



Public Notice

U.S. Army Corps
of Engineers

In Reply to Application Number
CENAB-OPR-P-2013-02002-P13 (Pennsylvania American Water
Company/Pikes Creek Dam Rehabilitation Project)

Baltimore District

PN-15-64

Comment Period: October 16, 2015 to October 30, 2015

THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act (33. U.S.C. 1344) as described below:

APPLICANT: Pennsylvania American Water Company
800 Hersheypark Drive
Hershey, Pennsylvania 17033

WATERWAY AND LOCATION OF THE PROPOSED WORK: The project is located on Pikes Creek, approximately two miles northwest of Ceasetown, in Plymouth Township, Luzerne County, Pennsylvania. The coordinates are Latitude 41-15-55 North; Longitude -76-02-40 West.

PROPOSED WORK AND PURPOSE: The proposed work, according to the applicant, is for the purpose of addressing deficiencies at the Pikes Creek Dam, which include spillway capacity, upstream closure, slope stability, and seepage conditions. Addressing these deficiencies must be met in order to comply with the dam safety regulations set forth by the Pennsylvania Department of Environmental Protection (PADEP), Division of Dam Safety.

Pikes Creek Dam is owned and operated by the Pennsylvania American Water Company for water supply purposes. Constructed between 1908 and 1911, the dam consists of a homogeneous earthen embankment 2,155 feet long with a reinforced concrete core wall. The maximum height of the dam is 65 feet with a storage capacity of 11,303 acre-feet at top of dam elevation. Excess flow is conveyed by the ogee concrete principal spillway 72 feet in length and by a 244 foot long auxiliary spillway furnished with flashboards. Pikes Creek Dam is classified as a B-1, intermediate size, high hazard structure.

PROJECT DESCRIPTION: As indicated above, the Pikes Creek Dam is regulated by PADEP, Division of Dam Safety. Upgrades to the dam are required to address inadequate spillway capacity. In addition, dams are required to be furnished with upstream closure on pipes passing through the embankment, and slope stability and seepage issues have been identified at the dam. The following upgrades are proposed to be done to address these concerns:

- **Principal Spillway** – Minor repairs and modifications are proposed to the principal spillway, including concrete repairs to wall and floor slab surfaces at several locations and the replacement of the left and right spillway approach walls that are severely deteriorated. These activities will not result in permanent waterway impacts and will not impact wetlands.
- **Auxiliary Spillway** – Enlarge the approach and return channels, and install Hydroplus fusegates. These activities will result in permanent waterway impacts (excavation of the approach channel will impact the lake bottom immediately upstream of the spillway) but will not impact wetlands. Approximately 12,949 cubic yards of material consisting of bedrock, gravel, and sands will be removed from the spillway and placed onsite in designated upland areas.
- **Slope Stability** – Widen the crest and flatten the downstream slope. The selected embankment crest width of 14 feet and downstream embankment slope of 2.5 H:1V involve nominal wetland impacts. These impacts are primarily the result of the need to install filtered sub-drains at the downstream toe of the embankment to increase the factor of safety for slope stability and to prevent the potential for piping of embankment material. The final design was selected to minimize wetland impacts, however, because of the proximity of wetlands to the downstream slope of the existing embankment, wetland impacts could not be completely avoided.
- **Seepage** – Install a chimney, blanket and toe-drain system to safely convey seepage through and beyond the dam with drains designed to prevent piping of fines and granular embankment material which, overtime, could threaten the integrity of the embankment. One of the proposed toe drains will result in unavoidable permanent wetland impacts. However, another toe-drain will be used to provide predictable and continual hydrology to the proposed wetland mitigation site.

Addressing deficiencies at the Pikes Creek Dam will have the following aquatic resource impacts to the reservoir and adjacent wetland areas:

Permanent Impacts: A total of approximately 1.49 acres of the existing lake will be impacted as a result of excavation to create an approach channel to the auxiliary spillway and as a result of installing a new aerator system within the reservoir. In addition, approximately 0.23 acre of palustrine emergent wetland (PEM) will be permanently impacted as a result of filling in the wetlands to stabilize the embankment slope.

Temporary Impacts: A total of approximately 0.30 acre of the existing lake will be impacted by the temporary dewatering of the approach to the principal spillway during the installation of an aerator supply main.

Mitigation Statement: The following mitigation statement has been provided by the applicant: Environmental impacts of the engineering alternatives considered for rehabilitation of the Pikes Creek Dam were analyzed in an effort to avoid and minimize impacts to wetlands and other regulated waterways to the greatest extent possible. The alternatives analysis provided below identified the least environmentally damaging alternative of each rehabilitation issue of the project. Based on these results, engineering, and on-site features, the preferred alternative, as described above under project description was carried through to final design. It should be noted that this rehabilitation is required to ensure compliance with PADEP dam safety regulations.

The engineering alternatives considered for rehabilitation of the Pikes Creek Dam are briefly discussed below for each of the four rehabilitation issue categories:

- **Modifications to the exiting principal spillway:** Four general alternatives were analyzed to address this rehabilitation issue: (1) replace the existing spillway and downstream chute, (2) construct a dike near the left chute wall, (3) modify spillway control structure to limit maximum discharge capacity to the spillway chute capacity, and (4) modify principal spillway crest with labyrinth weir and walls and retain existing chute.
- **Modifications to the existing auxiliary spillway:** Three general alternatives were analyzed to address this rehabilitation issue: (1) labyrinth spillway, (2) hydroplus fusegates, and (3) labyrinth spillway and overtopping protection.
- **Modifications for slope stability issues:** The embankment crest, upper portion of the upstream slope, and downstream slope was redesigned to achieve factors of safety in accordance with PADEP regulation. The upstream and downstream slopes are currently 2H to 1V, with a 10-foot wide crest, and must be modified to include a chimney drain along the downstream slope.
- **Modifications for seepage issues:** Modification to the embankment includes a design to collect and convey known seepage in a proper manner. To provide collection and filtration of through seepage, a chimney, blanket, and toe drains with monitoring boxes are proposed.

Mitigation is being proposed in the form of permittee responsible mitigation. To compensate for the unavoidable impacts to 0.23 acre of PEM wetlands, approximately 0.25 acre of on-site PEM wetlands will be created with a small palustrine unconsolidated bottom (PUB) component. Stripped and stockpiled topsoil from impacted wetlands will be spread across the entire excavated wetland mitigation area to provide a growing medium, seed and root materials, and water-holding capacity. The created wetland will be located within an existing drain field between the Pikes Creek Dam and State Route 29. A rehabilitated toe drain will provide a consistent source of hydrology to the created wetland. Sediment/toxicant retention is the principal function of the proposed impacted wetlands.

Other wetland functions include groundwater discharge and nutrient removal. The functions and services of the created wetland would serve to replace the lost functions and services of the impacted wetlands, and will also provide better wildlife habitat than the impacted wetlands.

All work is proposed to be completed in accordance with the enclosed plan(s). If you have any questions concerning this matter, please contact Mrs. Amy Elliott of this office at 814-235-0573 or by e-mail amy.h.elliott@usace.army.mil or US Army Corps of Engineers, State College Field Office, 1631 South Atherton Street, Suite 101, State College, PA 16801.

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonable may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economic, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, and consideration of property ownership and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments provided will become part of the public record for this action. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Written comments concerning the work described above related to the factors listed above or other pertinent factors must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, Attn: Mrs. Amy Elliott, 1631 South Atherton Street, Suite 101, State College, Pennsylvania 16801 within the comment period specified above.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 04-267), requires all Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). The Corps has determined this project will not affect any EFH.

WATER QUALITY CERTIFICATION: The applicant is required to obtain a water quality certification in accordance with Section 401 of the Clean Water Act from the PADEP. The Section 401 certifying agency has a statutory limit of one year from the date of this public notice to make its decision.

COASTAL ZONE MANAGEMENT PROGRAMS: Where applicable, the applicant has certified in this application that the proposed activity complies with and will be conducted in a manner consistent with the approved Coastal Zone Management (CZM) Program. By this public notice, we are requesting the State concurrence or objection to the applicant's consistency statement. It should be noted that the CZM Program has a statutory limit of 6 months to make its consistency determination.

The applicant must obtain any state or local government permits which may be required.

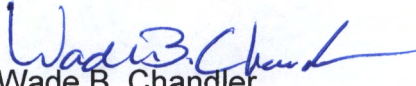
A preliminary review of this application indicates that the proposed work will not affect Federal listed threatened or endangered species or their critical habitat, pursuant to Section 7 of the Endangered Species Act, as amended. A Pennsylvania Natural Diversity Inventory review of the project has indicated the listed species, the Indiana bat, may occur in the project area, however, any avoidance measure(s) required by the U.S. Fish & Wildlife Service will be placed as a requirement of this permit action. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

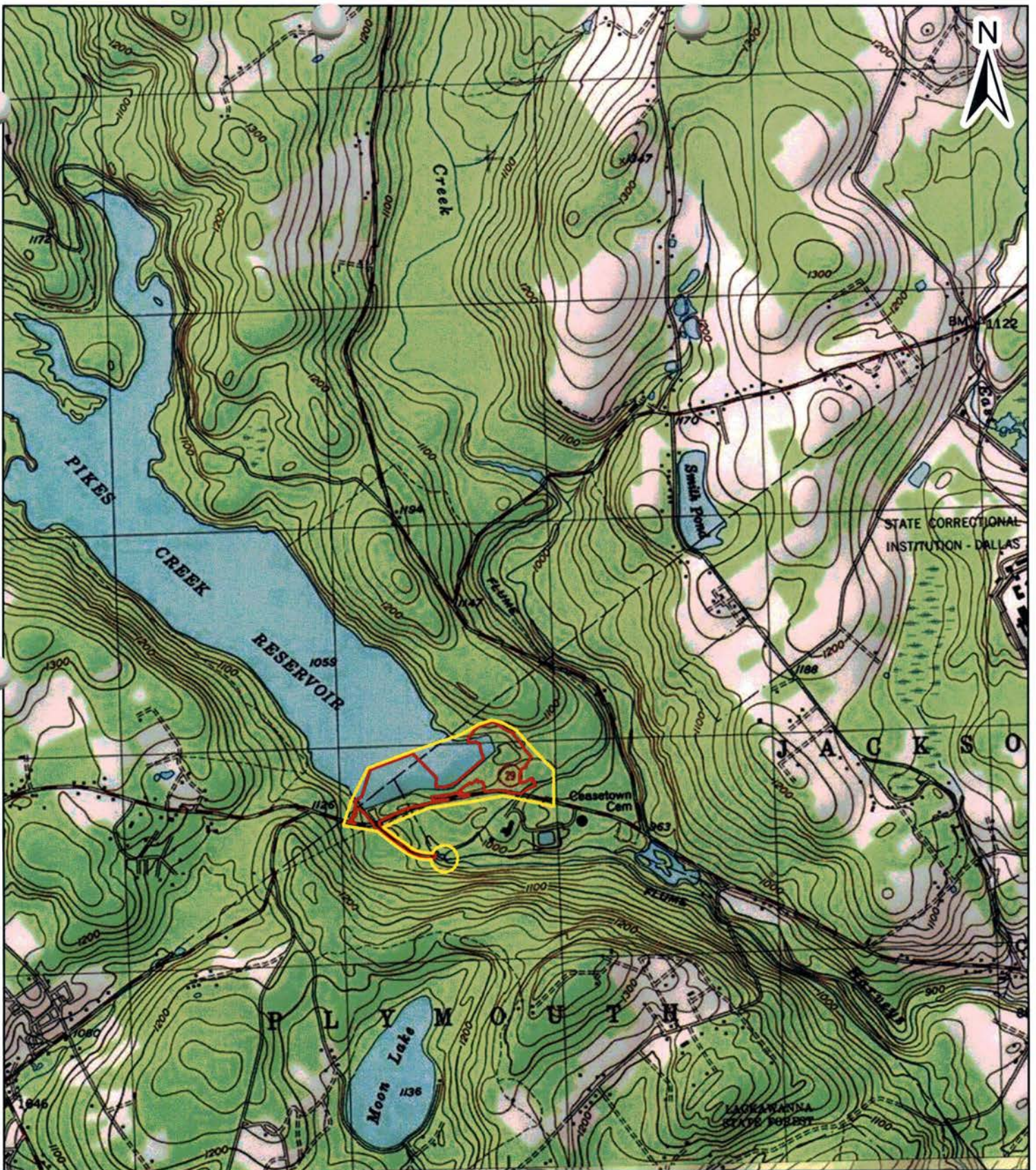
Review of the latest published version of the National Register of Historic Places indicates that no registered properties listed as eligible for inclusion, therein, are located at the site of proposed work. Additionally, the applicant has coordinated with the Pennsylvania Historical and Museum Commission (PHMC) and in correspondence dated May 12, 2015, the PHMC determined that the project will have no effect on historic properties. Currently unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by the work accomplished under the request permit.

The evaluation of the impact of this project on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 of the Clean Water Act.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request, which must be in writing, must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, Attn: Mrs. Amy Elliott, 1631 South Atherton Street, Suite 101, State College, PA 16801, within the comment period as specified above to receive consideration. Also it must clearly set forth the interest which may be adversely affected by this activity and the manner in which the interest may be adversely affected.

It is requested that you communicate this information concerning the proposed work to any persons know by you to be interested and not being known to this office, who did not receive a copy of this notice.


Wade B. Chandler
Chief, Pennsylvania Section
Regulatory Branch



Legend

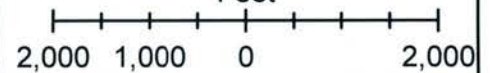
-  Project Study Area
-  Limit of Disturbance

Enclosure B

**Topographic Map
PA American Water**

Luzerne County, PA

Feet



PROJECT IMPACTS

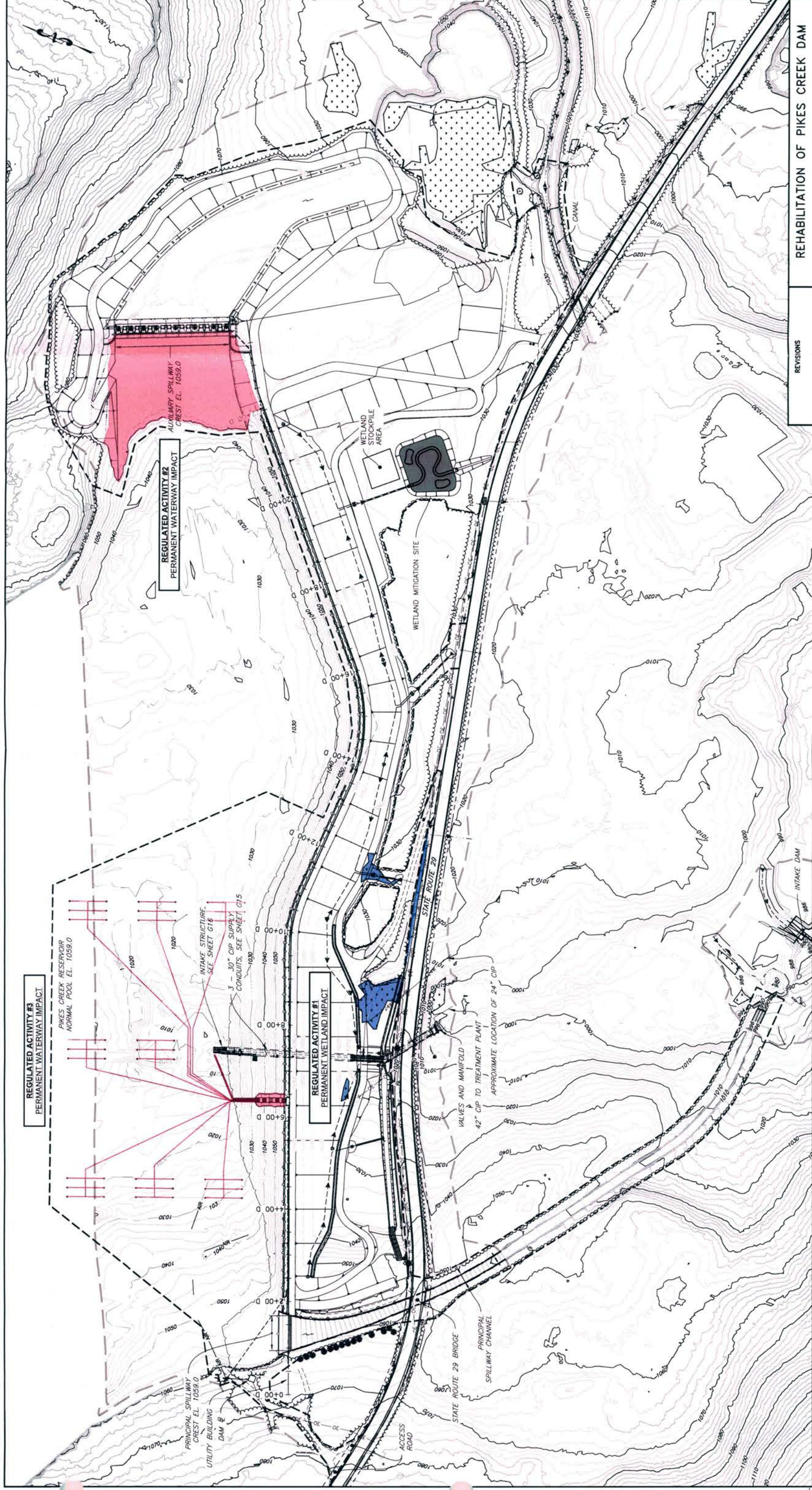
The proposed project will result in unavoidable permanent wetland impacts, and temporary and permanent waterway impacts.

Table 1. List of Regulated Activities of the Pikes Creek Dam Rehabilitation Project, Luzerne County, Pennsylvania

Regulated Activity No.	Type of Activity	Latitude	Longitude	Impact Length/Area	Description of Impact
1	Permanent	41° 15' 54.8"	76° 2' 47.5"	10,150 ft ² 0.23 acre	Filling wetland to stabilize the embankment slope. Flattening the downstream slope and installing a toe-drain will permanently impact Wetlands 1, 3, and 4. Although located outside of the limit of disturbance, the project may alter the hydrology to Wetland 2 within a ditch along S.R. 29. Therefore, Wetland 2 was included.
2	Permanent	41° 16' 3.5"	76° 2' 32.2"	63,340 ft ² 1.45 acres	Excavating the approach channel to the auxiliary spillway will permanently impact the lake bottom but will not result in a reduction of overall surface area.
3	Permanent	41° 15' 58.5"	76° 2' 50.4"	1,880 ft ² 0.04 acre	Installation of a new aerator system within the reservoir will require the placement of small diameter HDPE pipe and concrete block anchors on the lake bottom.
4	Temporary	41° 15' 54.5"	76° 2' 57.2"	12,900 ft ² 0.30 acre	Temporary dewatering of the approach to the principal spillway during the installation of an aerator supply main below grade.

Summary of Regulated Activities

RA1 = permanent, palustrine emergent wetland encroachment = 10,150 ft² (0.23 acre)
 RA2 and RA3 = permanent, waterway encroachment to lake bottom = 65,220 ft² (1.49 acres)
 RA4 = temporary, waterway encroachment to lake bottom = 12,900 ft² (0.30 acre)



REVISIONS

REHABILITATION OF PIKES CREEK DAM
REGULATED ACTIVITIES PLAN
SHEET 1 OF 2

PENNSYLVANIA AMERICAN WATER

Gannett Fleming
207 SENATE AVENUE
CAMP HILL, PA 17011

PA AMERICAN WATER

DRAWN BY: GTH
PROJECT ENGR: GWH
APPROVED PCS

DATE: MAR. 2015
PROJECT: 57111

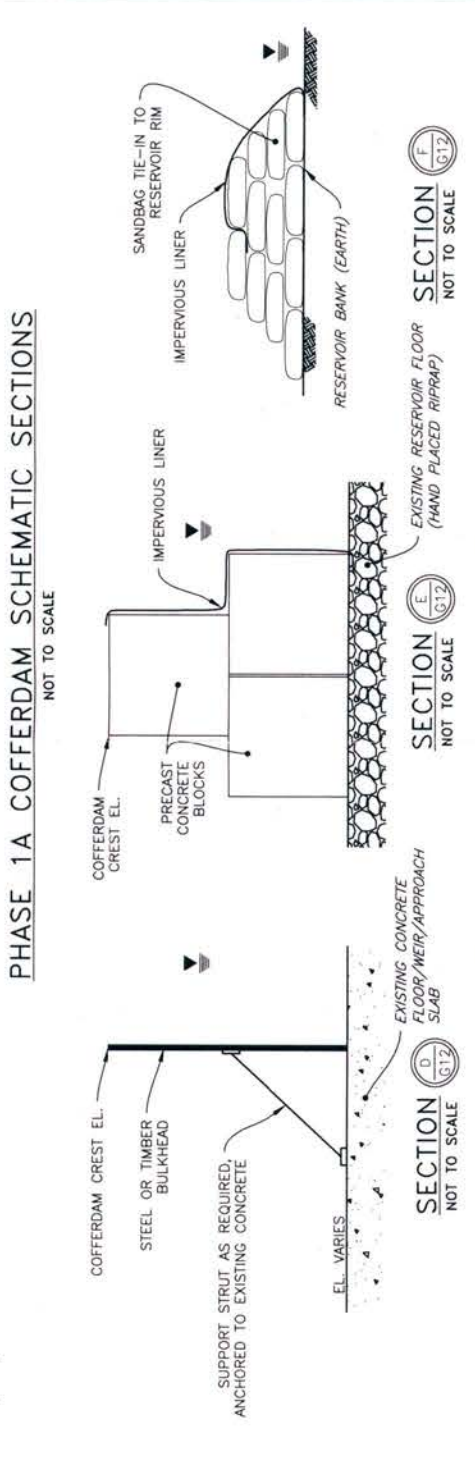
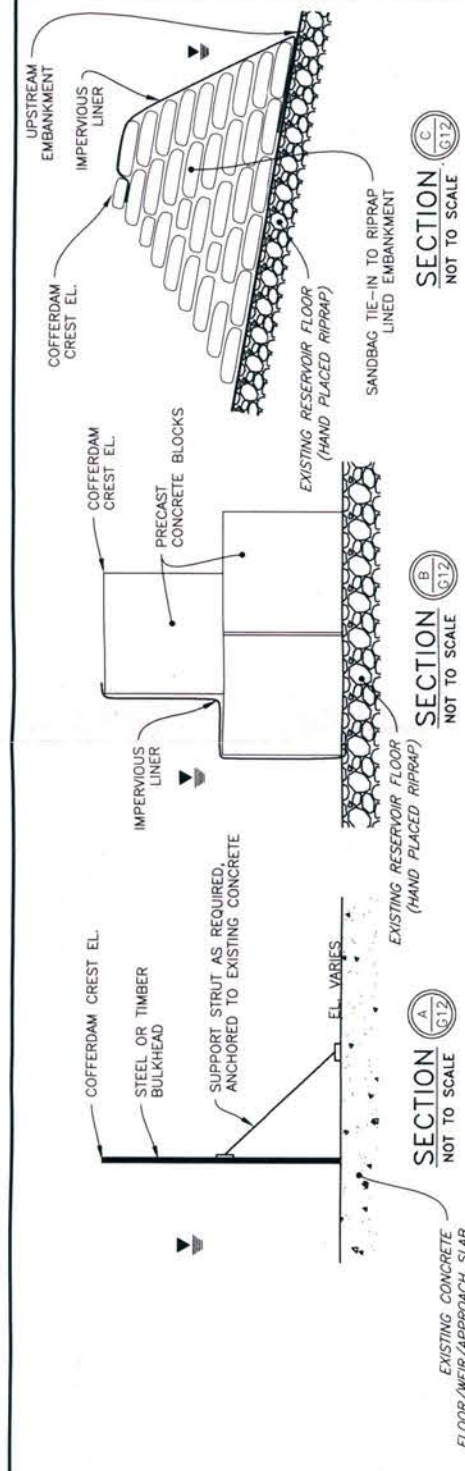
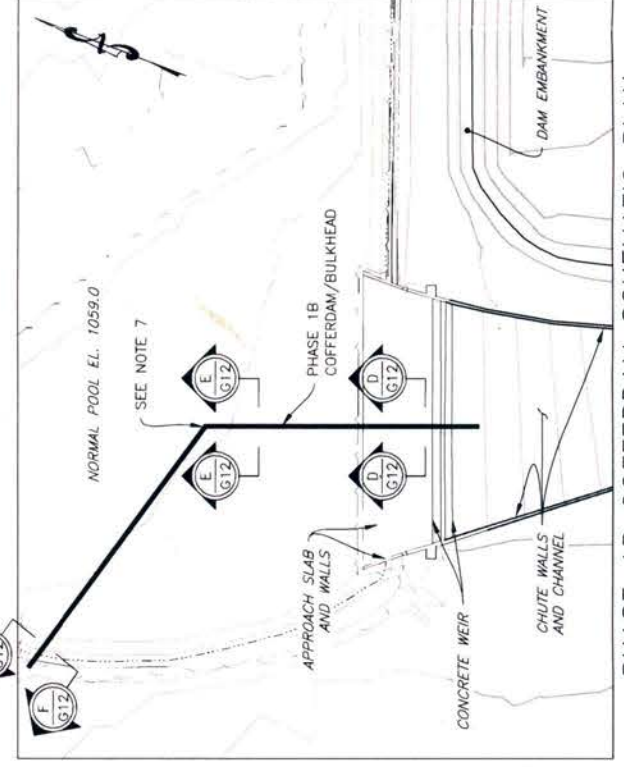
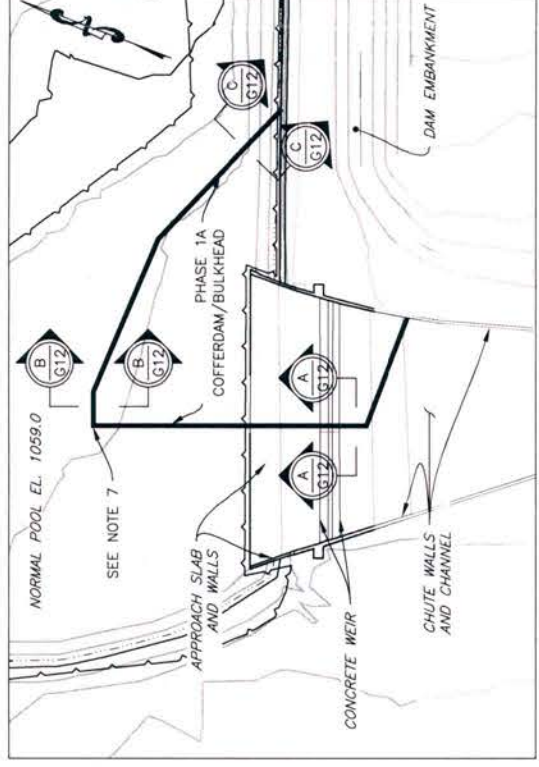
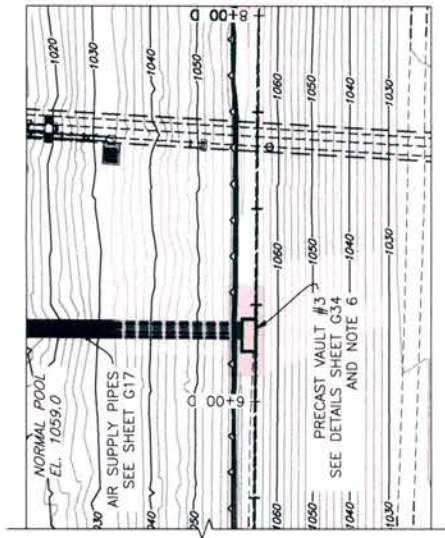
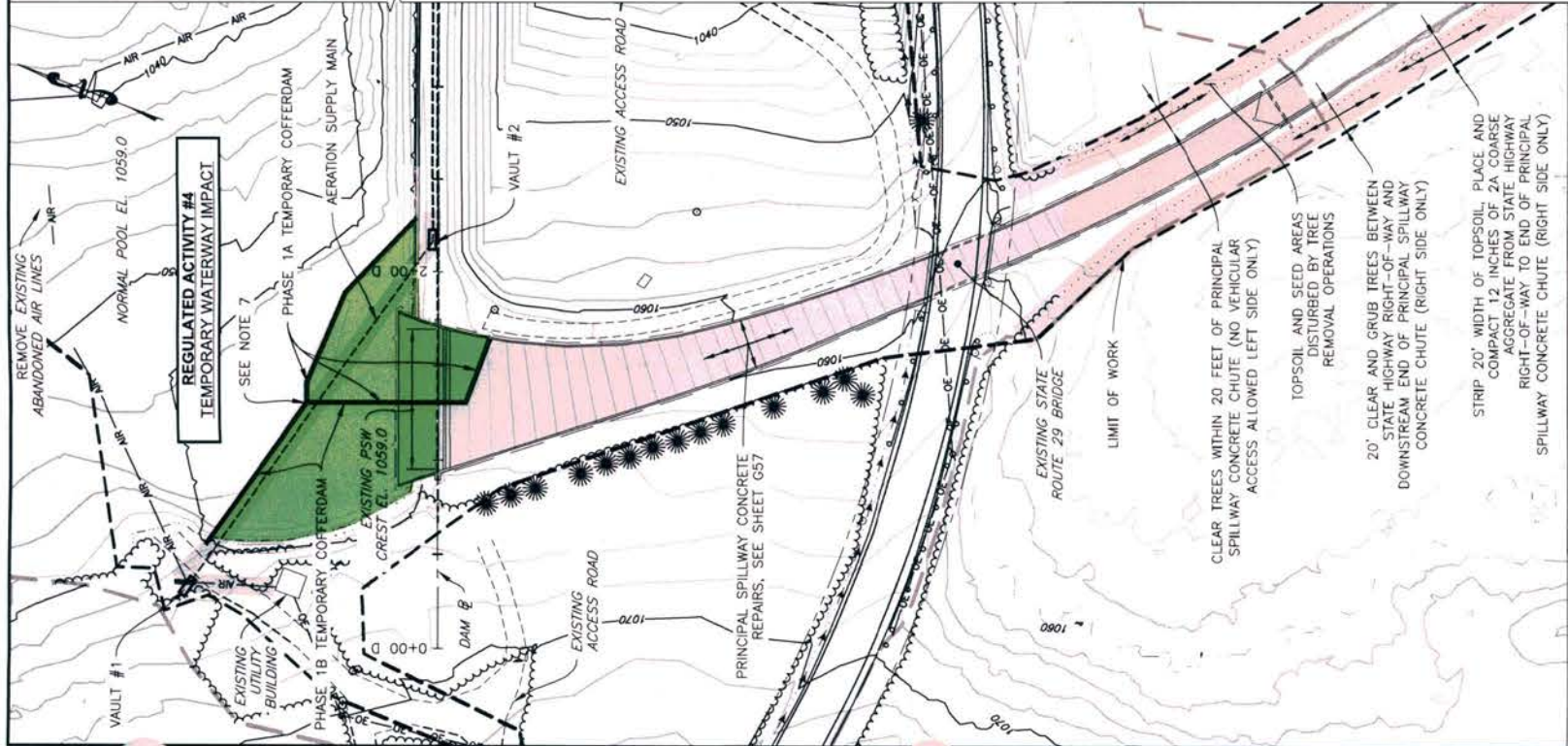
USE APPROVED DRAWINGS ONLY
FOR CONSTRUCTION PURPOSES

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REVISIONS

LEGEND:

- WETLAND
- PERMANENT WETLAND IMPACT
- WETLAND MITIGATION SITE
- LIMIT OF WORK
- PERMANENT WATERWAY IMPACT



- GENERAL DIVERSION OF WATER NOTES:**
1. SEE GENERAL NOTES AND LEGEND ON SHEET G2.
 2. THE RESERVOIR IS REQUIRED TO MAINTAIN SUPPLY DRAFT THROUGHOUT THE CONSTRUCTION PERIOD OF EITHER THE UPPER OR MIDDLE INTAKES. SEE GENERAL NOTE 3 ON SHEET G2 REGARDING OPERATION OF VALVES.
 3. FLOW DIVERSION PLAN SHOWN IS THE SUGGESTED METHOD. THE MINIMUM CREST ELEVATION OF SPILLWAY COFFERDAMS / BULKHEADS IS INDICATED ON SHEET G13.
 4. CONTRACTOR SHALL DESIGN AND CONSTRUCT ALL MEASURES AND APPURTENANCES REQUIRED TO IMPLEMENT THE APPROVED DIVERSION PLAN AND ACCEPTS ALL RESPONSIBILITY FOR ADEQUACY AND SAFETY OF THE DIVERSION SYSTEM.
 5. AFTER SERVING THEIR PURPOSE THE CONTRACTOR SHALL REMOVE ALL TEMPORARY DIVERSION COMPONENTS AND REPAIR ALL DAMAGE TO FINISHED WORK TO THE SATISFACTION OF THE ENGINEER.
 6. AIR LINES WITHIN RESERVOIR AT PRINCIPAL SPILLWAY TO BE INSTALLED AS PART OF PHASE 1 WORK BUT VAULT #2, VAULT #3 AND INTERVENING AIR LINES ALONG EMBANKMENT CREST ARE TO BE INSTALLED AFTER EMBANKMENT MODIFICATIONS.
 7. PROVIDE OVERLAP IN AREAS PROTECTED BY PHASE 1A AND 1B COFFERDAMS AS REQUIRED TO FACILITATE AERATION SUPPLY MAIN CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION

LEGEND:
 ACTIVE WORK AREA

REHABILITATION OF PIKES CREEK DAM
 REGULATED ACTIVITIES PLAN
 SHEET 2 OF 2

PENNSYLVANIA AMERICAN WATER

Connext Planning
 207 SENATE AVENUE
 CAMP HILL, PA 17011

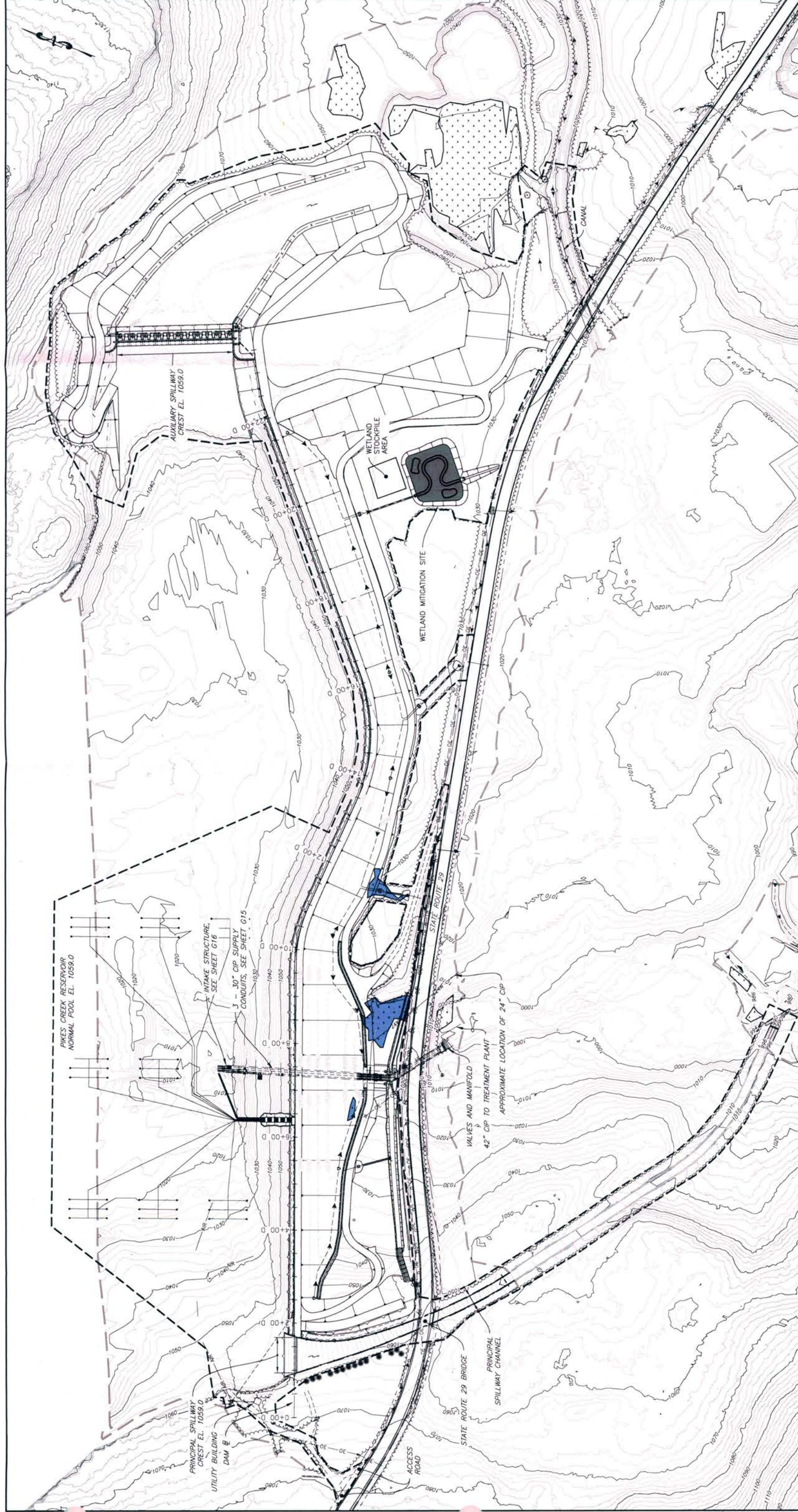
PENNSYLVANIA AMERICAN WATER

DRAWN BY BSW
 PROJECT ENGR GWW
 APPROVED PGS
 DATE MAR. 2015
 PROJECT 57111
 USE DIMENSIONS ONLY
 SCALE AS SHOWN

USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES

FINAL DESIGN

249101003G12



**REHABILITATION OF PIKES CREEK DAM
WETLAND MITIGATION SITE
LOCATION PLAN**

PENNSYLVANIA AMERICAN WATER

Gannett Fleming
207 SENATE AVENUE
CAMP HILL, PA 17011

DRAWN BY: CTH
PROJECT: ECTR
APPROVED: FCS

DATE: MAR. 2015
PROJECT: 57111

USE APPROVED DRAWINGS ONLY
FOR CONSTRUCTION PURPOSES

249101-003-G88

REVISIONS

NO.	DESCRIPTION

PIKES CREEK RESERVOIR
NORMAL POOL EL. 1059.0

AUXILIARY SPILLWAY
CREST EL. 1059.0

WETLAND STOCKPILE AREA

WETLAND MITIGATION SITE

STATE ROUTE 29

ACCESS ROAD

STATE ROUTE 29 BRIDGE

PRINCIPAL SPILLWAY CHANNEL

INTAKE DAM

LEGEND:

- WETLAND
- PERMANENT WETLAND IMPACT
- WETLAND MITIGATION SITE
- LIMIT OF WORK

NOTES:

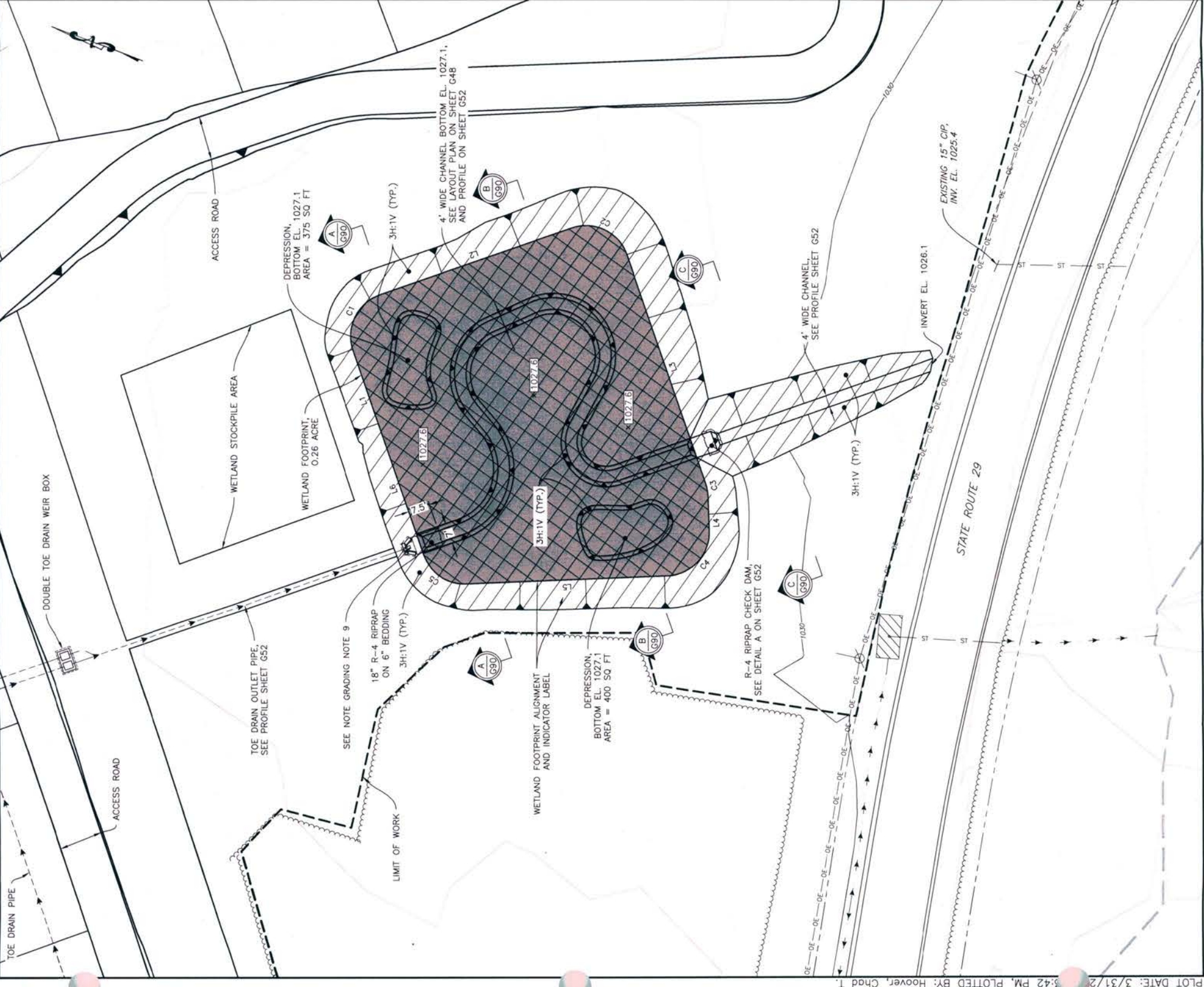
GENERAL

1. REMOVE AND STOCKPILE 310 CUBIC YARDS OF TOPSOIL FROM DISTURBED WETLANDS.
2. EXCAVATE PROPOSED MITIGATION AREA TO ELEVATION SHOWN ON THE PLANS.
3. INSTALL GEOSYNTHETIC CLAY LINER ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
4. PLACE STOCKPILED SOILS FROM DISTURBED WETLANDS, PLUS AN ADDITIONAL 150 CUBIC YARDS (TOTAL OF 460 CUBIC YARDS), AND GRADE TO ELEVATION SHOWN ON PLANS.
5. SEED WETLAND AND UPLAND SLOPES WITH THE RECOMMENDED SEED MIXTURE.

STOCKPILE TOPSOIL FROM DISTURBED WETLANDS

1. REMOVE TOPSOIL FROM IMPACTED WETLANDS AND TEMPORARILY STOCKPILE IN THE APPROVED LOCATION.
2. STOCKPILED SOILS SHOULD NOT EXCEED A DEPTH OF MORE THAN 2 FEET AND SHOULD NOT BE COVERED.
3. INSTALL SILT FENCE AROUND THE STOCKPILE AREA ACCORDING TO PLANS AND DETAILS.

SCALE IN FEET
20 0 20 40



- NOTES:**
- GRADING**
- EXCAVATE PROPOSED MITIGATION AREA TO 1.0 FOOT BELOW FINISHED GRADE WITH A 3:1 SIDE SLOPE.
 - INSTALL GEOSYNTHETIC CLAY LINER ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 - THE PIPE RIPRAP FOR THE ROCK APRON AT THE WETLAND AND PIPE OUTFALL AS SHOWN ON THE PLANS. THE WETLAND OUTFALL SHALL BE EL. 1027.6 AND THE INVERT OF THE PIPE OUTFALL SHALL BE AT 1028.1.
 - THE TYPE R-4 RIPRAP ROCK APRONS SHOULD HAVE A DEPTH OF 18 INCHES.
 - PLACE STOCKPILED SOILS FROM EXISTING DISTURBED WETLANDS TO A MINIMUM DEPTH OF 12 INCHES AND GRADE TO A ROUGH ELEVATION AS SHOWN. THE CONTRACTOR WILL NEED TO SUPPLEMENT THE 310 CUBIC YARDS OF DISTURBED WETLANDS WITH 150 CUBIC YARDS OF CLEAN TOPSOIL, TOTALING 460 CUBIC YARDS OF SOIL.
 - CAREFULLY PLACE EIGHT LOGS (MINIMUM 20 FEET LONG AND 12 INCH DIAMETER) AROUND THE WETLAND. REMOVE LIMBS ON THE SIDE IN CONTACT WITH THE GROUND TO AVOID DAMAGING THE CLAY LINER.
 - CONSTRUCT ACCORDING TO PLANS AND DETAILS.
 - ROCK FROM ON-SITE EXCAVATION MEETING THE REQUIREMENT OF R-4 ROCK (GRADATION AND THICKNESS) MAY BE USED TO STABILIZE THE WETLAND OUTFALL.
 - ROCK TOE DRAIN FLOW INTO TEMPORARY PIPE AND AROUND WETLAND AREA DURING WETLAND CONSTRUCTION AS NECESSARY.
 - GEOSYNTHETIC CLAY LINER (GCL)

- THE SURFACE OF THE EXCAVATED WETLAND AREA MUST BE PREPARED ACCORDING TO MANUFACTURER SPECIFICATIONS FOR THE GCL. THE GROUND SURFACE SHOULD BE VOID OF ROCKS AND WOODY MATERIAL CAPABLE OF PUNCTURING THE GCL.
- A GEOSYNTHETIC CLAY LINER WILL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. THE GCL MUST HAVE A BENTONITE CORE, REINFORCED BETWEEN TWO GEOTEXTILES AND LAMINATED TO PROVIDE PUNCTURE AND TENSILE STRENGTHS SUITABLE FOR LIQUID CONTAINMENT.
- INSTALL GCL ACROSS THE BOTTOM AND UP THE SIDE SLOPES OF THE WETLAND AREA ACCORDING TO PLANS AND DETAILS.

- WETLAND AND UPLAND SEED MIXTURE**
- MIX EQUAL VOLUMES OF FINE SAND AND THE APPROPRIATE SEED MIXTURE.
 - USE A DROP OR BIN SEEDER TO EVENLY SPREAD THE MIXTURE MANUALLY WITHIN THE AREA SPECIFIED.
 - AFTER SEEDING, THE SITE WILL BE MULCHED WITH STRAW MANUALLY.
 - SEEDED AREAS ALONG THE UPLAND SLOPES WILL BE PROTECTED WITH AN EROSION CONTROL MAT.

VEGETATIVE PLANTINGS

LOCATION	SYMBOL	COMMON NAME	SPECIES NAME	INDICATOR STATUS	% BY LB. OF SEED
WETLAND*		FOX SEDGE	Carex vulpinoidea	OBL	25
		VIRGINIA WILDRYE	Elymus virginicus	FACW	20
		LURID (SHALLOW) SEDGE	Carex lurida	OBL	15
		HOP SEDGE	Carex lupulina	OBL	8
		BLUNT BROOM SEDGE	Carex scoparia	FACW	6
		GREEN BULLRUSH	Scirpus atrovirens	OBL	5
		DEERTONGUE	Panicum clandestinum	FACW	5
		GIANT BUR REED	Sparganium eurycarpum	OBL	4
		EASTERN BUR REED	Sparganium americanum	OBL	3
		SOFT RUSH	Juncus effusus	OBL	2
		FRINGED (NODDING) SEDGE	Leersia oryzoides	OBL	2
		RICE CUTGRASS	Scirpus cyperinus	OBL	2
UPLAND*		HARD FESCUE	Festuca longiolla	NL	55
		CREeping RED FESCUE	Festuca rubra	FACU	35
		ANNUAL RYEGRASS	Lolium multiflorum	NL	10

* WETLAND IS THE BOTTOM OF THE MITIGATION BASIN (ERNST OBL-FACW PERENNIAL FOOD AND COVER WETLAND MIX ERNMX-120)

* UPLANDS INCLUDE THE SIDE SLOPES OF THE MITIGATION BASIN AND ANY DISTURBED UPLAND AREAS ASSOCIATED WITH WETLAND CREATION (PENNDOT FORMULA L MIX)

WETLAND FOOTPRINT LINE DATA TABLE

LINE NO.	LENGTH (FT.)	BEARING ANGLE (DD/MM/SS)	BEGINNING POINT (NORTHING FT., EASTING FT.)	END POINT (NORTHING FT., EASTING FT.)
L1	35.00	N50° 06' 48.07"E	(405213.87, 2437887.20)	(405236.31, 2437914.06)
L2	70.00	S39° 53' 11.93"E	(405234.42, 2437935.19)	(405180.71, 2437980.08)
L3	82.77	S50° 06' 48.07"W	(405159.58, 2437978.19)	(405106.50, 2437914.67)
L4	11.82	S67° 00' 00.00"W	(405104.20, 2437910.92)	(405099.58, 2437900.03)
L5	69.57	N23° 00' 00.00"W	(405107.53, 2437880.37)	(405171.57, 2437853.18)
L6	38.88	N50° 06' 48.07"E	(405188.94, 2437857.37)	(405213.87, 2437887.20)

WETLAND FOOTPRINT CURVE DATA TABLE

CURVE NO.	PI STATION (FT.)	PI NORTHING (FT.)	PI EASTING (FT.)	RADIUS (FT.)	DELTA ANGLE (DD/MM/SS)	TANGENT LENGTH (FT.)	CURVE LENGTH (FT.)	PC STATION (FT.)	PT STATION (FT.)
C1	0+50.00	405245.93	2437925.57	15.00	90° 00' 00"	15.00	23.56	0+35.00	0+58.56
C2	1+43.56	405169.20	2437988.70	15.00	90° 00' 00"	15.00	23.56	1+28.56	1+52.12
C3	2+37.12	405105.07	2437912.97	15.00	16° 53' 12"	2.23	4.42	2+34.90	2+39.32
C4	2+66.14	405093.72	2437886.23	15.00	90° 00' 00"	15.00	23.56	2+51.14	2+74.70
C5	3+55.39	405181.80	2437848.84	15.00	73° 06' 48"	11.12	19.14	3+44.27	3+63.41

REVISIONS

NO.	DATE	DESCRIPTION

SCALE IN FEET

0 20 40

REHABILITATION OF PIKES CREEK DAM
WETLAND MITIGATION SITE
GRADING AND PLANTING PLAN

PENNSYLVANIA AMERICAN WATER

Garrett Planning
207 SENATE AVENUE
CAMP HILL, PA 17011

DRAWN BY: CTH
PROJECT ENGR: GWW
APPROVED: PGS

DATE: MAR. 2015
PROJECT: 57111
SCALE: AS SHOWN

PENNSYLVANIA AMERICAN WATER

249101-003-G89

FINAL DESIGN