

U.S. Army Corps  
of Engineers

Baltimore District

# Public Notice

In Reply to Application Number  
NAB-2018-01901 (Altoona Water Authority/Bellwood Dam  
Modifications)

PN 19-46

Comment Period: July 29, 2019 to August 28, 2019

---

**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:** Altoona Water Authority  
900 Chestnut Avenue  
Altoona, Pennsylvania 16601

**WATERWAY AND LOCATION:** A 50.6 acre reservoir, located on Bell's Gap Run, adjacent to PA Route 865, in Antis Township, Blair County, Pennsylvania (Latitude: 40° 37' 29.37" N; Longitude: 78° 22' 55.73" W).

**PROPOSED WORK AND PURPOSE:** Bellwood Dam is a public water supply structure originally constructed in 1902 and later expanded to its current capacity in 1946. No improvements have been made to the dam over the last 72 years. The applicant proposes to modify and improve the existing dam by replacing aging infrastructure and appurtenances, reconstructing the dam spillway and stream discharge channel, and removing accumulated silts and sediments from the 50.6 acre reservoir. Total proposed impacts to aquatic resources include 1,687 linear feet (1.62 acres) of perennial stream, 2,540 linear feet (33.82 acres) of open water, and 0.28 acre of adjacent palustrine emergent (PEM) wetland. The project includes constructing a new labyrinth spillway, multi-port intake tower, parapet wall, valve vault, access roads, and appurtenant structures. Due to the revised spillway and conservation release locations, stream restoration in the channel downstream of the embankment after completion of the dam modifications is proposed. All proposed impacts are permanent except for the temporary 0.38 acre impact needed for the access road into the drained reservoir.

In addition to the dam modifications, the reservoir would be drained and approximately 140,000 cubic yards of accumulated sediment would be removed from the reservoir via mechanical dredging. The material to be removed would be allowed to become sufficiently dry before earth moving operations occur within the reservoir. Conventional earthmoving and hauling equipment would enter the reservoir via a temporary access road and ramp. All excavated material is proposed to be transported and placed on three sites in State Game Lands No. 158, and five sites in State Game Lands 108, in Reade Township, Cambria County, Pennsylvania.

The purpose of the proposed work is to address the dams' deficient spillway capacity and to address other safety issues associated with the aging infrastructure. The Pennsylvania Department of Environmental Protection considers the Bellwood Dam currently "unsafe" due to the high potential for loss of life during a dam failure.

As part of the planning process for the proposed project, steps were taken to ensure avoidance and minimization of impacts to waters of the United States to the maximum extent practicable. However, the location of the new spillway would permanently impact 0.28 acre of PEM wetland, as the new staged labyrinth spillway is necessary to allow sufficient capacity to pass the probable maximum flood. Compensatory mitigation is being proposed by the applicant for the proposed 0.28 acre of permanent PEM wetland impact. The permittee responsible mitigation site is located within the project area, adjacent to an existing wetland (Wetland 4) and will consist of 0.28 acres of wetland creation. See the attached mitigation site plan for details.

All work is proposed to be completed in accordance with attached plans.

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.

**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 effect Essential Fish Habitat (EFH). The Corps has determined this project will not affect any EFH.

**WATER QUALITY CERTIFICATION AND COASTAL ZONE MANAGEMENT PROGRAM:** The applicant is required to obtain a water quality certification in accordance with Section 401 of the Clean Water Act from the Pennsylvania Department of Environmental Protection. The Section 401 certifying agency has a statutory limit of one year from the date of this public notice to make its decision.

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 other State or local government permits which may be required.

**ENDANGERED SPECIES ACT:** A preliminary review of this application indicates that, with an Avoidance Measure in place for the Indiana bat (*Myotis sodalists*), the proposed work will have no effect on Federal listed threatened or endangered species or their critical habitat, pursuant to Section 7 of the Endangered Species Act, as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

**NATIONAL HISTORIC PRESERVATION ACT:** 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 the proposed work. Additionally, the applicant has coordinated with the Pennsylvania Historical and Museum Commission (PHMC) and in correspondence dated October 5, 2016, the PHMC determined that there are no historic properties in the area of potential effect. Currently unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by the work to be accomplished under the request permit.

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.

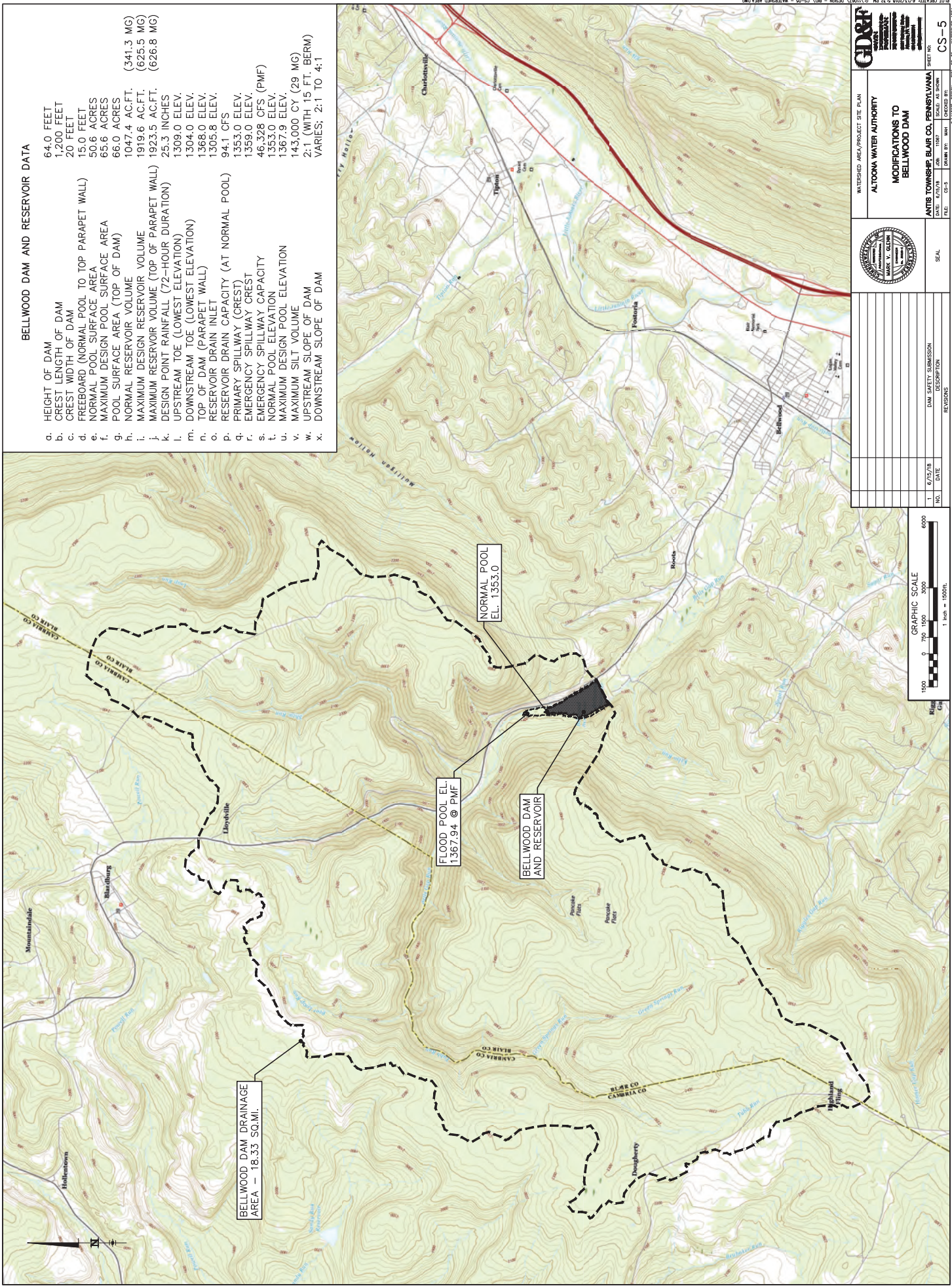
Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments provided will become part of the public record for this action. Comments are also used to determine the need for a public hearing and 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, State College Field Office, 1631 South Atherton Street, Suite 102, State College, Pennsylvania, 16801 within the comment period specified above.

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, State College Field Office, 1631 South Atherton Street, Suite 102, State College, Pennsylvania, 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 known by you to be interested and not being known to this office, who did not receive a copy of this notice.

If you have any questions concerning this matter, please contact Mrs. Amy Elliott of this office at (814) 235-0573 or via email at [amy.h.elliott@usace.army.mil](mailto:amy.h.elliott@usace.army.mil).

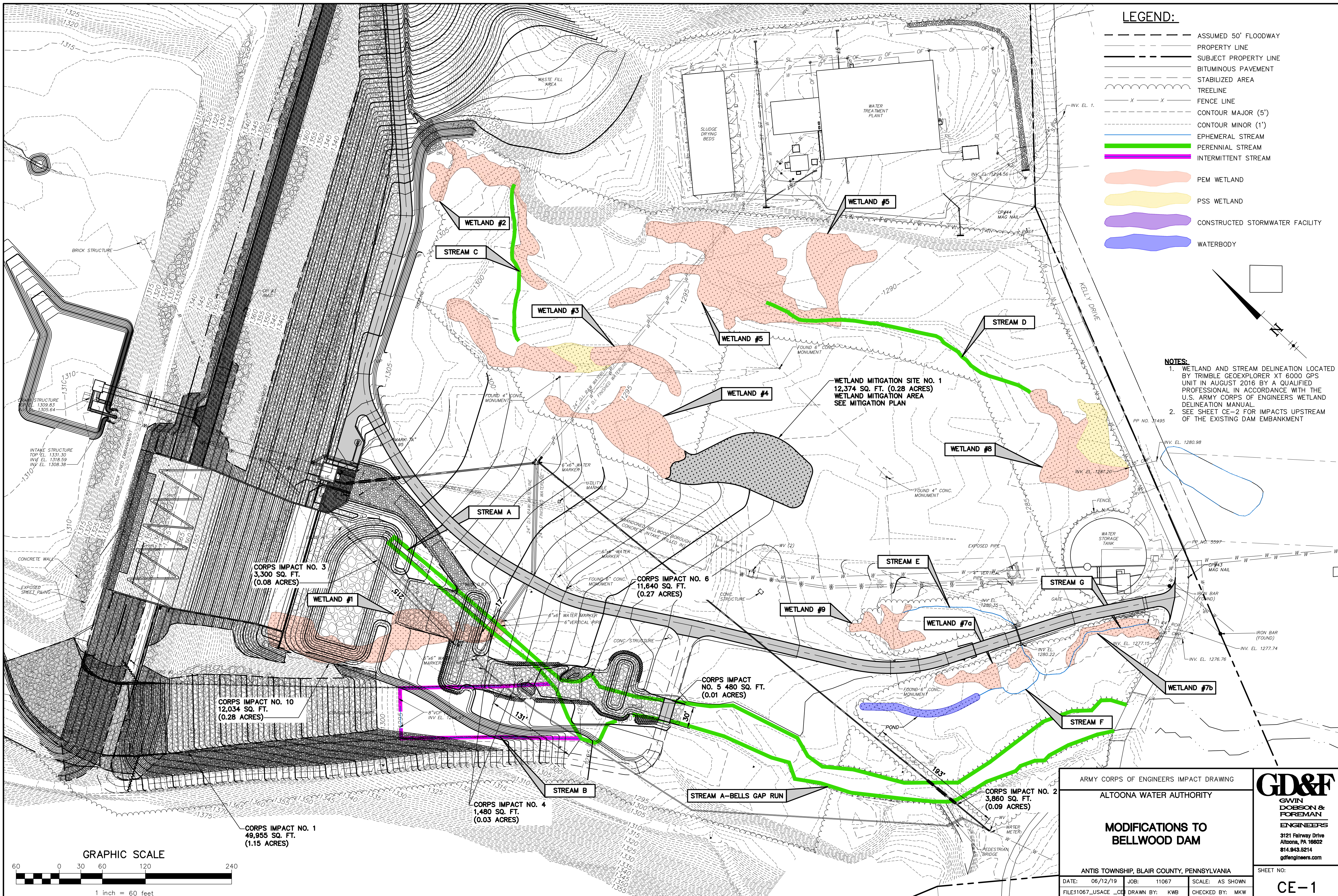
This public notice is issued by the Chief, Regulatory Branch.



**BELLWOOD DAM AND RESERVOIR DATA**

- a. HEIGHT OF DAM 64.0 FEET
- b. CREST LENGTH OF DAM 1,200 FEET
- c. CREST WIDTH OF DAM 20 FEET
- d. FREEBOARD (NORMAL POOL TO TOP PARAPET WALL) 15.0 FEET
- e. NORMAL POOL SURFACE AREA 50.6 ACRES
- f. MAXIMUM DESIGN POOL SURFACE AREA 65.6 ACRES
- g. POOL SURFACE AREA (TOP OF DAM) 66.0 ACRES
- h. NORMAL RESERVOIR VOLUME 1047.4 AC.FT.
- i. MAXIMUM DESIGN RESERVOIR VOLUME 1919.6 AC.FT.
- j. MAXIMUM RESERVOIR VOLUME (TOP OF PARAPET WALL) 1923.5 AC.FT.
- k. DESIGN POINT RAINFALL (72-HOUR DURATION) 25.3 INCHES
- l. UPSTREAM TOE (LOWEST ELEVATION) 1309.0 ELEV.
- m. DOWNSTREAM TOE (LOWEST ELEVATION) 1304.0 ELEV.
- n. TOP OF DAM (PARAPET WALL) 1368.0 ELEV.
- o. RESERVOIR DRAIN INLET 1305.8 ELEV.
- p. RESERVOIR DRAIN CAPACITY (AT NORMAL POOL) 94.1 CFS
- q. PRIMARY SPILLWAY (CREST) 1353.0 ELEV.
- r. EMERGENCY SPILLWAY CREST 1359.0 ELEV.
- s. EMERGENCY SPILLWAY CAPACITY 46,328 CFS (PMF)
- t. NORMAL POOL ELEVATION 1353.0 ELEV.
- u. MAXIMUM DESIGN POOL ELEVATION 1367.9 ELEV.
- v. MAXIMUM SILT VOLUME 143,000 CY (29 MG)
- w. UPSTREAM SLOPE OF DAM 2:1 (WITH 15 FT. BERM)
- x. DOWNSTREAM SLOPE OF DAM VARIES; 2:1 TO 4:1

WATERSHED AREA/PROJECT SITE PLAN <b>ALTOONA WATER AUTHORITY</b> <b>MODIFICATIONS TO BELLWOOD DAM</b>		
JANTIS TOWNSHIP, BLAIR CO., PENNSYLVANIA DATE: 6/15/18 DRAWN BY: MAM CHECKED BY: CS-5 SCALE:		
NO.	DATE	DAM SAFETY SUBMISSION REVISIONS
1	6/15/18	
GRAPHIC SCALE 0 750 1500 3000 6000 1 inch = 1500 ft.		



**LEGEND:**

- ASSUMED 50' FLOODWAY
- PROPERTY LINE
- - - SUBJECT PROPERTY LINE
- - - BITUMINOUS PAVEMENT
- - - STABILIZED AREA
- ~ TREELINE
- X - X - FENCE LINE
- - - CONTOUR MAJOR (5')
- - - CONTOUR MINOR (1')
- EPHEMERAL STREAM
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PEM WETLAND
- PSS WETLAND
- CONSTRUCTED STORMWATER FACILITY
- WATERBODY

**NOTES:**

1. WETLAND AND STREAM DELINEATION LOCATED BY TRIMBLE GEOEXPLORER XT 6000 GPS UNIT IN AUGUST 2016 BY A QUALIFIED PROFESSIONAL IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL.
2. SEE SHEET CE-2 FOR IMPACTS UPSTREAM OF THE EXISTING DAM EMBANKMENT

CORPS IMPACT NO. 3  
3,300 SQ. FT.  
(0.08 ACRES)

CORPS IMPACT NO. 6  
11,640 SQ. FT.  
(0.27 ACRES)

CORPS IMPACT NO. 10  
12,034 SQ. FT.  
(0.28 ACRES)

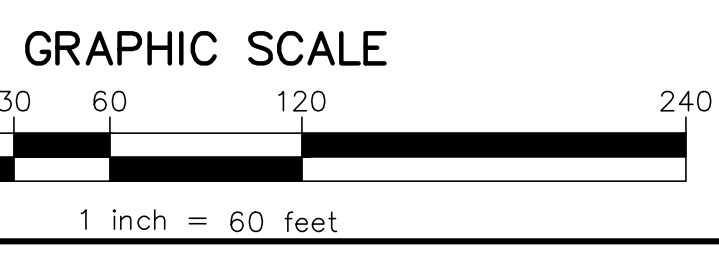
CORPS IMPACT NO. 5  
480 SQ. FT.  
(0.01 ACRES)

CORPS IMPACT NO. 1  
49,955 SQ. FT.  
(1.15 ACRES)

CORPS IMPACT NO. 4  
1,480 SQ. FT.  
(0.03 ACRES)

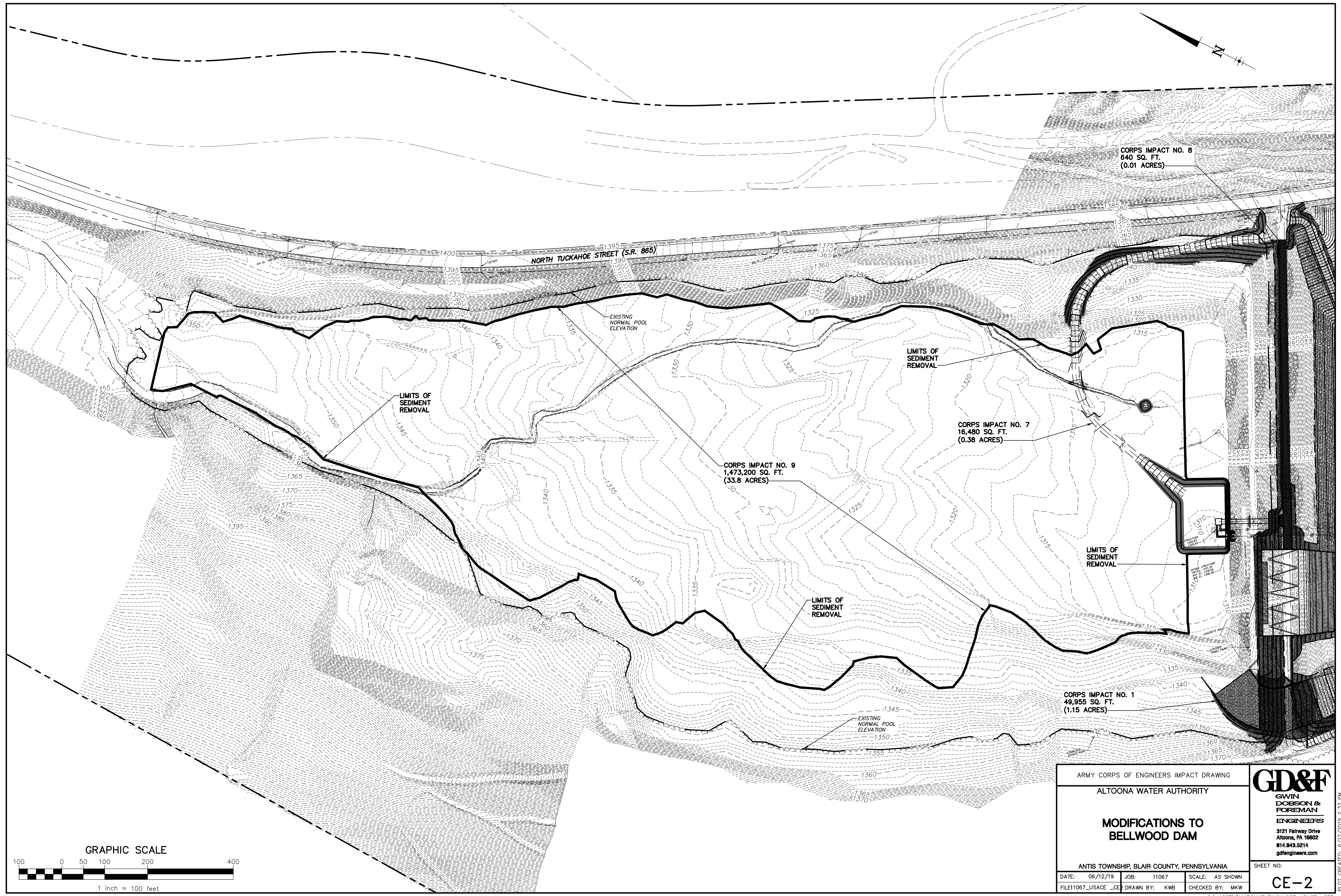
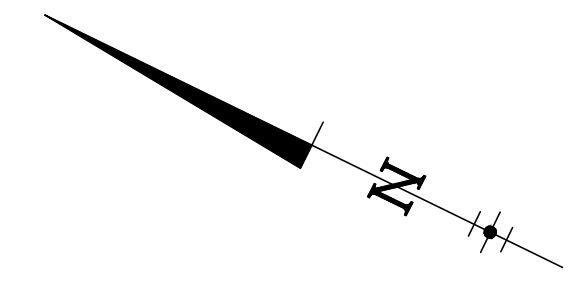
CORPS IMPACT NO. 2  
3,860 SQ. FT.  
(0.09 ACRES)

WETLAND MITIGATION SITE NO. 1  
12,374 SQ. FT. (0.28 ACRES)  
WETLAND MITIGATION AREA  
SEE MITIGATION PLAN



ARMY CORPS OF ENGINEERS IMPACT DRAWING		<b>GD&amp;F</b> GWIN DOBSON & FOREMAN ENGINEERS 3121 Fairway Drive Allentown, PA 18602 814.943.5214 gdfengineers.com
ALTOONA WATER AUTHORITY		
<b>MODIFICATIONS TO BELLWOOD DAM</b>		
ANTIS TOWNSHIP, BLAIR COUNTY, PENNSYLVANIA		
DATE: 06/12/19	JOB: 11067	SCALE: AS SHOWN
FILE: 11067_USACE_CE	DRAWN BY: KWB	CHECKED BY: MKW
SHEET NO:		<b>CE-1</b>

PLOT CREATED: 6/12/2019 2:31 PM



CORPS IMPACT NO. 8  
640 SQ. FT.  
(0.01 ACRES)

NORTH TUCKAHOE STREET (S.R. 865)

EXISTING NORMAL POOL ELEVATION

LIMITS OF SEDIMENT REMOVAL

CORPS IMPACT NO. 7  
16,480 SQ. FT.  
(0.38 ACRES)

CORPS IMPACT NO. 9  
1,473,200 SQ. FT.  
(33.8 ACRES)

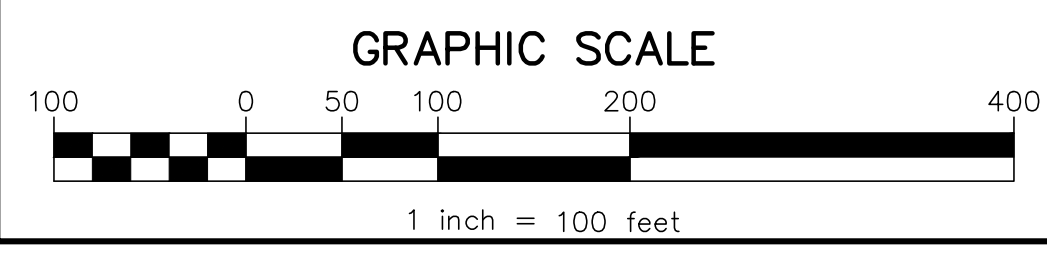
LIMITS OF SEDIMENT REMOVAL

LIMITS OF SEDIMENT REMOVAL

LIMITS OF SEDIMENT REMOVAL

CORPS IMPACT NO. 1  
49,955 SQ. FT.  
(1.15 ACRES)

EXISTING NORMAL POOL ELEVATION



ARMY CORPS OF ENGINEERS IMPACT DRAWING		<b>GD&amp;F</b> GWIN DOBSON & FOREMAN ENGINEERS 3121 Fairway Drive Altoona, PA 16602 814.943.5214 gdfengineers.com
ALTOONA WATER AUTHORITY		
<b>MODIFICATIONS TO BELLWOOD DAM</b>		
ANTIS TOWNSHIP, BLAIR COUNTY, PENNSYLVANIA		
DATE: 06/12/19	JOB: 11067	SCALE: AS SHOWN
FILE: 11067_USACE_CED	DRAWN BY: KWB	CHECKED BY: MKW
SHEET NO:		<b>CE-2</b>

**WETLAND MITIGATION GENERAL NOTES:**

1. CONTRACTOR SHALL NOT DISTURB OR OTHERWISE AFFECT ANY WETLANDS OTHER THAN THE WETLANDS INDICATED ON THIS PLAN.
2. ALL CONSTRUCTION IS TO CONFORM TO THE SPECIFICATIONS PRESENTED IN THE MITIGATION PLAN AND THE EROSION AND SEDIMENT CONTROL PLAN.
3. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED AND ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL AGENCIES WITH APPROVAL CAPACITY.
4. ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE.
5. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO PA DEP CHAPTER 102 FOR EROSION CONTROL DETAILS.
6. ALL DRAINAGE AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY CHANGES TO THE DRAINAGE OR GRADES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO WORK BEING DONE. ANY CHANGES TO THE DRAINAGE OR GRADES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO WORK BEING DONE. ANY CHANGES TO THE DRAINAGE OR GRADES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO WORK BEING DONE.
7. ALL UTILITIES ARE SHOWN FROM THE CONSTRUCTION BLUEPRINTS UNLESS OTHERWISE SPECIFICALLY NOTED.
8. CONTRACTOR SHALL REMOVE EXISTING VEGETATION WITHIN THE LIMIT OF DISTURBANCE ONLY AS NEEDED FOR CONSTRUCTION OF THE MITIGATION AREA.
9. THE MITIGATION AND WETLAND SIZE QUANTITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO CONSTRUCTION.
10. UPON THE COMPLETION OF THE CONTRACTORS ONE (1) YEAR WARRANTY/QUALITY PERIOD, THE AWA SHALL BE RESPONSIBLE FOR PERMANENTLY RESTORING THE WETLAND TO ORIGINAL OR NEAR ORIGINAL CONDITION, SUCH AS CATTLE AND PRAIRIEGRASS, IF THEY BECOME DEGRADED WITHIN THE WETLAND RESTORATION PERIOD.

**WETLAND MITIGATION CONSTRUCTION SEQUENCE**

1. WETLAND CONSTRUCTION ACTIVITIES WILL BE MONITORED BY THE ENGINEER FAMILIAR WITH WETLAND CONSTRUCTION TECHNIQUES.
2. SMALL PROJECT TREES, SHRUBS, WALK, ROCK OUTCROPPING AND OTHER FEATURES TO REMAIN AS PART OF THE FINAL LANDSCAPE.
3. IDENTIFY MITIGATION AREA BY SURVEY AND FIELD MARK WITH FLAGGING.
4. INSTALL COMPOST FILTER SOCK AND CONSTRUCTION FENCING WHERE NECESSARY BETWEEN EXCAVATION AREAS AND EXISTING WETLANDS AND/OR DRAINAGE. USE BEST MANAGEMENT PRACTICES (BMPs) FOR FILL, EROSION AND SEDIMENT CONTROL.
5. REMOVE WOODY VEGETATION AS INDICATED AND TRANSPORT AWAY FROM WORK AREA. DEBRIS OF WOODY MATERIAL AND DEBRIS AS PER APPROPRIATE FEDERAL, STATE AND LOCAL CODES. MATERIAL CAN BE CHIPPED AND/OR COMPOSTED FOR LATER USE ON SITE (ON CONSTRUCTED WETLANDS).
6. DUMP OR BURY DEBRIS AWAY FROM PROPOSED MITIGATION AREAS, WHERE POSSIBLE, TO PREVENT SOIL CONTAMINATION.
7. GRADE, ALIGNMENT AREAS ALLOWING FOR HYDROGRAPHY TO BE CREATED AND HYDROPHOBIC VEGETATION TO ESTABLISH.
8. DISK BENTONITE INTO THE EXISTING SUBSTRATE.
9. GRADE MITIGATION SITE TO DESIRED SURFACE ELEVATION(S), SHAPE AND SIZE. REMOVE SURPLUS MATERIAL FROM WORK AREAS USING BMPs FOR SOIL CONTROL.
10. ALL DISTURBED AREAS MUST BE MULCHED WITH STRAW IMMEDIATELY AFTER COMPLETION OF SUBSTRATE OR TOPSOIL.
11. DETERMINE AND VERIFY SEEDING LOCATIONS IN FIELD.
12. PLANT PROPOSED WETLAND SEED MIXTURE ACCORDING TO SPECIFICATIONS AND CONSTRUCTION DRAINAGES.
13. ALLOW ANY EXCESS WATER TO ACCESS THE MITIGATION AREA AND ALLOW FLOODING AND SATURATION TO OCCUR.
14. WATER PLANTINGS AS NEEDED ACCORDING TO SPECIFICATION DURING DRY PERIODS.
15. CONTRACTOR SHALL MAINTAIN THE NECESSARY CLEARANCE FOR THE UTILIZATION OF THE HYDRO SOIL.
16. CONTRACTOR SHALL MAINTAIN THE NECESSARY CLEARANCE FOR THE UTILIZATION OF THE HYDRO SOIL.
17. IT IS TO BE NOTED THAT ANY WETLANDS EXISTING WITHIN THE PROPOSED MITIGATION AREA ARE TO BE MAINTAINED AND NOT DISTURBED UNLESS NECESSARY TO ADJUST THE LOCATION OF THE SHALLOW CHANNELS IN THE FIELD ACCORDINGLY.

**SEEDING NOTES:**

1. SEED IS TO BE APPLIED IN BROADCAST OPERATIONS. PREPARED MIXTURES A UNIFORMED BROADCASTING AND GRADED WITH CLEAN STRAW MULCH AT A RATE OF 3 TONS/ACRE OR 40 LBS/1,000 S.F. IMMEDIATELY UPON COMPLETION OF SEEDING.
2. THE USE OF SOIL AMENDMENTS IS NOT RECOMMENDED IN WETLAND AREAS.
3. SEEDING SHALL OCCUR FROM MARCH 15 - JUNE 15, OR AUGUST 15 - OCTOBER 15. IF SEEDING CANNOT BE COMPLETED DURING THESE CONSTRUCTION PERIODS, THE DISTURBED AREAS SHALL BE STABILIZED WITH CLEAN STRAW MULCH AT A RATE OF 3 TONS/ACRE OR 40 LBS/1,000 S.F. UNTIL SUCH TIME AS SEEDING CAN OCCUR.

**PLANTING PLAN:**

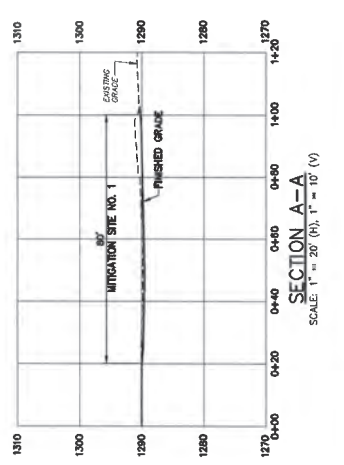
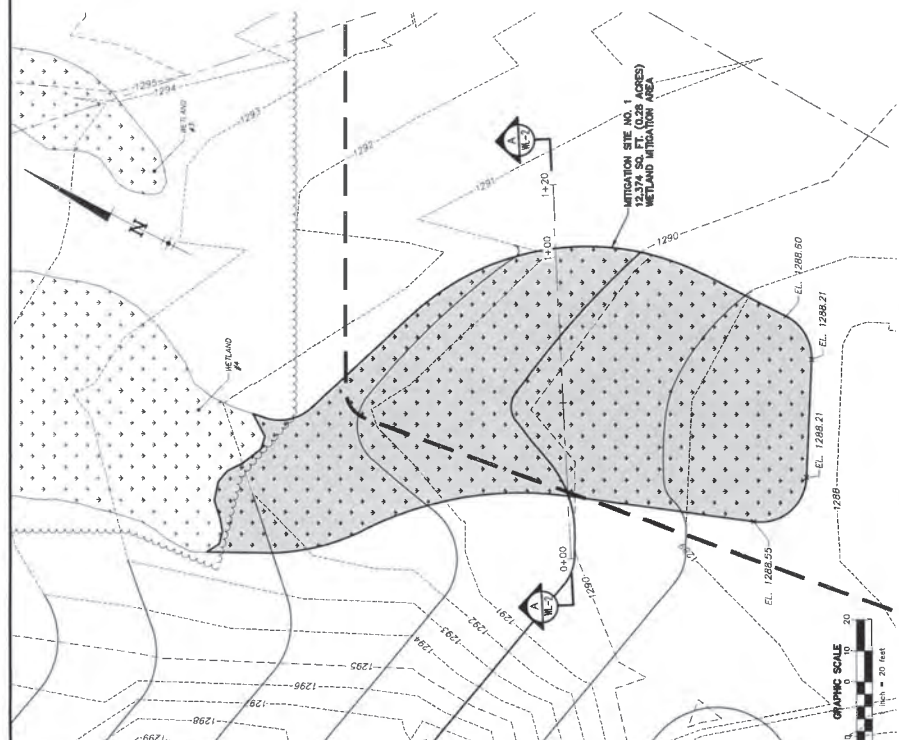
PA VALLEY & RIDGE PROVINCE FACW MK  
 ERMK-231  
 SEEDING RATE: 20 LBS/ACRE  
 MIX TYPE: WET MEADOW & WETLANDS

**MIX COMPOSITION:**

- 27.0% CAREX VULPINOIDEA, PA ECOTYPE (FOX SEDGE, PA ECOTYPE)
- 20.0% ELMIUS VIRGINICA, PA ECOTYPE (VIRGINIA WILBERT, PA ECOTYPE)
- 10.0% CAREX LUPULINA, PA ECOTYPE (HIP SEDGE, PA ECOTYPE)
- 10.0% ANCHOIS EFFRUSUS (SOFT RUSH)
- 10.0% SPARGANIUM ANTIQUUM, PA ECOTYPE (GREEN BULRUSH, PA ECOTYPE)
- 2.0% CAREX OMOHA, PA ECOTYPE (COSMOS (BRISLY) SEDGE, PA ECOTYPE)
- 2.0% ASPLETHIS INCAURVATA, PA ECOTYPE (SWAMP MILFURN, PA ECOTYPE)
- 2.0% EUPATORIUM PERULATUM, PA ECOTYPE (WILD YAM, PA ECOTYPE)
- 2.0% HELIOPSIS HELIANTHODES, PA ECOTYPE (OXEYE SUNFLOWER, PA ECOTYPE)
- 2.0% ONOCLEA SENNEDICUS (SENSITIVE FERN)
- 1.0% ASTER PRINCEPS, PA ECOTYPE (PURPLESTEM ASTER, PA ECOTYPE)
- 1.0% ASTER FLORENTINUS, PA ECOTYPE (LATTICE LEAF ASTER, PA ECOTYPE)
- 1.0% CAREX INTUSSESSUS, PA ECOTYPE (STAR SEDGE, PA ECOTYPE)
- 1.0% CAREX INTUSSESSUS, PA ECOTYPE (STAR SEDGE, PA ECOTYPE)
- 1.0% LILUM SUPERBUM, PA ECOTYPE (TURKIS CAP LILY, PA ECOTYPE)
- 1.0% LOBELIA SPHULTECA, PA ECOTYPE (GREAT BLUE LOBELIA, PA ECOTYPE)
- 1.0% MIMULUS RIMBRIS, PA ECOTYPE (SQUARE STEMMED MONKSHOOF, PA ECOTYPE)
- 1.0% POLYGONUM PENSTIVANICUM, PA ECOTYPE (PENNSYLVANIA SMARTWEEED, PA ECOTYPE)
- 1.0% PUNCTATHENUM TEMIFOLIUM (NARROWLEAF MOUNTAINBLOT)
- 1.0% SPARGANIUM ANTIQUUM (GREEN BULRUSH)
- 1.0% VERONICA NOVBORACENSIS, PA ECOTYPE (NEW YORK ROSEHEED, PA ECOTYPE)



**DIRECTIONAL WETLAND PERMANENT IMPACTS**  
 WETLAND #1  
 12,034 SQ. FT. (0.28 AC.)  
 MITIGATION WETLANDS  
 MITIGATION SITE NO. 1 12,374 SQ. FT. (0.28 AC.)



SECTION A-A  
 SCALE 1" = 20' (H), 1" = 10' (V)

**GD&F**  
 GEORGE D. GARDNER & ASSOCIATES, INC.  
 ENVIRONMENTAL ENGINEERS  
 3201 Newburg Drive  
 Allentown, PA 18103  
 610-261-8800  
 www.gdandf.com

WETLAND MITIGATION PLAN  
 ALTOONA WATER AUTHORITY

**MODIFICATIONS TO BELLWOOD DAM**

ANTIS TOWNSHIP, BLAIR COUNTY, PENNSYLVANIA

DATE: 10/19/18 JOB: 11097 SCALE: AS SHOWN SHEET NO: WL-2  
 FILE: 11097-WL-2 DRAWN BY: DML CHECKED BY: MKW

© 2018 ENVIRONMENTAL ENGINEERS, INC.