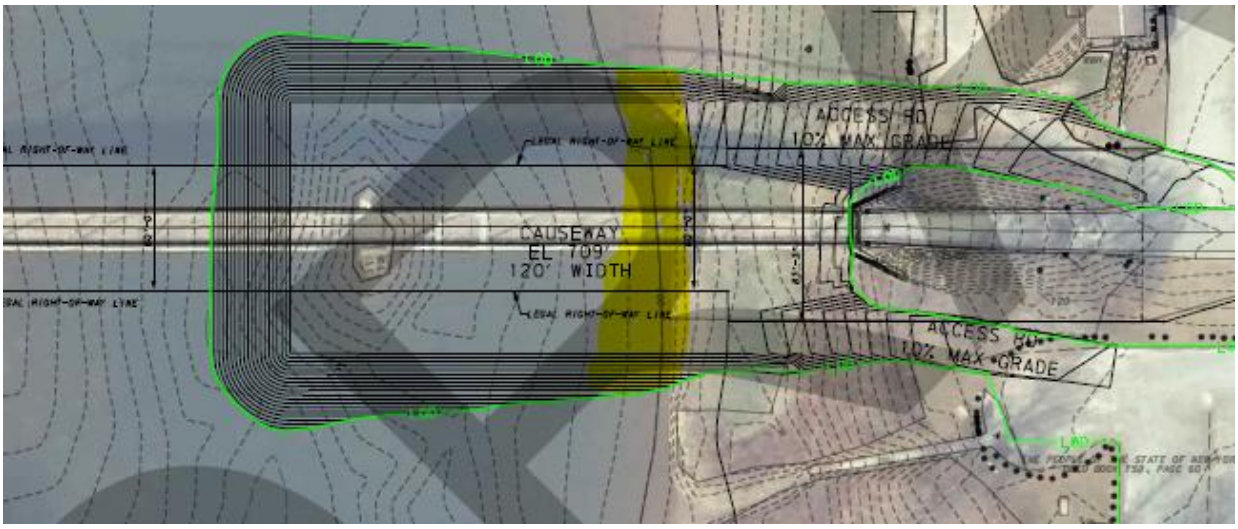


Figure 1b. Drone view of project causeway location relative to marginal mussel habitat (yellow).

Figure 1c. Causeway approximate location relative to 2013 mussel resources including areas of quality and marginal mussel habitat.

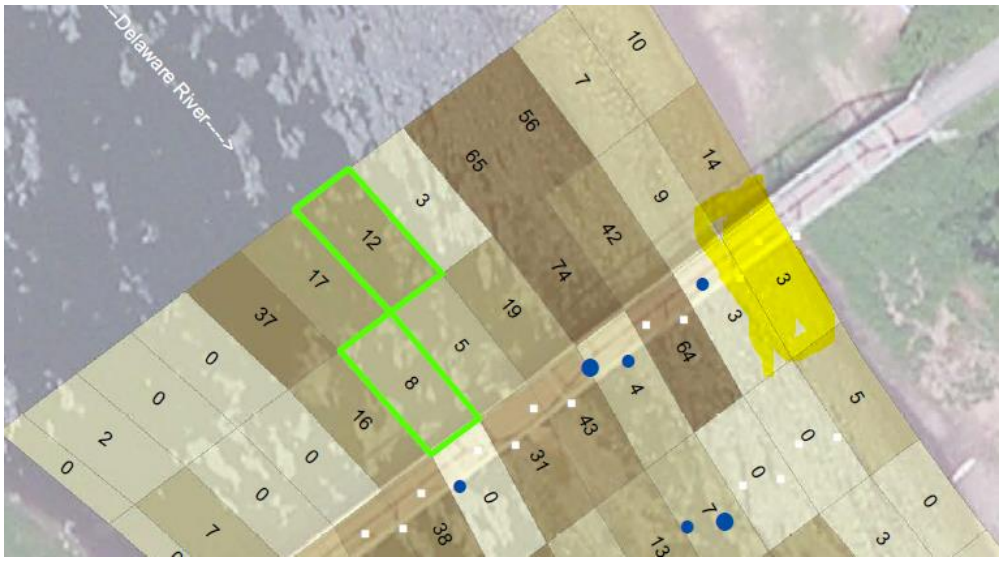


Figure 2. Established stream cross sections (8 – 14) near project proposed for post-construction monitoring as part of the environmental commitment monitoring.

Attachment 2

From: Barber, Melanie (FHWA)
To: Harvey, Benjamin (FHWA); Crobak, Jennifer (FHWA)
Cc: Goddard, Michelle (FHWA)
Subject: FW: Skinners Falls Emergency UFWS Response
Date: Friday, December 20, 2024 11:50:32 AM

Good morning,

This notification was sent to me regarding Skinners Falls and Section 7 of the Endangered Species Act. I did not see your names on the recipient list so am forwarding to you as well.

Thank you!

Melanie Barber
Environmental Protection Specialist
USDOT | FHWA | Pennsylvania Division
30 North 3rd Street, Suite 700
Harrisburg, PA 17101

From: Yu, Sze Wing <szewing_yu@fws.gov>
Sent: Friday, December 20, 2024 11:47 AM
To: Barber, Melanie (FHWA) <melanie.barber@dot.gov>; Jesse Sabitsky <jesabitsky@pa.gov>; Ames, John A (Drew) <johname@pa.gov>; Ruhl, Bryon S <bruhl@pa.gov>; Weitknecht, Glenn R CIV USARMY CENAP (USA) <Glenn.R.Weitknecht@usace.army.mil>; Wittig, Steve <Steve.Wittig@aecom.com>; Goddard, Michelle (FHWA) <michelle.goddard@dot.gov>; Kearns, Thomas J <Thomas_Kearns@nps.gov>; jowisor@pa.gov; Drumm, Brian R (DEC) <brian.drumm@dec.ny.gov>; nikolas.p.tranchik@usace.army.mil; pkawash@pa.gov; brimattern@pa.gov; steve.cammisa@dot.ny.gov; Greg Zimmerman <gzimmerman@enviroscienceinc.com>
Cc: Barber, Amanda L <amanda_barber@fws.gov>; Anderson, Robert M <robert_m_anderson@fws.gov>; Mamuscia, Jodie <Jodie_Mamuscia@fws.gov>; Kagel, Jennifer <jennifer_kagel@fws.gov>
Subject: Skinners Falls Emergency UFWS Response

RE: USFWS Project # 2022-0090460

Skinners Falls Emergency Bridge Removal

Pennsylvania Department of Transportation, District 4-0

Dear Ms. Barber:

This email offers our assistance in helping the Federal Highway Administration (FHWA) comply with section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) for the Pennsylvania Department of Transportation (PennDOT) emergency removal of the Skinners Falls Bridge spanning Milanville, Pennsylvania and Skinners Falls, New York.

During any emergency situation, our primary objective is to provide recommendations for minimizing adverse effects to listed species without impeding response efforts. During emergency events, *protecting human life and property should come first every time*. Consequently, no constraints for the protection of listed species or their critical habitat will be recommended if they place human lives or structures (e.g., houses) in danger.

The project area is within the range of the dwarf wedgemussel (*Alasmidonta heterodon*), a freshwater mussel species federally-listed as endangered. The dwarf wedgemussel lives on muddy sand, sand, and gravel bottoms in areas of slow to moderate current and little silt deposition in creeks and rivers (Federal Register Vol. 55, No. 50, p.9447-9448). The dwarf wedgemussel is commonly associated with the eastern elliptio (*Elliptio complanata*) and triangle floater (*Alasmidonta undulata*), and other co-occurring mussels including the creeper (*Strophitus undulatus*) (Federal Register Vol. 55, No. 50, p.9448). In the Delaware River, the dwarf wedgemussel has been documented to occur in flow refugia where they can survive lower flow velocity and shear stess, along with cold groundwater upwelling to protect against low-flow events during the summer months (Briggs et al. 2013).

In 2013, PennDOT contracted EnviroScience, Inc. to conduct a freshwater mussel survey for the proposed rehabilitation of this bridge. The survey found a total of 1,493 living mussels, mostly of eastern elliptio with some creeper and alewife floater (*Anodonta implicata*). The survey did not find living or dead shells of the dwarf wedgemussel.

However, an updated mussel survey has not been done since then. In a meeting about this emergency project of November 4, 2024, EnviroScience, Inc. stated that the survey area had a variety of habitats, including slow and vegetated areas.

PennDOT has facilitated multiple resource agency meetings about this proposed removal of the Skinners Falls Bridge since November 4, 2024. During these discussions, we have shared feedback on the proposed alternatives, all of which included rock causeways in the Delaware River to facilitate a large crane and placement of the bridge trusses. PennDOT has not provided a final proposed alternative. Therefore, we provide the following comments for avoiding, minimizing, and mitigating impacts to the dwarf wedgemussel as PennDOT continues to refine their design and implement the project:

- Minimize the footprint of the causeway to reduce the amount of mussel crushing and impacts to streambed habitat, including indirect impacts upstream and downstream of the structure;

- Consider designs such as a bridged causeway, which PennDOT District 1-0 has implemented for projects such as the Hunter Station Bridge Replacement, West Hickory Bridge Replacement, and Carlton Bridge Replacement, to minimize freshwater mussel impacts;

- Design the project to minimize upstream sedimentation and pooling resulting from the damming effect of a causeway, as these effects would suffocate mussels with sediment and reduce oxygenated flow;

- Design the project to minimize downstream scour resulting from causeway overtopping, crosspipes constricting water flow, and a narrowed channel, as these effects would dislodge and kill mussels and damage streambed habitat;

- Minimize degradation of water quality by adhering to erosion and sedimentation control measures;
- Notify the Service if a spill, overtopping of the causeway, or other unplanned events occur that may result in additional upstream and/or downstream harm and mortality of mussels so that these events may be documented;
- Collect intact shell(s) or freshly dead specimens to aid in assessing the existing mussel community;

- Restore the streambed to preexisting conditions, including removal of all

construction material and debris, repair of areas of sedimentation and scour, and restoration and revegetation of streambanks using native species;

- Conduct post-construction monitoring of the mussel community, water quality, and streambed habitat to document the effects of the project and assess contributions to the Mussel Conservation Fund to offset impacts;

- Document how our recommendations are (or are not) implemented, and the results of implementation in minimizing impacts to the species.

If FHWA determines that incidental take of the dwarf wedgemussel or any other listed species has occurred as a result of this project, please initiate formal consultation under Section 7 of the ESA. We will provide an incidental take statement for your emergency actions in a biological opinion developed at a later date. Because the incidental take statement is after-the-fact, reasonable and prudent measures are not included in the biological opinion. However, the biological opinion will contain an evaluation of whether and how our recommendations were incorporated during the emergency. It is important to note that "take" resulting from the emergency itself is not attributable to the Federal action agency.

If FHWA determines that incidental take of the dwarf wedgemussel or any other listed species did not occur as a result of this project, then no further action is required under the ESA.

In addition to the above comments for the ESA, we provide the following advisory recommendations under the authority of the Fish and Wildlife Coordination Act of 1934 (48 Stat. 401, as amended; 16 U.S.C. 661 et seq., as amended):

- Design the causeway to allow for migratory fish passage (American eel, shad species, alewife, and striped bass) by not spanning the entire width of the river;
    - Consider contributions to the Mussel Conservation Fund to offset impacts to mussel species that are not federally-listed, since the project will crush the potentially thousands of existing mussels within the causeway footprint and kill or harm mussels upstream and downstream via sedimentation and scour. Freshwater mussels improve water quality by water filtration, and the existing mussel community clears several hundred thousand liters per hour (estimated based on the eastern elliptio's clearance rate of 2.85 L/h, Kreeger et al. 2018). This ecosystem service would be lost and reduced until the community returns, if

it is able to following streambed restoration. The crushing of thousands of mussels would also degrade water quality as they decompose, reducing oxygen availability and increasing ammonia levels for some time after project completion.

Finally, we provide the following guidance under the authority of the Bald and Golden Eagle Protection Act of 1940 (54 Stat. 250, as amended; 16 U.S.C. 668-668d):

- There is one known bald eagle nest approximately one mile upstream of the project area. We recommend that you use the Northeast Bald Eagle Project Screening Form (https://www.fws.gov/media/northeast-bald-eagle-project-screening-form) to assess potential impacts to bald eagles. For further guidance, please contact our regional bald eagle coordinator, Shaughn Galloway at shaughn_galloway@fws.gov.

We appreciate the opportunity to provide comments and recommendations for this project. If you have any questions, please contact Sze Wing Yu at szewing_yu@fws.gov or 814-206-7461.

Citations:

Briggs, M.A., Voytek, E.B., Day-Lewis, F.D., Rosenberry, D.O., and Lane, J.W. 2013. Understanding water column and streambed thermal refugia for endangered mussels in the Delaware River. Environ Sci Technol. 47(20): 11423-31.

Kreeger, D.A., Gatenby, C.M., and Bergstrom, P.W. 2018. Restoration potential of several native species of bivalve molluscs for water quality improvement in Mid-Atlantic watersheds. J Shellfish Res. 37(5): 1121-1157.

Sincerely,

Sze Wing Yu (she/her; pronounced "C-Wing")
Transportation Liaison
U.S. Fish & Wildlife Service

Pennsylvania Field Office

p: 814-206-7461
110 Radnor Rd; Suite 101
State College, PA 16801
www.fws.gov/northeast/pafo/index.html

DISTRICT	COUNTY	TOWNSHIP	BOROUGH	ROUTE	SECTION	TOTAL SHEETS
4-0	WAYNE	DAMASCUS	-	1002	230	11
	SULLIVAN, NY	COCHECTON	-	CR 44	-	

SR 1002 PREVIOUSLY KNOWN AS LR 63027 SPUR A

ECMS No. 122260

ALSO INCLUDED:

EROSION AND SEDIMENT POLLUTION CONTROL PLAN	11 SHEETS
STRUCTURE PLANS	6 SHEETS

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF TRANSPORTATION

DRAWINGS
FOR
CONSTRUCTION
OF

STATE ROUTE 1002 SECTION 230

IN WAYNE COUNTY (PENNSYLVANIA)

FROM STA 0+00.00 TO STA 3+28.18 LENGTH 328.18 FT 0.062 MI

FROM SEG 0230 OFFSET 0570 TO SEG 0230 OFFSET 0944

AND

COUNTY ROUTE 44

IN SULLIVAN COUNTY (NEW YORK)

FROM STA 3+28.18 TO STA 14+00.00 LENGTH 1071.82 FT 0.203 MI

TOTAL LENGTH 1400.00 FT 0.265 MI

PREPARED BY:
AECOM TECHNICAL SERVICES, INC.
625 WEST RIDGE PIKE, SUITE E-100
CONSHOHOCKEN, PA 19248

PROFESSIONAL ENGINEER

DATE

RECOMMENDED DATE: _____

DISTRICT EXECUTIVE

RECOMMENDED DATE: _____

DEPUTY SECRETARY

APPROVED DATE: _____

SECRETARY OF TRANSPORTATION
(ON BEHALF OF THE GOVERNOR
AS WELL AS THE SECRETARY)

DESIGN DESIGNATION, SR 1002

HIGHWAY CLASSIFICATION	- LOCAL, RURAL
DESIGN SPEED	- 25 M.P.H.
PAVEMENT WIDTH	- 22 FT
SHOULDER WIDTH	- 0 FT

TRAFFIC DATA, SR 1002

CURRENT A.D.T.	- 323 (2019 PRIOR TO CLOSURE)
DESIGN YEAR A.D.T.	- N/A
D.H.V.	- 29 (9%)
D	- 57%
T	- 4%

SCALE

HORIZONTAL 0 25 50 FEET

$DATES $TIMES $FILES $USERS AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	2 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

START WORK
STA 0+23.59
SEG 0230 OFFSET 570
SR 1002, SEC 230

LIMIT OF WORK
STA 0+00.00
SEG 0230 OFFSET 570
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY

STOP WORK/
LIMIT OF WORK
STA 3+28.18
SEG 0230 OFFSET 944
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY

START WORK/
LIMIT OF WORK
STA 3+28.18
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

STOP WORK
STA 8+89.00
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

LIMIT OF WORK
STA 14+00.00
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

POB 0+00.00

N 56° 27' 59" E

DELAWARE RIVER

1 STEVEN D. IRCHA AND JANE IRCHA
DEED BOOK 3503, PAGE 199
PARCEL 2

2 STEVEN D. IRCHA AND JANE IRCHA
DEED BOOK 3503, PAGE 199
PARCEL 1

3 JULIUS AND SUSAN PUCHAMMER
DEED BOOK 329, PAGE 501

4 RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 2

5 THE PEOPLE OF THE STATE OF NEW YORK
DEED BOOK 758, PAGE 60

6 RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 1

10

11

LEGEND

	PLAN VIEW SHEET NUMBER
	SHEET LIMITS
	PARCEL IDENTIFICATION NUMBER
	PARCEL IDENTIFICATION NUMBER - NO TAKE

SHEET INDEX

INDEX MAP

SCALE

0 25 50

$TIMES
$DATES
$FILES
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	3 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

THE LEGAL RIGHT-OF-WAY ON SR 1002, FORMERLY LR 63027 SPUR A, FROM STATION 0+00 TO STATION 0+35 IS THIRTY-THREE (33) FEET BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

THE LEGAL RIGHT-OF-WAY ON SR 1002, FORMERLY LR 63027 SPUR A, FROM STATION 0+35 TO STATION 1+40 IS VARIABLE IN WIDTH FEET BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

THE LEGAL RIGHT-OF-WAY ON SR 1002, FORMERLY LR 63027 SPUR A, FROM STATION 1+40 TO STATION 5+24 IS SIXTY (60) FEET BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

THE LEGAL RIGHT-OF-WAY ON CR 44 FROM STATION 5+24 TO STATION 7+32 IS EIGHTY-THREE (83) FEET AND THREE (3) INCHES BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

THE LEGAL RIGHT-OF-WAY ON CR 44 FROM STATION 7+32 TO STATION 8+32 IS VARIABLE IN WIDTH FEET BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

THE LEGAL RIGHT-OF-WAY ON CR 44 FROM STATION 8+32 TO STATION 10+43 IS THIRTY (30) FEET BASED ON THE INTERSTATE BRIDGE COMMISSION LOCATION MAP SHOWING LANDS & BUILDINGS IN PENNSYLVANIA OWNED & OCCUPIED BY THE MILANVILLE BRIDGE CO. SIGNED BY THE SECRETARY ON JULY 13, 1922.

SR 1002 PREVIOUSLY KNOWN AS LR 63027 SPUR A.

THE SURVEY IS BASED ON THE NATIONAL GEODETIC REFERENCE SYSTEM (FORMERLY USC & GS).

THE HORIZONTAL CONTROL IS TIED TO THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM (NORTH ZONE), NORTH AMERICAN DATUM (NAD)1983 (2011).

VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

PROJECT COMBINED FACTOR = 0.999936815.

ALL MEASUREMENTS ARE IN US SURVEY FEET.

TEMPORARY CONSTRUCTION EASEMENT. AN EASEMENT TO USE THE LAND AS NECESSARY DURING CONSTRUCTION OF THE PROJECT. THE EASEMENT IS REQUIRED ONLY UNTIL THE CONSTRUCTION OR WORK INDICATED BY THE PLAN IS COMPLETED, UNLESS SOONER RELINQUISHED IN WRITING BY THE DEPARTMENT.

THE DEPARTMENT DOES NOT GUARANTEE THE ACCURACY OF THE LOCATIONS OF THE EXISTING ABOVE GROUND AND SUBSURFACE UTILITY STRUCTURES SHOWN ON THE PLANS, NOR DOES THE DEPARTMENT GUARANTEE THAT ALL ABOVE GROUND AND SUBSURFACE STRUCTURES ARE SHOWN.

EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE AND ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CORRECTNESS OF THE INFORMATION IS NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY THE INFORMATION AND SHALL TAKE ALL PRECAUTIONS TO FULLY PROTECT THE UTILITY AND SERVICE.

THREE TO TEN WORKING DAYS PRIOR TO EXCAVATION BASED ON THE COMPLEXITY OF THE PROJECT, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM INC, PHONE 1-800-242-1776, SERIAL NO. FOR DAMASCUS TOWNSHIP AND DIG SAFELY UDIG NY, PHONE 1-800-962-7962, TICKET NO FOR THE TOWN OF COCHECTON. ADDITIONAL INFORMATION IS AVAILABLE AT https://www.pa1call.org/PA811/Public/.

THE CONTRACTOR IS REQUIRED TO NOTIFY THE DEPARTMENT AND SUBMIT AN ALLEGED VIOLATION REPORT (AVR) TO THE PA PUBLIC UTILITY COMMISSION THROUGH THE PA ONE CALL SYSTEM, WWW.PA1CALL.ORG, WITHIN TEN (10) BUSINESS DAYS AFTER A UTILITY LINE IS STRUCK, DAMAGED, OR PREVIOUS DAMAGE IS DISCOVERED AS REQUIRED BY PENNSYLVANIA'S UNDERGROUND UTILITY LINE PROTECTION LAW ACT 50 (P.L.852, NO. 287 AMENDED OCT. 30, 2017).

ALL UTILITY COMPANY FACILITIES SHALL BE ADJUSTED OR ALTERED WHERE REQUIRED BY THEIR RESPECTIVE OWNER.

CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE WORK SITE.

THE DELAWARE RIVER IS A NAVIGABLE WATERWAY.

DETAILS, OTHER THAN THOSE INDICATED, ARE ON THE FOLLOWING STANDARD DRAWINGS:

BC-716M (11/23/22)
BC-736M (11/23/22)
RC-10M (06/01/10)
RC-11M (06/01/10)
RC-51M (09/01/23)
RC-54M (09/01/23)
RC-70M (02/08/19)
RC-71M (08/04/17)
RC-74M (02/08/19)
RC-75M (06/01/10)
RC-77M (12/17/19)

THIS IS A FEDERAL-AID PROJECT AND AS SUCH IS SUBJECT TO INSPECTION BY REPRESENTATIVES OF THE FEDERAL HIGHWAY ADMINISTRATION AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION.

TABULATION OF OVERALL LENGTH

LIMIT OF WORK STA 0+00.00 TO
LIMIT OF WORK STA 3+28.18 = 328.18 FT = 0.06 MI SR 1002

LIMIT OF WORK STA 3+28.18 TO
LIMIT OF WORK STA 14+00.00 = 1071.82 FT = 0.20 MI CR 44
1400.00 FT = 0.27 MI

TABULATION OF CONSTRUCTION LENGTH

STA 0+23.59 TO
STA 3+28.18 = 304.59 FT = 0.06 MI SR 1002

STA 3+28.18 TO
STA 8+89.00 = 560.82 FT = 0.11 MI CR 44
865.41 FT = 0.17 MI

TABULATION OF SEGMENT EQUALITIES

SR 1002 SEG 0230 OFFSET 0739 = STA 1+19.83
SR 1002 SEG 0230 OFFSET 1206 = STA 5+86.83

PUBLIC UTILITIES

LEGEND	UTILITY	ADDRESS	PHONE
—E—	PPL ELECTRIC UTILITIES CORP	600 LARCH STREET SCRANTON, PA 18509 ATTN: JUSTIN DAVIS	570-253-7049
—E— —G—	NEW YORK STATE ELECTRIC AND GAS	26 WIERK AVENUE LIBERTY, NY 12754 ATTN: JOHN SAUCHUK	845-292-2434 EXT. 323

PA ONE CALL PHONE: 1-800-242-1776
SERIAL NO.:

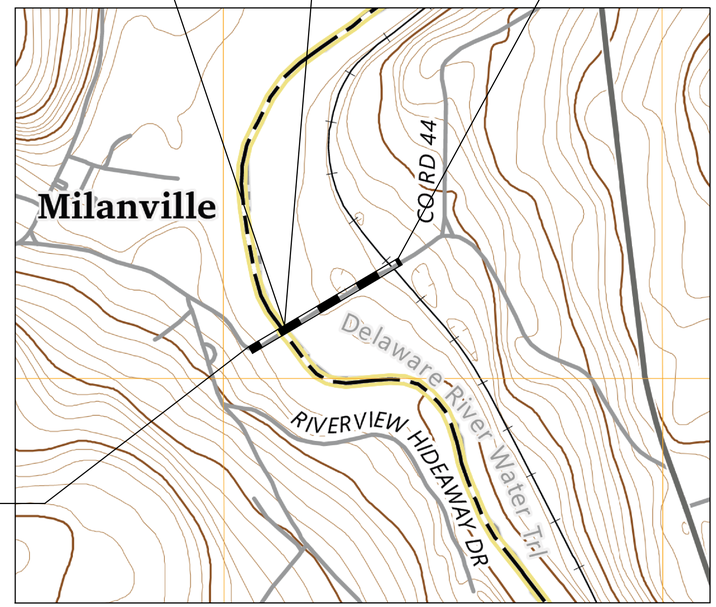
DIG SAFELY UDIG NY PHONE: 1-800-962-7962
TICKET NO.'s:

LIMIT OF WORK
STA 3+28.18
SEG 0230 OFFSET 944
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY

LIMIT OF WORK
STA 3+28.18
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

LIMIT OF WORK
STA 14+00.00
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

LIMIT OF WORK
STA 0+00.00
SEG 0230 OFFSET 570
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY



LOCATION MAP

NOT TO SCALE

LEGEND

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

EARTHWORK SUMMARY ENTIRE PROJECT

THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE AS A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS

CUBIC YARDS OF EXCAVATION						CUBIC YARDS OF COMPLETED EMBANKMENT	CUBIC YARDS OF BORROW EXCAVATION ROCK CLASS R-7*	CUBIC YARDS OF SELECT BORROW	CUBIC YARDS OF WASTE
CLASS 1†	CLASS 1A	CLASS 1B	CLASS 2††	CLASS 3	CLASS 4				
2159	---	---	615	---	---	---	15990	---	2774

† REMOVAL OF NY APPROACH ROADWAY
†† RESTORATION OF RIVER BOTTOM BELOW PIER
* CAUSEWAY AND ACCESS ROAD - INCIDENTAL TO ITEM 9000-0005

$TIMES
$DATES
$FILES
$USERS
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	4 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

BENCHMARK TABLE		ELEV.
BM 1	R.R. SPIKE FOUND IN UTILITY POLE# 1116/CTC/3, LOCATED AT THE END OF A 3' STONE WALL ±6' SOUTH OF SKINNERS FALLS RD PAVEMENT EDGE.	740.75'
BM 4	CHISELED "SQUARE" IN CONC. BASE of HEIGHT RESTRICTION SIGN "8'-6"" LOCATED ±50' SOUTH OF SKINNERS FALLS BRIDGE AND ±2' WEST OF SKINNERS FALLS RD.	737.43'
BM 5	R.R. SPIKE IN UTILITY POLE# 107/108-1 LOCATED ±75' NORTHWESTERLY OF SKINNERS FALLS RD PAVEMENT EDGE.	721.08'

SUMMARY OF TRAVERSE CONTROL POINT COORDINATES

BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM (NORTH ZONE), NORTH AMERICAN DATUM (NAD) 1983 (2011)

POINT NUMBER	COORDINATES NORTH	COORDINATES EAST	DESCRIPTION	CONSTR ℄ STA/OFFSET
TP-1	558954.0400	2703478.7710	REBAR	0+32/65' LT
TP-2	559264.8000	2703910.2380	REBAR	5+63/86' LT
TP-3	559214.3403	2703988.5974	REBAR	6+01/0' LT
TP-4	559160.5620	2704087.3232	REBAR	6+53/99' RT
TP-5	559308.0514	2704155.5765	REBAR	7+92/14' RT

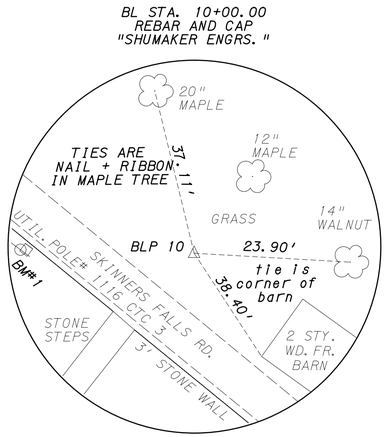
NOTE: FOUR (4) PLACE COORDINATES USED ARE FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY A PRECISION BEYOND TWO (2) PLACES.

SUMMARY OF PROJECT COORDINATES

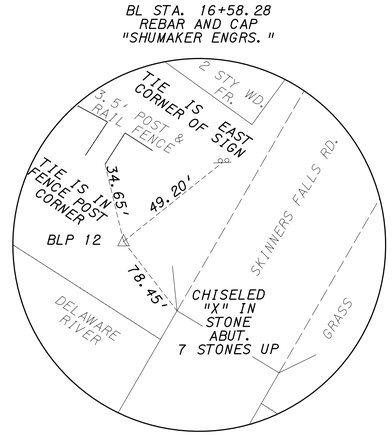
PLANE COORDINATE SYSTEM (NORTH ZONE) NORTH AMERICAN DATUM (NAD) 1983 (2011)

ROUTE	STATION	POINT	COORDINATES NORTH	COORDINATES EAST	BEARING
SR 1002 CONSTRUCTION ℄	0+00.00	POB	558882.3018	2703487.9246	N 56°27'59" E
	10+42.14	POE	559458.0087	2704356.6108	

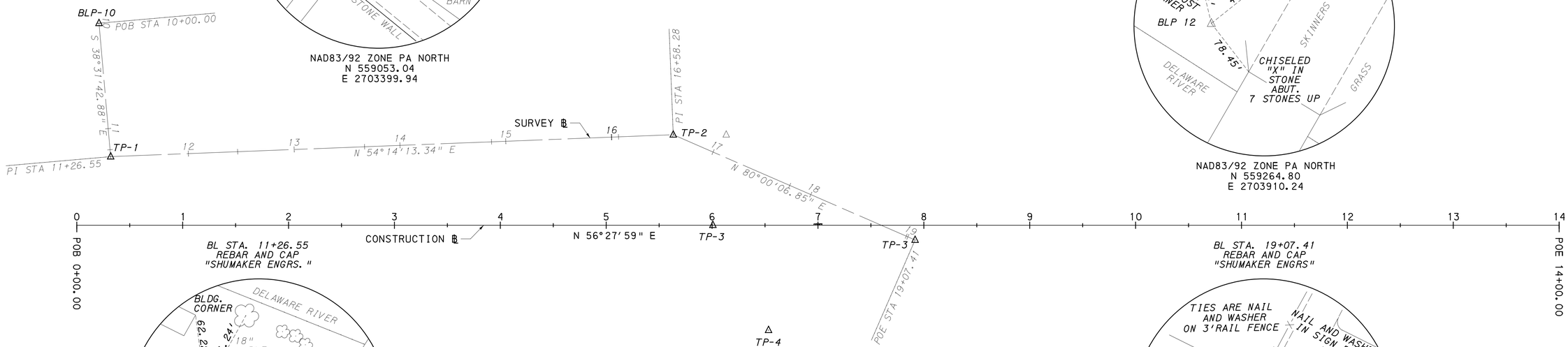
NOTE: FOUR (4) PLACE COORDINATES USED ARE FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY A PRECISION BEYOND TWO (2) PLACES.

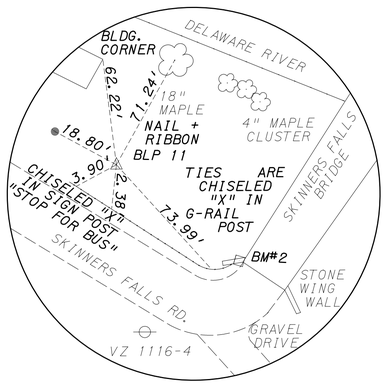


NAD83/92 ZONE PA NORTH
N 559053.04
E 2703399.94



NAD83/92 ZONE PA NORTH
N 559264.80
E 2703910.24





NAD 83/92 ZONE PA NORTH
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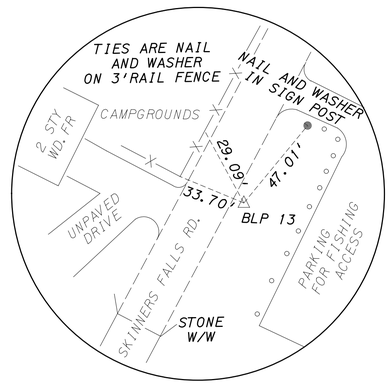
E 2703478.77



NAD83/92 ZONE PA NORTH
N 559308.05
E 2704155.58

GEOMETRIC DATA AND REFERENCE POINTS

SCALE

0 50 100

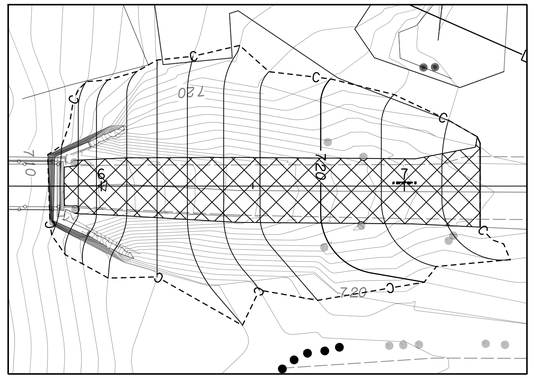
NOTES:

1. HORIZONTAL DATUM IS REFERENCED TO PENNSYLVANIA NORTH ZONE, NAD 83/2011.
2. VERTICAL DATUM IS REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988.

$TIMES
$DATES
$FILES
$USERS
AECOM

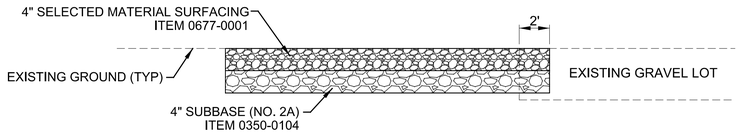
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	5 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY



PLAN

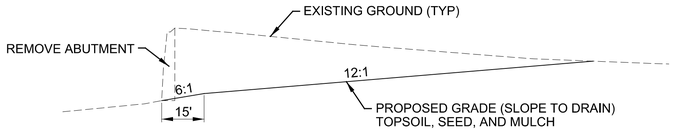
0 25 50 FEET



NYDEC PARKING LOT WIDENING

NOT TO SCALE

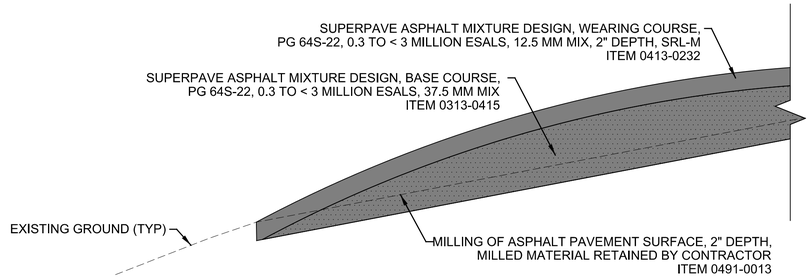
SEE CONSTRUCTION PLANS FOR LOCATIONS AND DIMENSIONS.



ELEVATION

NOT TO SCALE

NEW YORK (EAST) ABUTMENT REMOVAL



CR 44 TEMPORARY REPROFILING AT RAILROAD

NOT TO SCALE

NOTES:

1. LIMITS OF REPROFILING ON BOTH SIDES OF THE RAILROAD TO BE DETERMINED IN THE FIELD AS NEEDED FOR THE CONTRACTOR TO BRING IN NECESSARY VEHICLES AND EQUIPMENT.
2. USE NO. 2A SUBBASE AT EDGES OF TEMPORARY PAVEMENT TO ELIMINATE ANY DROPOFFS.
3. UPON COMPLETION OF PROJECT REMOVE TEMPORARY REPROFILING, MILL LIMITS, AND RESTORE TO EXISTING CONDITION USING WEARING COURSE (ITEM 0413-0232).

DETAILS

$TIME$
$DATE$
$FILE$
$USER$
AECOM

STR - S-XXXXX

SUMMARY

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				04	WAYNE	1002	230	6 OF 11

QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET

STR - S-XXXXX

SUMMARY

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				04	WAYNE	1002	230	7 OF 11

QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET	QUANTITY	ITEM NO / UNIT	DESCRIPTION	DESIGN NO	FOR TAB SEE SHEET

TABULATION OF QUANTITIES
ROADWAY

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				04	WAYNE	1002	230	8 OF 11
				DAMASCUS				

CLASS 1 EXCAVATION																											REMARKS	SIDE	
0203 0001 CY																											ITEM NUMBER UNIT		
																												TOTALS		

TABULATION OF QUANTITIES
EROSION AND SEDIMENT POLLUTION CONTROL

REVISION NO	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				04	WAYNE	1002	230	9 OF 11

COMPOST FILTER SOCK, 18" DIAMETER																											REMARKS	SIDE	
0867 0018 LF																											ITEM NUMBER UNIT		
																												TOTALS		

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	10 OF 11

REVISION NUMBER	REVISIONS	DATE	BY

BM-1, ELEV 740.75'
242.50 LT STA -0+13.44
SR 1002 CONSTR ℄
R.R. SPIKE FOUND IN
UTILITY POLE# 1116/CTC/3

BM-4, ELEV 737.43'
19.14 LT STA 0+77.62
SR 1002 CONSTR ℄
CHISELED SQUARE IN CONCRETE

START WORK
STA 0+23.59
SEG 0230 OFFSET 570
SR 1002, SEC 230

LIMIT OF WORK
STA 0+00.00
SEG 0230 OFFSET 570
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY

1

STEVEN D. IRCHA AND JANE IRCHA
DEED BOOK 3503, PAGE 199
PARCEL 2

REMOVE EXISTING END TREATMENT (37.5')
INSTALL 25' OF 2-SCC, 25' OF 2-SC AND 37.5' OF 2-S
GUIDE RAIL, INSTALL PERMANENT IMPACT ATTENUATING
DEVICE, TYPE II, TEST LEVEL 3 (TANGENT)
INSTALL 8 EA GUIDE RAIL MOUNTED DELINEATORS, TYPE
CS & D (W/W)

REMOVE GUIDE RAIL
REMOVE EXISTING PAVEMENT
TOPSOIL, SEED AND MULCH

INSTALL TERMINAL END SECTION, SINGLE

POB 0+00.00

REMOVE GUIDE RAIL

REMOVE EXISTING SIGNS
AND HEADACHE BAR

LEGAL RIGHT-OF-WAY LINE

SR 1002 CONSTRUCTION ℄

NOTES:

1. SEE STRUCTURE PLANS FOR PENNSYLVANIA ABUTMENT REPAIR AND CAPPING.

25 0 25 FEET

FOR CONTROL POINT SWING TIES, SEE SHEET 4

$DATES $TIMES
$FILES
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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REVISION NUMBER	REVISIONS	DATE	BY

STOP WORK/
LIMIT OF WORK

STA 3+28.18
SEG 0230 OFFSET 944
SR 1002, SEC 230
DAMASCUS TOWNSHIP
WAYNE COUNTY

START WORK/
LIMIT OF WORK

STA 3+28.18
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

BM-5, ELEV 721.08'
88.76 LT STA 9+95.72
SR 1002 CONSTR ℄
R.R. SPIKE IN UTILITY
POLE# 107/108-1

STOP WORK

STA 8+89.00
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

LIMIT OF WORK

STA 14+00.00
CR 44
TOWN OF COCHECTON
SULLIVAN COUNTY, NY

1 STY. BLOCK BATHROOMS
CONC. SLABS
UNPAVED DRIVE
G.W.
UP #107 CTC 181-2
UP NO#
WD SHED
4' POST & RAIL FENCE
CONIF. TREE ROW
BOULDER ROW
UP 07 181-1
WOOD STEPS
WOOD O.H.
2 STY. WD. FR. #40
WOOD PORCH
PLANTER
CONC. SLAB
4' POST & RAIL FENCE
4' POST & RAIL FENCE
(4)
RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 2
+21 79'
BLP-12
SIGN BOARD
"LANDER'S RIVER TRIPS PARKING ONLY"
W.V.
WMH +86 69'
CONC. SLAB
4' POST & RAIL FENCE
CLIP BOARD
+24 38'
UNPAVED DRIVE
+32 38'
UNPAVED DRIVE
+82 26'
TEMPORARY CONSTRUCTION EASEMENT
LEGAL RIGHT-OF-WAY LINE
STONE PIER
REMOVE EXISTING PAVEMENT TOPSOIL, SEED AND MULCH
WOODED
NYR-2
R12-1
4 TONS
W BEAM G-RAIL
REMOVE 10 EXISTING SIGNS
END PAVEMENT REMOVAL STA 7+25.00
BOULDER ROW
SKINNERS FALLS
SKINNERS FALLS W RD. (C.R. 44)
+32 15'
30'-0"
SR 1002 CONSTRUCTION ℄
3
4
5
6
7
8
9
10
60'-0"
N 56°27'59" E
83'-3"
STONE W/W
CONC. CURB
W BEAM G-RAIL
BRUSH
WOODED 2' WOOD POST
BUCKLE UP NYS LAW SR 1002 END SE 1002 230
NO PARKING SKINNERS FALLS FISHING ACCESS NYS DEC RIVER ACCESS
BLP-13
BOULDER ROW
+94 15'
+94 23'
REMOVE STONE PIER
SEE STRUCTURE PLANS
LEGAL RIGHT-OF-WAY LINE
REMOVE BRIDGE ABUTMENT
SEE STRUCTURE PLANS
REMOVE AND RESTORE 6 BOLLARDS
2' WOOD POSTS
+32 45'
2' WOOD POSTS
REMOVE AND RESTORE
6 BOLLARDS AND 2 SIGNS
PARKING LOT WIDENING
4" SELECTED MATERIAL SURFACING (ITEM 0677-0001)
OVER 4" SUBBASE NO. 2A (ITEM 0350-0104)
DELAWARE RIVER
+25 45'
UNPAVED DRIVE
NYP1-2D
DEC INFO
+45 75'
+21 81'
UNPAVED DRIVE
TEMPORARY CONSTRUCTION EASEMENT
+66 55'
2' WOOD POSTS
UPAVED PARKING LOT
LIFE JACKET INFO
+56 107'
2' WOOD POSTS
+06 107'
UNPAVED DRIVE
UNPAVED DRIVE
(6)
RICHARD & LISA LANDER
DEED BOOK 2008, PAGE 341
PARCEL 1
WOODED
(5)
THE PEOPLE OF THE STATE OF NEW YORK
DEED BOOK 758, PAGE 60
2' WOOD POSTS
REMOVE AND RESTORE
CONCRETE CURBS
CONC. CURB
CONC. CURB
NYP1-2D
4' POST & RAIL FENCE
+68 136'
TEMPORARY CONSTRUCTION EASEMENT
+62 257'
+06 235'
+38 255'
25 0 25 FEET

EXISTING STRUCTURE DATA

STA 3+53.50
TIMBER DECK STEEL THROUGH TRUSS
SPAN LENGTHS = 232'-0"
SKEW = 90°00'00"
CLEAR ROADWAY WIDTH = 13'-1"

NOTES:

1. SEE E&S PLANS FOR NEW YORK APPROACH GRADING AND ABUTMENT REMOVAL AND TEMPORARY RAILROAD CROSSING ADJUSTMENTS.

FOR CONTROL POINT SWING TIES, SEE SHEET 4

EROSION AND SEDIMENT CONTROL PLAN

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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CONSTRUCTION WASTES & WASTE DISPOSAL NOTES

REMOVE ALL BUILDING MATERIALS AND WASTES FROM THE SITE AND RECYCLE OR DISPOSE OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ. DO NOT BURN, BURY, DUMP OR DISCHARGE BUILDING MATERIALS AT THE SITE.

RECYCLING OR DISPOSAL OF MATERIALS

THE RECYCLING AND DISPOSAL OF MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS, COMPLY WITH AIR QUALITY, WATER QUALITY, AND SOLID WASTE MANAGEMENT POLICIES, ETC.

CONSTRUCTION WASTES MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

1. EXCESS SOIL MATERIALS.
2. TREES, SHRUBS, AND BRUSH REMOVED DURING CLEARING AND GRUBBING.
3. SANITARY WASTES.
4. PACKAGING MATERIALS (WOOD, PAPER, PLASTIC, STYROFOAM, ETC).
5. PETROLEUM PRODUCTS, PAINT AND THINNERS, CLEANING SOLVENTS, CURING COMPOUNDS, AND SIMILAR MATERIALS.
6. DEMOLITION DEBRIS.

WHERE POSSIBLE, WASTES SHALL BE RECYCLED. WHERE NOT PRACTICAL, WASTES SHALL BE PROPERLY DISPOSED OF AT A PERMITTED LANDFILL FACILITY.

PROVIDE THE FOLLOWING:

1. NEAT, ORDERLY, AND CENTRALIZED STORAGE OF MATERIALS AND WASTES.
2. CONTROL OF LITTER PROVIDING CONTAINERS WITH LIDS IF NEEDED.
3. REGULAR DISPOSAL.
4. PROMPT CLEANUP OF ANY SPILLS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS OR IN ACCORDANCE WITH REGULATORY REQUIREMENTS. UTILIZE A SPECIALTY FIRM IF REQUIRED.
5. PROMPT CLEANUP OF SEDIMENTS WITHIN THE SITE AND ONTO ADJACENT ROADWAYS.
6. KEEP DUST WITHIN TOLERABLE LIMITS BY USING WATER OR OTHER APPROVED DUST SUPPRESSORS.
7. PROVIDE CONTAINMENT OF ALL WASTES GENERATED DURING DEMOLITION. PROVIDE TARPS, VACUUMING, AND/OR OTHER MEANS TO CAPTURE METALS, PAINT CHIPS, SOLVENTS, PAINT REMOVER, LUBRICANTS, WASHWATER, OR ANY OTHER POTENTIAL POLLUTANTS. PRESENT A PLAN FOR POLLUTION CONTROL TO THE ENGINEER FOR ADVANCE APPROVAL.
8. MANAGE LEAD PAINT IN ACCORDANCE WITH GOOD PRACTICE AND AS INDICATED.

PROJECT CONTACTS

DEP NORTHEAST REGIONAL OFFICE
2 PUBLIC SQUARE
WILKES-BARRE, PA 18701-1915
PHONE: 570-826-2511

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 4-0
55 KEYSTONE INDUSTRIAL PARK
DUNMORE, PA 18512
PHONE: 570-963-4061

PENNSYLVANIA FISH AND BOAT COMMISSION
JOSHUA WISOR
595 EAST ROLLING RIDGE DRIVE
BELLEFONTE, PA 16823
PHONE: 814-359-5250

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3 HEADQUARTERS
21 SOUTH PUTT CORNERS ROAD
NEW PALTZ, NY 12561-1696
PHONE: 945-256-3000

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
REGION 9 OFFICE
44 HAWLEY STREET
BINGHAMTON, NY 13901
SULLIVAN COUNTY RESIDENT ENGINEER PHONE: 845-794-7450

PLAN PREPARER

AECOM (DESIGNER)

DAVID J. COOPER, PE
707 GRANT STREET
5TH FLOOR
PITTSBURGH, PA
PHONE: (412) 463-0805

EARTH DISTURBANCE SUMMARY:

TOTAL PROJECT AREA = 3.77 AC (WITHIN LIMITS OF CONSTRUCTION, LOC)
PROJECT AREA OUTSIDE 100-YR FLOODPLAIN = 0.15 AC
EARTH DISTURBANCE IN NY (ALL IN 100-YR FLOODPLAIN) = 0.75 AC
EARTH DISTURBANCE IN PA = 0.08 AC (0.03 OF THAT IS WITHIN 100-YR FLOODPLAIN)

PROTECTED SPECIES AVOIDANCE AND MITIGATION MEASURES:

COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION TO IDENTIFY SPECIAL CONSTRUCTION RESTRICTIONS.

CALL BEFORE YOU DIG

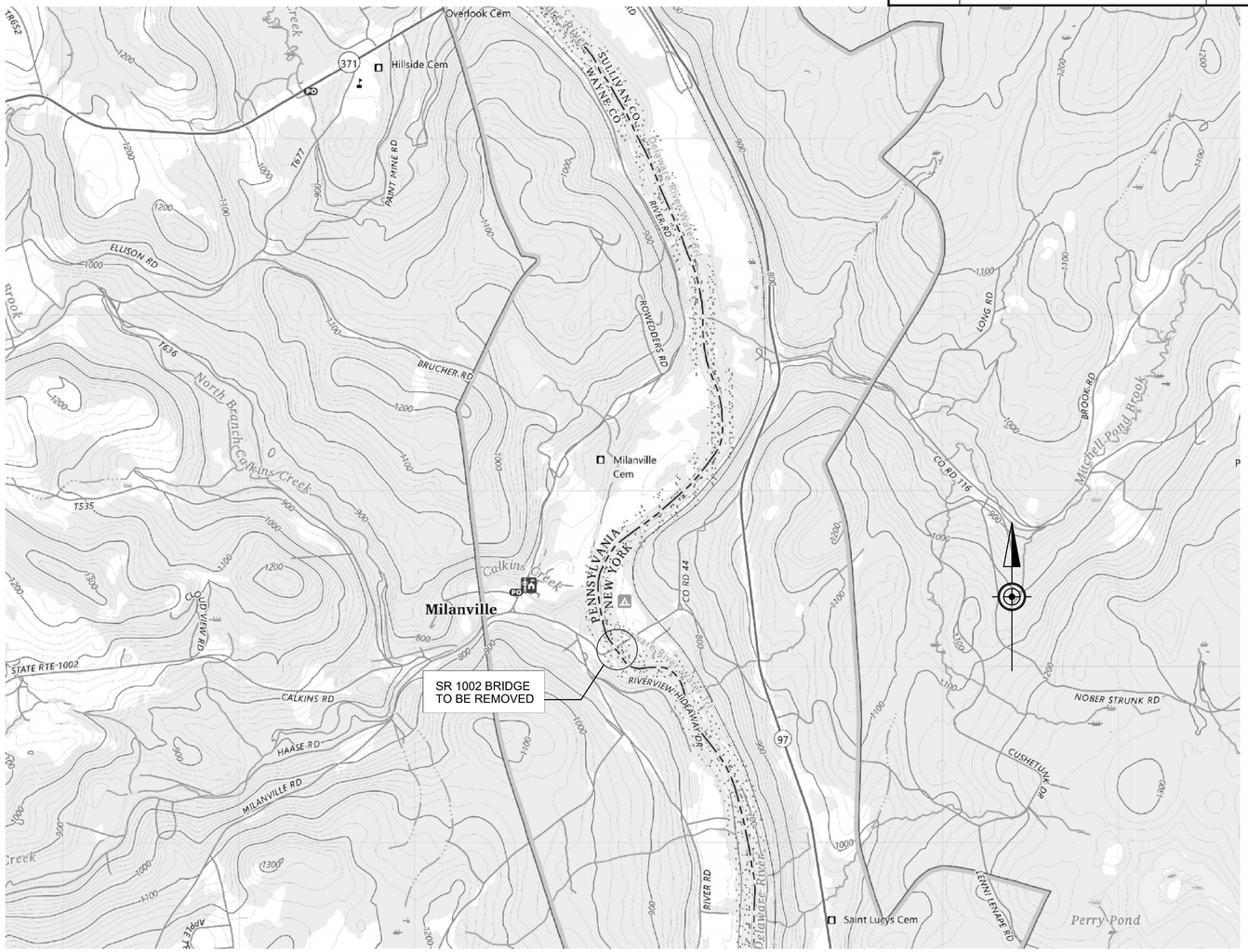
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE
FOR CONSTRUCTION PHASE FOR ROUTINE PROJECTS
AND 10 WORKING DAYS FOR COMPLEX PROJECTS
CALL PENNSYLVANIA ONE CALL AT 1-800-242-1776

CALL BEFORE YOU DIG

NEW YORK LAW REQUIRES 2 WORKING DAYS NOTICE
FOR CONSTRUCTION PHASE
CALL UDIG NY AT 811

CONTRACTOR MUST BE CERTIFIED BY UDIG FOR EXCAVATION

OBTAIN DESIGN SERIAL NUMBERS FROM ENGINEER FOR REFERENCE



LOCATION MAP

0 0.25 0.50 MILES

SHEET INDEX

TITLE SHEET

$TIME$
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AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

1. IN ACCORDANCE WITH THE CURRENT POLICIES AND PRACTICES IN THE COMMONWEALTH OF PENNSYLVANIA TO CONTROL EROSION, IT IS REQUIRED THAT THE CONTRACTOR FOR THIS PROJECT CONFORM WITH THE FOLLOWING GUIDELINES AS THEY ARE APPLICABLE AND IN ACCORDANCE WITH THE INSTRUCTIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP), THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AND THE PENNDOT AND NYSDOT REPRESENTATIVE.

2. KEEP A COPY OF THE APPROVED PLAN DRAWINGS STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY AT THE PROJECT SITE AT ALL TIMES.

3. FAILURE TO CORRECTLY INSTALL ESPC BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF ESPC BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY PADEP AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

CONSTRUCTION INSPECTION NOTES

1. INSPECT ALL E&SC BMPS ACCORDING TO THE SCHEDULES OUTLINED IN THIS PLAN. PERFORM ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK IMMEDIATELY, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE-MULCHING, AND RE-NETTING.

2. MAINTAIN A LOG ON SITE SHOWING DATES THAT E&SC BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED.

3. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, IMPLEMENT APPROPRIATE BMPS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE COUNTY CONSERVATION DISTRICT OR PADEP/NYSDEC. ALSO, IMMEDIATELY NOTIFY THE DEPARTMENT IN ACCORDANCE WITH PUBLICATION 408, SPECIFICATIONS, SECTION 110.02.

MISCELLANEOUS NOTES

1. CONDUCT ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS, IN ACCORDANCE WITH THE APPROVED ESPC PLAN.

2. LIMIT CLEARING, GRUBBING, AND TOPSOIL STRIPPING TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. DO NOT COMMENCE WORK IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE ESPC BMPS SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS DOCUMENT.

3. PUMP WATER FROM WORK AREA(S) TO UNDISTURBED VEGETATED AREAS AND ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN.
WATER PUMP AND ALL ACCESSORIES SHALL BE CLEANED BEFORE AND AFTER USE IN THE WATERWAY IN COMPLIANCE WITH AQUATIC INVASIVE SPIECIES PREVENTION BEST PRACTICES.

4. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

5. RETURN SEDIMENT THAT IS TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY AND DISPOSE OF PROPERLY. DO NOT WASH, SHOVEL, OR SWEEP THE SEDIMENT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

6. SPRINKLE OR APPLY DUST SUPPRESSOR OR KEEP DUST WITHIN TOLERABLE LIMITS AT THE SITE.

8. ADHERE TO AND ACCOMODATE ENVIRONMENTAL COMMITMENT MONITORING OF CRITICAL IN-WATER ACTIVITIES.

STABILIZATION NOTES

1. PLACE TOPSOIL AS INDICATED ON THE PLAN AND IN ACCORDANCE WITH PUBLICATION 408. TOPSOIL SUPPLIED BY STRIPPING AND RE-USING CLEAN EXISTING, ON-SITE TOPSOIL MATERIAL IS BEST. ANY ON-SITE TOPSOIL CONTAINING INVASIVE SPECIES SHALL NOT BE REUSED. ANY OFF-SITE TOPSOIL SUPPLIED SHALL BE CHECKED TO ENSURE IT IS FREE OF INVASIVE AND NOXIOUS WEEDS.

2. PERMANENTLY STABILIZE ALL GRADED AREAS IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED.

3. USE THE SPECIFIED ROLLED EROSION CONTROL PRODUCT(S) ON ALL SEEDED AREAS WITHIN 50 FT OF NON-SPECIAL PROTECTION SURFACE WATERS, WITHIN 100 FT OF SPECIAL PROTECTION SURFACE WATERS, AND WITH SLOPES 3H:1V AND STEEPER.

STABILIZATION NOTES (CONT.)

4. STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OF THE PROJECT. APPLY MULCH OR PROTECTIVE BLANKETING DURING NON-GERMINATING MONTHS. APPLY TEMPORARY STABILIZATION TO DISTURBED AREAS THAT WILL BE REACTIVATED WITHIN ONE YEAR; IF LONGER THAN ONE YEAR, APPLY PERMANENT STABILIZATION.

5. A DISTURBED AREA IS CONSIDERED PERMANENTLY STABILIZED WHEN IT IS COVERED WITH EITHER (1) A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION; OR (2) AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.

6. ENSURE THAT ESPC BMPS REMAIN FUNCTIONAL UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP.

FILL PROCEDURE NOTES

1. OBTAIN E&SC PLAN APROVAL FOR ALL OFF-SITE WASTE AND BORROW AREAS FROM THE CONSERVATION DISTRICT OR PADEP/NYSDEC, AND FULLY IMPLEMENT THE PLAN PRIOR TO ACTIVATING THE SITE.

2. CLEAR, GRUB, AND STRIP TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL FROM FILL AREAS.

3. KEEP ALL TOPSOIL STOCKPILED ONSITE IN THE LOCATION(S) SHOWN ON THE PLAN. PROVIDE THE AMOUNT OF TOPSOIL REQUIRED TO COMPLETE THE FINAL GRADING AND TO ESTABLISH VEGETATION. PROTECT STOCKPILE(S) AS SHOWN ON THE PLAN. PLACE STOCKPILES NO GREATER THAN 35 FT IN HEIGHT WITH SLOPES NO STEED THAN 2H:1V.

4. COMPACT ALL FILLS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC. IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. PLACE ALL EARTHEN FILLS IN MAXIMUM 9-INCH THICK COMPACTED LAYERS.

5. DO NOT PLACE FILLS ON SATURATED OR FROZEN SURFACES. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH CONSTRUCTION OF SATISFACTORY FILLS. DO NOT INCORPORATE SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILLS.

6. ENSURE THAT ESPC BMPS REMAIN FUNCTIONAL UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP.

CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE NOTES

1. THE DEPARTMENT WILL PROVIDE TO THE CONTRACTOR A COMPLETED DUE DILIGENCE FORM FOR EXCESS MATERIAL THAT NEEDS TO BE EXPORTED TO AN OFF-SITE LOCATION. THE CONTRACTOR WILL PROVIDE TO THE DEPARTMENT A DUE DILIGENCE FORM FOR ALL MATERIAL THAT COMES ONTO THE SITE.

2. ENSURE THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL, DEFINED AS UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOILS, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT (NOT INCLUDING MILLED OR PROCESSED FOR REUSE), BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH AND NYS UNLESS OTHERWISE AUTHORIZED.

3. ANY PLACEMENT OF CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL.

4. ENVIRONMENTAL DUE DILIGENCE MUST BE PERFORMED TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S AND NYS 6 CRR-NY 360.13'S MANAGEMENT OF FILL POLICY.

GENERAL NOTES

$TIME$
$DATE$
$FILE$
$USER$
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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CONSTRUCTION SEQUENCE

STAGE 1 :GENERAL PRE-CONSTRUCTION STEPS - ALL STAGES AND AREAS:

1. AT LEAST 3 DAYS BEFORE STARTING ON-SITE WORK, HOLD A PRE-CONSTRUCTION MEETING AT THE SITE. PROVIDE AT LEAST ADVANCE INVITATION TO REPRESENTATIVES FROM PENNDOT, NYSDOT, PA DEPARTMENT OF ENVIRONMENTAL PROTECTION, NY DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NPS, AFFECTED PROPERTY OWNERS, AND UTILITY OWNERS.
2. STAKE LIMITS-OF-DISTURANCE AND LIMITS-OF-CONSTRUCTION SO THEY ARE READILY VISIBLE THROUGHOUT CONSTRUCTION.
3. INSTALL TEMPORARY PROTECTIVE FENCE AND GATE WHERE SHOWN. PROVIDE BARRIERS AS NEEDED TO PREVENT CONSTRUCTION EQUIPMENT FROM STRAYING BEYOND AND TO PREVENT UNAUTHORIZED ENTRY.
4. PLAN WORK SO AS TO MINIMIZE THE EXTENT AND DURATION OF ACTIVITIES WHICH MIGHT CAUSE SEDIMENT POLLUTION. MINIMIZE DAMAGE TO EXISTING TURF AND OTHER VEGETATION. AVOID COMPACTION OF SOILS IN AREAS TO BE VEGETATED TO THE EXTENT PRACTICAL.
5. NOTIFY PA ONE CALL AT 1-800-242-1776 AND UDIG NY AT 811 3 TO 10 BUSINESS DAYS PRIOR TO CONSTRUCTION. SEE TITLE SHEET FOR MORE INFORMATION. COORDINATE WITH UTILITY OWNERS TO AVOID CONFLICTS AND PROTECT FACILITIES.

STAGE 2: SET-UP TEMPORARY ACCESS ROADS AND CAUSEWAY:

1. ACCESS ROADS AND STAGING AREAS: LAY DOWN TEMPORARY GEOTEXTILE AND ROCK FILL (OR TIMBER MATS) FOR ACCESS ROADS AND STAGING AREAS. DO NOT DISTURB NOR EXCAVATE EXISTING GROUND. STITCH FABRIC PANELS TOGETHER TO BETTER ENABLE COMPLETE REMOVAL OF ROCK AFTER CONSTRUCTION. KEEP VEHICLES AND HEAVY EQUIPMENT ONLY ON AREAS PROTECTED WITH ROCK OR OTHERWISE STABILIZED. EXISTING PAVED AND GRAVEL-SURFACED STAGING AREAS WON'T NEED ADDITIONAL PROTECTION UNLESS RUTTING OR EXPOSURE OF MUD OCCURS. ADD ROCK WHERE NEEDED TO PREVENT RUTTING AND TURBID RUNOFF.
2. PREPARATION FOR WORK IN RIVER: IF RIVER IS ADEQUATELY CLEAR OF ICE, PROVIDE BATHYMETRIC MAPPING OVER THE CAUSEWAY AND DEMOLITION AREA TIED TO THE PROJECT VERTICAL DATUM TO SERVE AS A BASELINE FOR RESTORATION. FURNISH MAP OF ELEVATIONS AND A DIGITAL SURFACE MODEL TO REPRESENTATIVE.
3. BEGIN CAUSEWAY CONSTRUCTION: IF DIRECTED, THE MOST UPSTREAM PORTION OF THE CAUSEWAY (+/-30' TOP WIDTH) IS TO BE CONSTRUCTED FIRST TO DIVERT RIVER FLOW IN ORDER THAT TURBIDITY CURTAIN MAY BE INSTALLED AROUND THE REMAINDER. PLACE ROCK WITHIN THE RIVER POOL DURING LOW FLOW USING EQUIPMENT THAT ALLOWS CAREFUL PLACEMENT TO MINIMIZE TURBIDITY (E.G. EXCAVATORS WITH LONG REACH AND THUMBS IF NEEDED). EXCAVATORS AND TRUCKS SHOULD REMAIN ON ROCK THROUGHOUT THE PLACEMENT (AND SUBSEQUENT REMOVAL) OF THE CAUSEWAY. AS DIRECTED, PROVIDE A 500 GPM PUMP TO REMOVE TURBID WATER IN THE IMMEDIATE VICINITY OF ROCK PLACEMENT AND PUMP TO A PUMPED WATER FILTER BAG IN A WELL VEGETATED SPOT AT LEAST 100 FT FROM THE RIVER. SITUATE PUMP INTAKE AS CLOSE AS PRACTICAL TO SOURCE OF SILT PLUMES AND ADJUST CONTINUOUSLY. PROVIDE A CREW IN A BOAT IF NECESSARY TO POSITION PUMP INTAKE.
4. COMPLETE CAUSEWAY CONSTRUCTION: DEPLOY AND MAINTAIN TURBIDITY CURTAIN IN THE ZONE PROTECTED BY THE UPSTREAM PORTION OF THE CAUSEWAY. PLACE WEIGHTED TARP ON THE UPSTREAM FACE OF ROCK TO MINIMIZE FLOW THROUGH THE ROCK. ADJUST CONFIGURATION, ANCHORS, FLOATS, AND WEIGHTS IF NEEDED TO WORK BEST WITH RIVER CURRENTS. PROCEED WITH UNDERWATER ROCK PLACEMENT TO THE EXTENT POSSIBLE WITH CURTAIN IN PLACE. REMOVE TURBIDITY CURTAIN UND UPSTREAM TARPS WHEN THE UNDERWATER PORTION OF CAUSEWAY IS COMPLETE IN THE PROTECTED AREA. PLACE WESTERNMOST PORTION OF UNDERWATER ROCK AND COMPLETE CAUSEWAY.

STAGE 3: DEMOLITION OF SUPERSTRUCTURE AND PIER:

1. PA RIVERBANK PROTECTION IS REQUIRED WHEN SUPERSTRUCTURE IS REMOVED. PREPARE A PLAN FOR ADVANCED APPROVAL. POSSIBLE METHODS COULD INCLUDE THE USE OF TIMBER MATS, CABLE-TIED TIRES, AND/OR STEEL PLATES, TO ENSURE FALLING SUPERSTRUCTURE DOES NOT GOUGE THE RIVERBANK.
2. DEVELOP A PLAN TO CAPTURE DEMOLITION DEBRIS FOR ADVANCED APPROVAL. THE PLAN SHALL INCLUDE A FLOATING CONTAINMENT BERM WITH A WEIGHTED, DRAPED NET CAPABLE OF INTERCEPTING WOOD DECK FRAGMENTS AND OTHER DEMOLITION DEBRIS. IT SHOULD ALSO INCLUDE LIVE DRONE VIDEO TO TRACK FLOATING DEBRIS, AND A CREW(S) IN A BOAT(S) CAPABLE OF INTERCEPTING AND REMOVING ALL DEBRIS CARRIED BY THE CURRENT.
3. DEMOLISH SUPERSTRUCTURE. REMOVE PIECES FROM THE RIVER CHANNEL ONTO THE CAUSEWAY AS QUICKLY AS PRACTICAL IN A WAY THAT MINIMIZES GOUGING OF THE RIVER BOTTOM AND BANKS. IF ADEQUATELY CLEAR OF ICE, PROVIDE BATHYMETRIC IMAGING CAPABLE OF IDENTIFYING DEMOLITION WASTE TO CONFIRM COMPLETE REMOVAL.
4. DISMANTLE EXISTING SUPERSTRUCTURE ON THE TEMPORARY CAUSEWAY AND PROPERLY DISPOSE OF ALL ELEMENTS.
5. BEGIN DEMOLITION OF PIER. ONCE REMAINING PIER TO BE DEMOLISHED IS LEVEL WITH THE CAUSEWAY, BEGIN REMOVAL OF THE CAUSEWAY SIMULTANEOUSLY WITH PIER REMOVAL.
6. FILL VOIDS LEFT BY PIER FOUNDATION REMOVAL WITH NATIVE STREAMBED MATERIAL FROM AREA SURROUNDING THE PIER. LEAVE FINAL RIVERBED FLUSH WITH SURROUNDING CHANNEL.
7. AS DIRECTED, RESTORE TURBIDITY CURTAIN & UPSTREAM TARPS FOR REMOVAL OF UNDERWATER ROCK AND PIER. REMOVE ROCK FROM THE RIVER BOTTOM CAREFULLY TO MINIMIZE TURBIDITY. USE EXCAVATORS WITH LONG REACH, THUMBS, AND CLAWS INSTEAD OF BUCKET. PUMP TURBID WATER AT SOURCE FROM RIVER TO PUMPED WATER FILTER BAGS TO HELP CONTROL TURBIDITY. PROCEED WITH REMOVAL OF CAUSEWAY WITH TURBIDITY CURTAIN DEPLOYED AS LONG AS PRACTICAL.
8. PROVIDE BATHYMETRIC SURVEY FOR APPROVAL OF REPRESENTATIVE TO CONFIRM SUPERSTRUCTURE DEBRIS AND CAUSEWAY HAVE BEEN FULLY REMOVED AND RIVERBED HAS BEEN RESTORED AS INDICATED. RETRIEVE ANY UNWANTED REMNANTS BY LIFTING VIA BOATS OR LONG-REACH CRANE WITHOUT DRAGGING ON RIVERBED.
9. CONTINUE REMOVAL OF ROCK & GEOTEXTILE FROM STAGING AREAS AND ACCESS ROADS TO COMPLETION.

STAGE 4A: NY SITE RESTORATION:

1. REMOVE A MINIMAL AMOUNT OF TEMPORARY ROCK PROTECTION AND SET COMPOST FILTER SOCK AS INDICATED AND AS DIRECTED TO CAPTURE RUNOFF FROM ALL AREAS TO BE DISTURBED AND RESTORED BEGINNING JUST ABOVE SHORELINE. MAINTAIN SOCK ABOVE THE RIVER POOL.
2. INSTALL ROCK CONSTRUCTION ENTRANCE WITH WASH RACK OR 100' RUMBLE STRIP.
3. CONTINUE REMOVING TEMPORARY ACCESS ROAD AS NO LONGER NEEDED.
4. RESTORE WETLAND AREA IN ACCORDANCE WITH WATERWAY PERMIT. SEED WITH PENNDOT WETLAND CONSERVATION MIX OR AS DIRECTED. DELINEATE WETLAND BOUNDARY WITH STAKES AND RIBBON.
5. REMOVE ROAD PAVEMENT, ABUTMENT, AND EMBANKMENT AS INDICATED.
6. LOOSEN SOIL WITH SHALLOW OR HEAVY HARROWING OR DISKING IN AREAS WHERE SURFACE SOILS ARE COMPACTED OR WHERE ORIGINAL TURF CANNOT RECOVER. PROVIDE TURF AERATION AS DIRECTED IN AREAS WHERE ORIGINAL TURF IS EXPECTED TO RECOVER. APPLY SEED, SOIL SUPPLEMENTS, AND ROLLED EROSION CONTROL PRODUCT OR APPROVED HYDRAULICALLY APPLIED MULCH.

STAGE 4B: PA SITE RESTORATION:

1. SET COMPOST FILTER SOCK AS INDICATED AND AS DIRECTED TO CAPTURE RUNOFF FROM ALL AREAS TO BE DISTURBED.
2. REHABILITATE ABUTMENT. PROVIDE TIMBER MATS FOR EQUIPMENT THAT MUST BE LOWERED TO THE BASE OF WALLS.
3. RESTORE RIVERBANK AS DIRECTED. RESTORE WETLAND AREA IN ACCORDANCE WITH WATERWAY PERMIT. SEED WITH PENNDOT WETLAND CONSERVATION MIX OR AS DIRECTED. DELINEATE WETLAND BOUNDARY WITH STAKES AND RIBBON.
4. REMOVE PAVEMENT. LOOSEN SUBGRADE. APPLY TOPSOIL, AND REVEGETATE BEGINNING AT ABUTMENT AND WORKING BACKWARD SUCH THAT EXCAVATOR AND TRUCKS REMAIN ON CLEAN PAVEMENT.
5. SEED & MULCH.

POST-CONSTRUCTION STEPS - ALL STAGES AND AREAS:

1. SOIL TESTING: CONTACT CORNELL AGRICULTURAL EXTENSION TURF GRASS SPECIALIST FOR GUIDANCE ON REVEGETATION OF AREAS TO BE DISTURBED. COLLECT TOPSOIL SAMPLES FROM AREAS WHERE ROCK WILL BE TEMPORARILY PLACED AT THE TIME RECOMMENDED. COLLECT AT LEAST ONE COMPOSITE OF 4 REPRESENTATIVE SUBSAMPLES FROM EVERY 10,000 SF. SUBMIT SAMPLES FOR ANALYSIS AND RECOMMENDATIONS ON SOIL SUPPLEMENTS. SUBMIT PLAN OF SAMPLE LOCATIONS TO REPRESENTATIVE.
2. SOIL PREPARATION, SEEDING, & MULCHING ARE TO OCCUR IMMEDIATELY AS TEMPORARY COVER IS REMOVED OR AS THE FINAL GRADE IS REACHED.
3. WATER AND CULTIVATE RESTORATION AREAS UNTIL UNIFORM 70% VEGETATIVE COVER IS ACHIEVED THROUGHOUT THE WORK SITE.
4. PRIOR TO REMOVAL OF COMPOST FILTER SOCKS, SCHEDULE A MEETING WITH THE REPRESENTATIVE AND PERMITTING AGENCIES TO CONFIRM ADEQUACY OF SITE RESTORATION AND CLOSE PERMIT.
5. WHEN SATISFACTORY VEGETATIVE COVER IS ACHIEVED, COORDINATE WITH PROPERTY OWNER TO CUT COMPOST FILTER SOCKS AND DISPERSE COMPOST OR REMOVE THEM ENTIRELY FROM THE SITE IF DIRECTED. REVEGETATE AREAS UNDER COMPOST SOCK.

CONSTRUCTION SEQUENCE

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	4 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

FORMULA AND SPECIES	% BY WEIGHT	MINIMUM %		MAX % WEED SEED	SEEDING RATE (LB/1000 SQ. YD)
		PURITY	GERMINATION		
FORMULA B RESIDENTIAL MIX					42.0 TOTAL
PERENNIAL RYEGRASS MIXTURE (LOLIUM PERENNE). A COMBINATION OF IMPROVED CERTIFIED VARITIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL RYEGRASS COMPONENT	20	97	90	0.10	8.5
CREEPING RED FESCUE OR CHEWINGS FESCUE (FESTUCA RUBRA OR SSP COMMUTATE) (IMPROVED AND CERTIFIED)	30	97	85	0.10	12.5
KENTUCKY BLUEGRASS MIXTURE (POA PRATENSIS). A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL BLUEGRASS COMPONENT.	50	97	80	0.15	21.0
FORMULA L CLEAR ZONE MIX					48.0 TOTAL
HARD FESCUE MIXTURE (FESTUCA LONGIFOLIA). A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL HARD FESCUE COMPONENT	55	97	85	0.10	26.4
CREEPING RED FESCUE (FESTUCA RUBRA) (IMPROVED AND CERTIFIED)	35	97	85	0.10	16.8
ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)	10	95	90	0.10	4.8
FORMULA W WETLAND CONSERVATION MIX*					9 TOTAL
NURSERY CROPS					
OATS (AVENA SATIVA) (SPRING)	66.67	97	85	0.10	6
CEREAL RYE (SECALE CEREALE) (FALL)	66.67	97	85	0.10	6
PERMANENT SPECIES					
FOX SEDGE (CAREX VULPINOIDEA)	3.33	-	-	-	0.3
RIVERBANK WILDRYE (ELYMUS RIPARIUS)	1.67	85	70	0.2	0.15
PRAIRIE CORDGRASS (SPARTINA PECTINATA)	1.11	-	-	-	0.1
LURID SEDGE (CAREX LURIDA)	1.67	-	-	-	0.15
SOFT RUSH (JUNCUS EFFUSUS)	3.33	-	-	-	0.3
BLUE VERVAIN (VERBENA HASTATA)	5	-	-	-	0.45
SWAMP MILKWEED (ASCELEPIAS INCARNATA)	1	-	-	-	0.09
SNEEZEWEED (HELENIUM AUTUMNATE)	1.67	-	-	-	0.15
ALLEGHENY MONKEYFLOWER (MIMULUS RIGENS)	0.33	-	-	-	0.03
NODDING BUR MARIGOLD (BIDENS CERNUA)	1.67	-	-	-	0.15
SEEDBOX (LUDWIGIA ALTERNIFOLIA)	2.67	-	-	-	0.24
BONESET (EUPATORIUM PERFOLIATUM)	1.67	-	-	-	0.15
NORTHERN BLUE FLAG (IRIS VERSICOLOR)	1.11	-	-	-	0.1
FOWL BLUEGRASS (POA PALUSTRIS)	4.44	-	-	-	0.4
GREEN BULRUSH (SCRIPUS ATROVIRENS)	2.67	-	-	-	0.24
FORMULA T TEMPORARY GRASS MIX					6 TOTAL
OATS (AVENA SATIVA) (SPRING)	66.67	97	85	0.10	6
CEREAL RYE (SECALE CEREALE) (FALL)	66.67	97	85	0.10	6

FERTILIZER FORMULATION BY SEED MIX TYPE		
SEED MIX CATEGORY	FORMULATION	RATE OF APPLICATION
TURF GRASS (FORMULAS B,L,T)	10-20-20	140 LB./1000 YD²
TREE, SHRUB, & VINE INSTALLATIONS	20-10-5 AND 16-8-12	N/A
NATIVE UPLAND MIXES (FORMULAS C,N,P, WILDFLOWER & SLOPE ENHANCEMENTS)	DETERMINED BY SOIL TEST, SEE SECTION 804.3(E)1 IN PUB 408	
NATIVE WETLAND MIXES (FORMULAS R,W)	DETERMINED BY SOIL TEST, SEE SECTION 804.3(E)1 IN PUB 408	

ALL APPLICATIONS	
LIME RATE	800 LB PER 1000 SQ. YD
FERTILIZER TYPE AND RATE	COMMERCIAL TYPE 10-20-20 AT 140 LB PER 1000 SQ. YD

PERMANENT VEGETATIVE STABILIZATION APPLICATIONS		
APPLICATION	SEED	SOIL
FOR EMBANKMENT SLOPES NO STEEPER THAN 3H:1V	FORMULA B MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*
FOR EMBANKMENT SLOPES STEEPER THAN 3H:1V OR UNMOWED AREAS	FORMULA L MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*
FOR WETLAND RESTORATION	FORMULA W MIX	SCARIFY TO 5 IN AND PLACE 4 IN TOPSOIL*

*PROVIDE TOPSOIL ONLY WHERE EXISTING TOPSOIL HAS BEEN INADVERTANTLY LOST DURING CONSTRUCTION.

TEMPORARY VEGETATIVE STABILIZATION APPLICATION	
APPLICATION	SEED
ALL	FORMULA T

SEED DATES	
FORMULA	DATES
FORMULA B, L AND T	MARCH 15 TO JUNE 1 AUGUST 1 TO OCTOBER 15
FORMULA C, N, AND W	NURSERY CROPS PORTION: ANYTIME NATIVE PORTION: OCTOBER 15 TO MAY 15

MULCHING*	
MULCH TYPE AND RATE	STRAW MULCH AT 1200 LB PER 1000 SQ. YD FOR TEMPORARY SEEDING AND BONDED FIBER MATRIX FOR PERMANENT SEEDING
ANCHORING METHOD	MULCH BINDER
ANCHOR MATERIAL AND RATE	RECYCLED CELLULOSE FIBER OR WOOD FIBER AT 160 LB PER 1000 SQ. YD

*PROVIDE PENNDOT ROLLED EROSION CONTROL PRODUCT TYPE 2D IN ADDITION TO MULCH WITHIN 100 FT OF JURISDICTIONAL WATERWAYS AND WETLANDS

SEEDING NOTES:

1. PLACE ALL SEEDING, SOIL SUPPLEMENTS, AND MULCHING ITEMS IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SPECIFICATIONS 804 AND 805 OR OTHER APPROVED SPECIAL PROVISIONS.
2. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED MUST BE STABILIZED AND MULCHED IMMEDIATELY AFTER SEEDING, DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY MIXTURE AND MULCH. DISTURBED AREAS WHICH ARE EITHER FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE IMMEDIATELY SEEDED AND MULCHED WITH A PERMANENT SEED MIXTURE AND MULCH.
3. ALL SEED MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED; INCLUDING ALL LABOR, MATERIALS, SEED MIXES, EQUIPEMENT, INCIDENTALS, AND CLEAN-UP.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.
5. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
6. NO SEED MIX SUBSTITUTIONS SHALL BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OR THEIR REPRESENTATIVE. WRITTEN PROOF OF SEED MIX UNAVAILABILITY MUST BE DOCUMENTED.
7. ALL SEED MIX SHALL BE PROPERLY INSTALLED ON PREPARED GRADE, IN CONFORMANCE WITH THE TYPICAL LANDSCAPE DETAILS. INSTALL ALL SEED MIX ON UNDISTURBED, NON-COMPACTED, PREPARED PLANTING SOIL.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUCCESSFUL ESTABLISHMENT OF SEEDED AREAS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF INITIAL SEEDING, WITHIN THAT TIME PERIOD, SEED AND MULCH SHALL BE REAPPLIED TO BARE SOIL AREAS IF THE VEGETATIVE COVER GROWTH IS BELOW UNIFORM 80% COVERAGE.
9. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN. IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SF, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOU BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE.
10. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM OF 3 TO 5 INCHES, OR 6 TO 12 INCHES ON COMPACTED SOIL, PRIOR TO PLACEMENT OF TOPSOIL.
11. AREAS WHICH ARE TO BE VEGETATED SHALL HAVE A MINIMUM OF 4 INCHES OF SCARIFIED TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF SCARIFIED TOPSOIL.

TREES & SHRUBS:

PLANT IN ACCORDANCE WITH PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, RC-91M AND STANDARD SPECIFICATION 808 AND/OR NYSDOT STANDARD DRAWINGS 0611-01, JAN 2014, AS DIRECTED.

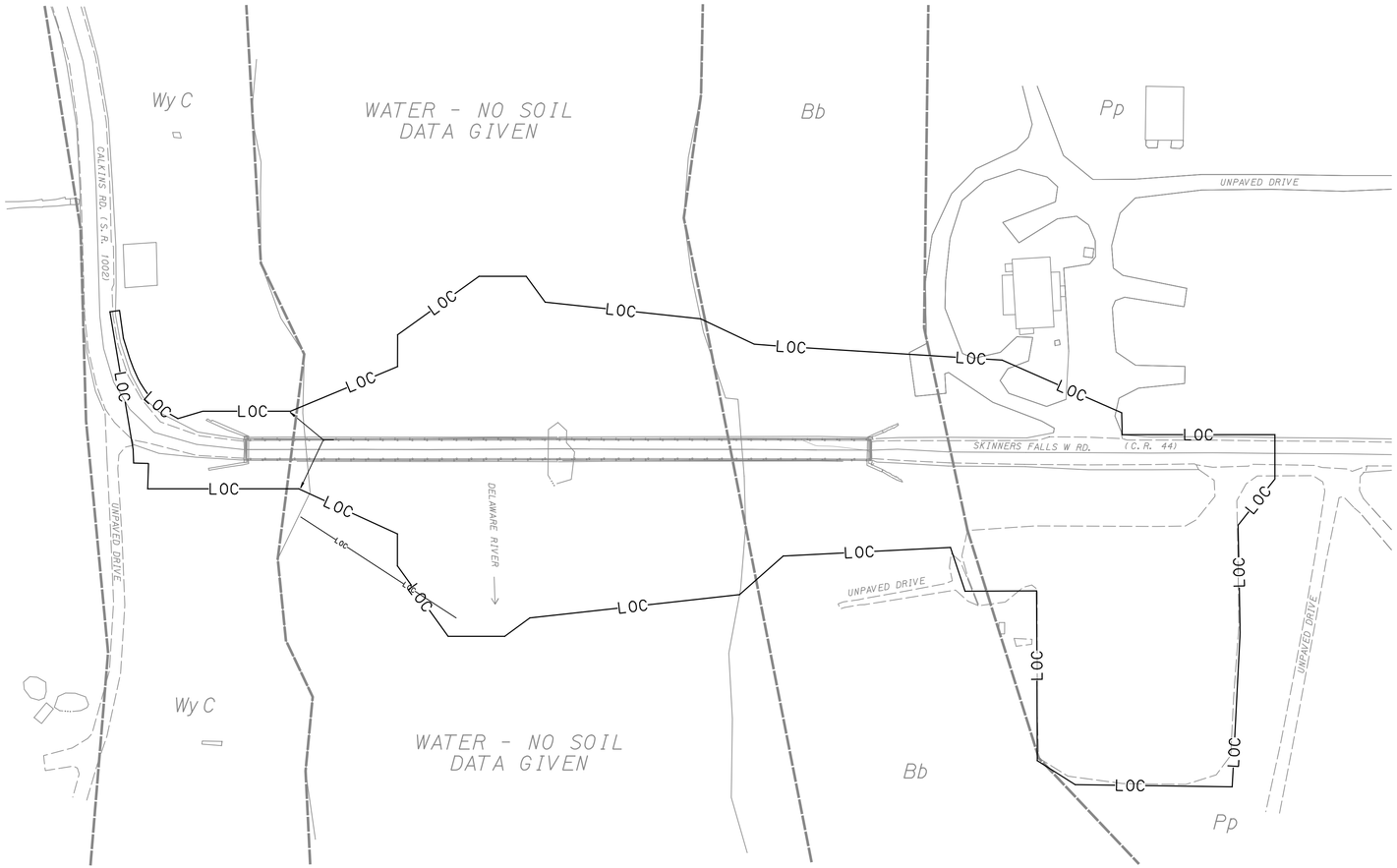
SEEDING SPECIFICATIONS

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	5 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

SOIL USE LIMITATIONS

SOIL NAME	SOIL TYPE	SOIL USE LIMITATIONS															
	SERIES AND MAP SYMBOL	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH/LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
BARBOUR LOAM	Bb	X	C	X		X	X	X				X	X				X
POPE VERY FINE SANDY LOAM, RARELY FLOODED	Pp	X	C/S		X	X		X	X	X	X	X	X				
WYOMING GRAVELLY SANDY LOAM 8 TO 15 % SLOPES	WyC	X	C/S				X	X	X	X	X		X	X			



SOIL UNIT BOUNDARY MAP

NOT TO SCALE

RESOLUTIONS

CUTBANKS CAVE
RESOLUTION - CUT AND FILL SLOPES ARE PROPOSED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERING REPORT (GER). CONSTRUCT IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

CORROSIVE TO CONCRETE/STEEL
RESOLUTION - ALTERNATE PIPE MATERIALS ARE PROVIDED. PLACE CONCRETE AND STEEL IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

DROUGHTY
RESOLUTION - ONLY USES COMPATIBLE WITH DROUGHTY SOILS ARE TO BE LOCATED IN THESE AREAS. AT LOCATIONS WHERE DROUGHTY SOILS ARE PRESENT, PROVIDE ADEQUATE MEASURES TO INCREASE SOIL MOISTURE CONTENT.

EASILY ERODIBLE
RESOLUTION - SOIL EROSION CONTROL DEVICES WILL BE USED WHERE NECEASSRY IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.

FLOODING
RESOLUTION - ONLY USES COMPATIBLE WITH FLOODING ARE TO BE LOCATED IN FLOOD PRONE AREAS. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH FLOODING, STRUCTURES OR FACILITIES IN THESE AREAS MUST BE ELEVATED AT LEAST 1 FOOT ABOVE THE 100-YEAR FLOOD ELEVATION, OR FLOODPROOFED IN ACCORDANCE WITH CURRENT BUILDING CODES.

DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE
RESOLUTION - ONLY USES COMPATIBLE WITH A HIGH WATER TABLE ARE TO BE LOCATED IN THESE AREAS. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH A HIGH WATER TABLE, STRUCTURES OR FACILITIES IN THESE AREAS MUST BE DESIGNED TO WITHSTAND POTENTIAL SETTLEMENT DUE TO CONSOLIDATION (IF COHESIVE SOILS ARE PRESENT) AND DECREASED BEARING CAPACITY. APPROPRIATE DRAINAGE MEASURES ARE TO BE INSTALLED.

HYDRIC/HYDRIC INCLUSIONS
RESOLUTION - ONLY USES COMPATIBLE WITH HYDRIC SOILS ARE TO BE LOCATED IN THESE AREAS. FOUNDATIONS FOR STRUCTURES ON HYDRIC SOILS ARE TO BE APPROPRIATELY DESIGNED. PERFORM NECESSARY SUBSURFACE INVESTIGATION AND FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

LOW STRENGTH/LANDSLIDE PRONE
RESOLUTION - PERFORM NECESSARY SUBSURFACE INVESTIGATION AND FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

SLOW PERCOLATION
RESOLUTION - SOIL TESTS WERE PERFORMED FOR INFILTRATION BMP'S AND PLANTING SOIL WILL BE USED IN SPECIFIED BMP'S TO ALLOW FOR HIGHER INFILTRATION RATES.

PIPING
RESOLUTION - FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

POOR SOURCE OF TOPSOIL
RESOLUTION - IF THERE ARE NO SUITABLE ON-SITE SOILS FOR TOPSOIL, SUITABLE MATERIAL WILL NEED TO BE IMPORTED. SUITABLE MATERIAL IS TO CONFORM TO PENNDOT PUBLICATION 408, SECTION 802.2.

FROST ACTION
RESOLUTION - STRUCTURES OR FACILITIES LOCATED ON SOILS SUSCEPTIBLE TO FROST ACTION MUST BE PLACED AT A MINIMUM DEPTH TO PREVENT FROST ACTION. FOLLOW RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEERING REPORT (GER).

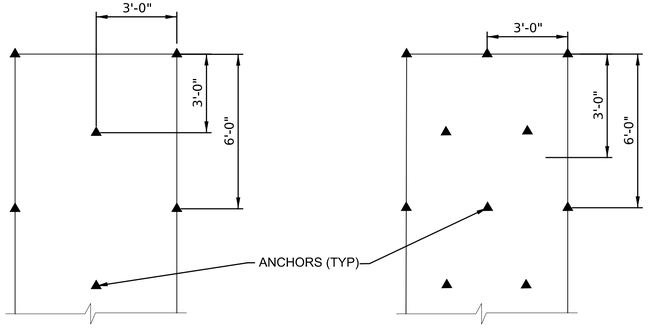
WETNESS
RESOLUTION - ONLY USES COMPATIBLE WITH WET SOILS ARE TO BE LOCATED IN AREAS WITH THESE SOIL TYPES. IF NO OTHER SUITABLE LOCATIONS ARE AVAILABLE FOR USES INCOMPATIBLE WITH WET SOILS, STRUCTURES AND FACILITIES MUST BE DESIGNED TO ACCOMMODATE THE WET CONDITIONS AND APPROPRIATE DRAINAGE MEASURES ARE TO BE INSTALLED.

SOIL USE LIMITATIONS

$DATE$ $TIME$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	6 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

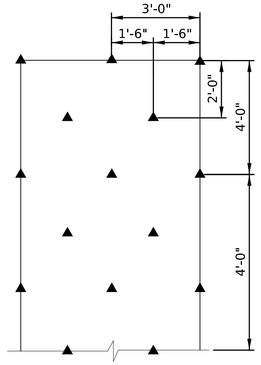


ANCHOR PATTERN FOR SLOPES FLATTER THAN 3:1

PLACE 1 ANCHOR/SY

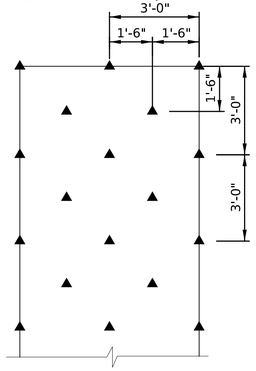
ANCHOR PATTERN FOR SLOPES BETWEEN 3:1 AND 2:1 (INCLUDING 3:1)

PLACE 1 5/64 ANCHORS/SY



ANCHOR PATTERN FOR SLOPES BETWEEN 2:1 AND 1:1 (INCLUDING 2:1)

PLACE 2 ANCHORS/SY



ANCHOR PATTERN FOR 1:1 OR STEEPER

PLACE 2 ANCHORS/SY

ANCHOR PATTERNS FOR SLOPES

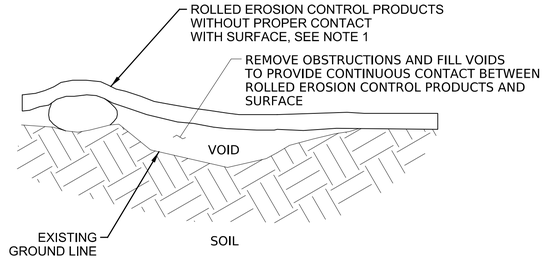


FIGURE 1

LACK OF CONTINUOUS CONTACT

NOTES:

1. ESTABLISH AND MAINTAIN CONTINUOUS CONTACT BETWEEN THE ROLLED EROSION CONTROL PRODUCTS AND THE SOIL.
2. PROVIDE ANCHORING DEVICES IN ACCORDANCE WITH PUBLICATION 408, SECTION 806.2(d).

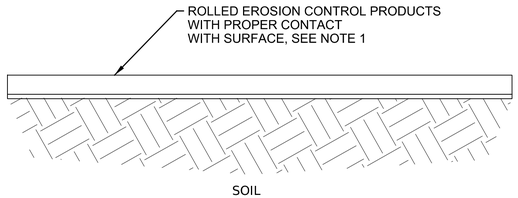
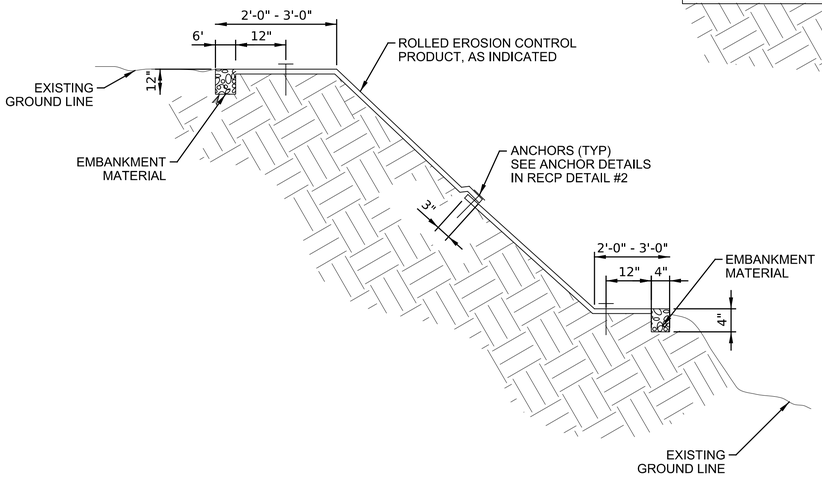


FIGURE 2

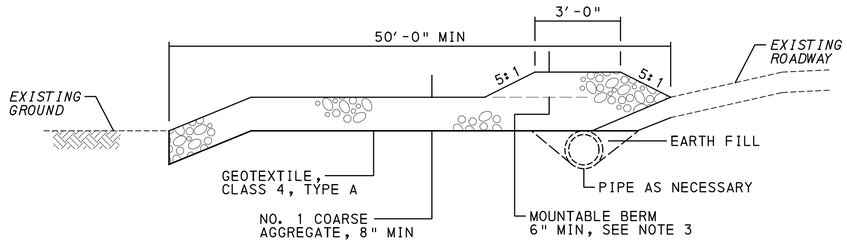
CONTINUOUS CONTACT



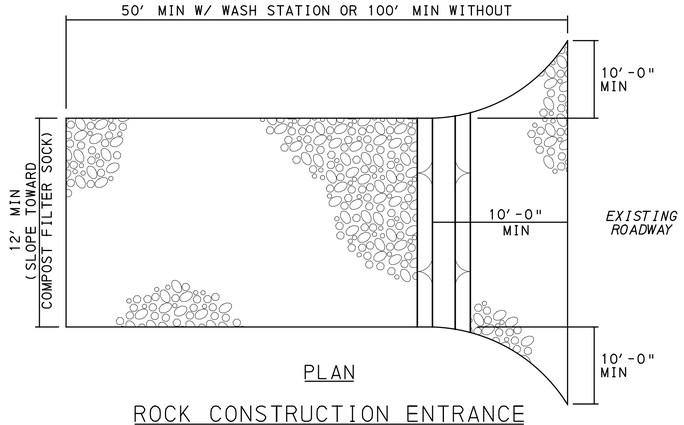
TYPICAL SLOPE CROSS-SECTION

ROLLED EROSION CONTROL PRODUCTS (RECP) DETAIL #1

NOT TO SCALE



PROFILE



PLAN

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

NOTES:

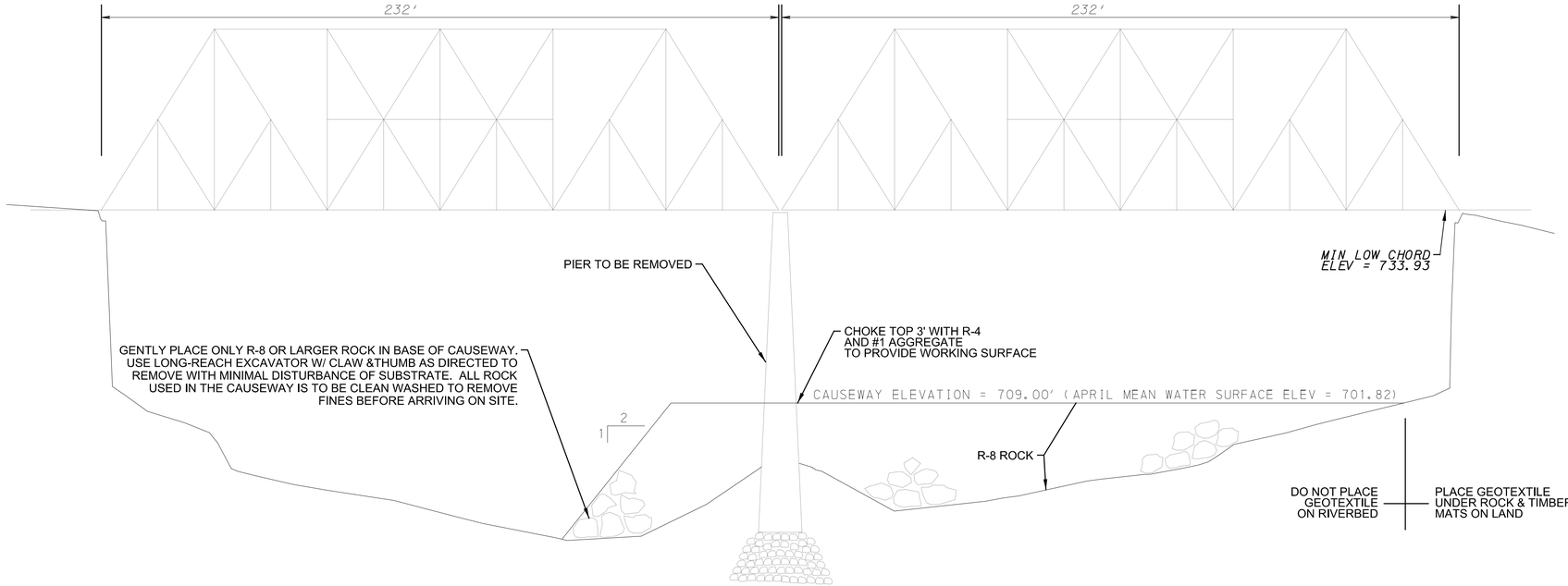
1. ROCK CONSTRUCTION ENTRANCES ARE NEEDED ONLY IF CONSTRUCTION VEHICLES AND EQUIPMENT MUST EXIT WORK AREAS WITH MUDDY TIRES.
2. IF USING WASH STATION OPTION, PROVIDE CATTLE CROSSING, GRATE, RUMBLE PADS, OR OTHER MEANS TO CHANNEL WASH WATER TOWARD COMPOST FILTER SOCK. WASH TIRES TO REMOVE MUD.
3. MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.
4. PRE-CONSTRUCTED RUMBLE PADS (SEE PA DEP MANUAL PAGE 17 FOR EXAMPLE PHOTO) MAY BE USED INSTEAD OF ROCK CONSTRUCTION ENTRANCES PROVIDED THEY ARE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND A SUFFICIENT NUMBER OF PADS ARE INSTALLED TO PROVIDE FOR A MINIMUM OF FOUR TIRE REVOLUTIONS WHILE ON THE PAD. MORE PADS MAY BE NEEDED DEPENDING ON SITE CONDITIONS.

TYPICAL DETAILS

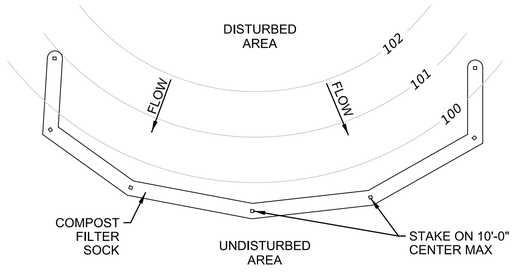
$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	7 OF 11
9	SULLIVAN	CR 44	-	

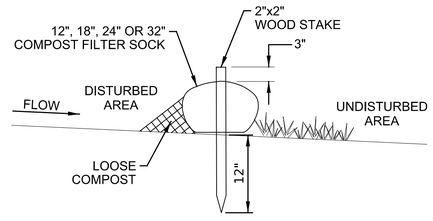
REVISION NUMBER	REVISIONS	DATE	BY



TEMPORARY CAUSEWAY PROFILE



PLAN VIEW



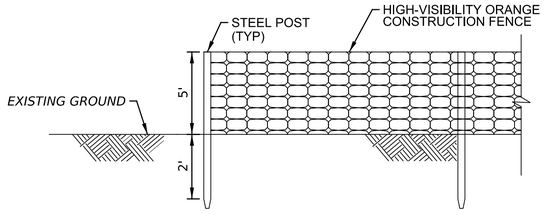
SECTION VIEW

NOTES:

1. REMOVE DEPOSITS WHEN SEDIMENT ACCUMULATION IS ONE HALF OF THE EXPOSED COMPOST FILTER SOCK.
2. REPLACE BIODEGRADABLE FILTER SOCK AFTER 6 MONTHS; PHOTODEGRADABLE AFTER 12 MONTHS. POLYPROPYLENE SOCKS ARE TO BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. TRAFFIC IS NOT TO BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
4. SOCKS ARE TO BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS ARE TO BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES ARE TO BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
6. PLACE COMPOST FILTER SOCK AT EXISTING LEVEL GRADE. EXTEND BOTH ENDS OF THE BARRIER AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

COMPOST FILTER SOCK

NOT TO SCALE



TEMPORARY PROTECTIVE FENCE

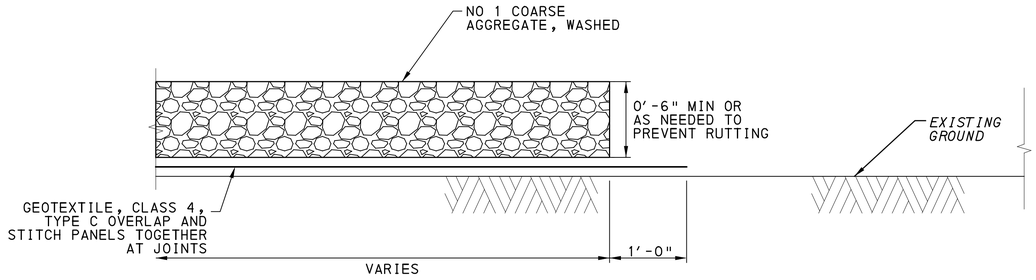
NOT TO SCALE
(ITEM 0811-0003)

TYPICAL DETAILS

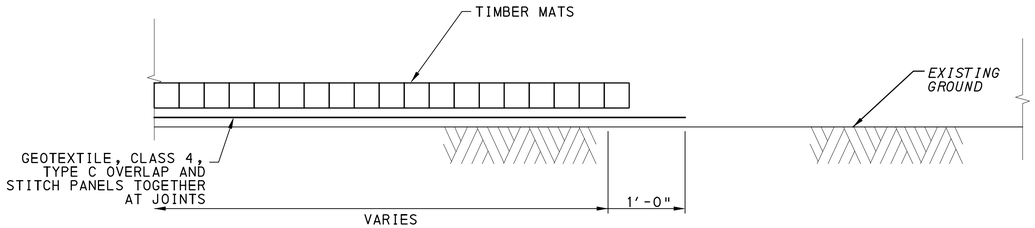
$DATE$ $TIME$ $FILE$ $USER$ AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	8 OF 11
9	SULLIVAN	CR 44	-	

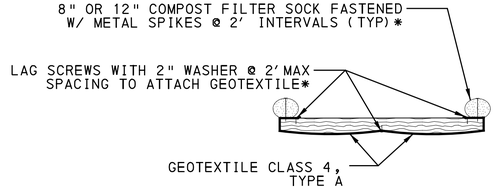
REVISION NUMBER	REVISIONS	DATE	BY



AGGREGATE OPTION

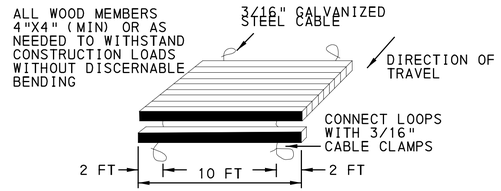


TIMBER MAT OPTION



CROSS SECTION LOOKING IN LONGITUDINAL DIRECTION

* THESE ARE ONLY NEEDED AT OUTER PERIMETER OF INSTALLATION. IF THE MAT SLOPES AWAY FROM THE PERIMETER AT LEAST 5%, THEN SOCK AND LAG SCREWS MAY BE OMITTED.



TIMBER MAT ISOMETRIC VIEW
NOT TO SCALE

TEMPORARY ACCESS ROAD
NOT TO SCALE
(PART OF 9000-0005 TEMPORARY CAUSEWAY)

NOTES:

1. GRAVEL AND TIMBER MATS MAY BE USED INTERCHANGABLY, EXCEPT ONLY TIMBER MATS MAY BE USED FOR TEMPORARY WETLAND PROTECTION.
2. IF TIMBER MATS ARE USED, SEE TIMBER MAT DETAIL FOR FURTHER INFORMATION.

THE FOLLOWING STEPS TO INSTALL AND REMOVE GEOTEXTILE FABRIC AND FILL MATERIAL MUST BE COMPLETED:

VEGETATION MUST BE CUT FLUSH WITH THE SURFACE OF GROUND

NO GRUBBING IS TO BE PERFORMED, LEAVE ALL ROOTS IN PLACE

EXCAVATION, GRADING, OR REMOVAL OF TOPSOIL IS NOT PERMITTED. BENCHING TO ALLOW FOR PROPOSED EMBANKMENT GRADING IS NOT REQUIRED.

CLASS 4, TYPE C GEOTEXTILE WILL BE PLACED BY HAND OVER THE AREA TO BE PROTECTED, THIS WILL ACT AS A BARRIER BETWEEN THE EXISTING GROUND SURFACE AND THE FILL MATERIAL. GEOTEXTILE IS NOT TO BE PLACED WITHIN WATERWAY.

THE EQUIPMENT PLACING THE FILL MATERIAL WILL RUN ON THE SURFACE OF THE PLACED FILL AND NOT ON THE ORIGINAL GROUND SURFACE.

TO AVOID DAMAGE TO THE ORIGINAL GROUND SURFACE THE FILL MATERIAL WILL NOT BE COMPACTED WITH VIBRATION EQUIPMENT.

AT THE COMPLETETION OF THE PROJECT, THE FILL MATERIAL WILL BE REMOVED IN A MANNER SIMILAR TO WHICH IT WAS PLACED.

THE EQUIPMENT REMOVING THE FILL WILL NOT RUN ON THE ORIGINAL GROUND SURFACE DURING THE REMOVAL PROCESS.

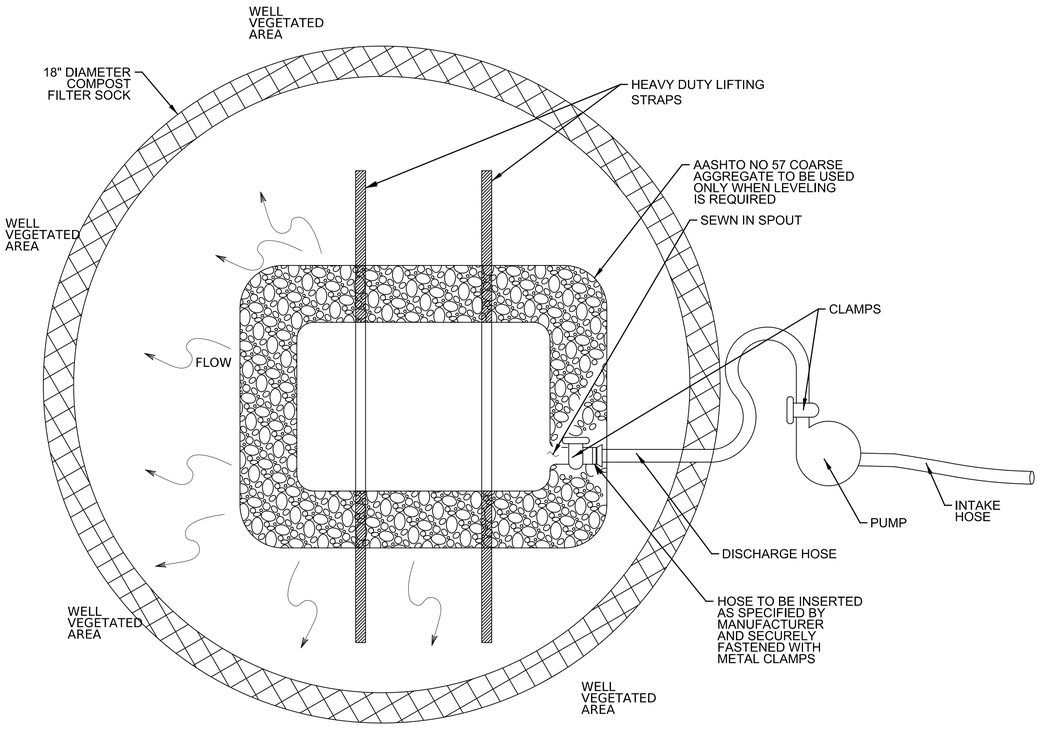
THE GEOTEXTILE MATERIAL WILL BE REMOVED BY HAND.

RE-SEED THE PROTECTED AREA USING AN APPROVED PENNDOT SEED MIXTURE.

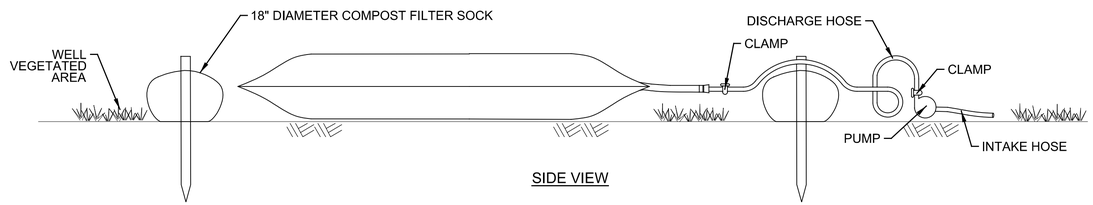
TYPICAL DETAILS

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	9 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY



TOP VIEW



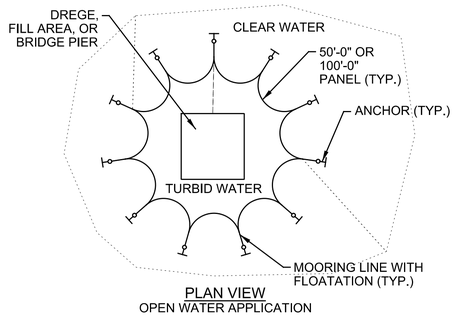
SIDE VIEW

NOTES:

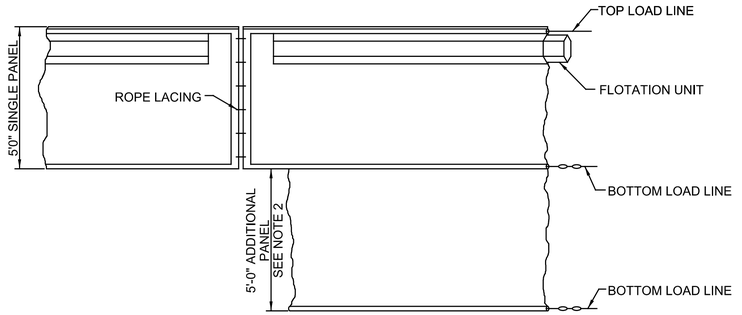
1. LOCATE BAG IN LEVEL AREAS (LESS THAN 5% GRADE). WHEN LEVEL AREAS ARE NOT AVAILABLE, PLACE AASHTO NO 57 COARSE AGGREGATE TO LEVEL THE BAG.
2. LOCATE BAG IN A WELL VEGETATED AREA. DISCHARGE ONTO A STABLE, EROSION RESISTANT AREA. WHEN VEGETATED AREA IS NOT AVAILABLE, PROVIDE A GEOTEXTILE (CLASS 4, TYPE A) LINED FLOW PATH TO A STABLE EROSION RESISTANT RECEIVING WATER COURSE OR A WELL VEGETATED AREA.
3. LOCATE BAG IN AN AREA ACCESSIBLE BY EQUIPMENT FOR MAINTENANCE AND REMOVAL PURPOSES.
4. DO NOT INSERT MORE THAN ONE HOSE INTO A BAG.
5. REPLACE THE BAG WHEN 50% OF THE SEDIMENT CAPACITY HAS BEEN FILLED AND/OR WHEN THERE IS A FAILURE. THE ADDITIONAL BAGS WILL BE PAID AS EACH.
6. REMOVE AND PROPERLY DISPOSE OF THE PUMPED WATER FILTER BAGS. RESTORE THE AREA IN ACCORDANCE WITH THE SPECIFICATIONS IN PUBLICATION 408. DO NOT CUT FILTER BAG OR DISTRIBUTE AND SEED SEDIMENT.
7. DO NOT PERMIT DISCHARGE FROM THE BAG TO DRAIN BACK INTO WORK OR ACCESS AREAS OF THE PROJECT.
8. PUMPING RATE IS NOT TO BE GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS.

PUMPED WATER FILTER BAG

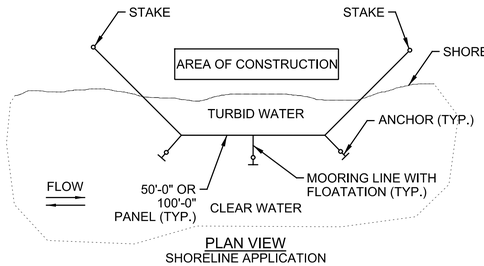
NOT TO SCALE



PLAN VIEW
OPEN WATER APPLICATION



ELEVATION



PLAN VIEW
SHORELINE APPLICATION

FLOATING TURBIDITY CURTAIN

NOTE:

1. ADDITIONAL PANEL REQUIRED FOR DEPTHS GREATER THAN 5'-0".
2. USE 2 TURBIDITY CURTAIN PANELS TO REACH BOTTOM DEPTHS OF 10'-0". SPECIAL DEPTH TURBIDITY CURTAIN PANELS ARE REQUIRED FOR DEPTHS GREATER THAN 10'-0" AND THEIR USE WITH BE CALLED OUT IN THE PLANS OR DIRECTED BY THE ENGINEER.

TURBIDITY CURTAIN

NOT TO SCALE

TYPICAL DETAILS

$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	10 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

33'-0"

LEGAL RIGHT-OF-WAY LINE

VEHICULAR GATE FOR TYPE 1 RIGHT-OF-WAY FENCE, 24-FOOT OPENING

0 — POB 0+00.00

TEMPORARY PROTECTIVE FENCE

SR 1002 CONSTRUCTION ℄

60'-0"

3+16' 60' LT

CAUSEWAY EL 709' 120' WIDTH

120'

N 56°27'59" E

LEGAL RIGHT-OF-WAY LINE

3+15' 60' RT

DEBRIS CONTAINMENT BOOM & NET

TC

LOC

30' ACCESS RD 10% MAX GRADE

20' ACCESS RD 10% MAX GRADE

83'-3"

PWF-B 18" CFS

TEMPORARY PROTECTIVE FENCE

VEHICULAR GATE FOR TYPE 1 RIGHT-OF-WAY FENCE, 24-FOOT OPENING

ROCK CONSTRUCTION ENTRANCE

30'-0"

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

ESTIMATED LEGAL RIGHT-OF-WAY LINE

RICHARD & LISA LANDER DEED BOOK 2008, PAGE 341 PARCEL 2

STEVEN D. IRCHA AND JANE IRCHA DEED BOOK 3503, PAGE 199 PARCEL 2

THE PEOPLE OF THE STATE OF NEW YORK DEED BOOK 758, PAGE 60

3 BOX-WIRE FENCE

LEGEND

690	EXISTING CONTOURS
700	PROPOSED CONTOURS
18" CFS	18" COMPOST FILER SOCK
24" CFS	24" COMPOST FILER SOCK
TC	TURBIDITY CURTAIN
LOC	LIMIT OF CONSTRUCTION
PWFB	PUMPED WATER FILTER BAG

NOTE: 100-YEAR FLOOD ELEV = +/- 723 TO 725

STAGES 1 - 3
PLAN SHEET - CAUSEWAY

$FILE$
$DATE$
$TIME$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	11 OF 11
9	SULLIVAN	CR 44	-	

REVISION NUMBER	REVISIONS	DATE	BY

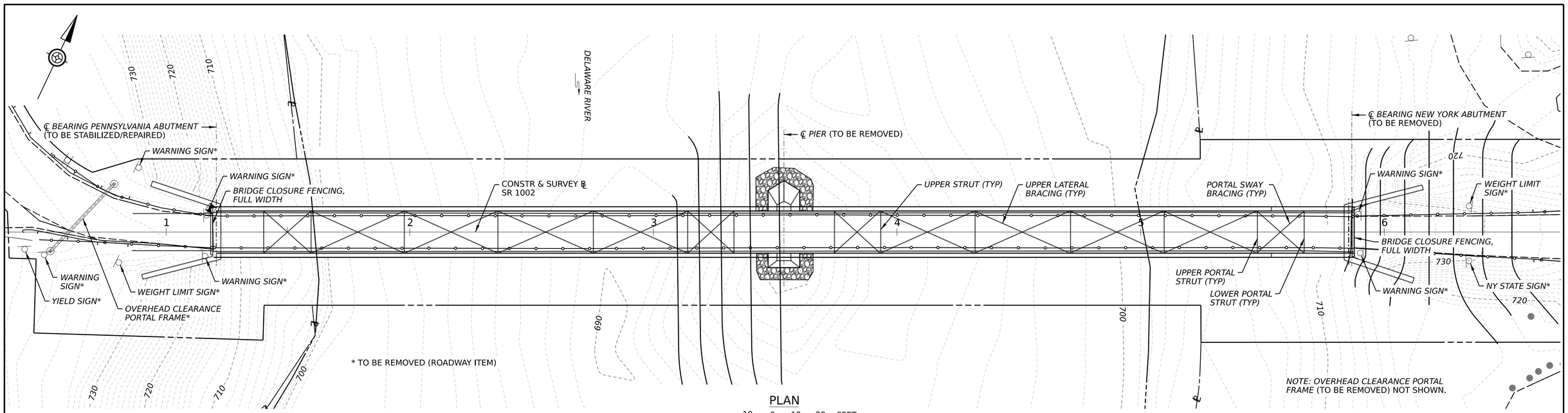
LEGEND

690	EXISTING CONTOURS	LOC	LIMIT OF CONSTRUCTION
700	PROPOSED CONTOURS	▨	PAVEMENT REMOVAL
12" CFS	12" COMPOST FILER SOCK		
24" CFS	24" COMPOST FILER SOCK		

SCALE

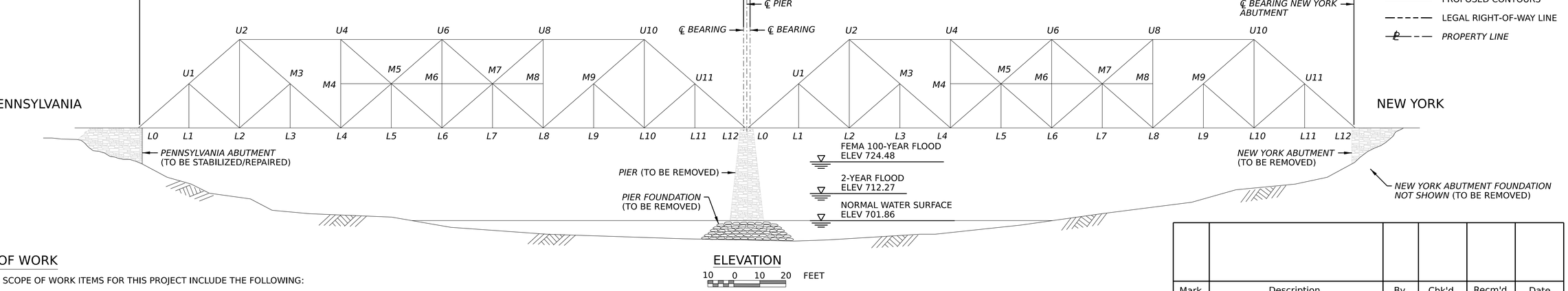
0 30 60 FEET

STAGES 4A & 4B
PLAN SHEET - RESTORATION



PLAN

10 0 10 20 FEET



ELEVATION

10 0 10 20 FEET

LEGEND

- 730 — EXISTING CONTOURS
- PROPOSED CONTOURS
- LEGAL RIGHT-OF-WAY LINE
- ℄ — PROPERTY LINE

SCOPE OF WORK

THE MAJOR SCOPE OF WORK ITEMS FOR THIS PROJECT INCLUDE THE FOLLOWING:

- CONSTRUCT CAUSEWAY (EROSION AND SEDIMENTATION POLLUTION CONTROL ITEM).
- DEMOLISH EXISTING BRIDGE SUPERSTRUCTURE.
- REMOVE EXISTING PIER AND NEW YORK ABUTMENT.
- REPAIR, STABILIZE, AND PRESERVE IN PLACE PENNSYLVANIA ABUTMENT.
- REMOVE EXISTING OVERHEAD CLEARANCE PORTAL FRAMES AND SIGNAGE AT PENNSYLVANIA AND NEW YORK ABUTMENTS (ROADWAY ITEM).
- REMOVE ROADWAY PAVEMENT ON PENNSYLVANIA BRIDGE APPROACH (ROADWAY ITEM).
- REMOVE ROADWAY BRIDGE APPROACH ON NEW YORK SIDE (ROADWAY ITEM).

SHEET INDEX

HYDRAULIC DATA

NORMAL FLOW
MAGNITUDE = 6,258 CFS
ELEVATION = 701.86

2-YEAR FLOOD
MAGNITUDE = 37,799 CFS
FREQUENCY = 2 YEARS
ELEVATION = 712.27

FEMA 100-YEAR FLOOD
MAGNITUDE = 139,250 CFS
FREQUENCY = 100 YEARS
ELEVATION = 724.48

NOTES

1. FOR GENERAL NOTES, SEE SHEET 2.
2. FOR TABULATION OF STRUCTURE QUANTITIES, SEE SHEET 2.
3. FOR TEMPORARY CAUSEWAY INFORMATION AND DETAILS, SEE THE EROSION AND SEDIMENTATION CONTROL PLAN.
4. FOR ROADWAY APPROACH WORK AND ASSOCIATED DETAILS, SEE THE ROADWAY PLANS.

SUPPLEMENTAL DRAWINGS

DESCRIPTION	DWG NO	APP DATE
STANDARD RECTANGULAR ALUMINUM PEDESTRIAN RAILING	BC-716M	11/23/22
STANDARD REINFORCEMENT BAR FABRICATION DETAILS	BC-736M	11/23/22

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 1002 PREVIOUSLY KNOWN AS LR 63027
BMS STR ID: 63-1002-0230-0739 MPMS/ECMS PROJ: 122260 BRKEY: 35588

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739

SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL

GENERAL PLAN AND ELEVATION

RECOMMENDED _____

DISTRICT 4-0 BRIDGE ENGINEER

SHEET 1 OF 6

DES: KSW	CKD: WGO	DWN: BT	CKD: WGO

APPROXIMATE QUANTITIES						
ITEM NO	DESCRIPTION	UNIT	PA ABUTMENT	NY ABUTMENT	SUPERSTRUCTURE	TOTAL
1018-0048	REMOVAL OF PORTION OF EXISTING BRIDGE	LS	···	···	···	1
AND						
9000-0005	TEMPORARY CAUSEWAY	LS	···	···	···	1
9000-0007	PA ABUT STONE MASONRY REPAIR	SF	70	···	···	70
9000-0008	PA ABUT STONE MASONRY REPOINTING TYPE A	LF	300	···	···	300
9000-0009	POST-DEMOLITION WATERWAY SURVEY	LS	···	···	···	1
9000-0010	PA ABUT CAP AND RAILING	LF	86	···	···	86

GENERAL NOTES

1. PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408, AASHTO/AWS/D1.5/D1.5-2015 BRIDGE WELDING CODE (USE AASHTO/AWS/D1.1/D1.1M-2015 FOR WELDING NOT COVERED IN AASHTO/AWS/D1.5/D1.5-2015), AND THE CONTRACT SPECIAL PROVISIONS.
2. FOR HORIZONTAL AND VERTICAL CONTROL AND DATUM INFORMATION, SEE THE ROADWAY CONSTRUCTION PLANS.
3. ALL DIMENSIONS SHOWN ARE HORIZONTAL, EXCEPT AS NOTED.
4. STATIONS, ELEVATIONS AND GEOMETRY DATA ARE IN FEET.
5. SUPERSTRUCTURE DIMENSIONS SHOWN ARE FOR A NORMAL TEMPERATURE OF 68°F.

DESIGN SPECIFICATIONS:

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4, DECEMBER 2019 EDITION.
2. AASHTO GUIDE DESIGN SPECIFICATIONS FOR BRIDGE TEMPORARY WORKS, SECOND EDITION, 2017.
3. DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

DEAD LOADS:

1. ESTIMATED WEIGHTS OF BRIDGE COMPONENTS IS AS FOLLOWS:
   - DECORATIVE (LATTICE) BRIDGE RAILING (EACH) = 12.9 LBS/LF
   - TRAFFIC RAILING (EACH) = 29.6 LBS/LF
   - TIMBER BRIDGE DECK = 284.5 LBS/LF.
   - STRINGERS (EACH) = 18.4 LBS/LF
   - TOTAL BRIDGE SUPERSTRUCTURE = 213 KIPS (EACH TRUSS SPAN)

CONSTRUCTION NOTES:

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFE REMOVAL OF ALL STRUCTURES AND IS TO PROVIDE ALL NECESSARY BRACING AND SUPPORTS.
2. THE EXISTING BRIDGE IS CURRENTLY WEIGHT RESTRICTED AND CLOSED TO VEHICULAR AND PEDESTRIAN TRAFFIC. SOME OF THE EXISTING BRIDGE STRUCTURAL ELEMENTS ARE IN ADVANCED STAGES OF DETERIORATION. LOCAL FAILURES ARE POSSIBLE. BE RESPONSIBLE FOR ASSESSING THE CONDITION OF THE EXISTING STRUCTURE AND ENSURING THE SAFETY AND STABILITY OF THE EXISTING ELEMENTS DURING AND THROUGHOUT ALL STAGES OF CONSTRUCTION.
3. DESIGN AND INSTALL TEMPORARY BRACES, SUPPORTS, OR OTHER STRUCTURES, AS NECESSARY FOR BRIDGE REMOVAL OPERATIONS. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
4. EXERCISE CARE WHEN REMOVING THE EXISTING TIMBER BRIDGE DECK AND EXISTING STRINGERS. EXISTING TIMBER BRIDGE DECK AND EXISTING STRINGERS MAY BE PROVIDING STABILITY TO THE EXISTING SUPERSTRUCTURE.
5. USE CARE WHEN REMOVING PORTIONS OF THE EXISTING STRUCTURE SO TO NOT DAMAGE THE PORTIONS OF THE STRUCTURE WHICH ARE TO BE RETAINED. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
6. CONSIDER LIVE LOAD RESTRICTIONS AND STRUCTURAL CONDITION AND VERIFY PROPOSED CONSTRUCTION LOADINGS PRIOR TO PLACING EQUIPMENT ON THE BRIDGE. DO NOT EXCEED LOAD CARRY CAPACITY OF THE STRUCTURE AND DO NOT CAUSE OVERSTRESSES OR PERMANENT DEFORMATION TO ANY BRIDGE MEMBERS.
7. DO NOT STORE CONSTRUCTION EQUIPMENT OR STOCKPILE ANY MATERIALS, INCLUDING MATERIALS REMOVED FROM THE BRIDGE ON OR DIRECTLY ADJACENT TO THE BRIDGE.
8. DO NOT UTILIZE CONSTRUCTION EQUIPMENT SUPPORTED BY THE EXISTING BRIDGE FOR BRIDGE REMOVAL UNLESS A CAPACITY ANALYSIS, PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA, INDICATES THAT IT IS SAFE TO DO SO AND RECEIVES ACCEPTANCE BY THE REPRESENTATIVE.
9. IMMEDIATELY REMOVE ANY MATERIAL THAT FALLS INTO THE WATERWAY. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
10. HAVE ALL CALCULATIONS REQUIRED TO PERFORM WORK IN A SAFE AND EFFECTIVE MANNER PREPARED, SIGNED, AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA.
11. WELDING IS NOT PERMITTED ON ANY PORTION OF THE EXISTING BRIDGE MEMBERS.
12. PERFORM ALL WORK IN COMPLIANCE WITH THE PERMITS ISSUED FOR THE PROJECT.
13. BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL MATERIALS WHICH ARE REMOVED. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
14. THE CAUSEWAY, AS SHOWN IN THE CONTRACT DOCUMENTS, IS AVAILABLE FOR BRIDGE REMOVAL ACTIVITIES. SEE THE EROSION AND SEDIMENTATION CONTROL PLANS AND THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
15. THE DELAWARE RIVER AT THE EXISTING BRIDGE LOCATION IS A NAVIGABLE WATERWAY. CONDUCT OPERATIONS IN ACCORDANCE WITH ALL REGULATIONS AND REQUIREMENTS OF THE NATIONAL PARK SERVICE, US COAST GUARD, PENNSYLVANIA FISH AND BOAT COMMISSION, US ARMY CORPS OF ENGINEERS, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
16. NOTIFY THE COAST GUARD AND THE ARMY CORPS OF ENGINEERS PRIOR TO START OF CONSTRUCTION. COOPERATE WITH ALL FEDERAL AND STATE AGENCIES DURING CONSTRUCTION.
17. NOTIFY THE PENNSYLVANIA FISH AND BOAT COMMISSION'S REGIONAL FIELD OFFICE MANAGER TEN (10) DAYS PRIOR TO START OF CONSTRUCTION AND COOPERATE WITH THE PENNSYLVANIA FISH AND BOAT COMMISSION DURING CONSTRUCTION. MAKE THE PROJECT SITE AVAILABLE AT ALL TIMES FOR INSPECTION BY AUTHORIZED OFFICERS AND EMPLOYEES OF THE FISH AND BOAT COMMISSION.

    JOSHUA WISOR
    595 EAST ROLLING RIDGE DRIVE
    BELLEFONTE, PA 16823
    PHONE: 814-359-5250

18. MONITOR MARINE TRAFFIC WHILE WORK ON OR OVER WATER IS BEING PERFORMED. MAINTAIN CONTINUOUS CONTACT WITH WATERWAY USERS AS REQUIRED BY THE SPECIFICATIONS.
19. PERFORM WORK IN ACCORDANCE WITH THE AID TO NAVIGATION (ATON) PLAN.
20. THE NATIONAL PARK SERVICE AND US COAST GUARD HAVE THE RIGHT TO CLEAR THE WATERWAY FOR EMERGENCIES.

EXISTING CONDITION NOTES:

1. DO NOT CONSIDER ANY OF THE DATA ON THE EXISTING STRUCTURE SUPPLIED IN THE ORIGINAL DESIGN DRAWINGS OR MADE AVAILABLE TO YOU BY THE OWNER OR ITS AUTHORIZED AGENTS AS POSITIVE REPRESENTATIONS OF ANY OF THE CONDITIONS THAT YOU WILL ENCOUNTER IN THE FIELD.
2. THE INFORMATION SHOWN ON THE PLANS FOR THE EXISTING BRIDGE IS NOT PART OF THE PLANS, PROPOSAL, OR CONTRACT AND IS NOT TO BE CONSIDERED A BASIS FOR COMPUTATION OF THE UNIT PRICES USED FOR THE BIDDING PROCESS. THERE IS NO EXPRESSED OR IMPLIED AGREEMENT THAT INFORMATION IS CORRECTLY SHOWN. DO NOT RELY ON THIS INFORMATION BUT ASSUME THE POSSIBILITY THAT CONDITIONS AFFECTING THE COSTS OR QUANTITIES OF WORK PERFORMED MAY DIFFER FROM THOSE INDICATED.
3. FIELD CONDITIONS MAY EXIST WHICH DEVIATE FROM THE TYPICAL AND THEORETICAL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS OR AVAILABLE EXISTING INFORMATION. THE DEPARTMENT MAKES NO ASSURANCES REGARDING THE PRESENTED CONDITIONS, DIMENSIONS OR MATERIAL OF THE EXISTING STRUCTURES.
4. VERIFY ALL DIMENSIONS AND GEOMETRY OF THE EXISTING STRUCTURES IN THE FIELD AS NECESSARY FOR PROPER FIT OF THE PROPOSED CONSTRUCTION. DETAILS AND DIMENSIONS SHOWN ON THESE DRAWINGS TO DESCRIBE EXISTING STRUCTURES MAY NOT REFLECT PRESENT CONDITIONS.
5. THE EXISTING BRIDGE STRUCTURE MEMBERS MAY CONTAIN LEAD PAINT AND OTHER TOXIC MATERIALS. HANDLE AND DISPOSE OF BRIDGE WASTE MATERIAL IN ACCORDANCE WITH PUBLICATION 408 AND THE SPECIAL PROVISIONS.

UTILITY NOTES:

1. COORDINATE, LOCATE AND CONDUCT ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH PUBLICATION 408, SECTIONS 105.06 AND 107.12.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL NEW AND EXISTING UTILITIES DURING CONSTRUCTION. SUBMIT TO THE ENGINEER FOR APPROVAL A SCHEME FOR PROTECTION OF THE UTILITIES.
3. VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK. CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. THE OWNER DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE AND LOCATION OF ANY UTILITY.

SUGGESTED SEQUENCE OF CONSTRUCTION

1. CONSTRUCT PARTIAL WIDTH CAUSEWAY, REFER TO EROSION AND SEDIMENTATION CONTROL PLANS FOR ADDITIONAL INFORMATION.
2. REMOVE EXISTING SUPERSTRUCTURE.
   A. DROP NEW YORK SPAN (SPAN 2) ONTO THE TEMPORARY CAUSEWAY. DROP PENNSYLVANIA SPAN (SPAN 1) INTO THE RIVER.
   B. DRAG THE PENNSYLVANIA SPAN (SPAN 1) FROM THE RIVER AND ONTO THE TEMPORARY CAUSEWAY.
   C. DISASSEMBLE EXISTING SUPERSTRUCTURE ON THE TEMPORARY CAUSEWAY AND PROPERLY DISPOSE OF ALL ELEMENTS.
   D. REMOVE NEW YORK ABUTMENT AND PIER, INCLUDING FOOTINGS, TIMBER CRIBBING, AND ASSOCIATED/ENCAPSULATED FILL MATERIALS.
3. REMOVE TEMPORARY CAUSEWAY, REFER TO EROSION AND SEDIMENTATION CONTROL PLANS FOR ADDITIONAL INFORMATION.
4. RETURN EMBANKMENT AND RIVERBED TO PRE-CONSTRUCTION CONDITION, REFER TO ROADWAY PLANS FOR ADDITIONAL INFORMATION.
5. REPLACE/RESET MISSING/LOOSE STONES ON THE PENNSYLVANIA ABUTMENT AND WINGWALL.
6. REPOINT STONE MASONRY JOINTS ON THE PENNSYLVANIA ABUTMENT AND WINGWALL.
7. INSTALL CONCRETE CAP AND PEDESTRIAN RAILING ON THE PENNSYLVANIA ABUTMENT AND WINGWALL.

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 1002 PREVIOUSLY KNOWN AS LR 63027
BMS STR ID: 63-1002-0230-0739 MPMS/ECMS PROJ: 122260 BRKEY: 35588

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739
SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL

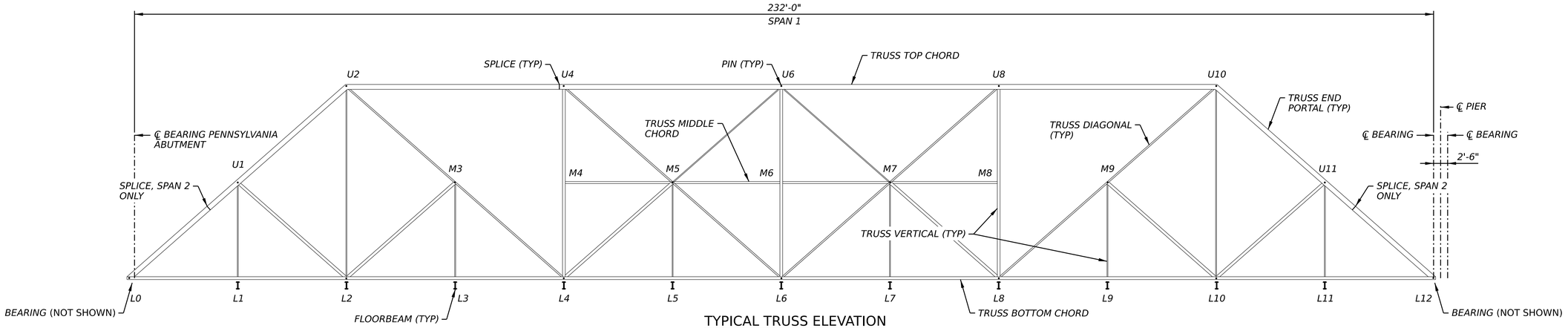
GENERAL NOTES AND TABULATION OF QUANTITIES

RECOMMENDED _____

SHEET 2 OF 6

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

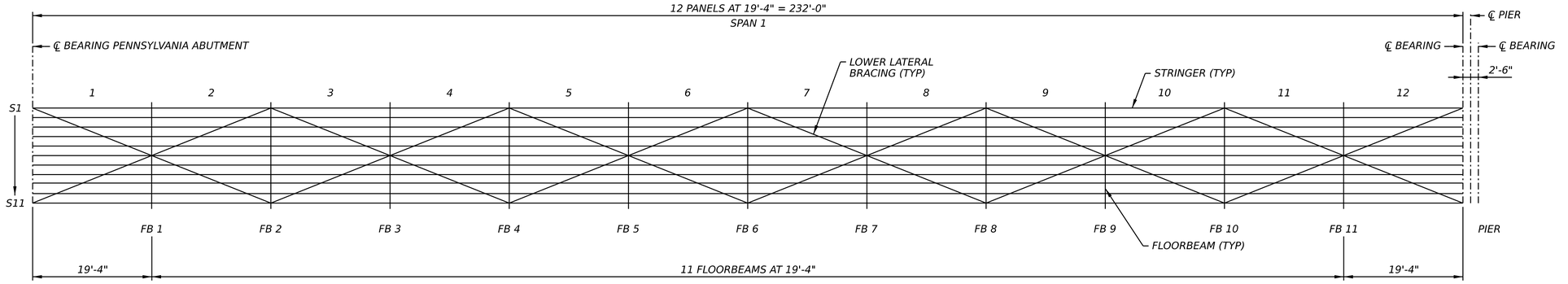
DES: KSW	CKD: WGO	DWN: BT	CKD: WGO



TYPICAL TRUSS ELEVATION

(SPAN 1 SHOWN, SPAN 2 SIMILAR)

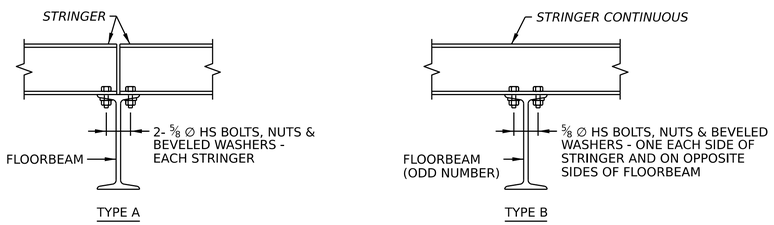
10 0 10 20 FEET



BOTTOM LATERAL BRACING AND FRAMING PLAN

(SPAN 1 SHOWN, SPAN 2 SIMILAR)

10 0 10 20 FEET



NOTE:

TYPE B CONNECTIONS ARE ONLY USED IN SPAN 1, WHERE STRINGERS S2, S3, S4, S6, S8, S9, AND S10 ARE CONTINUOUS OVER ODD NUMBERED FLOORBEAMS. ALL OTHER FLOORBEAM TO STRINGER CONNECTIONS ARE TYPE A.

STRINGER TO FLOORBEAM CONNECTIONS

6 0 6 12 INCHES

Mark	Description	By	Chk'd.	Recm'd.	Date
	REVISIONS				

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739
SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL

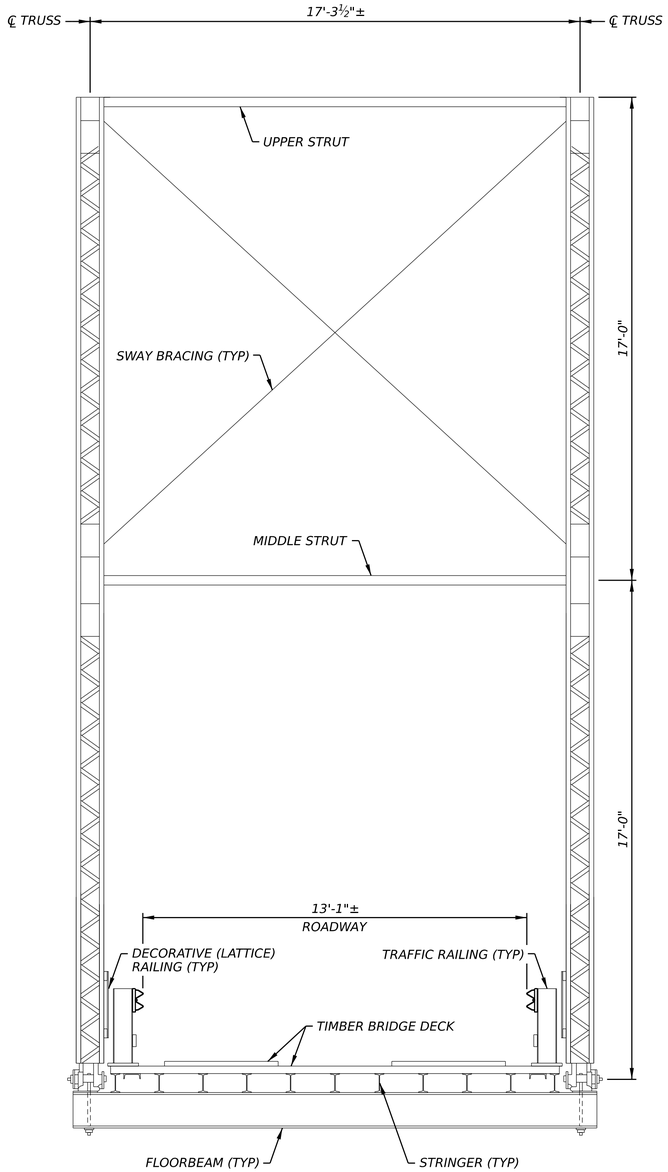
TRUSS ELEVATION AND FRAMING PLAN

RECOMMENDED _____

SHEET 3 OF 6

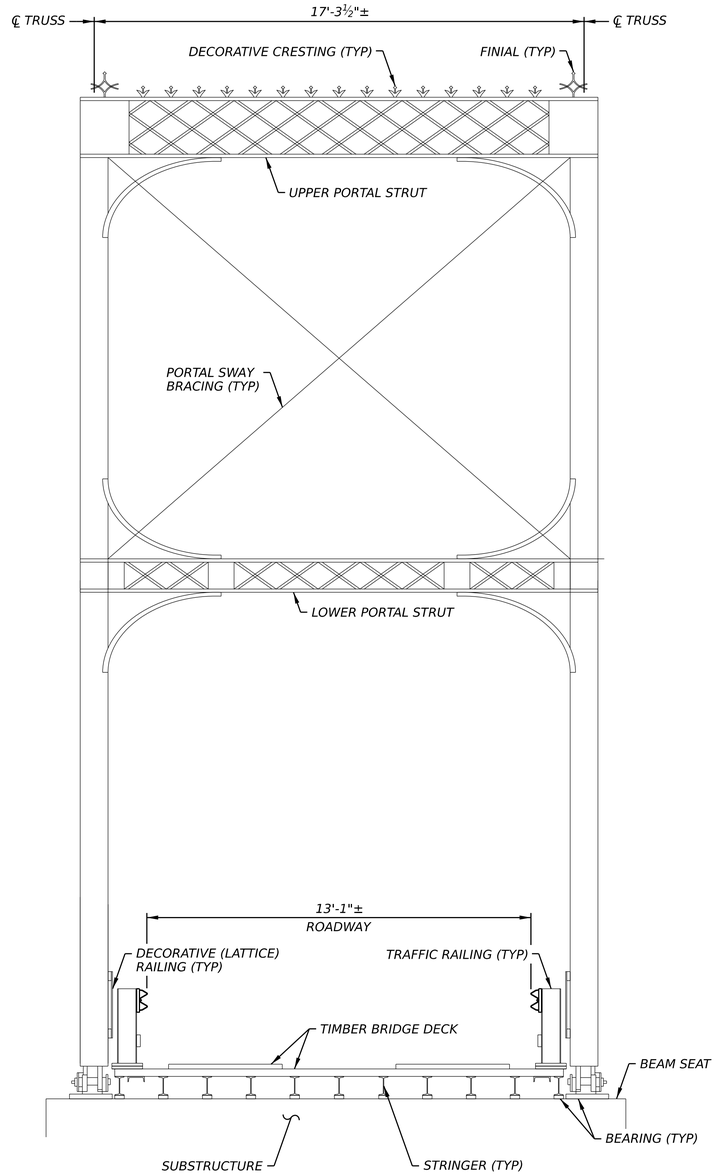
AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

DES: KSW	CKD: WGO	DWN: BT	CKD: WGO



TRUSS TYPICAL SECTION

1 0 1 2 3 FEET



TRUSS END PORTAL

1 0 1 2 3 FEET

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

SR 1002 PREVIOUSLY KNOWN AS LR 63027
BMS STR ID: 63-1002-0230-0739 MPMS/ECMS PROJ: 122260 BRKEY: 35588

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739
SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL

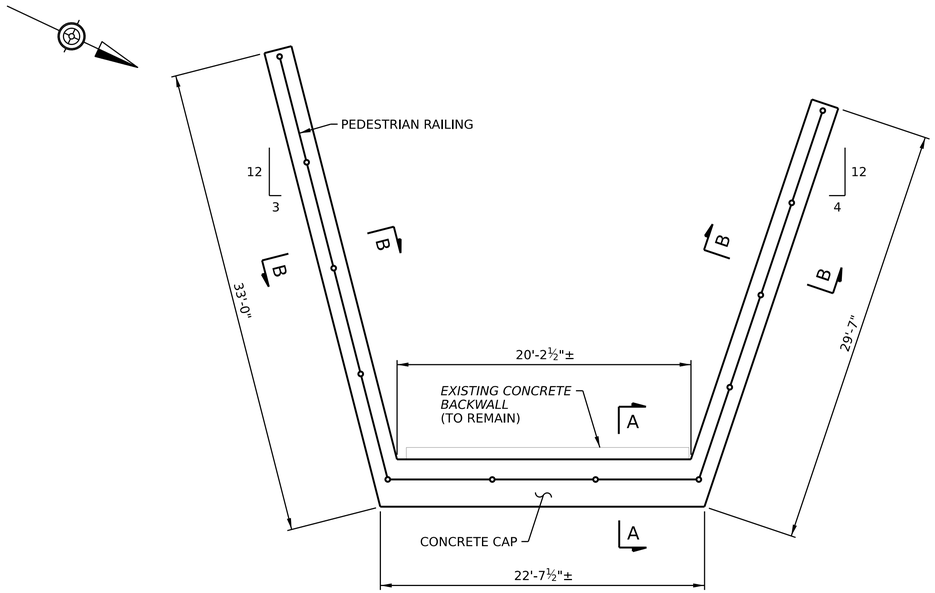
TRUSS TYPICAL SECTION

RECOMMENDED _____

SHEET 4 OF 6

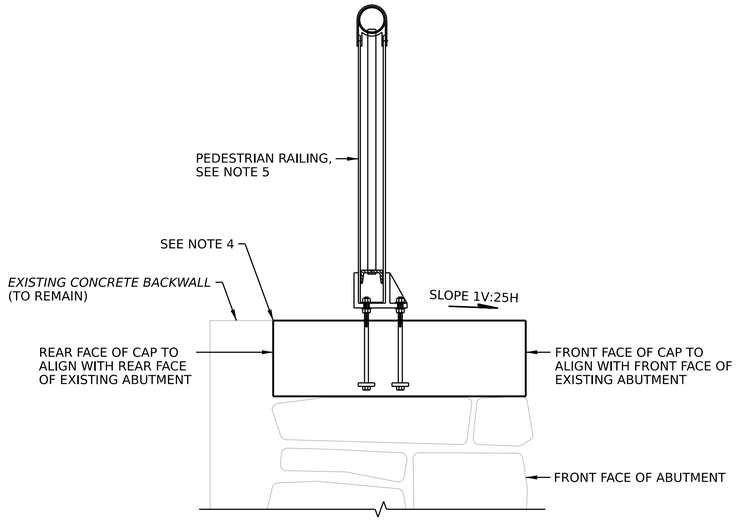
AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

DES: KSW	CKD: WGO	DWN: BT	CKD: WGO



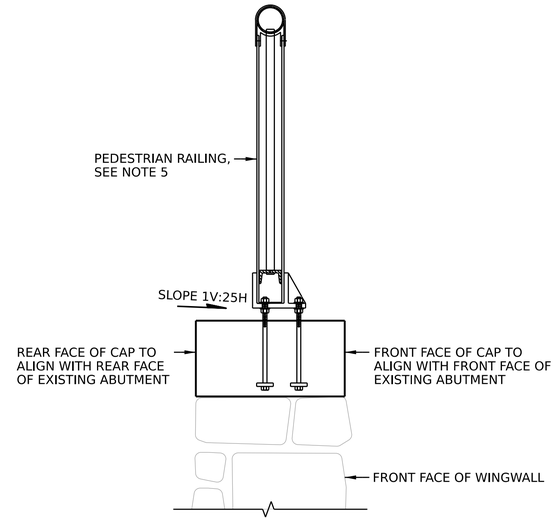
PLAN VIEW

1 0 1 2 3 FEET



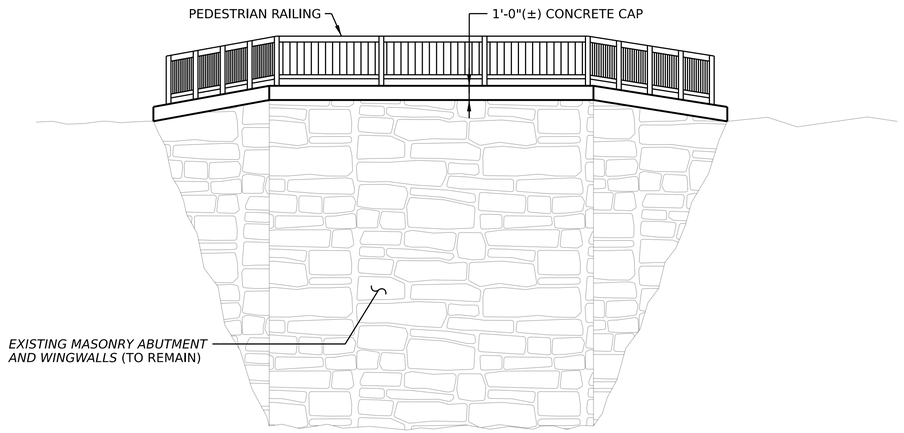
SECTION A-A

6 0 6 12 INCHES



SECTION B-B

6 0 6 12 INCHES



ELEVATION

1 0 1 2 3 FEET

NOTES

1. FRONT FACE OF EXISTING MASONRY ABUTMENT AND WINGWALLS TO BE REPOINTED AND REPAIRED AS NEEDED, SEE SPECIAL PROVISIONS.
2. CLEAN AND APPLY EPOXY BONDING COMPOUND TO EXISTING MASONRY AND CONCRETE CONTACT SURFACES PRIOR TO PLACING CONCRETE.
3. LOCATE HOLES FOR REINFORCEMENT BAR DOWELS A MINIMUM OF 6" FROM MASONRY FACES. ADJUST SPACING IN THE FIELD AS REQUIRED.
4. TOP OF CONCRETE CAP TO MATCH TOP OF EXISTING CONCRETE BACKWALL.
5. FOR ADDITIONAL PEDESTRIAN RAILING AND PEDESTRIAN RAILING ANCHORAGE DETAILS, REFER TO BC-716M. UTILIZE ALTERNATE DETAIL A ANCHORAGE DETAIL.

Mark	Description	By	Chk'd.	Recm'd.	Date

REVISIONS

SR 1002 PREVIOUSLY KNOWN AS LR 63027
BMS STR ID: 63-1002-0230-0739 MPMS/ECMS PROJ: 122260 BRKEY: 35588

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739
SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL
PENNSYLVANIA ABUTMENT REPAIR

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

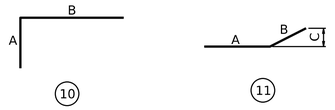
RECOMMENDED _____

SHEET 5 OF 6

DES: RJC	CKD: MJA	DWN: BT	CKD: MJA

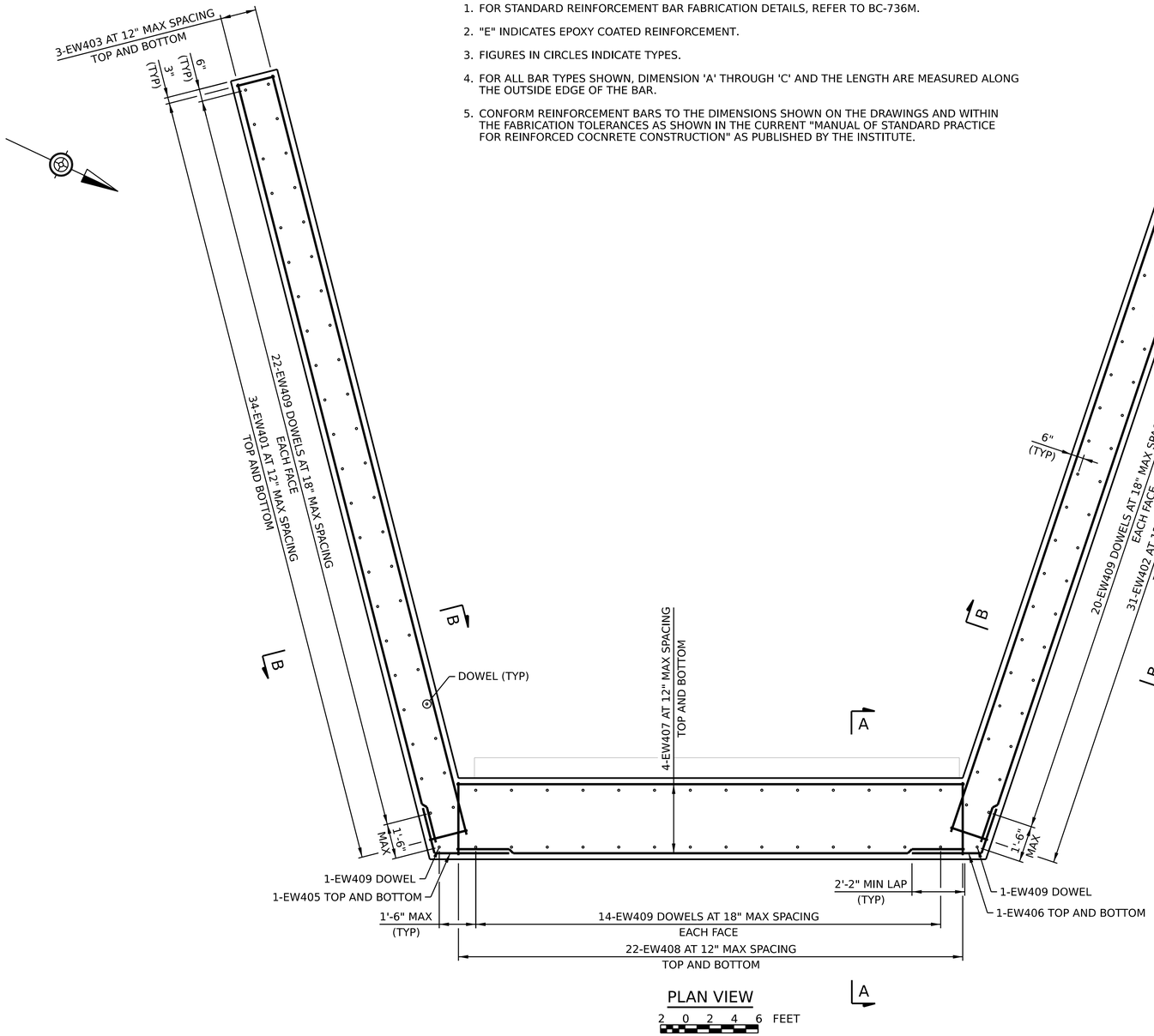
REINFORCEMENT BAR SCHEDULE								
BAR MARK	QUANTITY	SIZE	TYPE	LENGTH	A	B	C	REMARKS
EW401	68	4	STR	1'-9"				
EW402	62	4	STR	1'-9"				
EW403	6	4	STR	32'-6"				
EW404	6	4	STR	29'-1"				
EW405	2	4	11	5'-0"	2'-6"	2'-6"	2'-5⅛"	
EW406	2	4	11	5'-0"	2'-6"	2'-6"	2'-4½"	
EW407	8	4	STR	21'-11½"				
EW408	44	4	STR	3'-0"				
EW409	114	4	10	3'-2"	8"	2'-6"		

BENDING DIAGRAGM



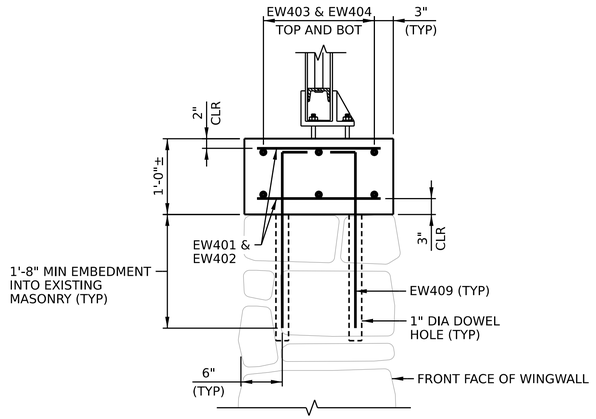
NOTES

1. FOR STANDARD REINFORCEMENT BAR FABRICATION DETAILS, REFER TO BC-736M.
2. "E" INDICATES EPOXY COATED REINFORCEMENT.
3. FIGURES IN CIRCLES INDICATE TYPES.
4. FOR ALL BAR TYPES SHOWN, DIMENSION 'A' THROUGH 'C' AND THE LENGTH ARE MEASURED ALONG THE OUTSIDE EDGE OF THE BAR.
5. CONFORM REINFORCEMENT BARS TO THE DIMENSIONS SHOWN ON THE DRAWINGS AND WITHIN THE FABRICATION TOLERANCES AS SHOWN IN THE CURRENT "MANUAL OF STANDARD PRACTICE FOR REINFORCED COCNRETE CONSTRUCTION" AS PUBLISHED BY THE INSTITUTE.



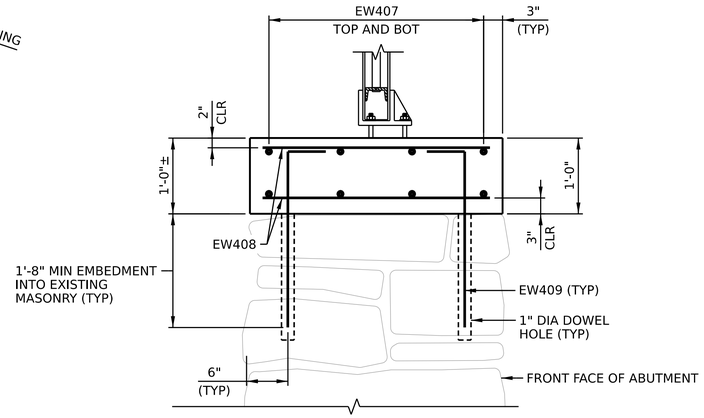
PLAN VIEW

2 0 2 4 6 FEET



SECTION B-B

6 0 6 12 INCHES



SECTION A-A

6 0 6 12 INCHES

Mark	Description	By	Chk'd.	Recm'd.	Date
REVISIONS					

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BMS STR ID: 63-1002-0230-0739 MPMS/ECMS PROJ: 122260 BRKEY: 35588

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WAYNE COUNTY
SR 1002 OFFSET 0739

SEG 0230 OFFSET 0739
SR 1002-BRG STA 7+19.00
OVER DELAWARE RIVER
2-SPAN THROUGH TRUSS BRIDGE REMOVAL

PENNSYLVANIA ABUTMENT CAP DETAILS

AECOM
625 West Ridge Pike, Suite E-100
Conshohocken, Pennsylvania 19248

RECOMMENDED _____

SHEET 6 OF 6

DES: RJC	CKD: MJA	DWN: BT	CKD: MJA

ITEM 1018-0048 – REMOVAL OF PORTION OF EXISTING BRIDGE

In accordance with Section 1018 and as follows:

1018.1 DESCRIPTION – Revise by adding the following:

This work is the removal of the existing bridge superstructure, existing pier, and existing New York abutment, including development of a bridge removal/demolition plan. This work also includes the design, construction, and removal of any temporary braces, supports, or structures required to remove the existing bridge and maintain the stability of the existing elements during all stages of the bridge removal.

1018.2 MATERIAL – Revise by adding the following:

Provide certification or laboratory test results verifying material properties. For used steel, the salvage design values from AASHTO Guide Design Specification for Bridge Temporary Works (AASHTO Guide Spec) may be used as an alternate to testing to determine grade of steel. Materials need not be new but must be in serviceable condition as determined by the Representative. Any temporary material used does not have to be from a Bulletin 15 source but must meet the following and be approved by the Representative:

1. Structural Steel. AASHTO 270 (ASTM A709), Grade 36, Grade 50, or Grade 50W.
2. Steel Sheet Piling. ASTM A328, ASTM A572.
3. Steel H-Piles. AASHTO M 270 (ASTM A709), Grade 36.
4. Wood Lagging. Rough cut species in AASHTO Guide Specifications, Appendix A and AASHTO Construction Handbook for Bridge Temporary Works, Appendix C.
5. Cement. AASHTO 85 and AASHTO 240.
6. Prestressing Steel. ASTM A416, Grade 270.
7. Welded Wire Fabric. AASHTO M 55 (ASTM A185).
8. Reinforcement Bars. AASHTO M 31 (ASTM A615), AASHTO M 42 (ASTM A616), Grade 60.
9. Other Material. In accordance with applicable sections of Publication 408.

1018.3 CONSTRUCTION

1018.3(a) Demolition Plan – Revise by adding the following:

Develop and submit demolition plan, including all associated calculations, 60 days prior to the pre-demolition meeting.

Include methods for protecting the existing Pennsylvania abutment and embankment during bridge removal operations.

Include temporary support methods for bridge superstructure, abutments, and pier, as necessary, for all phases of construction. Include corresponding design calculations and completed detail drawings, signed and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania to the Department for review and approval. Include in the design calculations all material properties, design loads, and design assumptions for each support member. Use design loads corresponding with the proposed bridge removal sequence. Include on the completed detailed drawings of the temporary support structure all design dimensions, limits of work, elevations, material, member sizes, and construction sequence. Include specific installation procedures as part of the submittal.

If blasting is to be used, include a protection plan describing the installation of temporary protective measures to provide protection and limit readings to acceptable levels on portable seismographs placed under the protection. Include in the protection plan:

- Detailed descriptions and working drawings showing the method used to protect underground utilities, existing substructure units, adjacent slopes, surrounding structures, nearby residences, nearby businesses during demolition.
- Details of clean fill, rock, mats, and protection structures as required to prevent damage to existing structures and limit readings for portable seismographs placed under them in accordance with the BLASTING CONTROL AND MONITORING special provision.
- Calculations demonstrating that the protective measures proposed will limit vibration below them in accordance with vibration limits. This includes assessment of direct impact from debris. Include calculations demonstrating adequate strength for protective structures if used to bridge over protected elements. Provide calculations signed and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania.

1018.3(b) Demolition – Revise by adding the following:

Prior to commencement of bridge removal operations, thoroughly document all existing bridge elements which are to be retained through written descriptions, measurements, and photographs where appropriate. Submit this documentation to the Representative.

The Pennsylvania span (Span 1) and New York span (Span 2) are to be demolished simultaneously.

Provide adequate temporary shielding and/or supports as required to complete the work indicated on the plans or as directed by the Representative to safely protect workers, the public, existing structures, embankments, and utilities in the area of the bridge during all phases of construction.

Provide all necessary bracing to ensure the stability of the existing bridge elements to remain in service until their eventual removal/demolition during a subsequent construction stage. Design temporary braces, supports, or structures, as necessary, in accordance with AASHTO LRFD Bridge Design Specifications and Design Manual, Part 4 Specifications, current FHWA guidelines, and/or AASHTO Guide Specifications, as appropriate. Perform any subsurface explorations necessary to obtain geotechnical data required for designing any temporary braces, supports, or structures.

Submit method of bracing to the Representative for approval.

Coordinate bridge removal/demolition operations in accordance with Section 901.

Have all required traffic control and protection devices in place prior to commencing bridge removal/demolition operations. Perform all work in a manner which ensures worker and public safety during all phases of construction.

Protect and maintain stones at the existing Pennsylvania abutment which is to remain. Be responsible for repairing any damage caused by removal/demolition operations, at no additional cost to the Department.

Ensure that all construction activities stay within the legal right-of-way and indicated easements.

Ensure compliance with all environmental permits.

Ensure all erosion and sedimentation control measures are in place prior to bridge removal operations.

Perform work in accordance with the approved ATON plan.

Do not store any material, including any material removed during bridge removal operations, on adjacent private property unless written permission from the property owner is obtained.

Protect in place all adjacent existing structures during the work. Contact adjacent property owners through certified mail and be responsible for tracking all coordination and correspondence with the property owners.

Remove existing bridge superstructure, pier, and New York abutment in their entirety. Remove existing pier and New York abutment stone masonry and foundations, including timber cribbing and associated/encapsulated fill material.

Carefully remove portions of the existing bridge as required in a manner that does not damage the structural integrity of the existing bridge components that will temporarily remain in service until a subsequent construction stage.

Drop the existing New York span onto the constructed causeway. Drop the existing Pennsylvania span into the river and immediately drag onto the constructed causeway.

Install temporary protective measures prior to existing bridge demolition, as necessary, and remove these protective measures after bridge removal/demolition. Protect underground utilities, existing bridge substructure units, adjacent embankments, structures, and other elements as indicated or as directed by the Representative.

Blasting is allowed for superstructure removal. Blasting not allowed for pier and New York abutment removal.

Obtain a list of all residents within 1,500 feet of superstructure removal operations. Notify residents and agencies a minimum of seven (7) days prior to the commencement of superstructure removal and on the day of superstructure removal,

If blasting is to be used for superstructure removal:

1. Perform blasting in accordance with the requirements indicated in the BLASTING CONTROL AND MONITORING special provision.
2. Perform pre-blast and post-blast surveys with photographs of the structures adjacent to the project site to set a benchmark for possible damage caused by bridge removal operations. See PRE-BLAST AND POST-BLAST SURVEY special provision for requirements.
3. Furnish and use sufficient approved mats or similar containment systems to prevent scattering of blast debris and subsequent damage. Be liable for all injuries to or deaths of persons and/or damage to property caused by blasts or explosives.

The existing structure may contain hazardous materials including lead, asbestos, cadmium, and chromium. Implement measures in the field and as necessary in accordance with Section 1072 to mitigate the presence of hazardous materials during bridge removal. Obtain all required permits and licenses for the management of these and any other hazardous materials and pay all charges and fees incurred. Construct temporary hazardous containment facilities for demolition activities, as necessary.

Comply with the Occupational Safety and Health Administration regulation governing lead in construction found at 29 CFR 1926.62.

Disassembly of existing steel members with a cutting torch requires compliance with OSHA and DEP regulations regarding lead-based paint removal.

Remove and dispose of debris to the satisfaction of the Representative and in strict accordance

with Federal, state, and local regulations governing the collection, handling, storing, classifying, transporting and disposing of waste.

Remove any temporary braces, supports, or structures at the completion of the project.

Upon completion of bridge removal/demolition operations:

1. Fill voids left from pier removal with natural streambed material and return streambed to its preconstruction condition.
2. Backfill the area where the New York abutment was removed as specified in Section 202.3(f). Grade into the existing topography. If directed, place topsoil. Seed and provide soil supplements, as specified in Section 804.3. Use a type and rate of seeding and soil supplements typical for project. Mulch with the type and rate of mulch typical for project, as specified in Section 805.3.

Coordinate removal operations with Item 9000-0009 – POST-DEMOLITION WATERWAY SURVEY.

1018.3(d) Structures Retained by the Contractor– Revise by adding the following:

Dispose of existing bridge members in accordance with Section 1072.

Prior to disassembling and removing the steel from the project, stabilize the existing paint coating by applying a paint, mastic, etc. to the areas of flaking/loose paint to bond them to the substrate.

This item of work includes conveyance of ownership of the steel to the Contractor as scrap metal to be recycled. Handle, process, and recycle scrap metal according to federal law (including 40 CFR 261) and state regulations (including Section 25 PA Code 260).

Provide the name and location of the scrap metal facility where the disassembled steel will be shipped. Submit a letter from the recycle facility or disposal site of acknowledgement and acceptance of steel containing lead-based paint and that the steel was processed and recycled in accordance with OSHA regulations.

Temporary braces, supports, or structures will remain the property of the Contractor.

1018.4 MEASUREMENT AND PAYMENT – Lump Sum. Revise by adding the following:

Includes development of the demolition/protection plans, removal of the existing bridge superstructure (by blasting or other methods), removal of pier and New York abutment, backfilling of voids left from bridge removal operations, proper disposal of all members/material, and all necessary coordination, labor, material, and equipment necessary to perform the work.

Includes the design, furnishing, installation, maintenance, and removal of temporary supports required by the proposed construction, including that for maintaining stability of existing abutments and pier during construction operations, and subsequent removal of the existing pier and New York abutment. The obtaining of geotechnical data for the design of temporary supports, as necessary, is incidental to this item of work.

Pre-blast and post-blast surveys, all protection measures including protective containment systems, blasting control and monitoring, and all material, explosives, labor, tools and equipment needed for blasting operations are incidental to this item of work and will not be paid for separately.

All work associated with the management, mitigation, containment, handling, and disposal hazardous material (except asbestos) associated with the existing bridge is incidental to this item

of work and will not be paid for separately.

All work associated with removal of asbestos containing material will be paid for separately under Item 9000-0011 HANDLING AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

Temporary causeway requirements are included in ITEM 9000-0005 – TEMPORARY CAUSEWAY.

Measures to repair, permanently stabilize, and preserve the existing Pennsylvania abutment in place is included in ITEM 9000-0007 – PENNSYLVANIA ABUTMENT STONE MASONRY REPAIR, ITEM 9000-0008 – PENNSYLVANIA ABUTMENT STONE MASONRY REPOINTING, TYPE A, AND ITEM 9000-0010 – PENNSYLVANIA ABUTMENT STONE CAP AND RAILING.

Aid to Navigation plan requirements are included in ITEM 9000-0006 – NAVIGATION CONTROL.

BLASTING CONTROL AND MONITORING

DESCRIPTION - This work is the use of blasting methods for various demolition purposes. Blasting will only be permitted for demolition of the existing superstructure. Blasting will not be permitted for demolition of the existing substructure or excavation. See special provision titled PRE-BLAST AND POST-BLAST SURVEY for survey requirements.

MATERIAL -

Portable seismograph, three-component, as approved.

A. Electric initiating devices are prohibited in the conditions referenced in OSHA 1926.906(a) and (r).

B. Post and maintain all current licenses required for blasting and explosive handling. A qualified blaster licensed in the Commonwealth of Pennsylvania and New York State must perform all blasting. The Blaster must have 3 years minimum experience in the explosive demolition of reinforced concrete and steel structures. Provide a professional resume and a list of 5 successfully completed projects for the review and approval by the Department.

C. Provide a Certificate of Insurance showing that the blasting Contractor carries the required insurance to the limits to meet all local, State, and Federal regulations.

CONSTRUCTION -

General.

A. Conduct all blasting, explosive handling, and monitoring operations in accordance with the latest Occupational Safety and Health Act (OSHA) standards, 29 CFR Parts 1926.900 through 1926.914 and Pennsylvania Code, Title 25 Environmental Resources, Article IV - Chapter 77, Chapter 210 and Chapter 211 and in compliance with all local requirements. Also conduct blasting in compliance with all relevant and pertinent Federal, State and local ordinances and regulations. Maintain a copy of these standards on site and make available to any inspector upon request.

B. Obtain any and all permits from utility companies, and Federal, State and local authorities or agencies.

Notification of Scheduled Work.

A. Perform blasting surveys in accordance with special provision titled PRE-BLAST AND POST BLAST SURVEY. No blasting is to occur until pre-blast surveys have been performed and reports accepted by the Department.

B. Obtain a list and notify utility owners having structures or other installations (if any) above or below ground within one-thousand-five hundred (1,500) feet of the blasting operation. Such notice must be given a minimum of seven (7) days in advance of blasting, to enable the utility owners to take such steps as deemed necessary to protect their property from damage.

C. Before blasting adjacent to or in the vicinity of existing roads, utilities, power lines, railroad or dam structures, secure special permits and/or agreements from the official having jurisdiction thereover and submit a copy to the Representative for information at least seven (7) working days prior to the commencement of blasting operations near such facilities. In addition, the railroads require up to forty-five (45) days to review all blasting submissions. Up to an additional thirty (30) days will be required to review any subsequent submissions returned not approved. Submissions regarding blasting shall include, but not be limited to, the maximum anticipated peak particle velocity for the proposed blasting (vibration, debris, etc.) and if necessary, provide details for any proposed blast shielding for protecting railroad property. A plan which indicates the proposed location(s) for seismic monitoring equipment shall also be provided. The blasting submission must be in accordance with the project specific construction requirements, railroad construction submission criteria and railroad special provisions. In addition, the

blasting submission must be approved in writing by the railroads prior to any blasting with the potential to impact the railroads.

D. A minimum of seven (7) days prior to the commencement of blasting operations and on the day of blasting, obtain a list and notify the National Park Service and all residents within 1,500 feet of blasting operations.

Notify the National Park Service and these residents that blasting signals will be used to warn of blasting.

Test Blasting.

A. Design and conduct a test blasting program with the objective of demonstrating the adequacy of the proposed blast plan. Determine the type and weight of charge, location, spacing and delays, etc., which are commensurate with the peak allowable particle velocity and sound level.

B. At least two (2) weeks prior to the anticipated blasting operations, or at any time a change in the blasting method is proposed, arrange a meeting with the Representative and the licensed blaster to discuss the blasting operation. One (1) week prior to the meeting, submit a general control blasting plan and a DEP approved blasting plan to the Representative for review.

C. The general control blasting plan should include, as a minimum, details found in "Production Blasting, Section F, 1-10".

D. Upon completion of test blasting, expose the test area for the Representative to examine and evaluate the results. The Contractor should use this information to determine the spacing and cartridge strength to be used for the full-scale blasting operations.

E. The Representative's acceptance or approval of the testing blasting program and techniques and procedures associated with the test blasting program or production blasting will not relieve the Contractor of any responsibilities to employ appropriate safety measures, and exercise proper supervision of blasting operations. The Contractor is solely responsible for damage or injury to persons, property, or utilities as a result of the use of explosives. Perform all necessary repairs in a satisfactory manner, to roadway, structures, dwellings, utilities, or any property damage as a result of blasting, at no cost to the Department.

F. Maintain the peak particle velocity below two (2) inches per second. Do not generate a particle velocity which results in damage to any person, property, structure, or utility. Measure particle velocities in three (3), mutually perpendicular directions (longitudinal, transverse, and vertical). Maintain sound level below 129 dB. Monitor and document sound levels at the nearest structures.

G. For existing utilities, monitor particle velocities at the utility in a location nearest to the blast.

H. After each test blast, review the particle velocities and sound levels documented. Make adjustments to the blasting procedures, modifying the equation W = (D \ 50)2, and conduct subsequent test blasts until the desired parameters are met and approved by the Representative. Establish the relationship of the scale distance concept with respect to peak particle velocity to control ground vibration. If any test blast results in damage or injury to property, person or utility, immediately cease all blasting activity until written permission to resume is received from the Department.

Production Blasting.

A. Blasting operations are not permitted during a holiday period or between sunset and sunrise.

B. No blasting will be permitted within fifty (50) feet of any structure, dwelling or utility; unless, through a Test Blast Procedure the Contractor can:

- At a scaled distance, less than forty (40): [SD = D/W^0.5]

- Maximum peak particle velocities DO NOT EXCEED TWO (2) IN/ SEC. Measured at four (4) locations or more; at nearby structures, utilities, dwellings, etc.
- Maximum airblast does not exceed limits given in table - see Section I.

C. Furnish and use sufficient approved mats or similar containment systems to prevent scattering of blast debris and subsequent damage. Protect structures within a 500-foot radius or immediately at the blast site. Perform all necessary repairs to roadway, dwellings, utilities, and any property damaged as a result of the blasting at no cost to the Department. Be liable for all injuries to or deaths of persons and/ or farm/ domestic animals and damage to property caused by blasts or explosives.

D. Determine the existence of and comply with any local laws and/or ordinances concerning blasting.

E. During blasting operations, all traffic must be stopped in accordance with Section 901 and as follows:

1. Coordinate with the Representative to arrange for temporary closure of roadways during blasts. During blasting operations for the roadway all traffic must be stopped when blasting adjacent to existing roadways. Traffic may be halted for periods not to exceed fifteen (15) minutes. Time duration between stoppages will be as required for existing traffic conditions. Generally, successive stoppages may occur only after traffic has returned to its normal flow following the preceding stage. Do not halt traffic during unsatisfactory weather conditions, as determined by the Representative.

2. Notify the Representative of intent to stop traffic at least forty-eight (48) hours in advance of the scheduled work and have sufficient personnel (flaggers and\or police) available during these periods. When traffic is stopped for blasting, monitor the traffic back-up. Provide a vehicle- mounted flashing warning light, one each direction, 350 feet in advance of the last vehicle as the length of the queue increases.

3. Furnish, erect, and maintain on all affected roadways, appropriate standard signing in advance of and through the area warning of "Blasting." Conform to the requirements of the Pennsylvania Department of Transportation for size, color, legend, location, and mounting of signs. Appropriate signing includes the following:

PENNDOT Designation	Legend	Location	Size
W22-1	Blasting Zone Ahead	2,000' – Advance	48" x 48"
W22-2	Turn Off 2-Way Radio	1,000' - Advance	42" x 36"
W22-3	End Blasting Zone	1,000' - Beyond	42" x 36"

*Payment for signs incidental to Item "Maintenance and Protection of Traffic During Construction"

4. Drive patrol vehicles, one each direction, through the project and post patrols up and down stream to ascertain that the site has been completely cleared before the blast is detonated.

5. As soon as advised by the blaster that the blast is complete, inspect the work area for any unsafe conditions. Only after this inspection is completed and any unsafe conditions are rectified can the blast debris begin to be cleared, as necessary. Have the patrol vehicles return through the site prior to opening the roadway to traffic.

6. Have all necessary equipment on standby prior to the blast in order to pull the Pennsylvania Truss (Span 1) from the river immediately following inspection of the work area, by the Blaster.

F. Submit to the Representative a site- specific blast plan for review a minimum of seventy- two (72) hours before blasting. This plan should include information found in the general control blasting plan, any changes made as a result of test blasting and any site- specific details. Do not begin production blasting

until the Representative has reviewed and approved the site- specific blasting plan. Include the following information in the blasting plan:

1. General Information

- Signature and license number of the licensed blaster responsible for the plan
- Company name
- Contract Number
- County
- Township
- Experience qualifications of the blasting Contractor with evidence of similar contracts carried out, including names and references

2. Dwellings and Structures

- Distance to nearest dwelling or structure, from the area where blasting is to occur
- Maximum peak particle velocity
- Maximum airblast

3. Utilities, Pipeline, Storage Facilities - Identify any of the following which are located within two- hundred (200) feet of the area where blasting is to occur. If any are within two hundred (200) feet, describe any precautionary measures that are to be taken.

- Disposal wells
- Gas or oil collection lines
- Petroleum or gas storage
- Water and sewage lines
- Municipal water storage
- Utilities
- Fluid transmission pipelines
- Gas or oil wells

4. Blast Loading Plan - Include the following information if applicable:

- Blast location pattern
- Maximum amount of explosives per delay interval
- Scale distance (maximum and minimum) SD = D/W^0.5
- Maximum number of delay intervals to be used
- Method of blast initiation
- Anticipated range (minimum and maximum) of Powder Factors or Energy factors to be utilized.

5. Public Notice of Blasting Schedule

- Include copy of blasting schedule, indicating day of the week and time of day.
- Describe the public alert and warning system.
- Provide a copy of the notarized proof-of-application of the blasting schedule that is published in a newspaper of general circulation in the Pennsylvania and New York localities of the area where blasting is to occur. Also describe public alert and warning system.
- Provide the names of residents, owners of dwellings or other structures, local governments, agencies, and public utilities that are located within one-thousand-five hundred (1,500) feet of the area where blasting is to occur, who received copies of the blasting schedule. (Note: These residents and agencies are to be sent a copy of the blasting schedule.)
- Submit a dated copy of the notice sent to residents and agencies, informing them of the blasting operations, pre- blast survey and estimated dates of surveys.

6. Pre-blast Survey - Conduct and distribute Pre-blast Surveys in accordance with Special Provision - PRE-BLAST AND POST-BLAST SURVEY.

7. Explosive Storage - If explosives are to be stored within the proposed permit area provide current magazine storage license numbers and submit a copy of approved plans if a Class A or Class B magazine is to be constructed. Cost for plan approvals is the responsibility of the Contractor.

8. Explosive Purchase - Supply permit numbers under which explosives are to be purchased.

9. Blasting Monitoring Plan - Include equipment to be used and locations of equipment.

10. Name and qualification of the independent seismographic monitoring company, and name and qualifications of the specific personnel responsible for the actual monitoring.

11. Special Conditions - Describe any site-specific conditions that apply to this blasting area; but not limited to the following:

- Any public building or school within 1,500 feet
- Active underground mines within 500 feet
- Abandoned underground mines within 500 feet
- Streams within 100 feet
- Landfills
- Historical structures
- Other

Describe any precautionary measures necessary for any site-specific conditions.

As per Chapter 211 of PA Code Title 25, do not blast within 800 feet of a highway or public roadway unless due precautionary measures are taken to safeguard the public. In these cases, submit your intended traffic control measures to the Representative, indicating your proposed method to protect the traveling public.

12. Revisions - Any and all changes to the original blast plan are to be described in a letter signed by a representative of the permittee and become part of the permit.

G. Airblast is not to exceed the maximum limits listed in the following table at the location of any dwelling, public building, school, church, community building, or institutional building:

Lower Frequency Limit of Measuring System in Hz (+ 3 dB)	Maximum Allowable Levels in dBL
0.1 Hz or Lower - flat response *	134 Peak
2.0 Hz or Lower - flat response	133 Peak
6.0 Hz or Lower - flat response	129 Peak

* Only when approved by the Representative

H. Maximum Peak Particle Velocities:

1. The maximum peak particle velocity is not to exceed two (2) inches per second in any of the three (3) measured components, measured in or at any adjacent existing structure or facility at 40 Hz or greater. The maximum velocity must be decreased for frequencies below 40 Hz or as necessary to avoid damage.

2. Peak particle velocity at structural concrete not to exceed the limits given in the following table dependent of the age of freshly placed concrete and powder charge per delay.

Concrete Age	Maximum Peak Particle Velocity (inches per second)
Less than three days	0.2
Between three and seven days	1.0
Over seven days	2.0

3. Calculate values of maximum powder charge per delay permissible using a scaled distance of forty (40) at specified intervals of distance between the point of detonation and all critical structures.

I. Prepare a record of each blast sequentially numbered to include annotated seismograph records and all information required by Chapter 211, Pennsylvania Code, Title 25 Rules and Regulations. Prepare seismograph analyses and noise level reports of each blast. Provide seismograph and blast records to the Representative with 24 hours following a given blast or prior to the next blast, whichever is sooner. Have field records of blasting activities available for inspection on the job site.

J. Provide a minimum of four (4) currently calibrated portable seismographs for each blast. Monitor and record peak particle velocity, frequency, air blast pressure, and sound level at the structures closest to the blasting operations. Monitor all directions (approximately north, south, east and west) around the blast area. Monitor and record at other structures as necessary to establish control boundaries in all directions from blasting operations.

K. Monitoring, recording, and interpreting of vibration are to be by approved personnel provided by the Contractor with oversight by the Department's representatives.

L. Any blasting that will occur within five- hundred (500) feet of an active utility subsurface line must be coordinated with the respective utility company. A minimum of seven (7) days' notice must be provided since, in some instances, the utility companies will require a representative to be on site at the time of the blast. In addition, any blast that will occur within five hundred (500) feet of a utility line must be monitored by a seismograph placed directly above the utility line at the closest point to the blast. The peak particle velocity measured at the utility line cannot exceed two (2) inches per second on any one of three (3) mutually perpendicular components of ground motion (transverse, vertical, or longitudinal). Also, the requirements set forth in Chapter 211, Pennsylvania Code, Title 25, must be followed. Provide to the Department a list of all utility and building owners within one-thousand-five hundred (1500) feet of the blast.

M. In the event that an emergency prevents a blast from being made within the permissible hours and the blast areas are loaded, set off the blast as soon as safety allows. In the event blasting is found necessary during restricted hours, inform the Department and local residents prior to firing. In addition, report in writing the following day to the Representative the conditions which required blasting during the restricted hours. Do not leave blasting materials in blast locations for extended periods of time.

N. Store explosives on the site only during the blasting hours specified in the preceding paragraph. Track all explosives to the site at the start of each work day from a magazine located remote from populated areas and return surplus explosives to the magazine at the close of each work day. Keep an accurate daily record and account for each piece of explosive, detonator and equipment from the time of delivery until used or removed from the site. In the event of loss or misplacement of blasting materials, immediately notify the Representative and local authorities having jurisdiction in such matters.

O. Provide an accurate topographic map showing the blast area. Denote physical site features such as roads, homes, and water courses as shown on a U.S.G.S. Quadrangle Topographic Map. Roadway centerline, station locations and the section boundaries need to be identified on this map. The map must be submitted to the Representative and approved before the start of blasting operations. Seismograph placement and its distance to/from the blast zone should be determined using the scale of the aforementioned map. A copy must be maintained in the field by the blaster and used in referencing blast locations with respect to the nearest structure.

P. The licensed blaster is responsible for blasting records as to accuracy, legibility and completeness.

Q. Post and maintain any and all licenses required for blasting and explosive handling.

Post Blast Survey.

Subsequent to the completion of blasting operations, conduct a post- blasting survey of the structures, dwellings, utilities, etc. Perform a post-blasting survey at all structures where a pre-blast survey was completed. Follow procedures described under "pre- blasting survey." The purpose of this survey is to document any damage or injury which may have resulted from the blasting activities. Conduct the survey in the presence of a representative of the Department, and a representative of the owner(s) of structures, dwellings, and utilities being surveyed. Submit the duly witnessed survey report to Department. Include in the report any diagrams or photographs of rooms or structures indicating size and location of cracks or separations in foundations, walls, ceilings, floors, etc.

MEASUREMENT AND PAYMENT -

All material, explosives, labor, tools and equipment needed for the blasting operation including monitoring and survey activities are incidental to Item 1018-0048 REMOVAL OF PORTION OF EXISTING BRIDGE, and will not be paid for separately.

PRE-BLAST AND POST-BLAST SURVEY

DESCRIPTION - This work consists of conducting pre- blast and post-blast surveys. Reports are to be prepared by a professional engineer, registered in the Commonwealth of Pennsylvania and New York State using PA form TR-42 or approved equal. A structural survey report is to be prepared for all residential and commercial structures which, wholly, or in part, lie within the specified limits, or as directed.

LIMITS - Conduct pre-blast surveys on all structures within 1500 feet of any blasting operations or that fall within the scaled distance of 40 as computed by the following equation:

SD = D \ W^0.5 SD = Scaled Distance, D = Actual distance, W = Maximum Charge Wt./Delay (lbs.)

If no structure lies within these limits, conduct a survey on the closest structure(s) in all directions (approximately north, south, east, and west) within 0.5 miles of the blasting operation. If no structure lies within 0.5 miles of blasting operations, at least one survey may be required as directed by the Department on the closest structure within one mile.

MATERIALS - Provide all materials and equipment necessary to perform the work.

CONSTRUCTION –

Submit to the Engineer a list of structures to be surveyed/inspected for approval. Conduct a pre-blast condition survey of existing structures with the Representative prior to the commencement of any blasting activity. Conduct survey under the direction of a Professional Engineer, registered in the Commonwealth of Pennsylvania.

Survey and inspect structures on approved list. Obtain permission from building structure owners and occupants for entry for the purposes of conducting the inspection and taking photos. Do not enter a building structure without prior written permission from the owner. Notify the Representative if access cannot be obtained. Furnish names and phone numbers to be contacted for information on problem resolution. Conduct public contact in a courteous and informative manner designed to emphasize the measures being taken for protection of the interests of all concerned.

Submit a report that summarizes pre- blast conditions of building structures and that identifies areas of concern. Include survey documentation of all visible exterior and interior surfaces above and below grade level. Indicate in detail (by engineering sketches, video tape, photographs, and/or notes) any structural, cosmetic, plumbing, and/or other distress condition. Identify structures and note all cracks, displacements, and structural deficiencies as to location, length, size, thickness, etc., in the report per sketch. Photograph the structures and indicate particular existing cracks or structural deficiencies. Include photographs of overall condition appearance of each structure. Document the conditions of appurtenances, such as pipes, cables, downspouts, water systems, transmission lines, etc. Include high resolution photographs, having camera generated date display, in digital photography format, in proper focus and exposure to properly determine subject matter. Include in the report descriptions of the contents of each photograph identifying the structure, description of deficiency, location in/on structure and date of photograph. Index the descriptions to the photograph number on the print. Provide in report for building structures to be inspected the structure description, street address or location, name and address of owner, and name of occupant if not owner occupied.

Submit an electronic copy of preconstruction condition survey report with photographs to the Representative for review and approval prior to blasting operations. Allow 2 weeks review period.

Perform post- blast survey of those structures which have previously been pre-surveyed, following the completion of the blasting activities. Prepare and submit reports as specified for pre-construction condition survey and report requirements.

MEASUREMENT AND PAYMENT – This work is included with Item 1018-0048 – REMOVAL OF PORTION OF EXISTING BRIDGE and will not be paid for separately.

ITEM 9000-0005 – TEMPORARY CAUSEWAY

I. DESCRIPTION – This work is furnishing, constructing, and maintaining the temporary causeway and associated temporary access roads required for bridge removal and disassembly, including the restoration of the area to its original, pre-construction condition along with removal of the existing pier.

II. MATERIAL –

- Rock, Class R-4 and R-8 - Section 850.2(a)
- No. 1 Coarse Aggregate - Section 703.2
- Geotextile – Class 4, Type A, - Section 212.2
- Timber Mats – as indicated

All rock and aggregate used within the river must be clean washed to remove all fines and clay before delivery to site.

III. CONSTRUCTION – Sections 212.3(a) and (d) and 850.3, as indicated, and as follows:

Construct the causeway in accordance with the details, sequence, and requirements provided in the approved Erosion and Sediment Control (E&SC) Plan, Aid to Navigation (ATON) Plan, and Invasive Species Control Plan.

The causeway is a regulated water obstruction. Perform all work in accordance with requirements in the approved wetland/waterway permits and National Park Service Use Permit.

The locations of the temporary causeway indicated on the plans represent the maximum allowable horizontal and vertical extent of causeway within and adjacent to the Delaware River. Do not modify the approved causeway design and details without written approval from the Departments and permitting agencies. If modification of the temporary causeway is necessary to support the Contractor's operations, the Contractor is responsible for revising the contract documents, obtaining all permit amendments and agency approvals as required, at no additional cost.

Submit any alternate causeway plan for review. Include any required approvals from all applicable permitting agencies, including but not limited to both state Departments of Transportation (PennDOT & NYSDOT), Pennsylvania Department of Environmental Protection (PADEP), Pennsylvania Fish and Boat Commission (PFBC), New York State Department of Environmental Conservation (NYS DEC), the National Park Service (NPS), and the United States Army Corps of Engineers (USACE). Do not proceed with any alternate causeway construction without written approval from the Representative and all applicable permitting agencies. No additional time will be added to the original construction schedule for the approval or construction of an alternative causeway.

On land: Cut vegetation to ground level. Do not grub. Stump grinding is acceptable. Woody material and shredded vegetation should be scattered on land prior to geotextile placement only in compliance with Invasive Species Control Plan. Complete work without disturbing the ground surface. Place geotextile on land beneath temporary access roads in accordance with Section 212.3(d)1. Place clean AASHTO #1 carefully without puncturing geotextile and without compacting, rutting, or disturbing the original ground surface.

Within the unvegetated riverbed: Do not place any geotextile. Place bottom courses of washed R-8 rock gently on riverbed using care to avoid dragging or rolling of rock in order to minimize damage and disturbance of riverbed habitat. User an excavator with adequate reach, thumbs, and claws instead of a bucket alone to remove rock from the river bottom to minimize impacts to the Delaware River. Construct causeway entirely of R-8 except that top surface is to be choked with the minimal amount of R-4 Rock and No. 1 Coarse Aggregate needed to provide a traversable surface. Substitute slightly different rock

sizes if needed to provide a suitable surface at no additional cost in coordination with the Representative. Coordinate placement with deployment of Turbidity Curtain (Item 9000-0012) as indicated.

Front-load rock such that the equipment placing the material will operate on the surface of the placed rock, rather than the original ground surface of the designated areas. Do not compact any material with vibration equipment.

Maintain the causeway for the period of need during construction, repairing, removing flood debris, and adding rock as required and as directed. Immediately repair any damage caused by floodwaters after the water levels have returned to normal elevation. Maintain and/or reconstruct the causeway at no additional cost. Retrieve rock moved downstream by floodwater.

Do not store any unused equipment or materials on the causeway at any time. Refueling, oiling, or dispensing other potential pollutants on the causeway is prohibited. Monitor the river levels and weather conditions continuously. Monitor forecasted water levels on the Delaware River at Callicoon (River Gauge CCRN6) online at NOAA's National Water Prediction Service. Remove all equipment, materials, and personnel from the causeway immediately upon notification of a potential overtopping event.

Superstructure Demolition: Provide tarps, nets or other approved means to capture and remove all demolition debris without falling into voids of causeway. Remove foreign materials that do fall into voids.

Causeway Removal: Immediately after superstructure demolition and removal of all associated debris, proceed in reverse of installation procedures except that the existing pier and associated riprap are to be removed as part of this item. Use care at all times to protect riverbed habitat and keep unwanted materials out of the river. Coordinate with the Representative during pier removal to leave appropriate material on the riverbed in the pier removal area. Remove all rock and geotextile from site or as indicated. Immediately proceed with restoration on land as temporary access roads are removed. This task includes full restoration of the riverbed as indicated.

If the Post-Demolition Waterway Survey (Item 9000-0009) reveals incomplete removal of the causeway and pier, additional removal is to occur under this task at no additional cost. Any residual rock or other debris shall be removed either by an excavator with claw/thumb from land or by lifting with boats or a floating structure. Dragging on the riverbed will not be permitted. The contractor will be responsible for agency approval and costs associated with revision of the E&SC Plan to enable removal of such materials.

IV. MEASUREMENT AND PAYMENT – Lump Sum

Includes the furnishing of all materials, construction, maintenance, and repair of the temporary causeway, and restoration of the areas to original conditions and as indicated. All design costs and working drawings preparation/approval are also included.

ITEM 9000-0007 PENNSYLVANIA ABUTMENT STONE MASORY REPAIR

I. DESCRIPTION – This work includes replacing and/or resetting stone masonry.

II. MATERIAL – Sections 701, 703, 720 and the following:

- Mortar - Section 705.6
- Stone - Use original stones as available or salvaged from existing pier or New York abutment removal

III. CONSTRUCTION -

Mark out areas of loose or missing stone masonry to be repaired.

Have the Representative verify and approve the locations/limits of repairs prior to starting work.

Perform work to the satisfaction of the Representative.

Repair any stone masonry damaged during construction to the satisfaction of the Representative at no additional cost to the Department.

Be responsible for maintaining the stability of the existing stone masonry at all times during joint cleaning and repointing operations.

Before commencing repair operations, thoroughly clean the surface of all dirt, grease, oil or foreign matter, and remove all loose or weakened material.

Clean any loose and unsound material and vegetation from the stone masonry joints using hand tools and/or pressure washer. The use of power tools is not permitted unless skill in their use is demonstrated and approved by the Representative. Take care not to damage existing stone masonry.

Replace missing stones/reset loose stones. Mortar stones in place. Set stones by hand firmly on mortar bed. Fill the voids between stones with mortar as required and ram well in place. See “Mortar joints”, below.

Mortar joints: Satisfactorily finish mortar joints with a pointing tool to match existing joints. Do not mortar when the temperature is below 35 degrees Fahrenheit. Remove and replace any work damaged by frost. Keep the wall wet while pointing. Protect pointed masonry from the elements and keep wet for a period of at least three (3) days. Satisfactorily clean the exposed masonry faces. Stain mortar, as necessary, with an acceptable, commercially available masonry stain to match existing mortar.

IV. MEASUREMENT AND PAYMENT – Square Foot

Includes surface cleaning and preparation, temporary work platforms, as necessary, and all labor, equipment, and material required to perform the work.

ITEM 9000-0008 PENNSYLVANIA ABUTMENT MASONRY REPOINTING, TYPE A

In accordance with Section 665, and as follows:

665.1 DESCRIPTION – Revise to read:

This work is the cleaning of existing Pennsylvania abutment stone masonry joints and repointing the joints with mortar as directed by the Representative.

665.2 MATERIAL- Revise as follows:

665.2(a) Type A Repointing – Revise by adding the following:

Use Type K mortar.

Match color of existing mortar. Provide samples of color, composition, and finish to the Representative for approval. Do not begin re-pointing until color and method are approved by the Representative.

665.3 CONSTRUCTION – Revise as follows:

665.3(a) Type A Repointing – Revise by adding the following:

Mark out extents of stone masonry joints to be repointed.

Have the Representative verify and approve the locations/limits of the repointing prior to starting work.

Perform work to the satisfaction of the Representative.

Perform all work by a mason experienced with stone masonry construction and restoration. Lead mason to have a minimum ten (10) years of experience on a minimum of 5 projects that are listed or eligible for listing on the National Register and involving similar construction techniques. Submit resume of mason(s) to the District Project Manager for approval prior to start of work.

Carefully measure all mortar components and thoroughly mix. Do not perform work when the temperature is below 35 degrees Fahrenheit. Remove and replace work performed improperly or damaged by frost/freezing conditions at no additional cost to the Department.

A 6'x6' test area is required demonstrating the proposed masonry work, including joint size, mortar to be used, and pointing methods. Have the area reviewed and approved by the Representative. The approved sample area will serve as the basis for acceptance for masonry repointing work on the project.

Remove deteriorated mortar from existing masonry carefully using hand chisels. The use of power tools is not permitted.

Only joints with loose, missing or deteriorated mortar are to be repointed.

Be responsible for maintaining the stability of the existing stone masonry at all times during joint cleaning and repointing operations.

Clean any loose and unsound material and vegetation from the stone masonry joints using hand tools and/or pressure washer. The use of power tools is not permitted unless skill in their use is demonstrated and approved by the Representative. Take care not to damage existing stone masonry.

Cure all new mortar with wet burlap or clear curing compound.

Match any existing mortar in joint width, color, and joint strike profile.

Dispose of all deteriorated mortar in and around the repair area. Mortar that is removed from the bridge becomes the property of the Contractor. Remove mortar from site to the satisfaction of the Representative.

IV. MEASUREMENT AND PAYMENT – Linear Foot.

Includes all labor, materials and equipment necessary for repointing.

The removal of vegetation from existing masonry joints is included in this item.

ITEM 9000-0010 PENNSYLVANIA ABUTMENT CAP AND PEDESTRIAN RAILING

DESCRIPTION - This work is the furnishing and installing of a concrete abutment cap and pedestrian railing at the top of the Pennsylvania abutment and wingwalls as shown in the contract plans.

MATERIAL –

- Concrete – Section 704, Class AA Cement Concrete
- Epoxy Coated Reinforcement Bars – Section 1002.2
- Railing – Section 1012.2.
- Anchor Bolts, Nuts, and Washers – Section 1105.02(c)2, galvanized as specified in Section 1105.02(s) and painted as specified in Section in section 1060.3
- Caulking Compound – Section 705.7
- Nonshrink Grout – Section 1001.2(e)
- Epoxy Bonding Compound, Type II – Section 706.1

CONSTRUCTION -

Construct concrete cap in accordance with Section 1001 and the details shown in the contract plans.

Furnish and install pedestrian railing in accordance with Section 1012.3 and as follows:

Submit shop drawings for the pedestrian railing to the Representative for review and approval prior to fabrication. Do not begin any work until the shop drawings have been accepted. Allow 14 days for review by the Representative.

Construct railing in accordance with the contract plans, BC-716M, and manufacturer's recommendations.

Paint pedestrian railing using an approved two-coat paint system in accordance with Section 1060.3. Coordinate paint color with the Representative.

Submit 8.5"x11" drawdown samples of final paint color (coating) to be used to the PennDOT Cultural Resource Professional for approval at least thirty (30) days prior to shop painting work.

MEASUREMENT AND PAYMENT – Linear Foot

Measured center-to-center of railing end posts.

ITEM 9000-0009 POST-DEMOLITION WATERWAY SURVEY

I. DESCRIPTION - This work is to provide bathymetric survey of the waterway to verify complete removal of demolition debris and restoration of the riverbed.

II. MATERIAL - Section 686.2 and as follows:

Electronic Survey, Global Positioning Systems (GPS), and Sonar Equipment – Submit for approval in advance the use of electronic survey, GPS, and sonar equipment including the survey systems utilized and all work accomplished with the use of such survey and sounding systems. A side scan sonar unit must provide resolution adequate to identify individual elements of riprap and demolition debris. Provide a report certifying the accuracy and limitations of the electronic survey, GPS, and sonar equipment utilized.

III. CONSTRUCTION – Section 686.2 and as follows:

As soon as conditions allow after removal of construction debris and restoration of riverbed, prepare bathymetric mapping between ordinary high water marks over full extent of existing riverbed mapping (approximately 300' upstream and downstream of bridge centerline). Tie to project coordinates. Repeat after causeway removal.

Deliver surveyed riverbed surface in .dtm format certified by a Professional Land Surveyor licensed in PA or NYS. Address review comments and resolve survey errors, data gaps, and other outstanding survey requirements at no additional cost. Coordinate with Representative to compare pre- and post-construction riverbed contours.

As required by project permits, utilize specific environmnetal commitment measures including electronic survey, Global Positioning Systems (GPS), and sonar equipment or other approved methods to identify debris, confirm causeway materials are removed, and riverbed is consistent with pre-construction conditions.

If there are areas where the removal is deemed incomplete by the Representative, conduct additional removal operations. Subsequent surveys or underwater photographs (if approved) will be required until the removal operations are complete, the riverbed is consistent with pre-construction conditions and accepted by the Representative. If photos are used, reference photo locations to bridge baseline and identify direction of view by approximate bearing or azimuth. Furnish all certified survey data and captioned, dated photos to Representative.

Submitals:

1. Bathymetric survey at conclusion of debris removal before causeway removal.
2. Bathymetric survey after causeway removal.
3. Underwater photos or video or additional bathymetry as needed.

IV. MEASUREMENT AND PAYMENT - Lump Sum

Includes all work necessary to furnish riverbed mapping and, if necessary, photographs to confirm full restoration.

ITEM 9000-0011 HANDLING AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

I. DESCRIPTION - This work is the testing, removal and disposal of regulated asbestos-containing material (ACM) located within the project boundaries in conjunction with the removal of portions of the structure or structure attachments.

II. MATERIAL - Not Applicable.

III. CONSTRUCTION -

If suspect or unidentified ACM is encountered during construction activities, the Contractor will notify the Department and construction activities will cease until the suspect or unidentified ACM is tested and determined not to be ACM or if the material is abated by a licensed abatement contractor.

Commence and complete the work before general demolition for the area containing the ACM.

Obtain necessary permits, training and notification in accordance with, but not limited to, the regulations of the following agencies: USEPA, NESHAP, OSHA, NIOSH, ASTM, ANSI, PADEP, NYSDEC, ACHD, PA Department of Labor and Industry, and New York State Department of Labor. Submit the most recent edition of the Department of Labor and Industry ASBESTOS ABATEMENT and DEMOLITION/RENOVATION NOTIFICATION FORM to the appropriate agencies 10 days prior to the start of any abatement or demolition.

Conduct work in accordance with the Site Health and Safety Plan and the contaminated material handling plan and asbestos removal and demolition plan. Provide any additional sampling and testing required by the disposal facilities and governing agencies. Dispose of ACM to an approved facility. On-site handling of the material will be conducted in such a manner as to minimize the generation of fugitive dust/particulate matter or prevent the contamination of surface waters. Provide on-site health and safety management during removal of ACM and hazardous materials. Submit weekly safety/waste management reports and incident reports within 24 hours of reportable events.

IV. MEASUREMENT AND PAYMENT - Dollar

Sampling, analytical testing and preparation of the Site Health and Safety Plan and the Asbestos Removal and Contaminated Material Handling Plan are incidental to this item.

The proposal will include an item and a predetermined amount of money for this work. The contract will have a unit measure of Dollar, a unit price of $1.00, and a quantity equal to the predetermined amount.

Due to the contingent or unpredictable nature of the work being performed, the provisions of Section 110.02(d) are not applicable to this item.

Measure and pay for, as follows:

(a) Contract Items. The Department will pay for performance of work, identified as having similar items listed in the contract, at the contract unit price.

(b) Non-Contract Items. The Department will pay for items of work not identified in the contract as follows:

1. Negotiated Price. At price agreed upon with the Department before performing the work.

2. Force Account basis. Section 110.03(d)

DELAWARE RIVER

SKINNERS FALLS RD

DELAWARE RIVER

CALKINS CREEK

CALKINS RD

SR 1002

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

LEGEND

9 - EXISTING & TEMPORARY HYDRAULIC CROSS-SECTION
- EDGE OF WATER
- OBSTRUCTION
- FEMA 100-YR FLOODPLAIN
- FEMA FLOODWAY
- EXISTING 2-YR FLOODPLAIN
- TEMPORARY 2-YR FLOODPLAIN

SCALE IN FEET

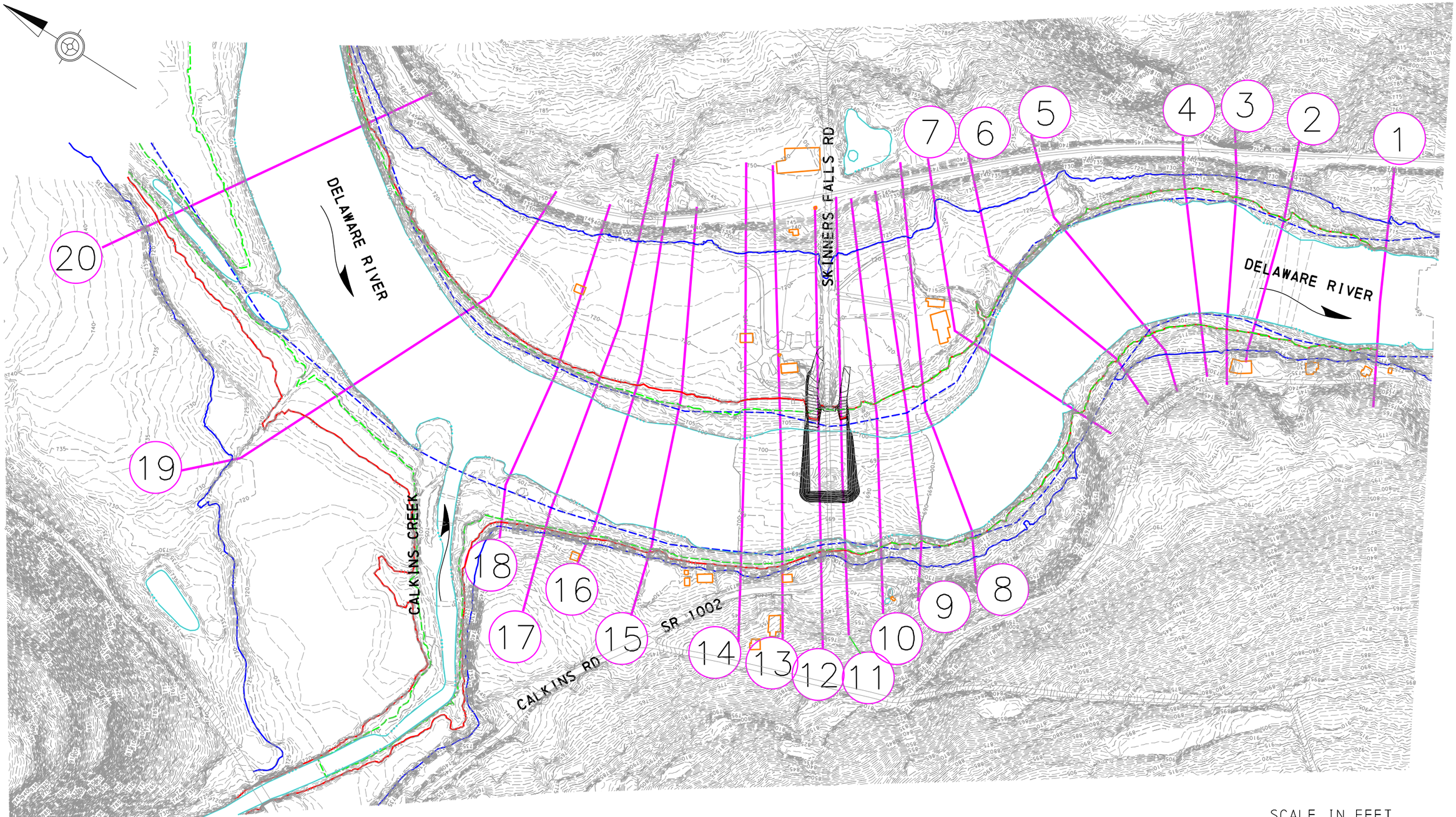
0 300 600

DATE: 1/6/2025 TIME: 9:22:31 AM
FILENAME: P:\22046\WO 10 - Emergency\CADD\Reference\Proposed\H&H\Cross Section Map.dgn

NEWELL TERESKA & MACKAY ENGINEERING
130 WEST CHURCH, SUITE 200
DILLSBURG, PA 17019
PHONE 717-432-4425
FAX 717-432-4426

SR 1002 SKINNERS FALLS EXISTING AND TEMPORARY HYDRAULIC CROSS-SECTION MAP

COUNTY: WAYNE, PA & SULLIVAN, NY
MUNICIPALITY: DAMASCUS TWP & TOWN OF COCHETON



LEGEND

- 9 - EXISTING & TEMPORARY HYDRAULIC CROSS-SECTION
- - EDGE OF WATER
- - OBSTRUCTION
- - FEMA 100-YR FLOODPLAIN
- - FEMA FLOODWAY
- - EXISTING 2-YR FLOODPLAIN
- - TEMPORARY 2-YR FLOODPLAIN

SCALE IN FEET

0 300 600

NEWELL TERESKA & MACKAY ENGINEERING
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FAX 717-432-4426

SR 1002 SKINNERS FALLS EXISTING AND TEMPORARY HYDRAULIC CROSS-SECTION MAP

COUNTY: WAYNE, PA & SULLIVAN, NY
MUNICIPALITY: DAMASCUS TWP & TOWN OF COCHETON

DATE: 1/6/2025 TIME: 9:55:16 AM
FILENAME: P:\22046\WO 10 - Emergency\CADD\Reference\Proposed\H&H\Cross Section Map.dgn

Wittig, Steve

From: Harvey, Benjamin (FHWA) <benjamin.harvey@dot.gov>
Sent: Wednesday, January 8, 2025 8:07 AM
To: Kearns, Thomas J; Wittig, Steve; Brozey, Lisa; Goddard, Michelle (FHWA); Crobak, Jennifer (FHWA); johname@pa.gov; Hazelton, Susan
Cc: Kurnath, Lindsey R; Rachel Tereska
Subject: RE: RE: Skinners H&H Needs for NPS SUP
Attachments: Skinners Falls 2-yr Temporary Aerial Cross Section Map.pdf; Skinners Falls 2-yr Temporary Topo Cross Section Map.pdf; HEC-RAS 6.2 Files Skinners Falls Temp 100yr for NYSDEC.zip

Good morning Tom,

Below are the responses provided by NTM regarding the H&H analysis. I have also included the attachments they reference in their responses.

Thanks,
Ben

- The provided memo is lacking the model results (i.e., inundation extent with and without project). Please provide those results, showing with and without project inundation extents and water surface elevation profiles.

  Inundation extents have been added to the Hydraulic Cross Section Maps for the 2-year event. Inundation extents are provided for the existing condition and temporary causeway condition.

  The 100-year existing and temporary HEC-RAS file is also included, as it was provided to NYSDEC.

- Please provide analysis of the causeway's impact to water velocity and the risk of erosion/scour and deposition up and downstream from the project site, in addition the information provided on the inundation extent.

  The HEC-RAS results indicate that when the causeway is in place, the most significant changes in the 2-year water surface elevations (WSE) and velocities occur at the causeway cross sections (XS 11-12). The temporary causeway fill is coded into the hydraulic sections at XS 11-12; therefore, the WSE and velocities are increased due to the fill in the channel. The changes in WSE and velocity do not extend downstream of the causeway due to subcritical flow. The 2-year temporary backwater extends through the upstream reach, which also lowers average channel velocities from approximately 7 fps to 5 fps. Based on the range of existing and temporary velocities, similar sediment transport characteristics are anticipated for a 2-year event. The table below summarizes the existing and temporary water surface elevations and velocities for the 2-year event.

XS	Existing		Temporary		Difference	
	WSE (ft)	Channel Velocity (fps)	WSE (ft)	Channel Velocity (fps)	WSE (ft)	Channel Velocity (fps)
20	711.79	6.3	715.18	4.7	3.39	-1.6
19	711.42	6.25	714.97	4.91	3.55	-1.34
18	710.73	7.75	714.7	5.64	3.97	-2.11
17	710.58	7.66	714.66	5.45	4.08	-2.21
16	710.5	7.25	714.63	5.31	4.13	-1.94
15	710.36	7.21	714.59	5.26	4.23	-1.95
14	710.23	6.77	714.55	4.98	4.32	-1.79
13	710.16	6.68	714.52	4.91	4.36	-1.77
12	709.9	7.28	712.55	10.9	2.65	3.62
					0	0
11	709.74	7.46	710.37	14.58	0.63	7.12
10	709.72	6.94	709.72	6.94	0	0
9	709.76	6.19	709.76	6.19	0	0
8	709.78	5.67	709.78	5.67	0	0
7	709.13	7.57	709.13	7.57	0	0
6	708.83	7.93	708.83	7.93	0	0
5	708.67	7.89	708.67	7.89	0	0
4	707.39	10.14	707.39	10.14	0	0
3	706.74	10.11	706.74	10.11	0	0
2	704.51	13.32	704.51	13.32	0	0
1	702.85	12.05	702.85	12.05	0	0

- The proposed causeway constricts the channel by more than 50%. In the event of high water, the causeway is expected to see critical flow due to that significant constriction. The provided RAS model uses only subcritical flow for all runs. Please provide additional data showing the model ran with critical flow volume, preferably using a mixed-flow regime.

  A mixed flow regime was run and does not change the results.

- It appears the H&H memo is based on an existing FEMA model that's been refined for the specific project site. How was the updated model calibrated to account for being ran at smaller floods that what was intended in the FEMA model?

  The existing model was created with a combination of survey data and FEMA data. For the portion of the model within 2100 feet upstream and 2100 feet downstream of the bridge, the model is comprised of hydraulic cross sections cut from channel bathymetry, survey in the immediate overbanks, and LiDAR. Beyond the survey limits, the effective FEMA HEC-RAS model was used to extend the upstream and downstream limits of the model.

  Since a streamflow gage is not within the survey limits nor the study limits of the model, the model cannot be calibrated to recorded flow data or water surface elevations. However, the nearest streamflow gage was used to develop the flows for the project site. Standard hydraulic modeling parameters per the USACE HEC-RAS Reference Manual and engineering judgment were used to create the one-dimensional steady-state hydraulic model. The geometry of the model is as accurate as the survey and LiDAR data, and the flow data is also consistent with the nearest streamflow gage. The FEMA 100-year profile was used to validate the results for the existing 100-year event. Lower flow events like the normal, 1-year, and 2-year events are contained within the

channel and will be mostly affected by the Manning's n value. The n value for the channel is 0.031 and was selected for consistency with FEMA's model. It is also within the accepted range for channels per Table 3-1 in the HEC-RAS Reference Manual.

- How will erosion and deposition impacts be monitored/measured during and after the project? How are erosion and deposition mitigations developed and implemented to ensure the riverbed, its banks, and properties adjacent to the river are returned to pre-project conditions?

  Bathymetric survey has been used to develop a digital surface of the riverbed. It is represented with 1' contours on the Erosion & Sediment Control Plan sheets 10 and 11 of 11. A special provision for Post-Demolition Waterway Survey will call for a survey to occur after construction and after the ice hazard subsides to confirm that debris and rock have been fully removed. The survey will also confirm the pier area has been graded flush with the surrounding riverbed as indicated on sheet 11 of the E&SC Plan.

U.S. Department of Transportation
Federal Highway Administration

Benjamin Harvey (he/him/his)
Environmental Protection Specialist

FHWA, Pennsylvania Division
30 North Third Street, Suite 700
Harrisburg, PA 17101
(717) 221-3701
benjamin.harvey@dot.gov

From: Kearns, Thomas J <Thomas_Kearns@nps.gov>
Sent: Friday, January 3, 2025 9:05 AM
To: Harvey, Benjamin (FHWA) <benjamin.harvey@dot.gov>; Wittig, Steve <Steve.Wittig@aecom.com>; Brozey, Lisa <Lisa.Brozey@aecom.com>; Goddard, Michelle (FHWA) <michelle.goddard@dot.gov>; Crobak, Jennifer (FHWA) <jennifer.crobak@dot.gov>; johname@pa.gov; Hazelton, Susan <shazelton@pa.gov>
Cc: Kurnath, Lindsey R <Lindsey_Kurnath@nps.gov>; Rachel Tereska <rtereska@ntmeng.com>
Subject: Re: [EXTERNAL] RE: Skinners H&H Needs for NPS SUP

Hi Ben,

NPS answers are in red text.

- Can you clarify for what return period the inundation mapping is required?

  Please use the period used for the rest of the analysis, which is 2 years. Our hydrologist also wanted to see impacts of 10, 20, 100 year events, so if it can be run at those returns too, we would appreciate that info.

- Please clarify if "with and without project" is the existing bridge condition and the temporary causeway condition, or the existing bridge condition and the condition after the bridge is removed (without causeway).
  With and without project = existing bridge condition and the temporary causeway condition.

Thank You,

Tom Kearns
Natural and Cultural Resource Program Manager
Upper Delaware Scenic & Recreational River
[redacted] (c)

From: Harvey, Benjamin (FHWA) <benjamin.harvey@dot.gov>
Sent: Thursday, January 2, 2025 1:16 PM
To: Kearns, Thomas J <Thomas_Kearns@nps.gov>; Wittig, Steve <Steve.Wittig@aecom.com>; Brozey, Lisa <Lisa.Brozey@aecom.com>; Goddard, Michelle (FHWA) <michelle.goddard@dot.gov>; Crobak, Jennifer (FHWA) <jennifer.crobak@dot.gov>; johname@pa.gov <johname@pa.gov>; Hazelton, Susan <shazelton@pa.gov>
Cc: Kurnath, Lindsey R <Lindsey_Kurnath@nps.gov>; Rachel Tereska <rtereska@ntmeng.com>
Subject: [EXTERNAL] RE: Skinners H&H Needs for NPS SUP

Good afternoon Tom,

The staff at NTM that have been working on the H&H analysis had just a couple of questions for clarification of the first 2 points below.

1. Can you clarify for what return period the inundation mapping is required?
2. Please clarify if "with and without project" is the existing bridge condition and the temporary causeway condition, or the existing bridge condition and the condition after the bridge is removed (without causeway).

In the meantime, the team is working on developing the answers to the rest of the questions. If it would be helpful for your H&H staff, NTM would be glad to have a quick call to make sure they are providing everything needed.

Thanks so much,
Ben

U.S. Department of Transportation
Federal Highway Administration

Benjamin Harvey (he/him/his)
Environmental Protection Specialist

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30 North Third Street, Suite 700
Harrisburg, PA 17101
(717) 221-3701
benjamin.harvey@dot.gov

From: Kearns, Thomas J <Thomas_Kearns@nps.gov>
Sent: Wednesday, January 1, 2025 7:26 PM
To: Wittig, Steve <Steve.Wittig@aecom.com>; Brozey, Lisa <Lisa.Brozey@aecom.com>; Harvey, Benjamin (FHWA) <benjamin.harvey@dot.gov>; Goddard, Michelle (FHWA) <michelle.goddard@dot.gov>; Crobak, Jennifer (FHWA) <jennifer.crobak@dot.gov>; johname@pa.gov; Hazelton, Susan <shazelton@pa.gov>
Cc: Kurnath, Lindsey R <Lindsey_Kurnath@nps.gov>
Subject: Skinners H&H Needs for NPS SUP

All,

NPS hydrologists had a chance to review the H&H memo associated with the Skinners SUP application. Before issuing the SUP, NPS is looking to ensure construction of the causeway minimizes impact to the river, specifically through preventing erosion and deposition as well as reducing the risk for catastrophic loss of the causeway in a high-water event. To that end, our hydrology team has sent back an initial list of questions or requests for additional information.

- The provided memo is lacking the model results (i.e., inundation extent with and without project). Please provide those results, showing with and without project inundation extents and water surface elevation profiles.
- Please provide analysis of the causeway's impact to water velocity and the risk of erosion/scour and deposition up and downstream from the project site, in addition the information provided on the inundation extent.
- The proposed causeway constricts the channel by more than 50%. In the event of high water, the causeway is expected to see critical flow due to that significant constriction. The provided RAS model uses only subcritical flow for all runs. Please provide additional data showing the model ran with critical flow volume, preferably using a mixed-flow regime.
- It appears the H&H memo is based on an existing FEMA model that's been refined for the specific project site. How was the updated model calibrated to account for being ran at smaller floods that what was intended in the FEMA model?
- How will erosion and deposition impacts be monitored/measured during and after the project? How are erosion and deposition mitigations developed and implemented to ensure the riverbed, its banks, and properties adjacent to the river are returned to pre-project conditions?

If necessary, we may need a follow up call with our NPS hydrology team, however their schedule is extremely limited. In the interest of expediting our review, providing additional information via email and an updated memo/analysis is the fastest way to move forward.

Beyond the H&H analysis, I am not seeing an ATON plan attached to this permit request. As discussed on calls, the previous buoy system failed in the last high-water event and we understood the team was making adjustments. We need to see any changes documented in a new ATON plan specific to this project.

Thank You,

Tom Kearns
Natural and Cultural Resource Program Manager
Upper Delaware Scenic & Recreational River
[redacted] (c)

1. Background:

The Skinners Falls Bridge is a Baltimore Through Truss bridge that has a total length of 466' and is comprised of two 232' truss spans over the Delaware River. The truss spans have an approximate width of 18.5' and height of 38', respectively. In October 2024, the biennial National Bridge Inspection Survey (NBIS) inspection findings recommended the condition rating for the superstructure (the metal truss part of the bridge above the stone abutments on either side of the river and center stone pier) be lowered from a '4- Poor' to a '2- Critical' and for the substructure (the stone abutments and center stone pier) from a '2- Critical' to a '0 – Failed'. On December 16, 2024, Governor Josh Shapiro declared that the deterioration of the bridge creates an emergency in the county and that the immediate removal of the structure, while attempting to minimize impacts to the environmental resources, is vital to the security, well-being, and health of the citizen of Pennsylvania. The Federal Highway Administration concurred with the emergency declaration on December 17.

2. Project Purpose and Needs:

The project purpose is to address the failed condition of the existing structure and prevent its uncontrolled collapse. The project needs are:

- The structure's current overall inspection condition rating is 0 (failed). The deck condition rating is 4 (poor). The superstructure condition rating is 2 (critical). The substructure condition rating is 0 (failed).
- The existing condition poses a danger to public use of the Delaware River near/under the structure.

3. Alternatives Analysis

Since the inspection in October 2024, PennDOT has developed an engineering analysis and conducted resource agency consultation and public involvement to develop alternatives that address the problems with the bridge (that is, why the project is needed). Due to the historic nature of the bridge, PennDOT began an engineering analysis to develop an approach to safely lift each truss by crane, move them onto land and carefully disassemble and store them. As the alternatives analysis was progressing, PennDOT determined that the lifting and disassembly of the truss was not reasonable due to the length of time required to complete the removal given the emergency circumstances. PennDOT determined that a demolition alternative would remove the bridge in the most expeditious manner, and thus would best serve the project's purpose and need. This approach would minimize impacts to boating, allow recreational traffic to safely access and navigate the Delaware River, and would provide local and adjacent businesses with minimal impact during the recreational season.

Due to the emergency nature of the project, the alternatives were developed and revised rapidly in November and December of 2024. Multiple alternatives evolved based on input from the regulatory and resource agencies with jurisdiction over the resources in the study area. The development and screening of alternatives was additionally influenced by a greater and more detailed understanding of the engineering constraints that were revealed as the design progressed.

Finally, for an alternative to fully address the emergency, the bridge removal must be completed prior to the start of the recreational boating season, which typically starts on Memorial Day.

The impacts of the alternatives considered are shown in Table 1.

3.1. Alternatives Considered but Dismissed from Further Consideration

The Do Nothing alternative and all build alternatives would result in potential impacts to the Skinners Falls Bridge, the Milanville Historic District, the Upper Delaware Scenic and Recreational River and Management Unit, the Pennsylvania Fish & Boat Commission Water Trail (Delaware River), and the NYS DEC public boat launch/parking area aquatic resources, including threatened and endangered species, recreational businesses and users of the Delaware River.

3.1.1. Do Nothing Alternative

The Do Nothing Alternative would result in the eventual catastrophic collapse of the New York abutment. Once the abutment collapses, the New York span would likely fall into the Delaware River and suffer irreparable damage to the historic integrity of the truss. Should the New York truss fall into the River, the Pennsylvania span may also become unstable and fall into the river. This alternative would also be very dangerous to the recreational users in the area who would be at risk for serious injury or death in the event of a sudden catastrophic collapse. Additionally, PennDOT was notified on August 2, 2024, that parts of the bridge were falling off and dropping into the river. Under a Do Nothing Alternative, parts would continue to fall and would be a hazard to recreational users and the general public in river in the vicinity of the bridge.

Potential impacts associated with the Do Nothing Alternative are shown in Table 1. The Do Nothing Alternative does not address the failed condition of the bridge and does not eliminate the danger to the public due to falling debris or the risk of an uncontrolled bridge collapse and would not be reasonable. However, it is carried forward as the baseline against which to compare all other alternatives.

3.1.2. Temporary Bracing Alternative

The Temporary Bracing of the New York abutment was examined as an interim measure. This alternative would involve adding bracing to the New York abutment to slow the rate of continued deterioration. It would also require adding netting or protection under the bridge to capture deteriorated steel bridge members and other materials falling from the bridge.

Stabilization of the abutment as an interim measure was considered and cannot be safely and effectively implemented. Further rotation of the failed stone masonry abutment could be restrained through an engineered temporary measure, but without full rehabilitation, the stone abutment would continue to degrade causing settlement and posing an ongoing risk of collapse. Unlike a conventional multi-girder bridge, the bearing (support) location for this truss superstructure must be located at the existing joint and cannot simply be shifted along the truss line from the existing bearing location without independent and substantial structural framing to enable the load transfer to a temporary abutment.

Additionally, it is not possible to safely add netting under the bridge. The netting would need to be applied from the top of the bridge, at deck level. Because of the failed condition, the bridge is not safe, even for workers on foot to access and install the netting. Additionally, accumulation of ice on the netting during winter weather increases the dead load weight that the bridge must be able to support. It was determined that the netting would need to be removed prior to each icing event and as previously mentioned, the bridge is not safe to access from the deck. The trusses are currently in a deteriorated state and any further delay in their removal may result in collapse prior to removal or could occur during the removal operations and would not be reasonable.

3.1.3. Rehabilitation Alternative

As noted in the 2024 Planning and Environmental Linkages Study, the Rehabilitation Alternative would require complete disassembly of the trusses. A comprehensive rehabilitation of the truss spans would require complete disassembly due to the number of members framing into each pinned joint that are recommended for repair. This would allow for detailed assessment of each member and final determination for corrective action (shop repair or replacement). The disassembly work would be completed most expeditiously from temporary supports at ground level requiring the truss spans be lifted from the existing abutments and pier.

The Rehabilitation Alternative was dismissed because it requires disassembly of the bridge and none of the Disassembly Alternatives are reasonable as discussed below. The Rehabilitation Alternative would require the same causeway system as discussed below and would result in the concerns and impacts as the disassembly from causeway alternatives discussed below. Potential impacts associated with the Rehabilitation Alternative are shown in Table 1.

3.1.4. Disassembly Alternatives

3.1.4.1. Disassembly from Existing Bridge Alternative

For this alternative, the disassembly would occur on the bridge itself. No causeway would be required. Due to the existing failed condition of the bridge, no machinery or personnel would be permitted on the bridge at any point during construction activities. This alternative is not safe and given the failed condition of the bridge, it could not be implemented, therefore it was dismissed because it is not reasonable. Potential impacts associated with the Disassembly from Existing Bridge Alternative are shown in Table 1.

3.1.4.2. Disassembly from Full-Width Causeway

During the initial conversations regarding disassembly alternatives, a full wide causeway was discussed. The causeway would extend across the entire width of the river and under each span. Minimal laydown areas would be needed since the disassembly would occur in the trusses current position. The full width causeway was discussed with the permitting agencies in November 2024. The permitting agencies indicated that the alternative may not be permittable due to impacts to aquatic resources, fish passage, threatened and endangered species, recreational users and the adjacent businesses. This alternative was determined to be not reasonable due to the impacts to the aquatic resources, including federally endangered mussels and to the recreational users of the river. Potential impacts associated with the Disassembly Full-Width Causeway Alternative are shown in Table 1.

3.1.4.3. Disassembly from the Partial Width Causeway Alternatives

For the alternatives involving disassembly on a partial causeway, the truss spans would be removed from the existing abutments and pier using a single very large crawler crane with a smaller support crane and placed on temporary supports at the causeway elevation. These alternatives would require a walking pick (i.e. truss suspended in the air while crane slowly moves to another location) which would not be practical due to grade differentials. The large crawler crane would then be removed from the site and disassembly would proceed on the causeway using much smaller cranes and lifts. Due to the size of the crawler crane, an additional contractor laydown area would be required for equipment and material deliveries and assemblies. The causeway would extend into a portion of the river and overbank area within the floodplain. Due to the height and weight of the trusses, the causeway would extend to the west beyond the pier to allow for crane access to the western span. Similarly, the size of the causeway also would include space for the bracing and disassembly of the trusses, as well as access around the trusses. Two alternatives were examined for the staging/crane assembly area: north of the bridge and south of the bridge.

The anticipated sequence of construction would be:

- Construct the causeway and contractor staging area for crane assembly
- Assemble crane
- Prepare the truss spans for crane pick (potential removal of timber deck and addition of temporary bracing components)
- Pick and place truss spans on temporary supports at causeway level
- Brace truss spans for disassembly and to secure against storm events then demobilize large crawler crane
- Mark the truss members for future identification and proper storage
- Disassemble panel by panel and remove the members from the causeway to prepare for storage
- Remove pier and NY abutment
- Remove causeway and contractor staging area
- Remove all construction materials and restore site (signage, tree plantings, seeding/mulching, etc.)

This alternative could result in the simultaneous disassembly of both trusses if the causeway is sized appropriately. Once the PA span would be removed, the river could be re-opened to recreational users.

3.1.4.3.1. Staging Area Located North of Bridge

This alternative would require a widened access road in the bank area to overcome the existing grade differential for safe transport of the truss spans to the disassembly area in the campground in the northeast quadrant of the project area. While a portion of the causeway and access road on the bank could be removed, the staging area would remain on the adjacent landowner's boating and camping business for the remainder of the construction.

Considerations for northern staging area include:

- Would allow for simultaneous disassembly of the trusses
- Would require construction of access road and crane access road
- Would require the landowner who runs the businesses to voluntarily allow use of property
- Estimated length of construction is 6-9 months

A meeting was held with the property owner in November 2024, and it was determined that the campground could not be used as a proposed staging area because there is a buried septic drainage area and a water line. In addition, the property owner would likely not be able to open the business for the recreation season, which is 80% of his income.

The alternative would require a large causeway with an aquatic footprint greater than 1 acre and would remain in place for 6-9 months. This design would have a large and long-term direct impact to federally endangered mussels, host fish passage, and habitat associated with potential scour and ponding.

The Staging Area Located North of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances and to impacts to the buried septic field, federally endangered mussel habitat, the recreational users, and the businesses. Potential impacts associated with the Disassembly on Causeway - Staging Area North of the Bridge Alternative are shown in Table 1.

3.1.4.3.2. Staging Area Located South of Bridge

Staging Area South of the Bridge Alternative would require an approximately 37 foot wide access road from Skinners Falls Road to upstream from the NY abutment for use as a crane access road. The NYSDEC-owned parking lot for the adjacent boat launch is not large enough to accommodate the required space for the boom of the crane while it is being assembled or disassembled.

Considerations for southern staging area include:

- Would allow for simultaneous disassembly of the trusses
- Would require construction of access road and crane access road
- Potential impact to the emergency access road to Skinners Falls
- Would require improvement to Skinners Falls Road and the NYSDEC parking lot
- Would require landowner who operates the business to voluntarily allow use of property
- Estimated length of construction is 6-9 months

While this alternative results in a smaller staging area, it requires a large causeway with an in-stream footprint of almost 2 acres and would remain in place for 6-9 months. This design would impact federally endangered mussel-host fish passage and habitat associated with potential scour and ponding.

The causeway as shown in the conceptual plan would not have been large enough for the crane to maneuver while the trusses are sitting on the causeway. The staging area would also not be enough space for the support crane required for the placement of the counter weights onto the large crane. The parking area is not of sufficient size to assemble and disassemble the crane. These additional refinements to the plan were not made due to the dismissal of this alternative.

The Staging Area Located South of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances and due to impacts to federally endangered mussel habitat, the disruption to recreational users and the businesses and because the site was not large enough to accommodate the equipment. Potential impacts associated with the Disassembly on Causeway - Staging Area South of the Bridge Alternative are shown in Table 1.

3.1.4.4. Disassembly on the Floodplain – South of Bridge

For this alternative, the staging area for the crane assembly/disassembly would take place primarily on the floodplain/bank area south of the bridge and the trusses would be placed on/near the NYSDEC parking lot and on the bank area. A partial width causeway within the Delaware River extending beyond the central river pier would be required for crane access and movements to remove the trusses. The truss spans would be removed from the existing abutments and pier using a large crawler crane. Staging areas to the north of the bridge would be required for crane access, as the crane can only traverse a maximum three percent grade. The design had to be updated to show rather long crane access ramps using a three percent grade, which increased the limits of disturbance. The NY truss would be placed in the NYS DEC parking lot. A bench would be built up on the bank area between the Delaware River and the NYSDEC parking lot to provide enough area to place the PA truss and conduct the disassembly.

The anticipated sequence of construction would be as follows:

- Build causeway (and begin building bench & staging areas)
- Prepare trusses for disassembly
- Assemble crane
- Pick NY span and place on temporary supports in NYSDEC parking lot
- Reposition crane and pick PA span and place on temporary supports on intermediate bench
- Disassemble crane
- Disassemble trusses and prepare for storage
- Remove all remaining causeway, bench, staging area materials
- Restore site (signage, tree plantings, seeding/mulching, etc)

The anticipated overall construction duration is roughly 5-8 months from initial causeway construction to completion of site restoration. It is estimated that the lower causeway would be in place for first 3 months of construction. The bench would likely be in place for 3 to 4 months (built on top of or as part of lower causeway construction) starting in 1st month and then in place until disassembly operations are complete, and all temporary supports can be removed in 4th or 5th month of construction.

Considerations for staging in the NYSDEC parking lot south of bridge include:

- Concern with flood events while working on causeway
- Would allow for simultaneous disassembly of the trusses
- Would allow river may be reopened to users on PA side once spans are on causeway
- Would allow the trusses to be moved as far away from the river as possible
- Would require improvement to Skinners Falls Road and the NYSDEC parking lot
- May require a temporary access road to the bed and breakfast south of NYSDEC parking lot and to the emergency access road to Skinners Falls
- Would use entire NYSDEC parking lot for staging area and would be inaccessible to public
- Estimated length of construction is 5-8 months

This alternative resulted in the second longest duration of construction and the greatest disturbance of land. It would also render the NYSDEC parking lot and boat launch unusable for much of the summer boating season. It would also impact the adjacent businesses who rely upon access to the river.

The alternative would require a large causeway with an in-stream footprint greater than 1 acre and would remain in place for 5-8 months. This design would impact federally endangered mussel-host fish passage and habitat associated with potential scour and ponding.

The Disassembly on the Floodplain – South of Bridge Alternative was determined to be not reasonable due to the length of time required to complete the removal given the emergency circumstances, impacts federally endangered mussel habitat, and the disruption to recreational users and the businesses during the recreation season. Potential impacts associated with the Disassembly on the Floodplain – South of Bridge Alternative are shown in Table 1.

3.1.5. Demolition Alternative

These alternatives were investigated as alternatives of last resort. PennDOT determined that the time needed to design and implement a safe method to lift/pick/disassemble the bridge, is not reasonable given the bridge's rapidly deteriorating condition. In addition, with the information gathered to date, it remained uncertain that a lift/pick/disassemble alternative could be safely executed. Therefore, two demolition alternatives were examined: Demolition via a Full Width Causeway Alternative and a Demolition via a Partial Width Causeway Alternative.

3.1.5.1. Demolition Alternative via Full Width Causeway

This alternative would require a full width causeway across the Delaware River. The truss spans would be dropped from their current locations onto a causeway spanning the entire river. The causeway would be at least 120 feet wide in order to account for the trusses twisting or shifting laterally as they were dropped. Minimal laydown areas would be needed. Under this alternative, the bridge would be salvaged and scrapped rather than disassembled.

The full width causeway would allow for bridge demolition activities, including access by workers, small cranes and trucks. Twenty-five 6' diameter pipes would be installed in the causeway to allow for the passage of normal stream flows through the causeway. Explosive charges would be

anticipated to be used to drop the bridge onto the causeway. Additionally, the New York abutment would be removed in addition to the center river pier. The Pennsylvania abutment would be stabilized with a concrete cap and a fence to restrict access.

The anticipated sequence of construction would be:

- Construct the causeway
- Drop the PA and NY spans onto the causeway. Salvage and scrap bridge components beginning with PA Span
- Begin to Remove PA causeway
- Remove pier and NY abutment
- Remove the remainder of the causeway
- Remove all construction materials and restore site

Consideration for dropping the bridge and salvage alternative include:

- Would require a causeway which would span entire river
- Would require minimal lay down/staging areas
- Safer working conditions than a lift/pick/disassemble alternative
- More likely to be subjected to high river flows and/or ice flows
- Concern over ice jams in the pipes resulting in flooding
- Estimated length of construction is 4-5 months

The full width causeway alternative would result in the most impact to recreational users and aquatic resources, (including federally protected mussels), and fish passage. A full width causeway in the upper Delaware River in the winter could be subject to ice dams and subsequent flooding. This alternative was presented to state and federal permitting agencies on December 11, 2024. The agencies all expressed concerns about a full-width causeway. The permitting agencies were doubtful that they could issue a permit for a full-width cause. The agencies suggested that PennDOT examine an alternative that utilizing a partial causeway which would reduce impacts and eliminate the need to fully close the river. The full-width causeway alternative was determined not to be reasonable due to the inability to get the project permitted and due to impacts to the aquatic resources, including federally endangered mussels and to the recreational users of the river. Potential impacts associated with the Demolition Alternative via Full-Width Causeway Alternative are shown in Table 1.

3.1.5.2. Demolition Alternative via Partial Width Causeway

For the partial width demolition alternative, a causeway would be constructed to approximately 30 feet beyond the center pier. The NY truss would be dropped onto the causeway and the PA truss would be dropped into the Delaware River and pulled up onto the causeway for salvage. The causeway would be at least 120 feet wide in order to account for the NY truss twisting or shifting laterally as it is dropped and to allow room to pull the PA truss up on the causeway for demolition. Under this alternative, the bridge would be salvaged and scrapped rather than disassembled.

Explosive charges would be anticipated to drop the bridge onto the causeway. Additionally, the New York abutment and center pier would be removed. The Pennsylvania abutment would be stabilized with a concrete cap and a fence to restrict access.

The anticipated sequence of construction would be as follows:

- Construct the causeway and install debris catchment measures
- Drop the NY span onto the causeway and PA Span into river.
- Pull PA span onto causeway.
- Salvage and scrap bridge components.
- Remove pier and NY abutment.
- Remove the remainder of the causeway.
- Remove all construction materials and restore site.

Consideration for dropping the bridge and salvage alternative include:

- Would allow for part of river to remain open
- Would require a minimal lay down/staging areas
- Safer working conditions than a lift/pick/disassemble alternative
- Estimated length of construction is 3 months

The Demolition Alternative via Partial Width Causeway would result in the least impact to waterway resources, can be constructed in less time than any of the other alternatives, smallest limit of disturbance, and reduces impacts related to fish passage, recreational users, businesses and threatened and endangered species. Potential impacts associated with the Demolition Alternative via Partial Width Causeway Alternative are shown in Table 1.

This alternative is the selected alternative because it is the most expeditious for permitting and construction, would result in fewer impacts to aquatic resources, business owners and recreational users. It is the selected alternative, which meets the project's purpose and need, in the required NEPA, Section 106, Section 4(f) and all regulatory permit applications.

Table 1: Alternatives Assessment								
	Meets Purpose and Need	**Approximate Limit of Disturbance**	**Approximate Waterway Impacts**	**Historic Resources**	**Aquatic Resources/ Threatened & Endangered Species**	**NYSDEC Boat Launch & Public Parking**	**Recreational Resources**	**Business Impacts**
Do Nothing	No	0	0	Bridge will ultimately collapse	Uncontrolled collapse may impact aquatic resources	Uncontrolled collapse will close river	Uncontrolled collapse will close river	Uncontrolled collapse will close river
Temporary Bracing	No	0	0	Bridge will continue to deteriorate	Uncontrolled collapse may impact aquatic resources	Uncontrolled collapse will close river	Uncontrolled collapse will close river	Uncontrolled collapse will close river
Rehabilitation	Yes	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge	See impacts for disassembly on floodplain south of bridge
Disassembly from Existing Bridge Alternative	Yes	Dismissed prior to development of impact plan	Dismissed prior to development of impact plan	Temporary impact to bridge and Milanville historic district	Minimal	Minimal	Minimal	Minimal

				Bridge components to be stored for potential future rehabilitation				
Disassembly on full-width causeway	Yes	Dismissed prior to development of impact plan	Dismissed prior to development of impact plan	Temporary impact to bridge and Milanville historic district Bridge components to be stored for potential future rehabilitation	Dismissed prior to development of impact plan, however, a full causeway would impact to aquatic habitat, including threatened and endangered mussel habitat	No direct impact.	Dismissed prior to development of impact plan, however, a full causeway would close river to recreational users	Dismissed prior to development of impact plan, however, a full causeway would impact recreational based businesses
Disassembly on causeway with staging area to north of bridge	Yes	5.61 acres	1.39 acres	Temporary impact to bridge and Milanville historic district Bridge components to be stored	Longest time for causeway in river, disrupting aquatic habitat, including threatened and	No direct impact. May require temporary shut down of boat launch during construction	Length of construction is 6-9 months blocking river with causeway through most if not all of the 2025	Requires staging area on septic field and water lines Campground and boat livery business will

				for potential future rehabilitation	endangered mussel habitat		recreational season	be inoperable through most if not all of the 2025 recreational season
Disassembly on causeway with staging area south of bridge	Yes	4.39 acres	1.80 acres	Will result in adverse impact to historic bridge and district	Causeway will be in place for 5-8 months, impacting aquatic habitat, including threatened and endangered mussel habitat	Highest impact to parking lot and boat launch for most of boating season through most if not all of the 2025 recreational season	Recreational users will not have access to entire width of river, will be able to pass on west side of pier May require some temporary closures of river during picking of trusses	Requires minor impact to campground and boat livery business Requires relocation of driveway for bed & breakfast business
Disassembly on floodplain south of bridge	Yes	7.0 acres	1.25 acres	Will result in adverse impact to historic bridge and district	Causeway will be in place for 6-9 months, impacting aquatic habitat, including threatened	Parking lot and boat launch will be inoperable through most if not all of the 2025	Recreational users will not have access to entire width of river, will be able to pass on west side of pier	Requires construction of crane access road and staging area on campground and boat livery

					and endangered mussel habitat	recreational season	Causeway would be in place through most if not all of the 2025 recreational season May require some temporary closures of river during picking of trusses	business through most if not all of the 2025 recreational season Requires relocation of driveway for bed & breakfast business
Demolition with full width causeway	Yes	2.74 acres	1.30 acres	Will result in adverse impact to historic bridge and district	Most impact to aquatic habitat, including threatened and endangered mussel habitat based upon size of causeway May result in ice jams and flooding	Requires use of parking lot for 4-5 months during construction for staging area	Most impact to recreational users due to size of causeway and closure of river May result in ice jams and flooding	Recreational based businesses impacted during river closure by causeway May result in ice jams and flooding

Demolition with partial width causeway	Yes	2.0 acres	0.82 acres	Will result in adverse impact to historic bridge and district	Least impact to aquatic habitat, including threatened and endangered mussel habitat	Requires use of parking lot for 3 months during construction for staging area	Least impact to recreational users. Length of construction is 3 months and can be completed prior to spring season	Length of construction is 3 months and can be completed prior to spring season

S.R. 1002 (Skinners Falls Road) over Delaware River
Emergency Project
Damascus Township, Wayne County, Pennsylvania
Town of Cochecton, Sullivan County, New York
Aids to Navigation Plan- Bridge Removal Addendum

Narrative

An Aids to Navigation Plan (ATON) Addendum is required for S.R. 1002 (Skinners Falls W. Road)[1] Bridge (BMS 63-1002-0230-0739) over the Delaware River between Damascus Township, Wayne County, Pennsylvania and the Town of Cochecton, Sullivan County, New York. Please See **Attachment 1: USGS Project Location Map**. The project is located at Latitude: 41.669672 N, Longitude -75.058314°. The ATON is required due to emergency bridge removal activities. This ATON addendum follows the approval of the channel restriction ATON approved for this location, dated September 6, 2024.

The existing structure is a two-span, 466' long, Baltimore through truss bridge. The bridge is considered structurally deficient and has been closed to all traffic, including pedestrian and bicycle, since a 2019 inspection identified extensive timber deck and lateral truss bracing deterioration. Please see **Attachment 2: Photographs** for photographs of the existing bridge and watercourse.

In August 2024, reported debris falling from the bridge resulted in an emergency inspection. The resulting emergency visual inspection confirmed that bridge components had the potential to fall into the river. Bridge inspection crews removed several pieces of the bridge on August 3, 2024.

To protect the boating public during bridge removal, an ATON plan is proposed to restrict, and during certain phases of construction close, the navigable waterway in the vicinity of the bridge. An ATON plan has been created to show placement of warning signs and buoys upstream and downstream of the bridge to protect boaters within the vicinity of the bridge. The proposed buoy specifications are also included. All in-water buoys and signs are to be removed immediately prior to forecasted high flow events, or when significant ice is present on the river, by the contractor using appropriate boats. The ATON plan will be reset following such events when safe conditions are present.

At this time, the ATON for bridge removal will be implemented as noted in the following phases:

Phase 1): Delineation of restricted channel extending 40' on the PA side of the central river pier. Orange vinyl buoys and exclusion buoys will delineate the restricted channel. During this stage, workers will be installing the temporary half-width rock causeway, which will be used to facilitate the removal of the bridge. Phase 1 implements the previously approved ATON plan and is included Attachment 6 (**Aids to Navigation Plan Phase 1).** It is anticipated that it will take approximately 30 days to construct the causeway.

Phase 2): Once the causeway construction extends to beyond the central river pier, the river will be temporarily closed to all river traffic. Construction activities, including the installation of a debris catchment system both upstream and downstream of the bridge, will be installed in this phase.

[1] Pennsylvania State Route 1002 is named Milanville Road on the Pennsylvania side. On the New York side it is named Skinners Falls W Road.

S.R. 1002 (Skinners Falls Road) over Delaware River
Emergency Project
Damascus Township, Wayne County, Pennsylvania
Town of Cochecton, Sullivan County, New York
Aids to Navigation Plan- Bridge Removal Addendum

Other activities to prepare the bridge for demolition will also take place. As a result, conditions would be unsafe for any boaters or recreational users in the vicinity of the bridge.

River closure signage and exclusion buoys will be placed at the Cochecton-Damascus Bridge. Four 37" orange vinyl buoys and one exclusion buoy will be placed 300' downstream of the Cochecton-Damascus Bridge. Official signed portage will be to the Narrowsburg Boat Launch. Notifications will also be posted on the National Park Service Upper Delaware Scenic and Recreational River website.

Additionally, understanding that access to the river from private property cannot be enforced along the entire length of the portage, two exclusionary buoys will be placed 500' upstream of the Skinners Falls Bridge and additional sets of four 36" orange vinyl buoys and one exclusion buoy will be placed 300 ft upstream of the northernmost limits of the causeway and 300 feet downstream of the southernmost limits of the causeway. Two Warning Keep out signs on the downstream shore of the Skinners Falls Bridge warning of construction will be placed as well. No portage in the vicinity of the bridge will be allowed due to ongoing construction activities. This stage of the ATON will be in place for approximately two months.

This ATON will remain in place until the debris from the demolition of the bridge, the causeway and the catchment system are removed. Subsequent to the removal of the catchment system, the entire width of the river will be reopened to recreational users, and all ATON will be removed. This reopening will take place prior to the commencement of the boating season (May 1).

This section of the Delaware River is part of the Upper Delaware Scenic and Recreational River unit, as designated by the United States National Park Service (NPS). The Upper Delaware River is also a federal Wild and Scenic River and is a recreationally navigable waterway. The location of the ATON is part of the Upper Delaware River section of the Delaware River Water Trail. This section of the navigable water trail travels over 73 miles along the Upper Delaware River and is a (PFBC) water trail. The entire Delaware River Water Trail travels190 miles on the Delaware River, consisting of the Upper, Middle, and Lower Delaware River Trails.

Upstream / Downstream Public Launch Facilities

- Upstream Launch: The closest upstream public kayak/canoe launch access points are located at the Cochecton-Damascus Bridge. The Damascus PA Fish Commission Access is located on the Pennsylvania side of the Cochecton-Damascus Bridge and the Cochecton NYSDEC Fish Commission Access is located on the New York side of the bridge; both are approximately 2.9 miles upstream of the Skinners Falls Bridge.
- Downstream Launch: The nearest downstream access is at Narrowsburg, approximately 5.5 miles downstream of the Skinners Falls Bridge.

This ATON Plan is anticipated to be approved concurrently by the National Park Service, Pennsylvania Fish and Boat and New York State Department of Environmental Conservation.

Upper Delaware Scenic and Recreational River

BOATING SAFETY AND WORK PLAN

For The

Skinners Falls Bridge Emergency Waterway Restriction

DRAFT

January 2025

---Agency ---

PA Department of Transportation
Engineering District 4
55 Keystone Industrial Drive
Dunmore, PA 18512

--- Contractor ---

JD ECKMAN, INC.

PROJECT INFORMATION

State Permitting Authority/Contact Name/Number:

Pennsylvania Department of Transportation (PennDOT)
Engineering District 4
55 Keystone Industrial Drive
Dunmore, PA 18512

PennDOT Contact: Greg Augustine – Environmental Manager -
570.963.4070 E-mail: gaugustine@pa.gov

Name of Construction Project Number
SR 1002, Segment24R
Skinners Falls Bridge

Location by River Mile or Bridge Number:

Interstate Bridge #5 – Skinners Falls Bridge

River Mile: 295.40

Name, Address and Telephone Number of Responsible Party:

Contractor Project Manager - Contractor Project Manager: Josh Smolinsky, PE,
JD Eckman, Inc.
Telephone: 610-310-4474

--- On-Site --- Construction Superintendent – TBD
– Cell –

--- On-Site Boat Safety Coordinator – TBD
– Cell –

On-Site PennDOT--- Contact Person/ Construction Manager: Katie Daniels, PE,
PennDOT Assistant Construction Engineer
Cell – 570-963-3445

PennDOT Project Manager
Amy Lolli –AMLOLLI@pa.gov tele. 570.614.2958

EMERGENCY CONTACTS

For Immediate Assistance:	Dial 911
Pennsylvania State Police: Pike County PA	570.226.5718
Pennsylvania State Police: Honesdale, PA	570.253.7126
New York State Police: Liberty NY	845.292.6600
New York State Police: Narrowsburg NY	845.252.3212
National Park Service Dispatch:	570.426.2457
Lindsey Kurnath National Park Superintendent	570.729.7134

Anticipated Construction Schedule:

Order ATON Plan Materials: ASAP
Install ATON Plan: Installation to begin as soon as materials are available
Install Causeway: January 13, 2025
Remove Bridge Structure: ASAP once causeway is construction is completed
Maintain ATON Plan: until causeway removal and associated activities are complete
Coordinate Winter ATON Removal Date(s) as required during conditions when ice is present on the River
Reinstall and Maintain ATON Plan: during periods when ice is not present.
Construction Complete and ATON Removed: May 1, 2025 or eariler

Schedule and Sequence of Bridge Signs and Buoys Installation

– At this time, the ATON for bridge removal will be implemented as noted in the following phases:

- Phase 1): Delineation of restricted channel extending 40’ on the PA side of the central river pier. Orange vinyl buoys and exclusion buoys will delineate the restricted channel. During this stage, workers will be installing the temporary half-width rock causeway, which will be used to facilitate the removal of the bridge. Phase 1 implements the previously approved ATON plan and is included Attachment 6 (**Aids to Navigation Plan Phase 1).** It is anticipated that it will take approximately 30 days to construct the causeway.

- Phase 2): Once the causeway construction extends to beyond the central river pier, the river will be temporarily closed to all river traffic. Construction activities, including the installation of a debris catchment system both upstream and downstream of the bridge, will be installed in this phase. Other activities to prepare the bridge for demolition will also take place. As a result, conditions would be unsafe for any boaters or recreational users in the vicinity of the bridge.

  River closure signage and exclusion buoys will be placed at the Cochecton-Damascus Bridge. Four 37” orange vinyl buoys and one exclusion buoy will be placed 300’ downstream of the Cochecton-Damascus Bridge. Official signed portage will be to the Narrowsburg Boat Launch. Notifications will also be posted on the National Park Service Upper Delaware Scenic and Recreational River website.

Additionally, understanding that access to the river from private property cannot be enforced along the entire length of the portage, two exclusionary buoys will be placed 500' upstream of the Skinners Falls Bridge and additional sets of four 36" orange vinyl buoys and one exclusion buoy will be placed 300 ft upstream of the northernmost limits of the causeway and 300 feet downstream of the southernmost limits of the causeway. Two Warning Keep out signs on the downstream shore of the Skinners Falls Bridge warning of construction will be placed as well. No portage in the vicinity of the bridge will be allowed due to ongoing construction activities. This stage of the ATON will be in place for approximately two months.

This ATON will remain in place until the debris from the demolition of the bridge, the causeway and the catchment system are removed. Subsequent to the removal of the catchment system, the entire width of the river will be reopened to recreational users, and all ATON will be removed. This reopening will take place prior to the commencement of the boating season (May 1).

General Conditions:

- Signs, marker buoys and orange vinyl buoys will be placed in the Delaware River as coordinated with National Park Service, PA Fish and Boat Commission and NY Department of Environmental Conservation. The National Park Service (NPS) will determine if equivalent buoys are acceptable.
- The signs and buoys will be checked daily by the contractor and adjusted or moved as necessary.
- The contractor will remove in-water buoys and signs prior to forecasted high flow events, or when ice is present on the river. Reset ATON following such events when safe conditions are present.
- PennDOT will obtain a special use permit from NPS prior to starting work.
- Upon approval of the National Park Service Special Use Permit Application and Construction Boater Safety Plan (BSP), PennDOT will notify the NPS to schedule a project startup meeting at the bridge site.
- Daily visual inspection of the ATON equipment will be performed by the contractor. Contractor will immediately replace and/or correct any missing, defective, ineffective, or misaligned equipment to the satisfaction of the NPS. Due to year-round boater usage in this area, ATON equipment shall be maintained year-round.
- All devices will be installed and maintained as indicated in this ATON Plan. All devices will be inspected and approved by the NPS prior to placement and obtain approval from the NPS before implementing any deviation from the approved ATON Plan.
- PennDOT and/or the contractor will monitor river levels and weather conditions. The contractor will be available 24 hours a day, seven days a week to respond.
- The contractor or sub - contractor(s) will be available 24 hours a day, seven days a week for notification and response in the event of actual or anticipated high water.
- NPS Law Enforcement Dispatch will be notified if river users do not obey signs and buoys as advised and continue towards the Skinners Falls bridge restricted area. No vehicles will be driven in the water.
  Contractor will monitor work area to verify that river users are following signs.
- **COCHECTON-DAMASCUS BRIDGE**
  - Two "WORK AREA ½ MILE" 36" x 36" black on white signs will be placed on the

upstream banks (see attached signs for approval), to provide proper guidance, one-half mile upstream from the bridge crossing.

- Four orange vinyl buoys (36" diameter) and one 14" diameter white regulatory marker buoy with "DANGER – KEEP OUT" and orange center cross vertical diamond will be placed 75' apart, within the river to alert of the waterway closure, 300' downstream of the structure. The buoys will be sufficiently anchored using the proper weight and line length to insure they stay in place. All buoys will be individually anchored and not connected (daisy-chained) to one another by any rope, cable, etc.
- Two "WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA" signs will be placed on the shore on both sides, 100' downstream of the structure.
- Four 48" x 24" "PORTAGE ALL BOATS EXIT HERE" signs will be placed between the buoys in the water alerting boaters for the need to exit the river.
- Four 48" x 48" "WARNING KEEP OUT" signs will be placed with the portage signs in the river, between the buoys,

- **SKINNERS FALLS BRIDGE**
  - Two "WORK AREA ½ MILE" 36" x 36" black on white signs will be placed on shore, one half mile upstream from the bridge.
  - Two "WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA" signs will be placed on the shore on both sides, 350 'upstream of the structure.
  - Two 14" white regulator marker buoy with label "WARNING" with orange vertical diamond will be placed 500' upstream of the structure.
  - Four orange vinyl buoys (36" diameter) and one 14" diameter white regulatory marker buoy with "DANGER – KEEP OUT" and orange center cross vertical diamond will be placed 75' apart, within the river to alert of the waterway closure, 300' downstream of the structure. The buoys will be sufficiently anchored using the proper weight and line length to insure they stay in place. All buoys will be individually anchored and not connected (daisy-chained) to one another by any rope, cable, etc.
  - Four 48" x 48" "WARNING KEEP OUT" signs will be placed with the portage signs in the river, between the buoys,
  - Two "WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA" will be placed on the shore on both sides, 100' downstream of the structure.

– Two permanent signs "WARNING Work at Skinners Falls Bridge Use Caution and Follow Signs When Boating in this Area" to be placed at the Pennsylvania Fish and Boat Commission's (PAFBC) Damascus Boat Launch (upstream) and New York State Department of Environmental Conservation's (NYSDEC) Skinners Falls Access (downstream). These signs were installed during ATON Phase I and will remain in place.

Approved Signs To Be Implemented For Safety:

- Two "WORK AREA ½ MILE" 36" x 36" black on white signs will be placed on shore, one half mile upstream from the bridge.
- Two "WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA" signs will be placed on the shore on both sides, 100' upstream of the structure.

- Four orange vinyl buoys (36” diameter) and one 14" diameter white regulatory marker buoy with “DANGER – KEEP OUT” and orange center cross vertical diamond will be placed 25’ apart, within the river to alert of the waterway closure, 300’ downstream of the structure. The buoys will be sufficiently anchored using the proper weight and line length to insure they stay in place. All buoys will be individually anchored and not connected (daisy-chained) to one another by any rope, cable, etc.
- Two “WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA” will be placed on the shore on both sides, 100’ downstream of the structure.
- Two 14” white regulator marker buoy with label “WARNING” with orange vertical diamond will be placed 500’ upstream of the structure.
- Four 48” x 24” “PORTAGE ALL BOATS EXIT HERE” signs will be placed between the buoys in the water alerting boaters for the need to exit the river.
- Eight 48” x 48” “WARNING KEEP OUT” signs will be placed with the portage signs in the river, between the buoys,
- Two permanent signs “WARNING Work at Skinners Falls Bridge Use Caution and Follow Signs When Boating in this Area” to be placed at the Pennsylvania Fish and Boat Commission’s (PAFBC) Damascus Boat Launch (upstream) and New York State Department of Environmental Conservation’s (NYSDEC) Skinners Falls Access (downstream). These signs were installed during ATON Phase I and will remain in place.

Required Safety Personnel, Equipment and Practices

Every contractor working in or adjacent to the Upper Delaware River will:

- Ensure that a high visibility ANSI Class 2 or 3 vests, shirts, or jackets are worn at all times by all employees engaged in the work.
- Monitor work area on daily basis.
- The contractor will notify NPS staff if river users present conflict and request NPS assistance.
- Ensure that high visibility, US Coast Guard (USCG) approved, Type III Personal Flotation Devices (PFD’s) are worn by all personnel at the construction site at all times when in, on, or near the river. The PFD’s will be inspected for defects and replaced as needed.

River Closure

Passage under the structure will remain restricted to Delaware River recreational boating traffic. The bridge structure itself will remain closed to vehicular, pedestrian, and bicycle traffic. Phase 2 of this ATON plan proposes river closure for a period of approximately two months.

The Contractor realizes the River cannot be closed without appropriate justification and special advance coordination with NPS officials.

PennDOT and its contractor will conduct a start of work meeting with the National Park Service prior to implementing the ATON plan. The contractor is required to keep the Park Service informed on progress of work.

Newspaper Press Release Information

PennDOT will release information to update identified newspapers with updates.
A press release will be issued January 2025 for the restricted channel at the structure, along with an additional press release when the channel is temporarily closed. PennDOT intends to have press release information depending on contractors work schedule.

Coordination with Boat Liveries/River Guides

Using NPS's publicly available information, PennDOT has identified boat liveries and fishing guides that operate within the Upper Delaware Scenic and Recreational River. Attached to this plan are copies of the flyer which will be emailed prior to the start of work.

Coordination with area Campgrounds

Using NPS's publicly available information, PennDOT has identified campgrounds in the Upper Delaware Scenic and Recreational River. Attached to this plan are copies of the flyer which will be emailed prior to the start of work.

PennDOT River Signs

Attached are the typical sign placements, aerial photograph of project area, and signs.

Contract Special Provisions

Attached are the PennDOT Contract Special Provisions for the Boating Safety Plan

Certification

I have read and will abide by the conditions of this boater safety plan as a safety condition of this project.

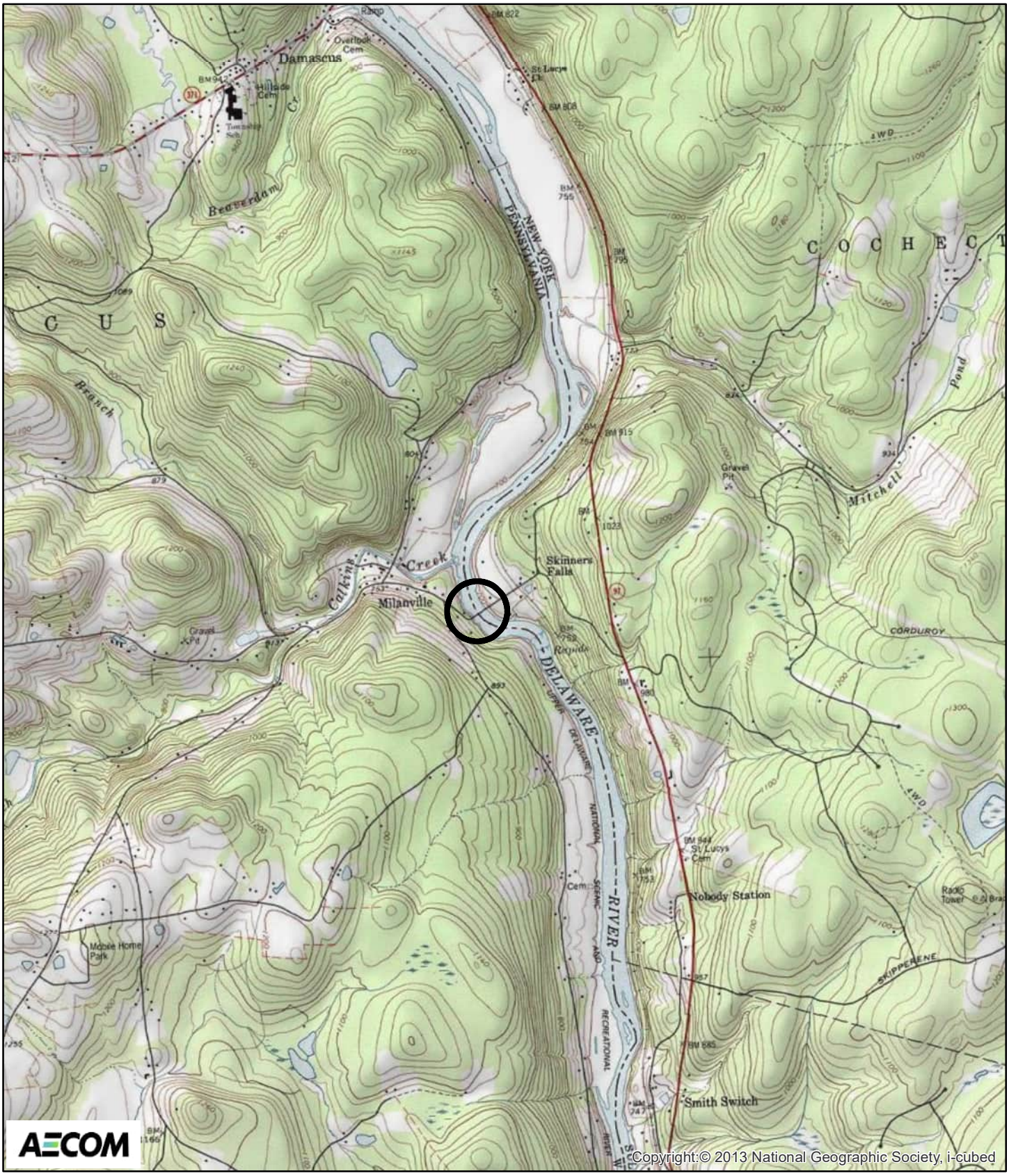
Printed Name & Title Signature Date

Forward to:

Superintendent
Attn: Construction Permit Review
National Park Service
Upper Delaware Scenic & Recreational River
274 River Road
Beach Lake PA 18405
570.729.8251

Guide Approved: 01/XX/2025
Lindsey Kurnath Superintendent National Park Service
Upper Delaware Scenic & Recreational River

Attachment 1
Maps



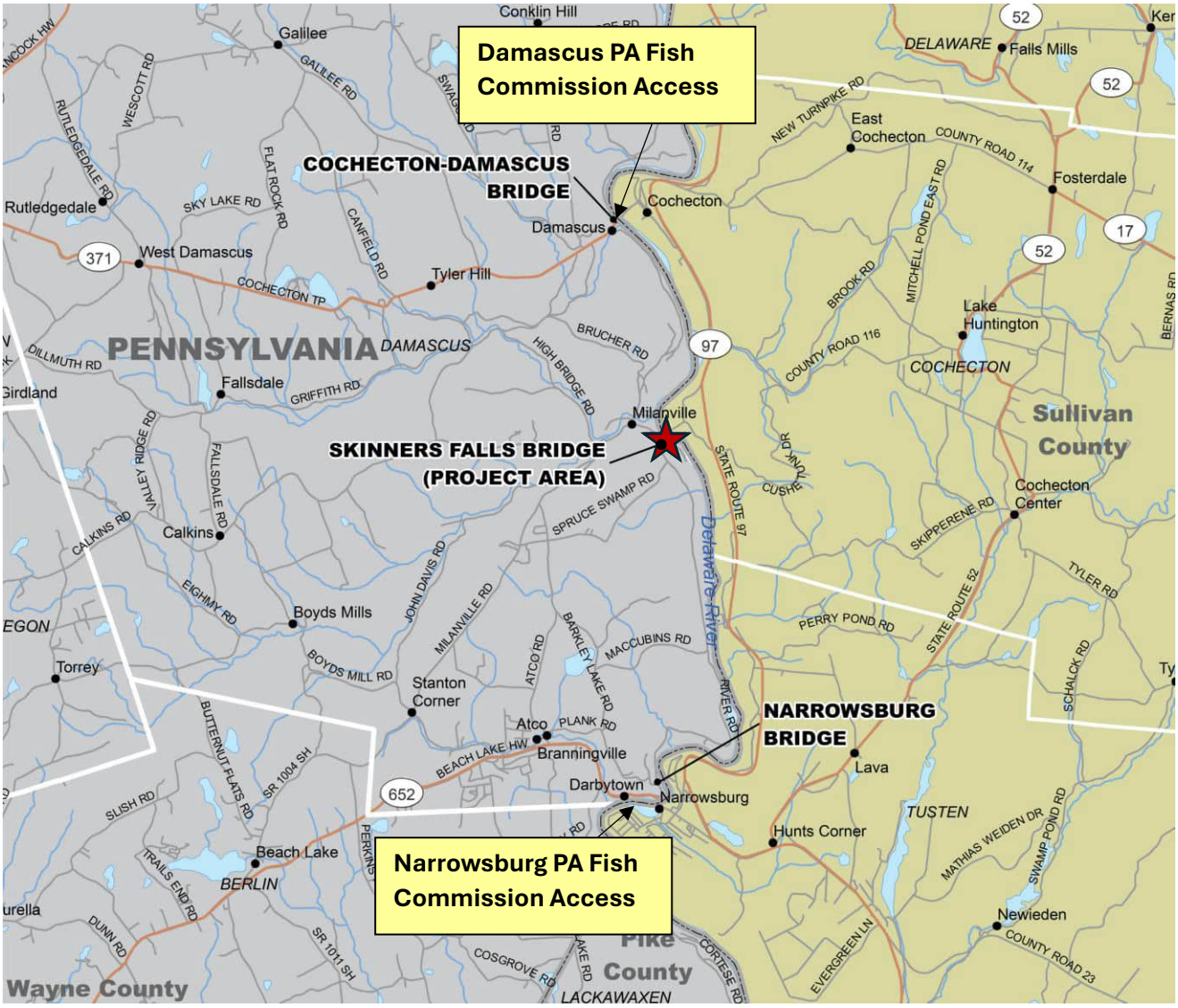
Skinners Falls Bridge
SR 1002-E24 over the Delaware River
FIGURE 1: PROJECT LOCATION MAP

Project Location

N

0 0.25 0.5
Miles

Source:2013 National Geographic Society, i-cubed



Skinners Falls Bridge

SR 1002-R24 over the Delaware River

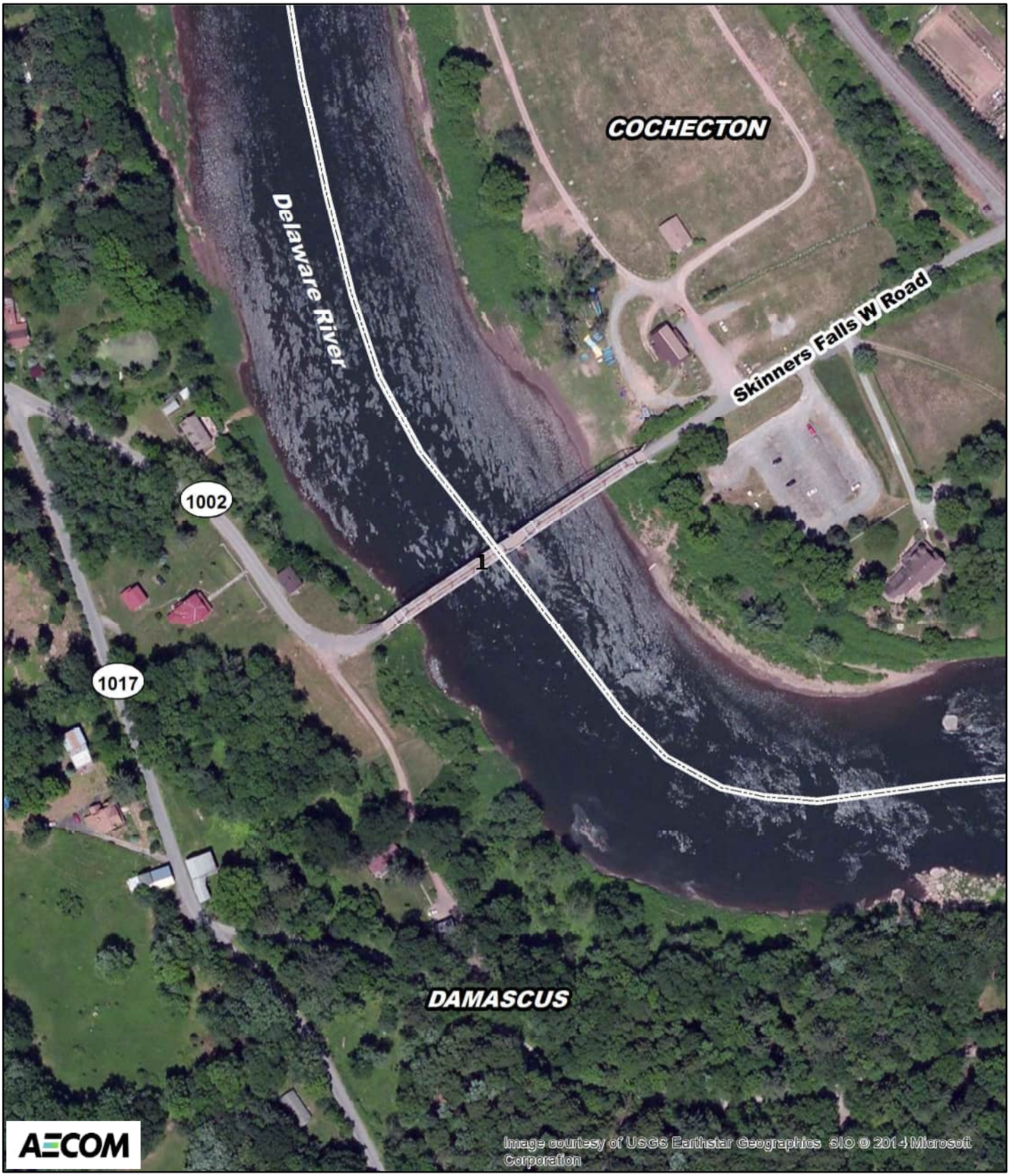
FIGURE 2: UPSTREAM / DOWNSTREAM ACCESS POINTS

Long / Lat. 41.669659, -75.058519

pennsylvania
DEPARTMENT OF TRANSPORTATION
Engineering District 4-0
55 Keystone Industrial Park Road
Dunmore, PA 19512

AECOM
625 W Ridge Pike
Conshohocken, PA 19428

Attachment 2
Photographs



Skinners Falls Bridge
SR 1002-E24 over the Delaware River
EMERGENCY BRIDGE PROJECT
PHOTOGRAPH LOCATION MAP

N

0 100 200

Feet

Source: USGS Earthstar Geographics SIO, 2014 Microsoft Corporation.

S.R. 1002 (Skinners Falls Road) over Delaware River
Emergency Project
Damascus Township, Wayne County, Pennsylvania
Town of Cochecton, Sullivan County, New York
Aids to Navigation Plan- Bridge Removal Addendum

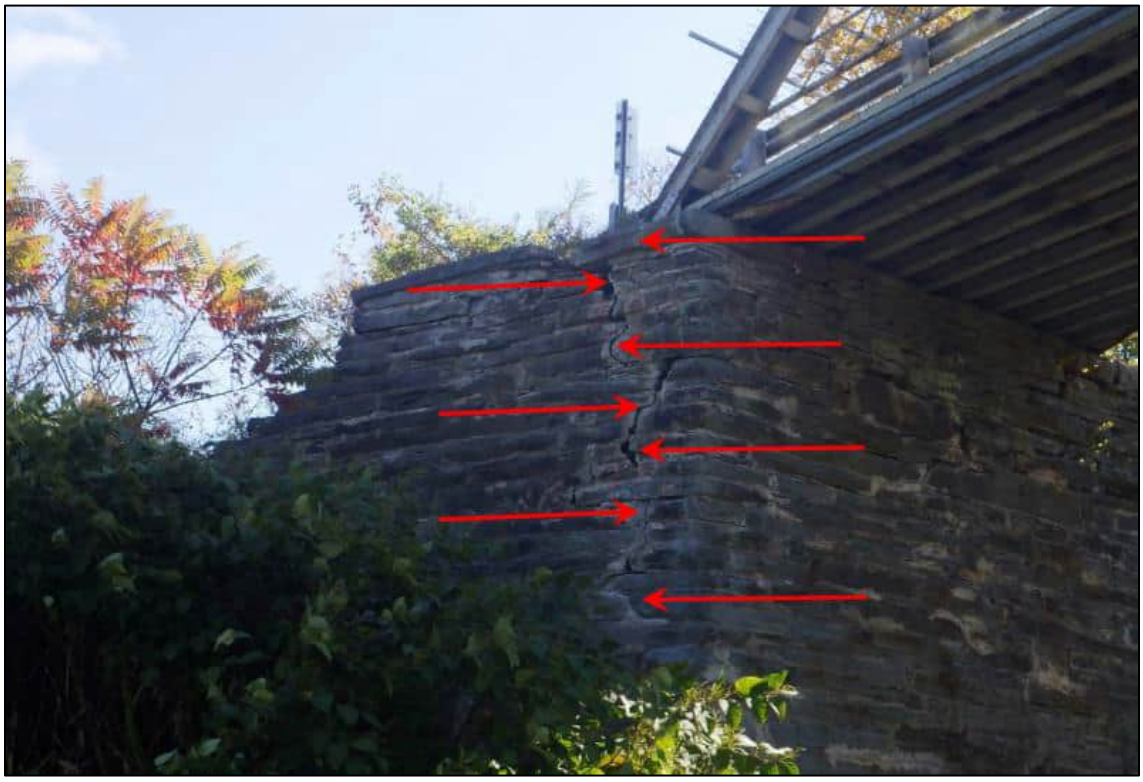
Photograph 1: Looking Downstream from Existing Truss Bridge (July 2023).

Photograph 2: Looking Upstream from Existing Truss Bridge (July 2023).

Photograph 3: Looking Upstream at Existing Truss Bridge (September 2023).

Photograph 4: NY Riverbank and PA Shoreline from Lander's Campground Property (September 2023).

Photograph 5: Sole plate shifted left on the left truss bearing at the Far Abutment (October 2024).



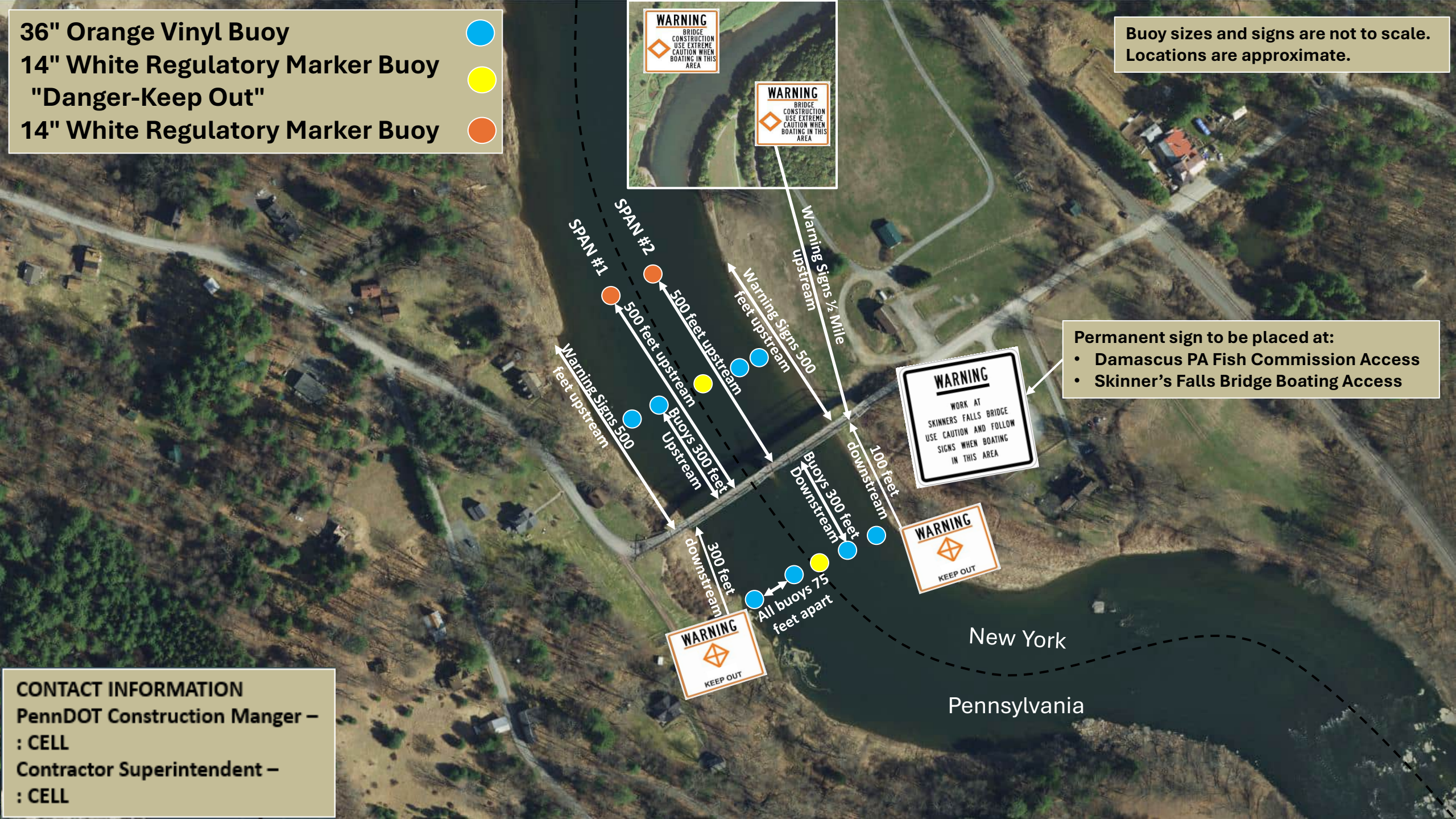
Photograph 6: Crack with voids and loose stones at the Far Left wingwall (October 2024).

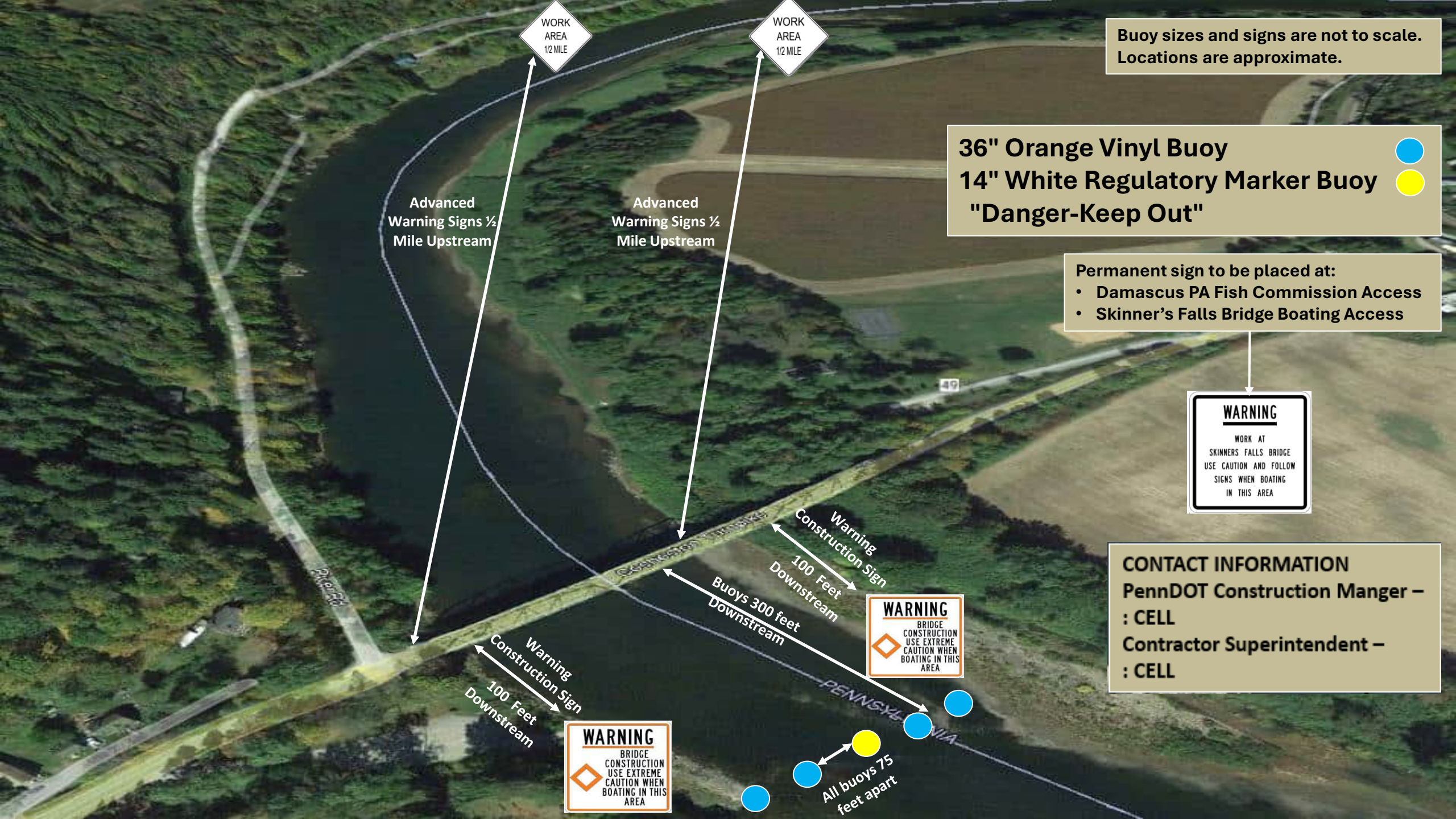
Photograph 7: Deteriorated cross bracing (October 2024).

Photograph 8: Drone Photograph looking Upstream at Existing Bridge (November 2024).

Photograph 9: Drone Photograph looking Downstream at Existing Bridge (November 2024).

Attachment 3
Aids to Navigation Plan


36" Orange Vinyl Buoy
14" White Regulatory Marker Buoy
"Danger-Keep Out"
14" White Regulatory Marker Buoy
Buoy sizes and signs are not to scale.
Locations are approximate.
WARNING
BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA
WARNING
BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA
SPAN #1
SPAN #2
500 feet upstream
500 feet upstream
Warning Signs 500 feet upstream
Warning Signs ½ Mile upstream
Warning Signs 500 feet upstream
Buoys 300 feet Upstream
Buoys 300 feet Downstream
100 feet downstream
300 feet downstream
All buoys 75 feet apart
Permanent sign to be placed at:
• Damascus PA Fish Commission Access
• Skinner's Falls Bridge Boating Access
WARNING
WORK AT SKINNERS FALLS BRIDGE USE CAUTION AND FOLLOW SIGNS WHEN BOATING IN THIS AREA
WARNING
KEEP OUT
WARNING
KEEP OUT
New York
Pennsylvania
CONTACT INFORMATION
PennDOT Construction Manger –
: CELL
Contractor Superintendent –
: CELL


Buoy sizes and signs are not to scale.
Locations are approximate.
36" Orange Vinyl Buoy
14" White Regulatory Marker Buoy
"Danger-Keep Out"
Permanent sign to be placed at:
• Damascus PA Fish Commission Access
• Skinner's Falls Bridge Boating Access
WORK AREA 1/2 MILE
WORK AREA 1/2 MILE
Advanced Warning Signs ½ Mile Upstream
Advanced Warning Signs ½ Mile Upstream
WARNING
WORK AT SKINNERS FALLS BRIDGE USE CAUTION AND FOLLOW SIGNS WHEN BOATING IN THIS AREA
Warning Construction Sign
100 Feet Downstream
Buoys 300 feet Downstream
WARNING
BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA
Warning Construction Sign
100 Feet Downstream
WARNING
BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA
All buoys 75 feet apart
CONTACT INFORMATION
PennDOT Construction Manger –
: CELL
Contractor Superintendent –
: CELL

Attachment 4
Aids to Navigation Specification

ITEM 9000-XXXX NAVIGATION CONTROL

DESCRIPTION –

This item is the implementation and maintenance of an Aids To Navigation Plan (ATON) boat safety and recreational angler plan for Skinners Falls Bridge (SR 1002) over the Delaware River in Wayne County, PA and Sullivan County, NY. The ATON Plan is to include boat signing and channel markers as approved by the National Park Service (NPS), Pennsylvania Fish and Boat Commission (PAFBC), and New York State Department of Environmental Conservation (NYSDEC). All signs are to be in accordance with approved ATON Plan included in the contract drawings with bold face lettering contrasting from background sign color.

Complete required sections of PA Fish and Boat Commission – Form - PFBC-277, located as attachment in contract document. The Department completed a portion of Form PFBC-277. Complete remaining sections and submit to PAFBC to obtain permit approval to install ATON plan in the Delaware River. Emergency procedures are in place to facilitate approval by PFBC.

Do not begin any associated work with without having approved ATON Plan in place.

MATERIALS –
Section 901.2 and as follows:
36” Diameter Orange vinyl buoys with rope hold
14” Diameter White Regulatory Marker Buoy with Label:
“Warning” with Orange Vertical Diamond
“Danger-Keep Out” with Orange Center Crossed Vertical Design
Anchors, anchor kits, and associated hardware.

In- River Traffic Control Signs including hardware/posts– See Table below for tabulation of In-River Traffic Control Signs.

IN-RIVER TRAFFIC CONTROL SIGNS

SIZE (IN)	DESCRIPTION	TOTAL
48” X 48”	“WARNING KEEP OUT” (Sign A)	12
48” X 24”	“PORTAGE ALL BOATS EXIT HERE” (Sign B)	4
48” X 48”	“WARNING BRIDGE CONSTRUCTION USE EXTREME CAUTION WHEN BOATING IN THIS AREA” (Sign C)	6
36” x 36”	“WORK AREA ½ MILE” (Sign D)	4
36” x 36”	“WORK AT SKINNERS FALLS BRIDGE USE CAUTION AND FOLLOW SIGNS WHEN BOATING IN THIS AREA”	2
TOTAL		28

CONSTRUCTION –
In accordance with Section 901.3 and as follows:
Furnish, erect, place and maintain navigation control signs, buoys and devices as indicated and in accordance with:
a) The Special Provisions of the contract
b) PA Code, Title 67, Chapter 212, Publication 213 Work Zone Traffic Control guidelines
c) PA Code, Title 67, Chapter 211, Official Traffic Control Devices
d) PennDOT Publication No. 35, approved Construction Materials (Bulletin 15)
e) PA Code Title 67, Chapter 204, Guidelines to Implement Act 229 of 2002 Additional Traffic-Control Devices in Highway Work Zones - Statement of Policy
f) PennDOT Publication No. 408, latest edition
g) PA Code, Title 67, Chapter 113, Miscellaneous Provisions

The Traffic Control Plan indicates construction activities within the Delaware River.

Skinners Falls Bridge
Place and maintain all signs for length of bridge construction alerting users of the emergency channel restriction and temporary closure for the SR 1002 bridge over the Delaware River. Place buoys in Delaware River with sufficient anchorage to prevent dislodging or disorienting by waterway currents or wind damage. Locate warning signs on both banks of the project, above the normal water line, 300 feet upstream and downstream of bridge construction. The location of the signage, with respect to the distance from the construction, will need to be adjusted in the field to obtain the minimum distance from the bridge construction activities specified.

Cochecton-Damascus Bridge
Place and maintain all signs for length of bridge construction alerting users of the need to portage due to the emergency channel restriction and temporary closure for the SR 1002 bridge over the Delaware River. Place buoys in Delaware River with sufficient anchorage to prevent dislodging or disorienting by waterway currents or wind damage. Locate warning signs on both banks of the project, above the normal water line, 300 feet downstream of the Cochecton-Damascus Bridge. Portage signs will be placed within the river alerting boaters of the need to disembark from the river and portage to Narrowsburg.

Obtain permission from adjoining parcel owners to place and maintain signs throughout construction. Check all ATON Plan components visually on daily basis to verify they are correctly positioned and not require maintenance. Any dislodged ATON device must be recovered and reinstalled as soon as possible.

Remove in-water buoys and signs prior to forecasted high flow events or when significant ice is present on the river. Reset ATON plan following such events.

Trim brush and trees on banks to expose and make signs visible from stream.

Designate an individual as Boat Safety Coordinator for the project. This person is to be available 24 hours a day, seven days a week should the ATON Plan need maintenance during or after normal work- day is complete. Provide theft resistant hardware for all signs placed. Complete utility mark out and PA One Call as necessary to install each boat sign. Provide sufficient anchorage if sign is placed on free standing post(s).

The NYSDEC boat launch can be used to launch boat for installation and maintenance ATON Plan buoys only. Wear proper personal flotation jackets when operating boat. Do not interfere with boat launch or operations. Do not store equipment or materials within NYSDEC boat launch or any other boat launch facility.

Provide warning vests, orange shirts or orange jackets at all times to all employees engaged in daylight work operation. Provide high visibility Type III Personal Flotation Devices to all construction personnel at the bridge construction site at all times when working on or near the river. Provide a registered motorized well maintained, flat bottom boat – minimum of 16 feet with sufficient horsepower to operate in river environment including oars and furnished with the following equipment: throw bags, Throwable Type IV Personal Flotation Device, Flashlight, Loud Hailer, air horn and whistle. Provide at least one person exclusively assigned to the boat whenever contractor operations have overhead operations that can affect safe passage of River users through work area.

Closure of Delaware River to recreational users is not allowed without approval from NPS, PFBC and NYSDEC. All work necessary to prepare and complete request to revise approved ATON Plan to close Susquehanna River passage is incidental to project.

Maintain daily surveillance of the boat safety operation and replace any missing, stolen, vandalized, ineffective or misaligned equipment. Do not deviate from the ATON Plan without approval from the Department. Remove all signs at completion of work.

MEASUREMENT AND PAYMENT – Lump Sum

Includes all work and materials associated with installation, maintenance, reset and removal of buoys, anchor/anchor kits, in-river and on creek bank traffic control signs.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	0230	1 OF 3

REVISION NUMBER	REVISIONS	DATE	BY

SIGN D*

INSTALL ½ MILE
UPSTREAM OF BRIDGE

SIGN D*

INSTALL ½ MILE
UPSTREAM OF BRIDGE

RIVER ROAD

COCHECTON TURNPIKE (S.R. 371)

100'

300'

SIGN C*

SIGN C*

DELAWARE RIVER

SIGN A*
SIGN B*

SIGN A*
SIGN B*

SIGN A*
SIGN B*

SIGN A*
SIGN B*

75' (TYP)

0 25 50 FEET

LEGEND

- 36" DIAMETER ORANGE VINYL BUOY
- 14" WHITE REGULATORY MARKER BUOY WITH LABEL "DANGER-KEEP OUT" WITH ORANGE CENTER CROSSED VERTICAL DIAMOND
- * FOR SIGN DETAILS SEE SHEET 2
- ** ITEM 9000-0001 NAVIGATION CONTROL-L.S.

AIDS TO NAVIGATION PLAN
COCHECTON-DAMASCUS BRIDGE

$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	2 OF 3

REVISION NUMBER	REVISIONS	DATE	BY

SIGN D*
INSTALL ½ MILE
UPSTREAM OF BRIDGE
SIGN C*
200'
50'
SIGN A*
SIGN A*
SIGN A*
SIGN A*
75' (TYP)
APPROXIMATE ORDINARY HIGH WATER
30'
CALKINS RD.
(S.R. 1002)
SIGN D*
INSTALL ½ MILE
UPSTREAM OF BRIDGE
SIGN C*
APPROXIMATE ORDINARY HIGH WATER
WMH
W. V
SKINNERS F
CONC. CURB
UNPAVED DRIVE
30'
DELAWARE RIVER
100'
SIGN C*
UNPAVED DRIVE
SIGN C*
SIGN A*
SIGN A*
SIGN A*
SIGN A*
75' (TYP)

LEGEND

- 36" DIAMETER ORANGE VINYL BUOY
- 14" WHITE REGULATORY MARKER BUOY WITH LABEL "DANGER-KEEP OUT" WITH ORANGE CENTER CROSSED VERTICAL DIAMOND
- 14" WHITE REGULATORY MARKER BUOY WITH LABEL "WARNING" WITH ORANGE VERTICAL DIAMOND

* FOR SIGN DETAILS SEE SHEET 2
** ITEM 9000-0001 NAVIGATION CONTROL-L.S.

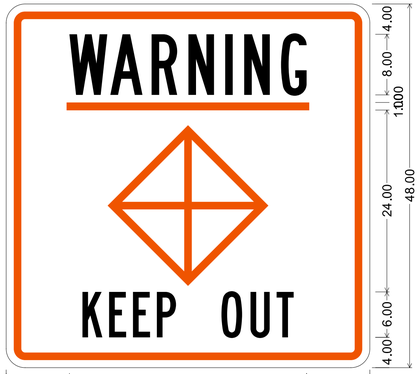
0 25 50 FEET

AIDS TO NAVIGATION PLAN
SKINNERS FALLS BRIDGE
CHANNEL CLOSURE

$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	230	3 OF 3

REVISION NUMBER	REVISIONS	DATE	BY



2.50" Radius, 1.00" Border, 1.00" Indent, Orange on White;
"WARNING" Black, B; "KEEP OUT" Black, B;
Table of widths and spaces

	W		A		R		N		I		N		G	
8.34	5.00	0.40	4.25	1.20	3.38	1.49	3.37	1.49	1.00	1.50	3.37	1.49	3.38	8.34

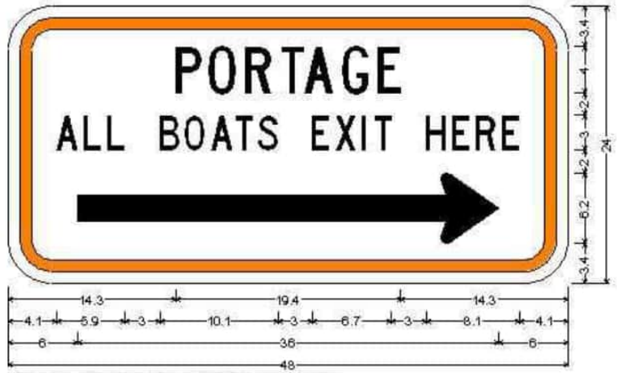
8.00	32.00	8.00

	K		E		E		P	
10.06	2.63	0.90	2.25	0.90	2.25	0.90	2.53	

	O		U		T		
6.00	2.72	1.12	2.53	0.90	2.25	10.06	

SIGN A DETAIL

NOT TO SCALE



3.8" Radius, 1.0" Border, 1.0" Indent, Orange on White;
"PORTAGE" Black C; "ALL BOATS EXIT HERE" Black C;
Standard Arrow Custom 36.0" X 6.1" 0" Black;
Table of widths and spaces.

	P		O		R		T		A		G		E	
14.3	2.2	0.7	2.3	0.9	2.1	0.7	2.0	0.3	2.6	0.6	2.2	0.9	2.0	14.3

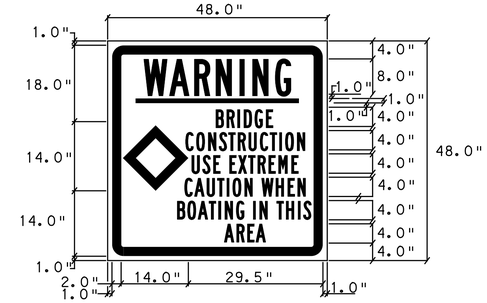
	A		L		L		B		O		A		T		S	
4.1	1.9	0.5	1.5	0.5	1.5	3.0	1.7	0.5	1.7	0.5	1.9	0.2	1.5	0.5	1.6			

		3.0	E	1.5	0.5	X	1.8	0.5	I	0.4	0.5	T	1.5	3.0	H	1.6	0.7	E	1.5	0.5	R	1.6	0.7	E	1.5	4.1	

6.0	36.0	6.0

SIGN B DETAIL

NOT TO SCALE



2" ORANGE BORDER WITH 2" RADII
BLACK LEGEND ON WHITE BACKGROUND
2" ORANGE DIAMOND, AND 1" ORANGE UNDERLINE

SERIES B CAPITALS
8" CAPS

	8.25		23.85		16.85		18.3		17.15		15.5		25.45	
W	5.4	B	2.4	C	2.3	U	2.4	C	2.1	B	2.3	A	2.7	
A	5.5	R	2.4	O	2.6	S	2.4	A	2.7	O	2.4	R	2.4	
R	4.9	I	1.3	N	2.4	E	1.5	U	2.3	A	2.3	E	1.9	
N	4.9	D	2.3	S	2.3		2.0	T	2.1	T	2.1	A	2.1	
I	2.5	G	2.4	T	2.1	E	2.1	I	1.3	I	1.3		13.45	
N	4.9	E	1.5	R	2.4	X	2.2	O	2.6	N	2.4	L	48.0	
G	3.4		11.85	U	2.4	T	2.1	N	1.7	G	1.7			
	8.25	L	48.0	C	2.1	R	2.4		2.0		2.0			
L	48.0			T	1.3	E	2.1	W	3.1	I	1.3			
				I	2.6	M	2.7	H	2.4	N	2.1			
				O	1.7	E	1.5	E	2.1	T	1.7			
				N	4.85		6.3	N	1.7	H	2.4			
				L	48.0	L	48.0		4.75	I	1.3			
								L	48.0	S	1.7			
											3.5			
										L	48.0			

SERIES B CAPITALS
4" CAPS

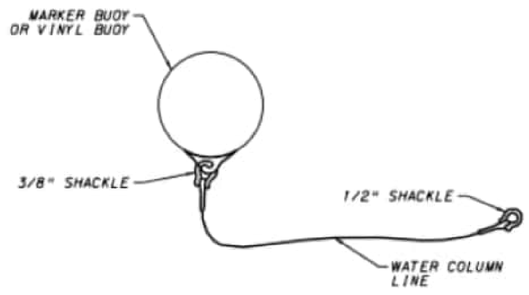
SIGN C DETAIL

NOT TO SCALE

W21-102
W30-1-4
36" X 36"

SIGN D DETAIL

NOT TO SCALE



BUOY CHAIN ATTACHMENT DETAIL

NOT TO SCALE

MARKER BUOY

AIDS TO NAVIGATION PLAN
SIGN DETAILS

$TIME$
$DATE$
$FILES
$USER$
AECOM

Attachment 5
Press Release

Attachment 6
Aids to Navigation Plan Phase 1

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	0230	1 OF 3

REVISION NUMBER	REVISIONS	DATE	BY

SIGN A*
INSTALL ½ MILE UPSTREAM OF BRIDGE
SIGN B*
SIGN A*
INSTALL ½ MILE UPSTREAM OF BRIDGE
SIGN B*

#1116 CTC 3
BLOCK SPRING HOUSE
WOOD STEPS
SHRUBS
2 STY. WD. FR. BARN
CALKINS RD. (S.R. 1002)
CONC. H/W
DITCH
UP# VZ1116-4
W BEAM G-RAIL
STONE W/W
BRIDGE JOINT
UNPAVED DRIVE
WOODED
300'
200'
150'
50' (TYP)
25' (TYP)
APPROXIMATE ORDINARY HIGH WATER
40'
40'
STONE PIER
SIGN C*
SIGN C*
DELAWARE RIVER
SIGN D*
SIGN D*
SIGN D*
75'
100'
WOODED
STONE W/W
BRIDGE JOINT
W BEAM G-RAIL
SKINNERS
CONC. CURB
W BEAM G-RAIL
STONE W/W
BRUSH
WOODED
38'
44'
WOOD STEPS
WOOD O.H.
2 STY. WD. FR. #40
CONC. SLAB
WMH
W.V.
UNPAVED DRIVE
UNPAVED DRIVE
UNPAVED DRIVE
WOODED

LEGEND

- 14" WHITE REGULATORY MARKER BUOY WITH LABEL "WARNING" WITH ORANGE VERTICAL DIAMOND
- 14" WHITE REGULATORY MARKER BUOY WITH LABEL "DANGER-KEEP OUT" WITH ORANGE CENTER CROSSED VERTICAL DIAMOND
- 27" DIAMETER ORANGE VINYL BUOY
- 36" DIAMETER ORANGE VINYL BUOY
- ORANGE CONSTRUCTION FENCE
- CHANNEL CLOSED TO BOATING

* FOR SIGN DETAILS SEE SHEET 2
** ITEM 9000-0001 NAVIGATION CONTROL-L.S.

NOTE: ALL RIGHT-OF-WAY LIMITS ARE APPROXIMATE

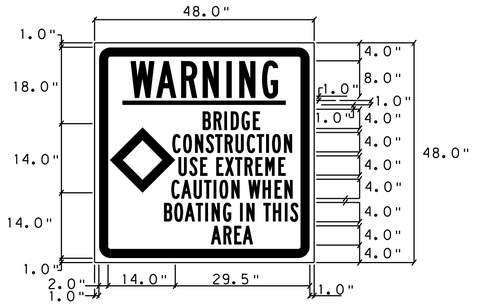
0 25 50 FEET

AIDS TO NAVIGATION PLAN
SKINNERS FALLS BRIDGE
APPROVED PHASE I ATON PLAN

$TIME$
$DATE$
$FILE$
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	0230	2 OF 3

REVISION NUMBER	REVISIONS	DATE	BY



2" ORANGE BORDER WITH 2" RADII
BLACK LEGEND ON WHITE BACKGROUND
2" ORANGE DIAMOND, AND 1" ORANGE UNDERLINE

SERIES B CAPITALS
8" CAPS

SERIES B CAPITALS
4" CAPS

8.25	23.85	16.85	18.3	17.15	15.5	25.45
W 5.4	B 2.4	C 2.3	U 2.4	C 2.1	B 2.3	A 2.7
A 5.5	R 2.4	O 2.6	S 2.4	A 2.7	O 2.4	R 2.4
R 4.9	I 1.3	N 2.4	E 1.5	U 2.3	A 2.3	E 1.9
N 4.9	D 2.3	S 2.3	2.0	T 2.1	T 2.1	A 2.1
I 2.5	G 2.4	T 2.1	E 2.1	I 1.3	I 1.3	13.45
N 4.9	E 1.5	R 2.4	X 2.2	O 2.6	N 2.4	L 48.0
G 3.4	11.85	U 2.4	T 2.1	N 1.7	G 1.7	
8.25	L 48.0	C 2.1	R 2.4	2.0	2.0	
L 48.0		T 2.1	E 2.1	W 3.1	I 1.3	
		I 1.3	M 2.7	H 2.4	N 1.7	
		O 2.6	E 1.5	E 2.1	2.0	
		N 1.7	6.3	N 1.7	T 2.1	
		4.85	L 48.0	4.75	H 2.4	
		L 48.0		L 48.0	I 1.3	
					S 1.7	
					3.5	
					L 48.0	

SIGN A DETAIL

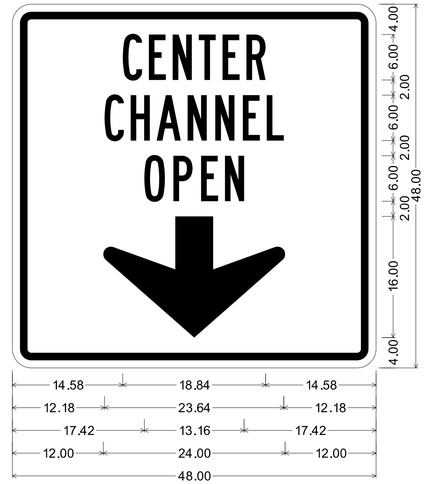
NOT TO SCALE

2.50" Radius, 1.00" Border, 1.00" Indent, Orange on White;
"WARNING" Black, B; "CENTER" Black, B;
"CHANNEL" Black, B; "OPEN" Black, B;
Table of widths and spaces

8.34	W 5.00	0.40	A 4.25	1.20	R 3.38	1.49	N 3.37	1.49	I 1.00	1.50	N 3.37	1.49	G 3.38	8.34
8.00	32.00	8.00												
14.58	C 2.53	0.90	E 2.25	0.90	N 2.53	0.90	T 2.25	0.90	E 2.25	0.90	R 2.53	14.58		
12.18	C 2.53	0.90	H 2.53	0.90	A 3.19	0.90	N 2.53	1.11	N 2.54	1.11	E 2.25	0.90	L 2.25	12.18
17.42	O 2.71	1.12	P 2.53	1.12	E 2.25	0.90	N 2.53	17.42						

SIGN B DETAIL

NOT TO SCALE



2.50" Radius, 1.00" Border, 1.00" Indent, Orange on White;
"CENTER" Black, B; "CHANNEL" Black, B;
"OPEN" Black, B;
Down Arrow Custom - 16.00" 270° Black;
Table of widths and spaces

14.58	C 2.53	0.90	E 2.25	0.90	N 2.53	0.90	T 2.25	0.90	E 2.25	0.90	R 2.53	14.58
12.18	C 2.53	0.90	H 2.53	0.90	A 3.19	0.90	N 2.53	1.11	N 2.54	1.11	E 2.25	0.90	L 2.25	12.18
17.42	O 2.71	1.12	P 2.53	1.12	E 2.25	0.90	N 2.53	17.42						
12.00	24.00	12.00												

NOTE:
SIGN C TO BE MOUNTED TO BRIDGE STRUCTURE.

SIGN C DETAIL

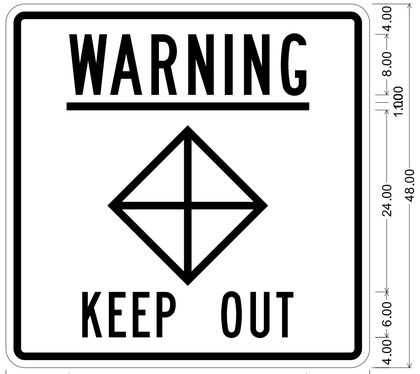
NOT TO SCALE

AIDS TO NAVIGATION PLAN
SIGN DETAILS
APPROVED PHASE I ATON PLAN

$DATE$
$TIME$
$FILES
$USER$
AECOM

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	WAYNE	1002	0230	3 OF 3

REVISION NUMBER	REVISIONS	DATE	BY



2.50" Radius, 1.00" Border, 1.00" Indent, Orange on White;
"WARNING" Black, B; "KEEP OUT" Black, B;
Table of widths and spaces

8.34	W 5.00	0.40	A 4.25	1.20	R 3.38	1.49	N 3.37	1.49	I 1.00	1.50	N 3.37	1.49	G 3.38	8.34		
8.00	32.00	8.00														
10.06	K 2.63	0.90	E 2.25	0.90	E 2.25	0.90	P 2.53									
	6.00	O 2.72	1.12	U 2.53	0.90	T 2.25	10.06									

SIGN D DETAIL

NOT TO SCALE

2.50" Radius, 1.00" Border, 1.00" Indent, Orange on White;
"WARNING" Black, B;
"WORK AT" Black, B;
"SKINNERS FALLS BRIDGE" Black, B;
"USE CAUTION AND FOLLOW" Black, B;
"SIGNS WHEN BOATING" Black, B;
"IN THIS AREA" Black, B;
Table of widths and spaces

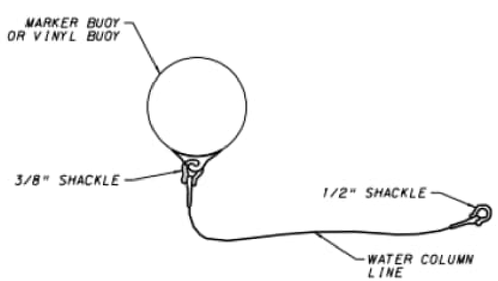
10.17	W 2.50	0.20	A 2.13	0.60	R 1.68	0.75	N 1.69	0.74	I 0.50	0.75	N 1.69	0.74	G 1.69	10.17		
10.00	16.00	10.00														
13.58	W 1.25	0.30	O 0.91	0.37	R 0.85	0.37	K 0.87									
	2.00	A 1.07	0.10	T 0.75	13.58											
6.05	S 0.84	0.37	K 0.88	0.30	I 0.25	0.37	N 0.84	0.38	N 0.84	0.37	E 0.75	0.30	R 0.85	0.30	S 0.84	
	2.00	F 0.75	0.20	A 1.06	0.30	L 0.75	0.30	L 0.75	0.30	S 0.85						
	2.00	B 0.84	0.37	R 0.85	0.37	I 0.25	0.37	D 0.85	0.30	G 0.84	0.37	E 0.75	6.05			
4.58	U 0.85	0.37	S 0.84	0.37	E 0.75											
	2.00	C 0.85	0.20	A 1.06	0.30	U 0.84	0.30	T 0.75	0.30	I 0.25	0.38	O 0.90	0.38	N 0.84		
	2.00	A 1.06	0.30	N 0.85	0.37	D 0.84										
	2.00	F 0.75	0.30	O 0.91	0.37	L 0.75	0.30	L 0.75	0.30	O 0.91	0.30	W 1.25	4.58			
7.49	S 0.84	0.38	I 0.25	0.37	G 0.84	0.37	N 0.85	0.37	S 0.85							
	2.00	W 1.25	0.30	H 0.84	0.37	E 0.75	0.30	N 0.85								
	2.00	B 0.84	0.30	O 0.91	0.30	A 1.06	0.10	T 0.75	0.30	I 0.25	0.37	N 0.84	0.38	G 0.84	7.49	
11.10	I 0.25	0.38	N 0.84													
	2.00	T 0.75	0.30	H 0.84	0.38	I 0.25	0.37	S 0.84								
	2.00	A 1.07	0.30	R 0.84	0.37	E 0.75	0.20	A 1.07	11.10							

NOTE:

SIGN TO BE PLACED AT PFBC DAMASCUS BOAT LAUNCH (UPSTREAM)
AND NYSDEC SKINNERS FALLS ACCESS (DOWNSTREAM)

SIGN E DETAIL

NOT TO SCALE



BUOY CHAIN ATTACHMENT DETAIL

NOT TO SCALE

MARKER BUOY

AIDS TO NAVIGATION PLAN
SIGN DETAILS
APPROVED PHASE I ATON PLAN

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$TIME$
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AECOM

Review Items Needed for UPDE and Skinners Falls Bridge Project

1. Final causeway design

Appendix E of the December 17, 2024, Special Use Permit submission contained the Project Plan and Cross Section. To date, no changes have been made to this design. Additional plans documenting the causeway design are anticipated to be submitted to NPS on 1/7/2025.

a. Specifics on width, material used, size of material, method of install

The causeway will be 120 feet wide and will extend 30 feet west of the pier. The causeway elevation will be approximately 709 feet (April mean water surface elevation at this location is 701.82). The recommended method of installation is to dump and push the aggregate into the river working from east to west and upstream to downstream. The contractor will be responsible to ensure the aggregate has been cleaned prior to installation, as noted in 9000-0005 Temporary Causeway in the special provisions.. R7 and R8 aggregate will be used for the causeway. The voids in the larger stones will be choked with R4 aggregate. A layer of smaller crushed stone will also be used near the surface of the causeway to provide a level working surface. R7 and R8 aggregates are the largest varieties of rip rap — R7 is 18 to 30 inches, and R8 is 24 to 42 inches. In bigger bodies of water with rapid currents, R7 and R8 provide the best erosion protection. (AASHTO #1 Aggregate per PennDOT specification 703)

b. Specifics on removal, methods,

The causeway will be removed from the west to east and downstream to upstream. Rock will be removed from the river bottom carefully using excavators with long reach, thumbs and claws instead of a bucket. A bathymetry survey of the limits of disturbance will be done to confirm the removal of superstructure debris and that the river bottom is restored to original elevation.

c. Specifics on debris removal (methods, equipment, frequency)

The contractor will develop a plan to capture demolition debris for advance approval by PennDOT. The plan shall include a floating containment berm with a weighted draped net capable of intercepting wood deck fragments and other demolition debris. Once the PA span has been dropped and removed, a bathymetry survey will be completed to determine if materials remain in the riverbed and the contractor will remove them. Once the area is clear the downstream catchment system will be removed.

d. Specifics on culverts (type, number, size)

The project involves a partial-width causeway to extend from the New York side (left bank) of the Delaware River to approximately 30 feet beyond the pier, as measured from the pier to the

edge of the top of the causeway. The causeway has a top width of 120 feet and top elevation of 709 feet which is approximately 7+ feet higher than April mean high water elevation. The causeway design does not include pipes due to the potential for ice limiting their effectiveness and to expedite the placement and removal of the causeway. In addition, due to the shallow riverbed on the New York side, the majority of the water is anticipated to flow on the deeper Pennsylvania side, which will remain open. Please refer to the Hydrology and Hydraulics Memorandum, Appendix J, of the preliminary SUP submission dated December 17, 2024.

2. Erosion control and sediment plan

The erosion and sedimentation plan is being prepared according to the PADEP and NYSDEC requirements. The plan will be submitted to the NPS for review and comment. This submission is anticipated 1/7/2025.

3. Staging Area Plans (locations and limits)

Appendix E of the December 17, 2024, Special Use Permit submission contained the Project Plan and Cross Section. No changes have occurred to the project plan since that time. The staging area will include the New York State Department of Environmental Conservation's public parking lot and the causeway itself. The total size of the anticipated limits of disturbance is approximately 2.12 acres, which includes the 0.82 acre causeway.

4. Demolition plan
    a. Details (manual vs. explosives)

The contractor will prepare a demolition means and methods narrative outlining their anticipated procedures. It is expected that the demolition will be completed using light explosive charges strategically placed on the truss to control the drop of each span and that both spans will be dropped at the same time.

The plan will include measures to safely transport, store and use explosives. A more detailed plan will be provided.

5. Inspection Plan (frequency, who will doing, reports)

PennDOT will track all mitigation commitments and inspection requirements in their online Environmental Commitments and Mitigation Tracking System (ECMTS). Daily inspection will be completed by PennDOT construction staff who will complete the daily updates in the system. The inspectors will complete the Daily Project Site Activities (PSA) which will track all environmental resources, and mitigation commitments. This information will be sent to the NPS in an agreed upon frequency.

Prior to construction, PennDOT District 4 environmental staff will brief the inspectors on information related to environmental resources, specifically mussels. The briefing will include the limits of survey, what to look for (shells, erosional features, etc.), and who to contact if mussels are observed. District 4 environmental staff will also visit the site weekly to conduct an inspection.

During construction, PennDOT is committed to monitoring of critical in-water activities including regular visits by a qualified individual during project kickoff, causeway construction / removal.

Post-construction monitoring mussel surveys will be done after removal because the existing structure is not safe to work under or near. PennDOT and FHWA have committed to performing a mussel survey post construction of similar scope to the 2013 survey to determine:

i. Presence of listed species
ii. Effects of the project on mussel resources and habitat (comparison to 2013 survey)
iii. Habitat Monitoring: Re-survey of four or more in-stream and near-stream cross sections post construction (2 events) to evaluate the project's long term habitat effects (including pier removal) on the Delaware River

6. Streambank stabilization plan
    a. Methods, materials, immediate planting plan

The streambank will be restored to the original grade and will be seeded with a seed mix specified by a NYSDOT Landscape Architect and as agreed to by the NPS. This detail is provided as part of the Erosion and Sedimentation Plans.

7. Material recovery plan (how to survey the river and find lingering debris)

The contractor will install a catchment system downstream of the Pennsylvania span to collect floating and other materials that may move downstream. Once the PA span has been dropped and removed, a bathymetry survey will be completed to determine if materials remain in the riverbed and the contractor will remove any anomalies. Once the area is clear the downstream catchment system will be removed.

8. Site Monitoring (1 month, 3 months, 6 months)

The site will be monitored once a month until it achieves the required 70% uniform growth before the contractor is contractually released. This will be confirmed by PennDOT staff with field verification.

9. Follow up restoration/planting plan, if needed, for Spring, and/or Fall 2025

Contractor will not be released until the site has achieved 70% uniform growth. The restoration/planting plan will be outlined in the preliminary E&S plan, which will be sent to NPS approximately 1/7/2025. The streambank will be restored to the original grade and will be seeded with a seed mix specified by a NYSDOT Landscape Architect and as agreed to by the NPS. All areas disturbed during construction will be returned to pre-construction condition.

Any tree removal will be replaced in kind in coordination with NPS, NYSDEC and the landowner.

10. Riverbed restoration plan?

The riverbed will be restored to original grade and the pier location will be graded to match the adjacent area. The contractor will use bathymetry survey and compare pre survey with post bathymetry to confirm riverbed is restored.

a. Which agencies have the expertise to develop such a plan?

PennDOT will coordinate with USFWS, PADEP, NYSDEC and PFBC in the development of the restoration plan and commitments. AECOM has developed river and stream restoration plans nationwide.

11. Who determines if a 'take' of T&E species and/or habitat has occurred? How is it determined if a take of T&E species and/or habitat has occurred?

PennDOT is working with EnviroScience to determine pre and post-construction monitoring procedures to determine whether a take is likely to have occurred over the course of the project. The procedures will be provided to NPS. Per federal and State laws and regulations, PennDOT and FHWA are committed to continuing to work in consultation with US Fish and Wildlife Service, PA Fish and Boat Commission, and the NPS throughout the project to determine the project's impacts on T&E species. If a take is determined to have occurred, PennDOT will initiate consultation and prepare a Biological Assessment.

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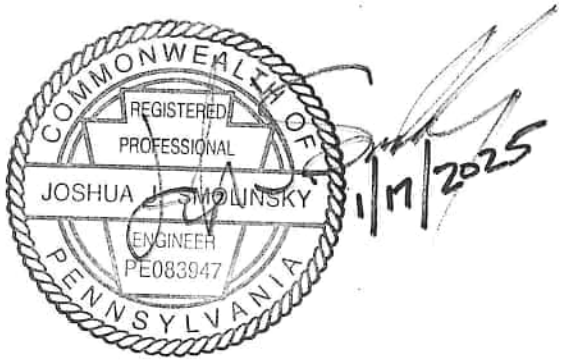
Commonwealth of Pennsylvania
Department of Transportation

Wayne County
SR 1002 over Delaware River
Skinners Falls Bridge

Post-Blast Demolition Plan



Joshua J. Smolinsky
PE License No. 083947

January 17, 2025

J. D. Eckman, Inc.
4781 Lower Valley Road
Atglen, PA 193

J.D. ECKMAN INC
CONSTRUCTION • BRIDGE • HIGHWAY EST. 1948

4781 Lower Valley Rd.
Atglen, PA 19310
610-593-5143

GENERAL COMPUTATION SHEET

PROJECT: SKINNERS FALLS BRIDGE

SUBJECT: DEMOLITION PLAN
POST BLAST

CALCULATION SET NO.	REV.	INITIALS	DATE
D01	0	JJS	1/17/2025
SHEET 1 OF 15			
JOB NO.			

SCOPE OF WORK

REMOVE FALLEN BRIDGE FROM CAUSEWAY AND DELAWARE RIVER ONCE BLASTING OPERATIONS ARE COMPLETE.

PROCEDURE

1. USING EXCAVATOR W/ STEEL SHEARS BEGIN CLEARING STEEL DEBRIS FROM CAUSEWAY STARTING NEAR ABUTMENT 2 (NY SIDE)
2. BRIDGE COMPONENTS WILL BE SHEARED AND/OR TORCH CUT INTO APPROPRIATELY SIZED PIECES TO FIT IN TRIAXLE TRUCKS OR DUMPSTERS TO BE REMOVED FROM SITE & PROPERLY DISPOSED.
3. OPERATIONS WILL WORK FROM EAST TO WEST IN ORDER TO CLEAR CAUSEWAY OF ALL DEBRIS FROM THE NY SPAN OF BRIDGE FIRST.
4. ONCE NY SPAN IS CLEARED, CENTER PIER WILL BE DEMOLISHED USING EXCAVATOR W/ HYDRAULIC HAMMER. THIS WILL CREATE ACCESS TO THE PA SPAN DEBRIS AND ALLOW BRIDGE PIECES TO BE PULLED FROM RIVER.
5. USING EXCAVATOR AND/OR DOZER, BRIDGE DEBRIS WILL BE PULLED UP ONTO THE CAUSEWAY AND SHEARED AND/OR TORCH CUT INTO PIECES. BRIDGE DEBRIS WILL BE LOADED INTO TRIAXLES AND/OR DUMPSTERS AND REMOVED FROM SITE & PROPERLY DISPOSED.

J.D. ECKMAN INC
CONSTRUCTION • BRIDGE • HIGHWAY EST. 1943
4781 Lower Valley Rd.
Atglen, PA 19310
610-593-5143

GENERAL COMPUTATION SHEET

PROJECT: SKINNERS FALLS BRIDGE

SUBJECT: DEMOLITION PLAN
POST BLAST

CALCULATION SET NO.	REV.	INITIALS	DATE
D01	0	JS	1/17/2025
SHEET 2 OF 15			
JOB NO.			

EQUIPMENT

EQUIPMENT TO EITHER BE ONSITE FOR DEMO OPERATIONS OR AVAILABLE IF NEEDED

- JOHN DEERE 750 OR 850 DOZER
- CAT 336 EXCAVATOR
- CAT 352 EXCAVATOR (IF NEEDED)
- OKADA CUT 100HR SHEAR
- OKADA BREAKER TOP 300

352

HYDRAULIC EXCAVATOR

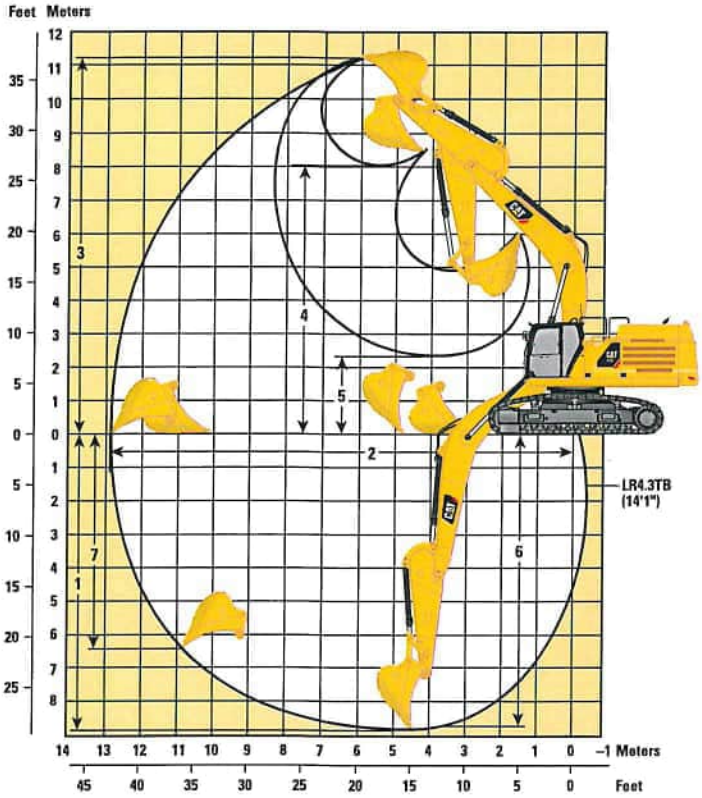
Engine Power	330 kW (443 hp)
Operating Weight	50 500 kg (111,300 lb)

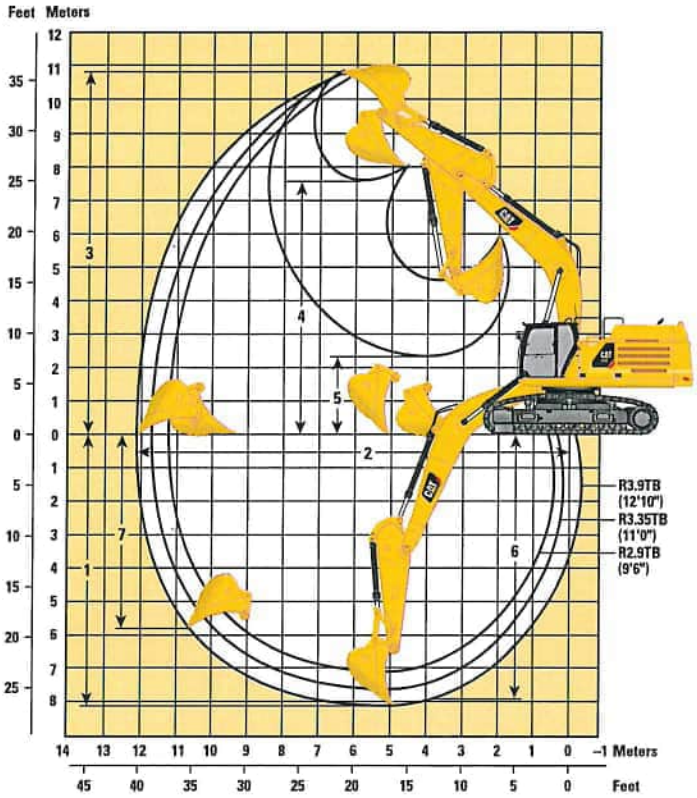
Cat® C13B Engine meets U.S. EPA Tier 4 and EU Stage V emission standards.

Working Ranges and Forces

All dimensions are approximate and may vary depending on bucket selection.

SH. 4 OF 15



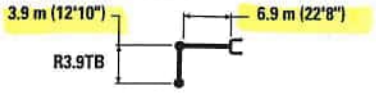


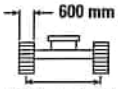
Boom Options	Long Reach Boom 7.4 m (24'2")				Reach Boom 6.9 m (22'8")			
Stick Options	Long Reach Stick				Reach Stick			
	LR4.3TB (14'1")		R3.9TB (12'10")		R3.35TB (11'0")		R2.9TB (9'6")	
1 Maximum Digging Depth	8790 mm	28'10"	8060 mm	26'5"	7510 mm	24'7"	7060 mm	23'1"
2 Maximum Reach at Ground Line	12 940 mm	42'5"	12 120 mm	39'9"	11 710 mm	38'5"	11 290 mm	37'0"
3 Maximum Cutting Height	11 320 mm	37'1"	10 880 mm	35'8"	10 970 mm	35'11"	10 790 mm	35'4"
4 Maximum Loading Height	8020 mm	26'3"	7570 mm	24'10"	7580 mm	24'10"	7400 mm	24'3"
5 Minimum Loading Height	2370 mm	7'9"	2350 mm	7'8"	2900 mm	9'6"	3350 mm	10'11"
6 Maximum Depth Cut for 2440 mm (8 ft) Level Bottom	8660 mm	28'4"	7920 mm	25'11"	7360 mm	24'1"	6900 mm	22'7"
7 Maximum Vertical Wall Digging Depth	6400 mm	20'11"	5810 mm	19'0"	5680 mm	18'7"	5270 mm	17'3"
Bucket Digging Force (SAE)	235 kN	52,830 lbf	236 kN	53,050 lbf	236 kN	53,050 lbf	236 kN	53,050 lbf
Bucket Digging Force (ISO)	267 kN	60,020 lbf	268 kN	60,250 lbf	268 kN	60,250 lbf	268 kN	60,250 lbf
Stick Digging Force (SAE)	166 kN	37,320 lbf	177 kN	39,790 lbf	193 kN	43,390 lbf	211 kN	47,430 lbf
Stick Digging Force (ISO)	170 kN	38,220 lbf	183 kN	41,140 lbf	199 kN	44,740 lbf	219 kN	49,230 lbf
Bucket Type	GDC		GDC		GDC		GDC	
Bucket Capacity	3.08 m^3	4.03 yd^3	3.08 m^3	4.03 yd^3	3.08 m^3	4.03 yd^3	3.08 m^3	4.03 yd^3
Bucket Tip Radius	2071 mm	6'9"	2071 mm	6'9"	2071 mm	6'9"	2071 mm	6'9"

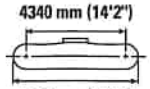
352 Hydraulic Excavator Specifications

SH. 5 OF 15

Reach Boom Lift Capacities – Counterweight: 9.0 mt (19,842 lb) – without Bucket, Heavy Lift: On







		3.0 m/10.0 ft		4.5 m/15.0 ft		6.0 m/20.0 ft		7.5 m/25.0 ft		9.0 m/30.0 ft				
														m ft/in
9.0 m 30.0 ft	kg lb											*7850 *17,400	*7850 *17,400	7.99 25'10"
7.5 m 25.0 ft	kg lb									*7900	*7900	*7550 *16,600	*7550 *16,600	9.06 30'0"
6.0 m 20.0 ft	kg lb							*11 850 *25,850	*11 850 *25,850	*11 200 *23,650	9050 19,400	*7500 *16,450	*7500 *16,450	9.78 32'6"
4.5 m 15.0 ft	kg lb					*15 250 *32,900	*15 250 *32,900	*13 050 *28,350	11 700 25,150	*11 800 *25,700	8800 18,950	*7650 *16,750	7200 15,850	10.22 34'2"
3.0 m 10.0 ft	kg lb			*24 500 *52,650	23 700 51,100	*17 800 *38,400	15 500 33,350	*14 450 *31,350	11 200 24,100	*12 550 *27,250	8550 18,400	*8000 *17,550	6800 15,000	10.43 34'2"
1.5 m 5.0 ft	kg lb			*25 000 *59,350	22 300 47,950	*19 900 *43,000	14 700 31,700	*15 700 *34,000	10 750 23,150	12 600 27,050	8300 17,850	*8600 *18,900	6700 14,750	10.42 34'2"
0 m 0 ft	kg lb	*9650 *21,900	*9650 *21,900	*24 050 *55,600	21 650 46,550	*21 050 *45,600	14 200 30,600	16 150 34,750	10 400 22,450	12 350 26,600	8100 17,450	*9550 *21,050	6800 15,000	10.18 33'4"
–1.5 m –5.0 ft	kg lb	*15 950 *35,950	*15 950 *35,950	*28 400 *61,600	21 450 46,150	*21 200 *45,850	13 950 30,050	15 950 34,300	10 250 22,050	12 250 26,400	8000 17,250	11 050 24,300	7250 15,950	9.71 32'6"
–3.0 m –10.0 ft	kg lb	*23 150 *52,150	*23 150 *52,150	*26 450 *57,350	21 550 46,350	*20 200 *43,650	13 950 30,050	*15 900 34,250	10 200 22,000			12 400 27,400	8100 17,900	8.96 30'0"
–4.5 m –15.0 ft	kg lb	*30 700 *66,150	*30 700 *66,150	*22 950 *49,500	21 900 47,100	*17 750 *38,150	14 150 30,500	*13 600 *28,850	10 400 22,450			*12 650 *27,900	9800 21,900	7.84 25'10"
–6.0 m –20.0 ft	kg lb			*16 900	*16 900	*12 600	*12 600					*12 050 *27,350	*12 050 *27,350	6.17 20'0"

* ISO 10567

* Indicates that the load is limited by hydraulic lifting capacity rather than tipping load. The above loads are in compliance with hydraulic excavator lift capacity standard ISO 10567:2007. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. Weight of all lifting accessories must be deducted from the above lifting capacities. Lifting capacities are based on the machine standing on a firm, uniform supporting surface. The use of a work tool attachment point to handle/lift objects, could affect the machine lift performance.

Lift capacity stays with ±5% for all available track shoes.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

336D L

Hydraulic Excavator

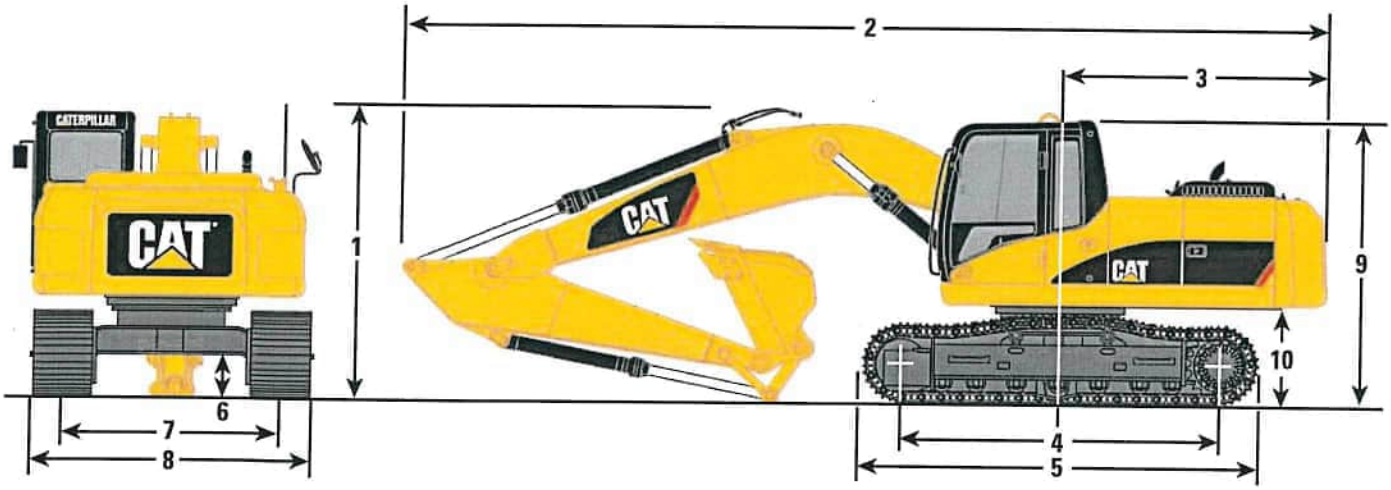
CAT®

Engine		
Engine Model	Cat® C9 with ACERT™ Technology	
Net Flywheel Power	200 kW	268 hp
Weights		
Minimum Weight	35 668 kg	78,634 lb
Maximum Weight	37 631 kg	82,962 lb

Dimensions

All dimensions are approximate.

Sh. 7 of 15

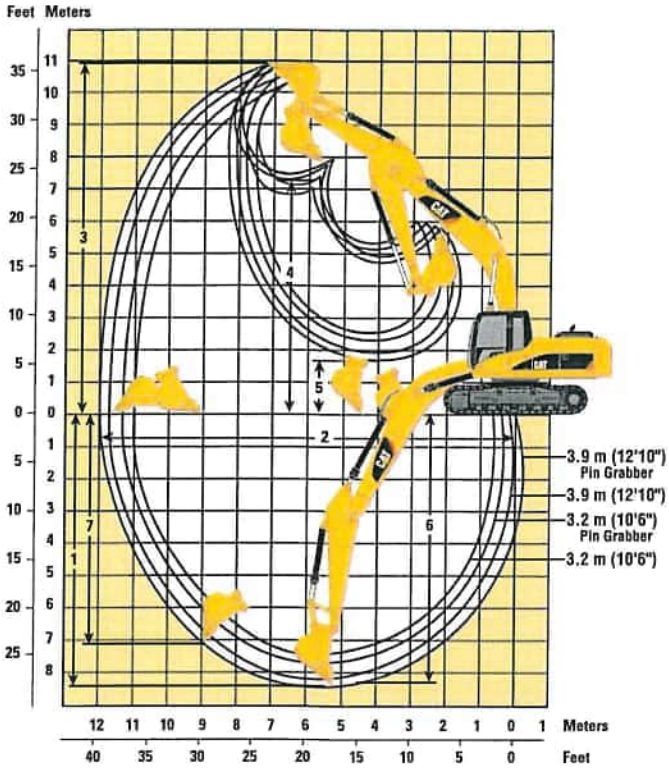


Boom Options	Reach Boom 6.5 m (21'4")		Mass Boom 6.18 m (20'3")
Stick Options	**R3.9DB (12'10")**	**R3.2DB (10'6")**	**M2.55TB1 (8'4")**
1 Shipping height*	3630 mm (11'11")	3350 mm (11'0")	3580 mm (11'9")
2 Shipping length	11 200 mm (36'9")	11 150 mm (36'7")	10 910 mm (35'10")
3 Tail swing radius	3500 mm (11'6")	3500 mm (11'6")	3500 mm (11'6")
4 Length to center of rollers	4040 mm (13'3")	4040 mm (13'3")	4040 mm (13'3")
5 Track length	5020 mm (16'6")	5020 mm (16'6")	5020 mm (16'6")
6 Ground clearance**	450 mm (1'6")	450 mm (1'6")	450 mm (1'6")
7 Track gauge	2590 mm (8'6")	2590 mm (8'6")	2590 mm (8'6")
8 Transport width			
800 mm (32") shoes (standard)	3390 mm (11'1")	3390 mm (11'1")	3390 mm (11'1")
700 mm (28") shoes (optional)	3290 mm (10'10")	3290 mm (10'10")	3290 mm (10'10")
850 mm (34") shoes (optional)	3440 mm (11'3")	3440 mm (11'3")	3440 mm (11'3")
9 Cab height	3140 mm (10'4")	3140 mm (10'4")	3140 mm (10'4")
10 Counterweight clearance*	1220 mm (4'0")	1220 mm (4'0")	1220 mm (4'0")

* Includes 30 mm (1 3/16 in) lug height. R3.9 increase to 3700 mm (12'2") with medium pressure and/or drain auxiliary lines.
** Without 30 mm (1 3/16 in) shoe lug height.

Reach Excavator Working Ranges

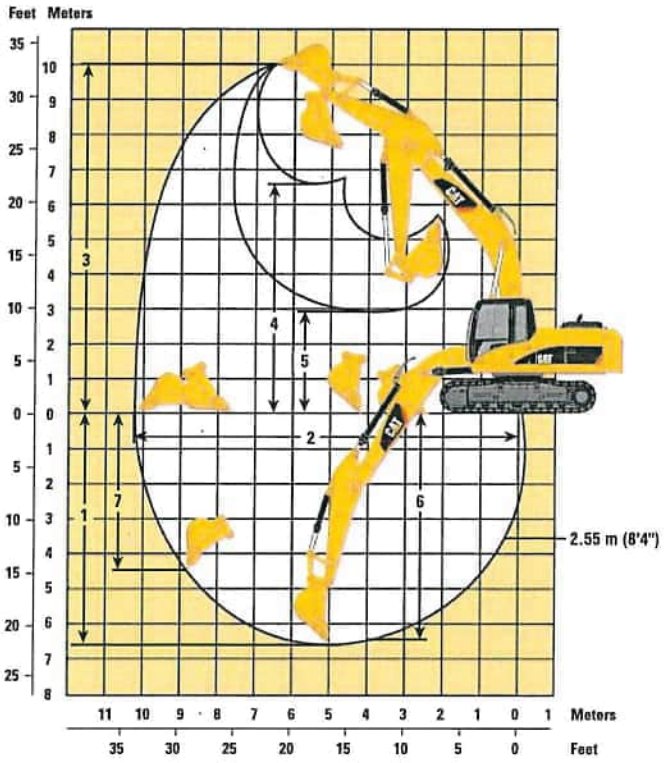
Reach (R) boom configuration



Mass Excavator Working Ranges

Mass (M) boom configuration

SH. 8 OF 15



Boom Options		Reach Boom 6.5 m (21'4")				Mass Boom 6.18 m (20'3")
Stick Options		R3.9DB (12'10")	R3.2DB (10'6")	R3.9DB (12'10")	R3.2DB (10'6")	M2.55TB1 (8'4")
Bucket Options		GP 1.19 m³ (1.56 yd³)	GP 1.19 m³ (1.56 yd³)	GP 1.19 m³ (1.56 yd³) with Pin Grabber Coupler	GP 1.19 m³ (1.56 yd³) with Pin Grabber Coupler	GP 1.19 m³ (1.56 yd³)
1	Maximum digging depth	8185 mm (26'10")	7485 mm (24'7")	8461 mm (27'9")	7760 mm (25'6")	6633 mm (21'9")
2	Maximum reach at ground level	11 714 mm (38'5")	11 007 mm (36'1")	12 005 mm (39'5")	11 294 mm (37'1")	10 242 mm (33'7")
3	Maximum cutting height	10 749 mm (35'3")	10 272 mm (33'8")	10 909 mm (35'9")	10 413 mm (34'2")	10 023 mm (32'11")
4	Maximum loading height	7542 mm (24'9")	7108 mm (23'4")	7266 mm (23'10")	6833 mm (22'5")	6629 mm (21'9")
5	Minimum loading height	1911 mm (6'3")	2611 mm (8'7")	1635 mm (5'4")	2336 mm (7'8")	2937 mm (9'8")
6	Maximum depth cut for 2440 mm (8') level bottom	8052 mm (26'5")	7326 mm (24'0")	8338 mm (27'4")	7612 mm (25'0")	6459 mm (21'2")
7	Maximum vertical wall digging depth	7152 mm (23'6")	6131 mm (20'1")	5747 mm (18'10")	4826 mm (15'10")	4421 mm (14'6")

Reach Boom Lift Capacities

SH. 9 OF 15

 Load Point Height

 Load Radius Over Front

 Load Radius Over Side

 Load at Maximum Reach – Bucket Curled

 Load at Maximum Reach – Bucket Extended

BOOM – 6.5 m (21'4")
STICK – 3.9 m (12'10")
COUNTERWEIGHT – 6000 kg (13,228 lb)

BUCKET – HDR 1.22 m³ (1.6 yd³)
900 mm (36")
1078.6 kg (2,378 lb)

SHOES – 800 mm (32") triple grouser
UNDERCARRIAGE – LC-Fix
HEAVY LIFT – On

		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		9.0 m (30.0 ft)							
																m ft			m ft
9.0 m 30.0 ft	kg lb													*4390 *10,800	*4390 *10,800	7.84 24.92	*3260 *7,250	*3260 *7,250	9.36 30.30
7.5 m 25.0 ft	kg lb													*4090 *10,050	*4070 *10,050	8.96 28.85	*3080 *6,800	*3080 *6,800	10.39 33.87
6.0 m 20.0 ft	kg lb									*13,650	*13,650	*6140 *13,500	4720 10,050	*3970 *9,800	3960 9,000	9.73 32.02	*3030 *6,700	*3030 *6,700	11.07 36.20
4.5 m 15.0 ft	kg lb									*6970 *15,150	6490 13,950	*6470 *14,150	4610 9,850	*4000 *9,900	3490 7,900	10.22 33.21	*3060 *6,750	2900 6,400	11.47 37.58
3.0 m 10.0 ft	kg lb					*12 520 *26,900	*12 520 *26,900	*9480 *20,500	8890 19,150	*7910 *17,150	6140 13,200	*6990 *15,200	4420 9,450	*4150 *10,350	3230 7,250	10.47 34.09	*3180 *7,000	2730 6,050	11.62 38.12
1.5 m 5.0 ft	kg lb					*15 620 *33,700	12 760 27,500	*11 150 *24,100	8220 17,700	*8870 *19,250	5770 12,400	7150 15,350	4220 9,050	*4440 *11,100	3130 7,000	10.50 34.21	*3390 *7,450	2690 5,950	11.54 37.88
Ground Line	kg lb			*7700 *17,550	*7700 *17,550	*17 490 *37,800	11 890 25,600	*12 400 *26,850	7710 16,600	9330 20,050	5460 11,750	6960 14,950	4040 8,650	*4900 *12,350	3160 7,100	10.32 33.59	*3720 *8,200	2780 6,150	11.23 36.85
–1.5 m –5.0 ft	kg lb	*7090 *15,850	*7090 *15,850	*11 250 *25,450	*11 250 *25,450	*18 060 *39,100	11 520 24,750	*13 020 28,000	7410 15,950	9110 19,600	5270 11,300	6840 14,700	3930 8,450	*5620 13,150	3360 7,550	9.90 32.17	*4220 *9,350	3040 6,700	10.66 34.94
–3.0 m –10.0 ft	kg lb	*11 300 *25,300	*11 300 *25,300	*16 070 *36,350	*16 070 *36,350	*17 580 *38,050	11 460 24,650	*12 910 27,750	7310 15,700	9030 19,450	5200 11,200	6830 14,700	3930 8,450	6600 14,800	3790 8,550	9.22 29.85	*5030 *11,150	3560 7,900	9.78 31.99
–4.5 m –15.0 ft	kg lb	*16 260 *36,550	*16 260 *36,550	*21 170 *47,200	*21 170 *47,200	*16 000 *34,500	11 650 25,050	*11 890 *25,600	7400 15,950	*8970 *19,100	5280 11,400			*7650 *17,350	4650 10,550	8.20 26.39			
–6.0 m –20.0 ft	kg lb			*17 860 *38,000	*17 860 *38,000	*12 820 *27,200	12 110 26,100	*9300 *19,400	7730 16,700					*7640 *17,500	6580 15,350	6.71 21.22			

* Limited by hydraulic capacity rather than tipping load. The above loads are in compliance with SAE hydraulic excavator lift capacity rating standard J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

Always refer to the appropriate Operation and Maintenance Manual for specific product information.

OKADA®
Demolition Attachments

Demolition
Crushers, Shears, Grapples

CUT Multi Crushers

OSC Pulverizers

OSC Magnet Pulverizers

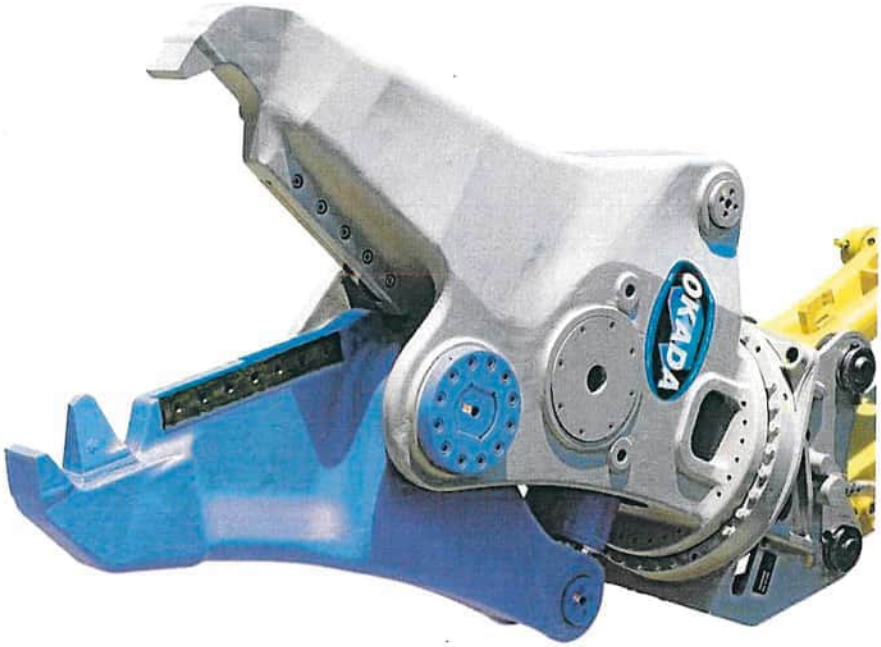
OSG Rotational Grapples

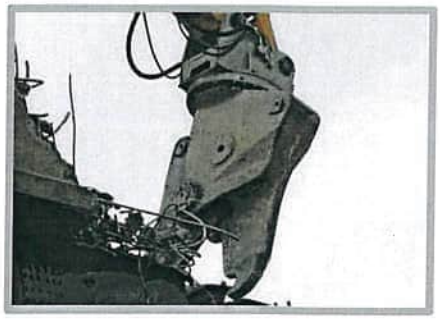
S Mechanical Grapples

HS Hydraulic Grapples

OKADA AMERICA

Demolition Solution



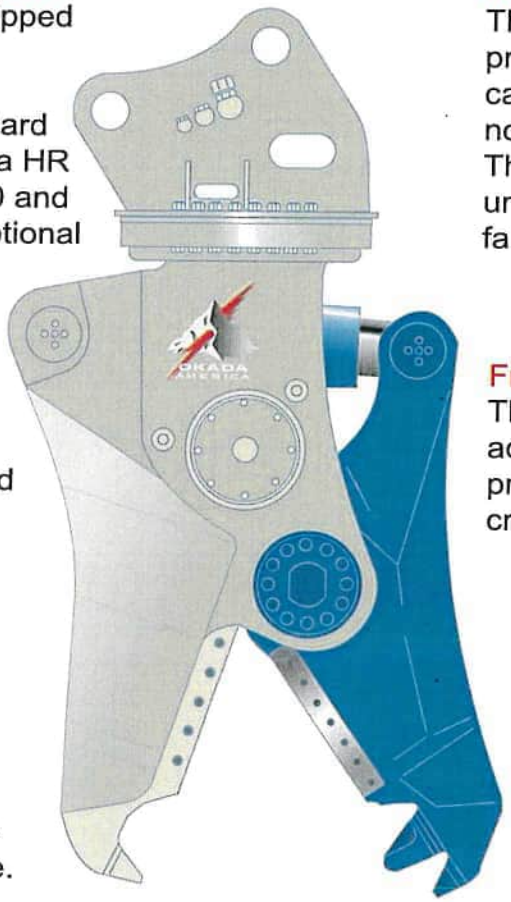


CUT Multi Crushers have concrete cracking wedges on the jaw ends and steel cutting blades in the center at the pivot of the jaws. They can be used for both concrete breaking and steel cutting applications.

CUT Multi Crushers

360 degree rotation mechanism
CUT Multi Crushers are equipped with the ability to rotate 360 degrees.
Okada ARTS rotator is standard for CUT50 and 80 and Okada HR rotator is standard on CUT30 and 100. Free rotation (FR) is optional for CUT30 and 100.

Heavy duty structure
The frame and crushing jaws are produced utilizing a special alloy cast iron as one piece. There are no welds in main structure. Thanks to the casting, there is unmatched power compared to fabricated structures.



Heavy duty bearing
Extremely heavy duty bearings in the rotating joint give unmatched durability, and never need adjustment.

Frame pin adjustment
The exclusive frame pin adjustment mechanism ensures proper clearance, which is critical for clean cut.

Indexable cutter blade
Rebar and structural steel such as I beam can be processed.
The blade is made of tough hardened steel and indexable for longer lasting performance.

Crushing wedge
Okada original crushing wedge penetrates and cracks the concrete to be processed. The wedge is re-buildable

		CUT30	CUT50	CUT80	CUT100
Approx. operating weight	lbs	1570	2590	4730	6820
Overall length	inches	66	80	101	113
Overall height	inches	41	52	67	74
Maximum jaw opening	inches	20.7	23.9	33.5	40.5
Cutter blade length	inches	11.8	13.4	19.7	22.8
Cylinder force	US tons	66	94	151	189
Cutting capacity	inches	1.0 x 5pcs	1.0 x 10pcs	1.2 x 16pcs	1.2 x 20pcs
	inches	H5 x 2.5	H8 x 8	H17.8 x 7.9	H19.6 x 7.8
Carrier weight	US tons	6.6-9.9	11-17.6	20-25.5	30-50
Carrier pressure set at	psi	3500	4000	4500	4500
Recommended oil flow	gpm	32	53	105	105
Oil flow range	gpm	16-35	26-63	44-116	57-116

The above specifications assume the use of an Okada Universal pin mount.
Rotation system used: CUT50/80=ARTS, CUT30/100=HR.
Specifications are subject to change without prior notice.

MOLEY MAGNETICS & EQUIPMENT

At our core, we're committed to your success

230-Volt Scrap Magnets (ESM)

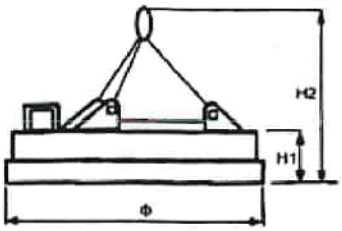
Robust heavy duty magnets built for the rigors of the scrap industry.

Conventional Scrap Magnets are made for moving ferromagnetic materials. In the event the magnets are installed on overhead cranes or stationary cranes, the magnet may be powered by a bridge rectifer. However, when installed on excavators, loaders, cranes from trucks, etc., the magnets are powered by generators driven by the hydraulic fow of the machine or by diesel generators.

Our standard Scrap Magnets are heavy duty magnets manufactured for the rigors of the scrap industry. These scrap magnets are designed for everyday use in a scrap yards. They are available in a wide range of sizes depending on your scrap application. They are powerful and solidly built, ensuring years of maximum performance.

- Sizes Available from 30" to 79"
- Lifting Capability to 5,588 Lbs
- Weight design allows for use on lighter machinery
- Other sizes available upon request

Model	Weight	KW	VDC	DIA.	HT. H1	HT. H2	HM1	HM2	TURNINGS
ESM 30	935 lb	2.8 KW	230V	30"	10.43"	41.3"	557 lb	360 lb	214 lb
ESM 32	1,059 lb	3.2 KW	230V	32"	10.43"	41.3"	615 lb	405 lb	230 lb
ESM 36	1,430 lb	4.0 KW	230V	36"	10.43"	41.3"	825 lb	500 lb	245 lb
ESM 38	1,433 lb	4.5 KW	230V	38"	10.43"	45.27"	1,015 lb	620 lb	300 lb
ESM 42	1,654 lb	5.5 KW	230V	42"	10.43"	45.27"	1,200 lb	740 lb	330 lb
ESM 44	1,874 lb	6.5 KW	230V	44"	10.43"	45.27"	1,500 lb	980 lb	405 lb
ESM 50	2,536 lb	8 KW	230V	50"	11"	45.27"	1,800 lb	1,224 lb	500 lb
ESM 58	3,748 lb	10 KW	230V	58"	11"	49.21"	2,875 lb	1,900 lb	760 lb
ESM 60	4,410 lb	12.5 KW	230V	60"	11.81"	49.21"	3,200 lb	2,275 lb	930 lb
ESM 64	5,622 lb	15 KW	230V	64"	12.6"	49.21"	3,600 lb	2,650 lb	1,100 lb
ESM 72	7,436 lb	18 KW	230V	72"	17.1"	49.21"	4,450 lb	2,950 lb	1,470 lb
ESM 79	11660	22 KW	230V	79"	16"	60"	5,588 lb	3,290 lb	1,926 lb



moleymagneticsinc.com | 1 (844) M-MAGNET (662-4638) |sales@moleyinc.com
Moley Magnetics, Inc. | 5202 Commerce Drive | Lockport, New York 14094

TOP

SERIES

Master of Demolitio

Hydraulic breake

We OKADA AIYON have been the leading company as a demolition equipment manufacturer since 1938. All that time, we have set a goal just to get customer's satisfaction and convinced severe users. This is why we are "Master of Demolition" now.

Made in Japan

OKADA

Sht. 14 of 15

OKADA Optional items

Variety type of bracket

Auto lubrication

OKADA AIYON CORPORATION
4-1-18, KAIGAN-DORI, MINATO-KU,
OSAKA 552-0022, JAPAN
TEL: +81-6-6576-1268 FAX: +81-6-6576-1280
Email: sales@aiyon.co.jp
http://www.okada-aiyon.com

Specifications

			TOP25A	TOP30	TOP35	TOP45B	TOP55	TOP60B	TOP90	TOP100A
Working pressure		MPa	8-10	12-16	12-16	12-16	11-16	12-16	13-18	14-18
Oil flow consumption		L/min	23-35	24-35	35-60	60-85	48-70	48-80	70-110	80-115
Frequency		B.P.M	660-1100	850-1100	1000-1300	800-1100	740-980	730-970	550-850	550-710
Operating weight (Standard/ Silent)		kg	154 / 193	224 / 266	224 / 266	325 / 434	410 / 504	457 / 516	810 / 855	1070 / 1015
Overall length w/o bracket		mm	1032	1206	1206	1362	1415	1570	1732	1890
Working steel dia.		mm	50	61	61	68	74	85	98	110
Carrier machine weight range	Weight	ton	1.5-3.5	2.0-4.0	2.0-4.5	4.0-7.0	4.5-8.0	5.5-9.0	7.0-16.0	10-19
	Rate of flow	L/min	27-38	26-45	45-65	65-90	60-80	60-80	80-130	100-150

			TOP190	TOP200	TOP205	TOP290	OKB316	TOP300	TOP400	TOP800
Working pressure		MPa	14-18	14-18	14-18	14-18	14-17	14-18	14-18	15-18
Oil flow consumption		L/min	100-120	120-160	100-130	120-160	145-185	160-215	280-350	280-380
Frequency		B.P.M	600-750	465-625	340-700	310-480	400-700	280-420	320-400	260-340
Operating weight (Standard/ Silent)		kg	1400 / 1200	1640 / 1505	1761 / 1645	1850 / 1745	2540 / 2395	2925 / 2730	4230 / 4045	5600 / 5600
Overall length w/o bracket		mm	1950	2205	2108	2317	2485	2727	3063	3480
Working steel dia.		mm	120	125	135	135	140	155	169	189
Carrier machine weight range	Weight	ton	14-22	14-26	18-28	20-30	22-34	28-45	40-60	60-larger ton
	Rate of flow	L/min	140-230	140-230	160-260	160-260	180-240	280-300	280-350	280-382

The operating weight varies depending on the type of bracket and the carrier machine.
Suitable carrier is varied depend on the specifications.
The specifications above are subject to change without notice.

100517/5000

SH150-15

pennsylvania
DEPARTMENT OF TRANSPORTATION

January 22, 2024

Wayne County, Damascus Township, PA
Sullivan County, Town of Cochecton, NY
State Route 1002, Section E24
Skinners Falls Bridge over The Delaware River
Special Use Permit Application Final Submission

National Park Service
Upper Delaware Scenic and Recreational River Permit Office
274 River Road
Beach Lake, PA 18405

Dear Upper Delaware Scenic and Recreational River Permit Office:

The Pennsylvania Department of Transportation Engineering District 4-0 submitted information to the National Park Service for a Special Use Permit on December 17, 2024 for the Skinners Falls Bridge over the Delaware River in Damascus Township, Wayne County, PA and Town of Cochecton, Sullivan County, NY.

Per your email dated January 17, 2025, we are sending this updated information without “draft” or “preliminary” watermarks for inclusion in the final approved SUP.

This final SUP submission includes the following updated information submitted via a series of emails dated January 22, 2025 to the permit email addresses:

- Signed SUP Application form
- Project Description
- Project Plan and Cross Section
- Impact Plan
- Alternatives Analysis
- Hydrology and Hydraulics Memorandum with
  - response to NPS comments
  - 2-year aerial cross section map
  - 2-year topo cross section map
- Mitigation Commitments
- Schedule
- Plans
  - Construction,
  - Erosion and Sedimentation Control, and
  - Structure Plans
- Specifications
  - Removal of Existing Bridge
  - Pre/Post Blast Survey
  - Temporary Causeway

- PA Abutment Masonry Repair
- PA Abutment Masonry Repointing
- Post Demo Waterway Survey
- PA Abutment Cap and Railing
- Handling and Disposal of Asbestos Containing Materials

- Additionally, the following items do not have any changes from the previous submissions to NPS, other than the removal of draft watermarks. The watermark has been removed from these and have been included for our complete final submission and submitted via emails to the permit email address dated January 22, 2025 :
  - USGS Map
  - Photographs and Photograph Location Map
  - PNDI Search
  - Blasting Plan
  - Section 4(f) Approach
  - Security Plan
    - Secuity plan narrative,
    - Fencing plan sheet,
    - Blasting and control monitoring specification
    - Pre/post blast survey specification
  - USFWS Mussel Coordination Letter
  - Aids To Navigation (ATON) Plan
    - ATON Narrative
    - Boater Safety Plan
    - Plan sheet
    - ATON specification
  - *Demolition Plan Means and Methods (new submission)*

It is our understanding that the SUP approval will contain the Section 7A Wild and Scenic River Finding Letter and the approval of the Aids to Navigation (ATON) plan. These items are required by the US Army Corps of Engineers to approve their Nationwide Permit Application. The ATON is also required to be approved by PA Fish and Boat Commission. We request confirmation that both of these items will be specifically included in the SUP approval.

If you have permit-related questions or require additional information, please notify Drew Ames, Chief of Environmental Policy and Development Division, PennDOT at 717-705-1481 or email johname@pa.gov

We appreciate your cooperation and assistance in our task of planning and designing better transportation facilities for the citizens of Pennsylvania.

Sincerely,

2025.01.22
12:16:19 -05'00'

Susan Hazelton P.E.
Assistant District Executive-Design

Cc:
Jen Crobak, FHWA
Ben Harvey, FHWA
Amy Lolli, PennDOT District 4
Greg Augustine, PennDOT District 4
Lisa Brozey, AECOM