



Bureau of Abandoned Mine Reclamation

Planning and Implementation of the 2019 AML Pilot Program in Pennsylvania

Tom Wolf, Governor

Patrick McDonnell, Secretary

AML Pilot Program Background

- The 2019 AML Pilot Program was authorized by Congress under the Consolidated Appropriations Act, 2019 (Public Law 116-6 signed into law by President Trump on February 15, 2019) and provides an additional \$25 million of US Treasury Funds to Pennsylvania's (PA's) Abandoned Mine Land (AML) Program.
- The funds are to be used “to accelerate the remediation of AML sites with economic and community development end uses.”

Continuation of the AML Pilot Program

- This is the fourth year that Pennsylvania has received funding from the AML Pilot Program
- For FY2019 Pennsylvania along with Kentucky and West Virginia, each received \$25 million of AML Pilot Funding; Ohio, Alabama, and Virginia each received \$10 million; and the Hopi, Navajo, and Crow Indian Tribes each received \$3.33 million

Continuation of the AML Pilot Program

- In both FY2017 and FY 2018, Pennsylvania received \$25 million of AML Pilot Funding
- In FY2016 Pennsylvania received \$30 million of AML Pilot Funding
- More details about the AML Pilot Program in PA and AML Pilot Projects undertaken in previous years can be found on the PA DEP's website at: dep.pa.gov/AML-Pilot

Language from OSMRE Guidance for the 2019 AML Pilot Program

“State/Tribal AML Programs, in consultation with State/Tribal, local economic and community development authorities, must develop eligible projects that demonstrate a nexus with AML land and water reclamation, and economic and community development”

Language from OSMRE Guidance for the 2019 AML Pilot Program

- “The AML Pilot Program offers a non-traditional approach to the reclamation of impacted mine lands. A uniform approach is not expected in every State/Tribe”
- “The AML Pilot offers States, Tribes, and local communities flexibility in deciding which projects offer the greatest opportunities within their communities”

Use of AML Pilot Program Funds

- States, Tribes, and local communities have the flexibility to use AML Pilot funds for both the reclamation of impacted lands and waters and brick and mortar needs related to the end-use development project
- The Pilot Program offers maximum flexibility in this regard, letting States, Tribes, and local communities balance the needs of an individual project with the ability to fund other priority Pilot projects

AML Pilot Project Selection Procedure

- “Guidance for Project Eligibility under the Abandoned Mine Reclamation Economic Development Pilot Program for Fiscal Year 2019” was released by OSMRE on October 23, 2019
- The Bureau of Abandoned Mine Reclamation (BAMR) solicited proposals between November 1, 2019 and January 31, 2020 for potential AML Pilot Program projects from the general public including business and industry; watershed groups and other NGOs; county conservation districts; other state agencies; non-profits; and others.

▶ AML Pilot Project Selection Procedure

- The solicitation announcement, project proposal form and OSM's AML Pilot Program Guidelines for Project Eligibility were all posted on DEP's website and also broadly distributed through email and other means
- Twenty (20) proposals were received requesting over \$44 million in funding

▶ AML Pilot Project Selection Procedure

- It was later determined that one of those proposals was ineligible for funding because the proposal was for a SMCRA Title V actively permitted site which is specifically excluded under the program guidelines
- A review team consisting of staff from DEP and OSMRE reviewed, evaluated and ranked the proposals in accordance with the 2019 AML Pilot Program Guidelines

AML Pilot Project Selection Procedure

- The review team concluded their efforts on March 16, 2020 recommending funding of ten (10) new projects, all or in-part, from the \$25 million authorized to Pennsylvania through the 2019 AML Pilot Program
- Six (6) contingent projects were also identified should any of the primary projects experience issues or delays
- From the proposals PA targeted a wide variety of project types with a variety of possible economic or community development benefits and partners

AML Pilot Project Selection Procedure

- In addition to the ten (10) proposed projects, BAMR also recommended to supplement the funding of three (3) previously approved AML Pilot projects that involve the construction of large-scale acid mine drainage (AMD) treatment plants
- These include the Gladden AMD Treatment Plant, the Quakake AMD Treatment Plant, and the Tioga/Morris Run AMD Treatment Plant
- This was recommended to reduce the impact on the Department's AMD Set-Aside fund

AML Pilot Project Selection Procedure

Due to unresolved issues related to complying with both federal and state regulations and requirements governing these types of federal grant funds including 2CFR200 – the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards; PA’s Management Directive on Grant Administration; and PA’s Procurement Code, the DEP decided to forego awarding AML Pilot funds through grants until the issues are fully resolved

AML Pilot Project Selection Procedure

In order to timely commit the 2019 AML Pilot grant funding, the Department decided on August 20, 2020, to move forward with projects that meet the federal Office of Surface Mining Reclamation and Enforcement's project eligibility guidelines and which could be directly bid out by the Department

AML Pilot Project Selection Procedure

- An alternate project plan was developed which included 11 proposed AML Pilot projects
- The plan included four of the originally proposed projects and four of the contingent projects that could be bid out by the Department
- The supplemental funding for the three large-scale AMD Treatment Facilities was also included

AML Pilot Program Proposed Projects

- Vetting documents were submitted to OSMRE for all 11 of the proposed 2019 AML Pilot Projects by September 28, 2020
- OSMRE reviewed the proposed projects and provided feedback along with requests for additional information for a few of the projects during September and early October of 2020
- OSMRE indicated that the list had been fully vetted and approved on November 5, 2020

AML Pilot Grant Application Timeline

- PA submitted its 2019 AML Economic & Community Development Pilot Program Grant Application to OSMRE on July 7, 2020 (to make the funding available for projects)
- PA's AML Pilot Program Grant Application was approved by OSMRE on September 18, 2020, with a Period of Performance of October 1, 2020, to September 30, 2023

PA's Plan for the AML Pilot Funding

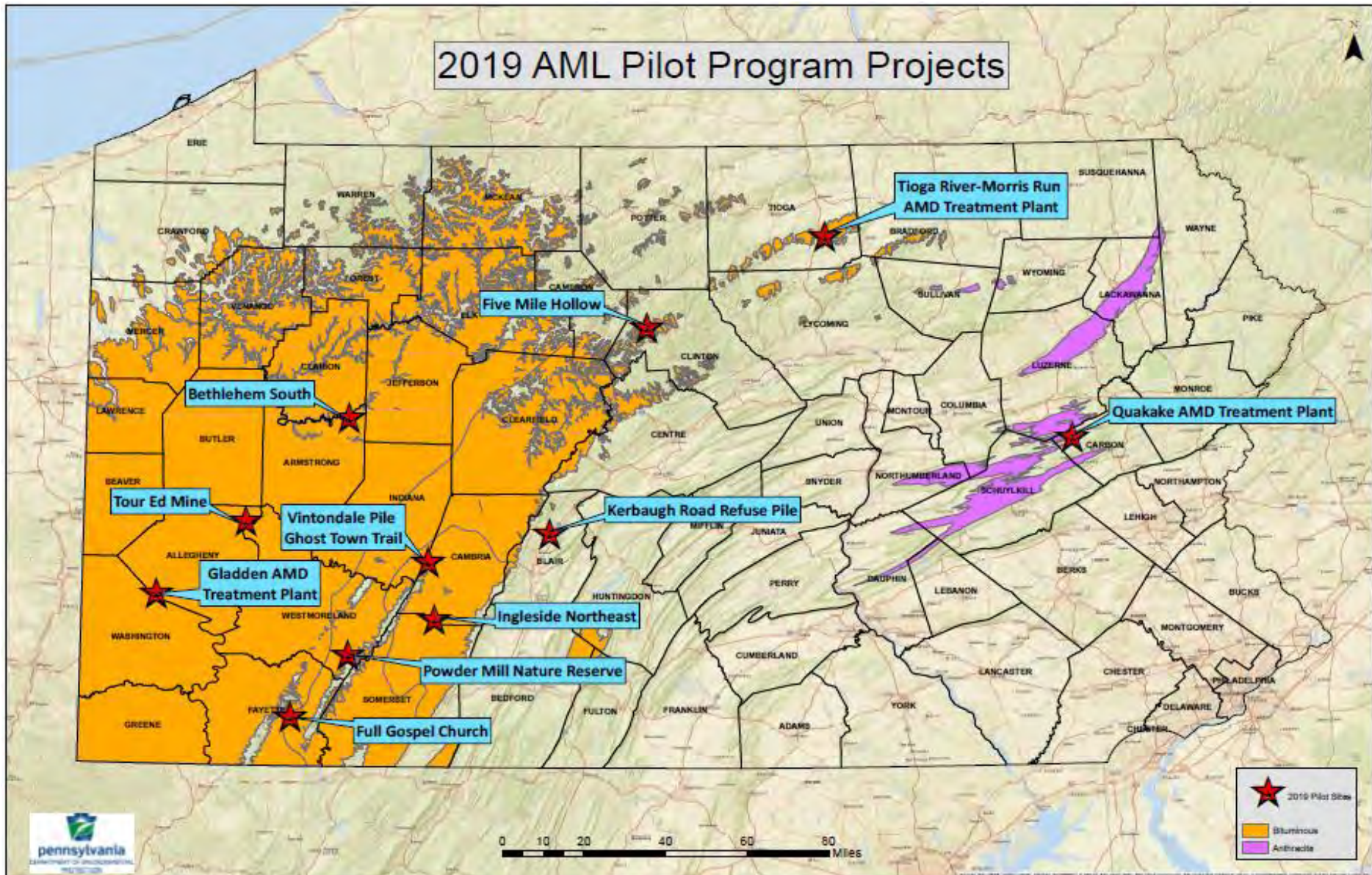
- As in the first three years of the AML Pilot Program, PADEP-BAMR will allocate the majority of the AML Pilot Program funds for the reclamation of SMCRA Title IV eligible AML and AMD problems
- Project partners will then work to fund and complete non-AML economic development aspects of the projects

AML Pilot Project Types

The 11 AML Pilot Projects being funded include:

- Four (4) AMD Treatment Stream Restoration Projects
- Five (5) Surface Mine Reclamation Projects with Industrial, Agricultural, or Recreational Benefits
- Two (2) Coal Refuse Pile Reclamation Projects with Recreational Benefits

2019 AML Pilot Projects Location Map



Significant Benefits

In addition to eliminating a number high-priority AML/AMD features, benefits of the projects include:

- Placement of AML and AMD educational signage along construction of walking trails
- Construction of multi-use recreational trails and greenspace, and rain gardens
- Construction of recreational trail head, parking area, kayak launch, and greenspace area
- AML reclamation to ensure safe ingress and egress of mine museum to continue and increase education opportunities and tourism

Significant Benefits

- Construction of multi-use recreational trails and the repurpose of reclaimed AML areas as agricultural farmland
- Repurposing of reclaimed AML areas for residential development
- Reforestation and restoration of public lands and construction of recreational trails
- Reforestation and restoration of public lands and increase access to public areas

Pennsylvania's 2019 AML Pilot Projects

No.	Project Name	County	Municipality	AML Pilot Funding
1	Tour Ed Mine	Allegheny	Fawn Township	\$527,000
2	Bethlehem South	Armstrong	Redbank Township	\$1,225,000
3	Kerbaugh Road Refuse Pile	Blair	Antis Township	\$1,000,000
4	Vintondale Pile Ghost Town Trail	Cambria	Vintondale Borough	\$487,638
5	Ingleside Northeast (Residential Redevelopment)	Cambria	Richland Township	\$1,200,000
6	Five Mile Hollow (Sproul State Forest)	Clinton	Leidy Township	\$6,443,000

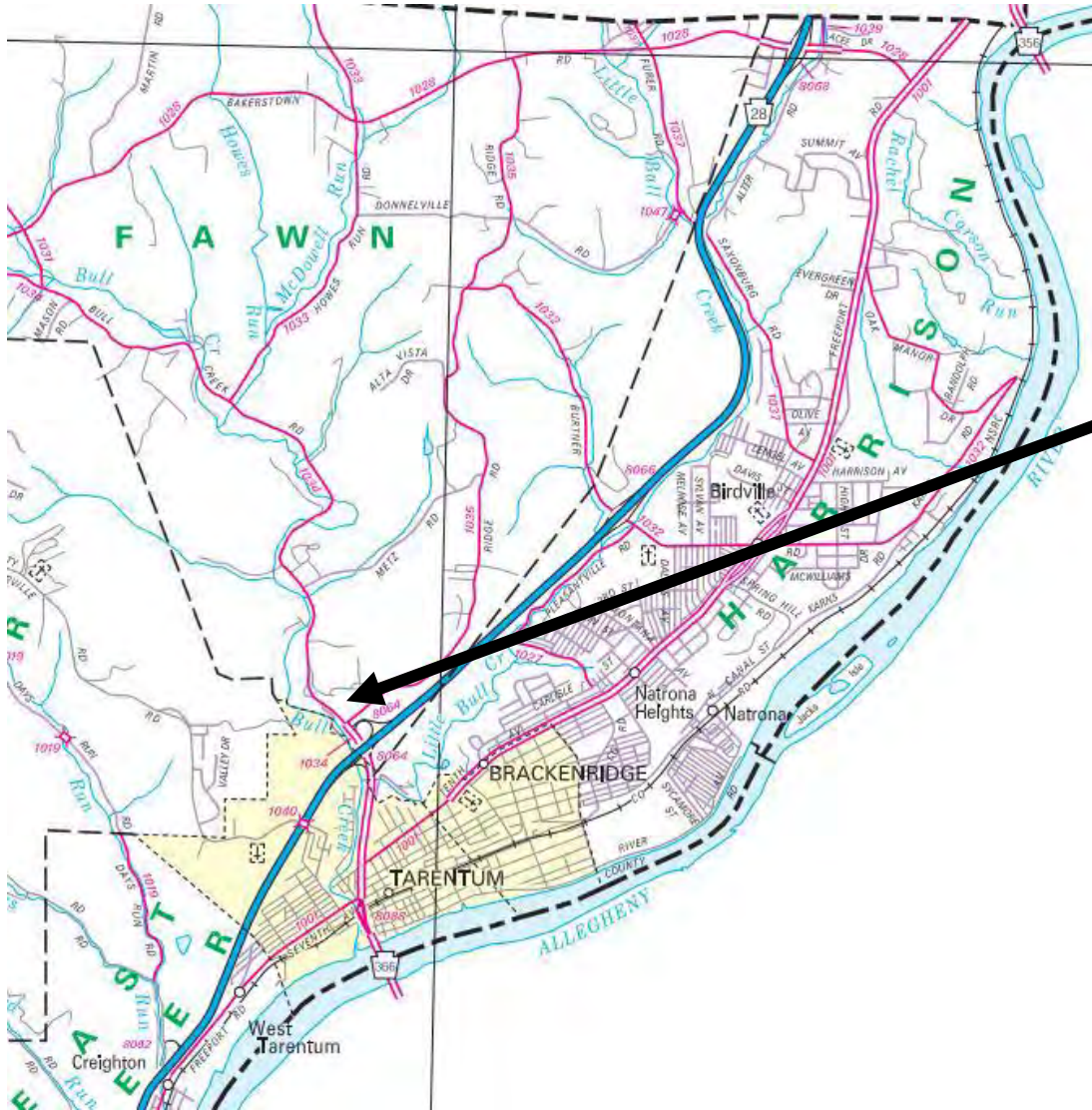
Pennsylvania's 2019 AML Pilot Projects

No.	Project Name	County	Municipality	AML Pilot Funding
7	Full Gospel Church (Ohiopyle State Park)	Fayette	Stewart Township	\$500,000
8	Powdermill Nature Reserve	Westmoreland	Cook Township	\$1,682,078
9	Gladden AMD Treatment Plant (Approved 2017 AML Pilot Project)	Allegheny	South Fayette Township	\$3,000,000
10	Quakake AMD Treatment Plant (Approved 2017 AML Pilot Project)	Carbon	Packer Township and Weatherly Borough	\$4,900,000
11	Tioga River - Morris Run AMD Treatment Plant (Approved 2018 AML Pilot Project)	Tioga	Hamilton Township	\$3,959,683

Tour Ed Mine

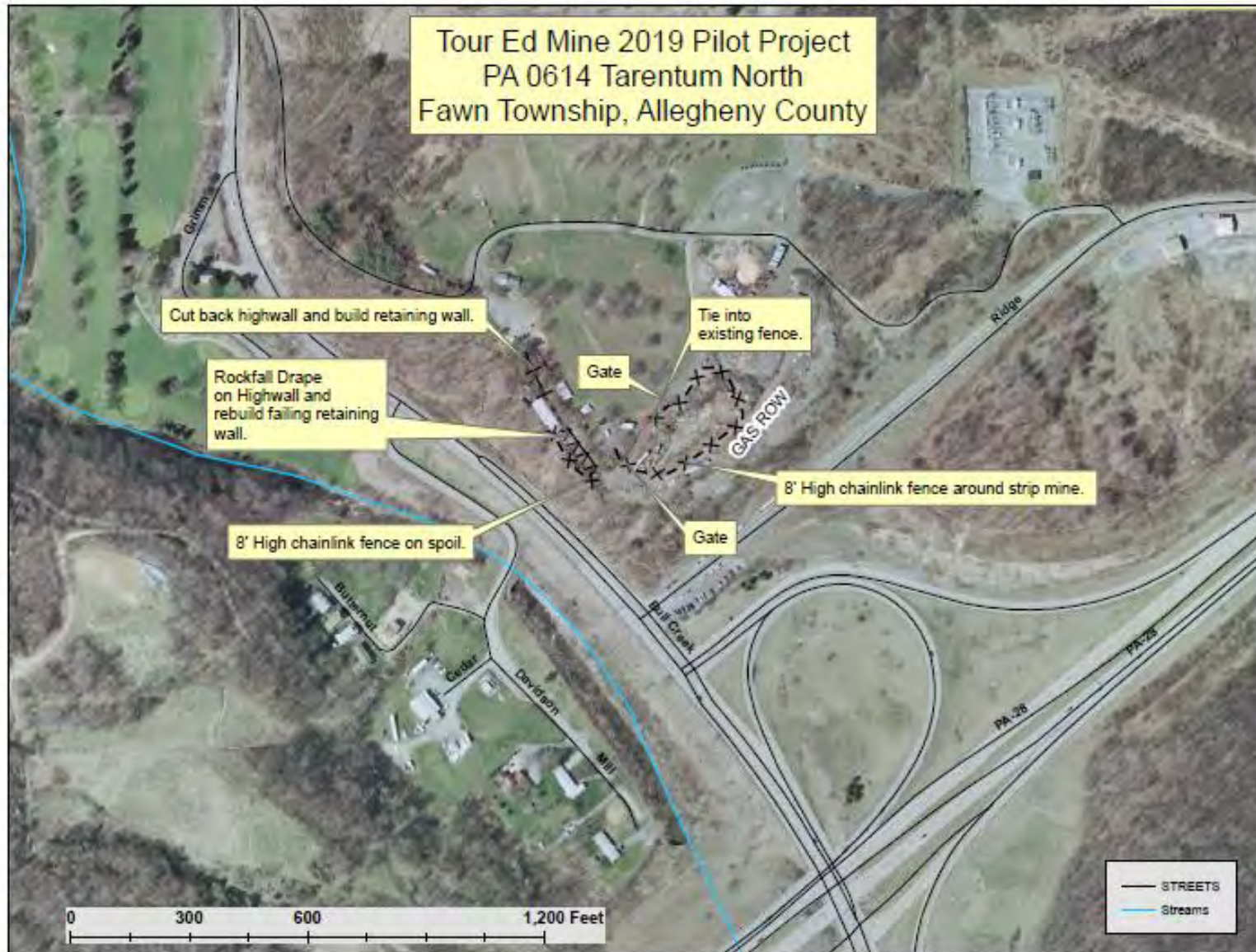
- Reclaim an abandoned, 400-foot Priority 2 Dangerous Highwall (DH), with heights up to 25 feet and a face-up area including a collapsed mine entry, located at one of the few bituminous region mines open for public viewing and education.
- Protect the public from the hazards of the DH while preserving and enhancing the education value of the site which qualifies this project as a Category A Project through the AML Pilot Program. Reclamation will improve safety for 9,000+ annual visitors.
- Work at the site will include clearing and grubbing, installing fencing around a strip mine, excavating the DH, installing and repairing retaining walls, installing a rockfall drape, and fencing off a spoil slope.

Tour Ed Mine



Tour Ed Mine
Fawn Township
Allegheny County

Tour Ed Mine



Tour Ed Mine

Tour Ed Mine

2019 Pilot Project

Legend



Google Earth

100 ft

Tour Ed Mine

Visitors walk past this dangerous highwall and face up area to access the mine and museum.



12:54 11-06-2019

Lat: 40.616675° N Lon: 79.760001° W

Tour Ed Mine

Leaning retaining wall to be re-built,
next to mine entrance.



13:30 11-06-2019

Lat: 40.616373° N Lon: 79.759807° W

Tour Ed Mine

Dangerous highwall
east of entrance.



13:28 11-06-2019

Lat: 40.616313° N Lon: 79.759743° W

Project Cost and Funding Sources

- Estimated Cost: \$527,000
- AML Pilot Funding: \$387,000
- Regular AML Funding: \$140,000

AML/AMD Measurables

- 400 feet of Dangerous Highwall
- Fencing off a 1-acre surface mine
- Stabilization of face up area and old deep mine entry

Economic Development Measurables

- Increase in visitors
- Ability to fund other work at facility
- Expanded employment opportunities
- Expanded educational programming
- Continued access for academic research

Project Partners

- Tour Ed Mine and Museum
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

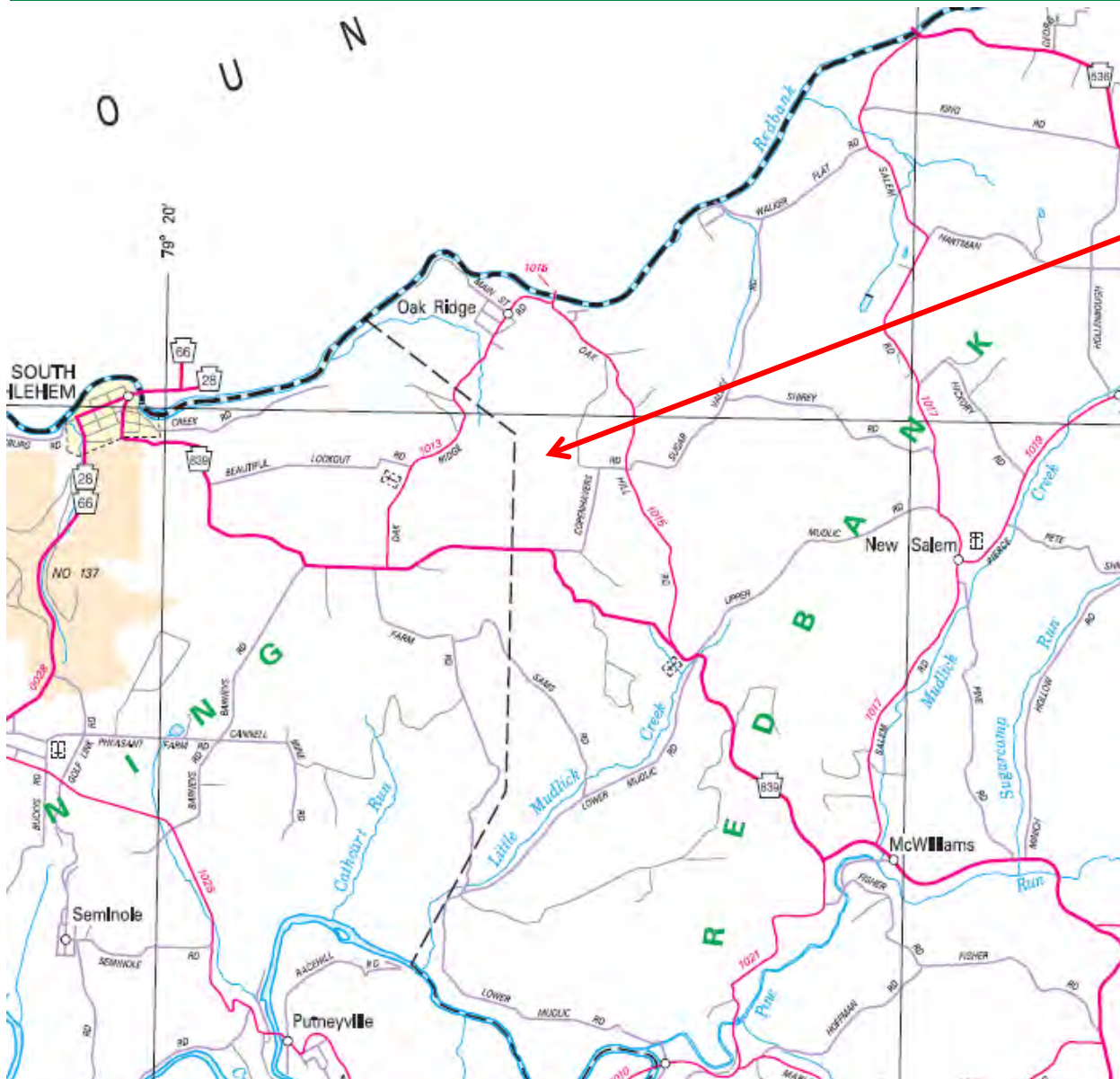
Bethlehem South

Through this project, 11,100 linear feet of dangerous highwall (DH) will be eliminated by backfilling it with 59 acres of associated spoil area. The four DHs have severely eroded rock faces and average 40-50 feet in height. A DEP-approved alkaline addition will be added during backfill to neutralize soil acidity and improve the Redbank Creek Watershed. The DHs will be graded by maximizing the amount of land at the top of the DHs for the expansion of existing crop fields. Construction site access roads will be converted to multi-use trails for hiking, biking, and off-road golf carting, which will be used by guests staying at the Brick House Bed and Breakfast (B & B).

Bethlehem South

Post reclamation, increased tourism is expected in addition to the economic benefits through future use of the agricultural fields. Also after reclamation, the owner of the B & B plans to develop the property with additional trails and a structural overlook to serve the guests.

Bethlehem South



OSM 03(3372)101.1
Bethlehem South
Redbank Township
Armstrong County

Bethlehem South



Bethlehem South



Bethlehem South



Bethlehem South



Project Cost and Funding Sources

- Estimated Cost: \$1,475,000
- AML Pilot Funding: \$1,225,000
- Other Known Funding: \$250,000
(Redbank Creek Watershed Trust)

AML/AMD Measurables

- 11,100 Feet Dangerous Highwall
- 59 Acres Spoil Area
- Alkaline addition to neutralize soil acidity and improve Redbank Creek Watershed

Bethlehem South

Economic Development Measurables

- 50 acres of agricultural field for corn production
 - corn used as feed for both beef cattle (sold to JBS Beef Plant – Souderton, PA) and dairy cattle (milk sold to Turner's – Pittsburgh, PA)
 - remaining corn used for ethanol production (Pennsylvania Grain Processing – Clearfield, PA)
- 3,000 feet of multi-use trail
- Increase in tourism and recreation
- The Brick House B&B plans to develop property with additional trails & structural overlook

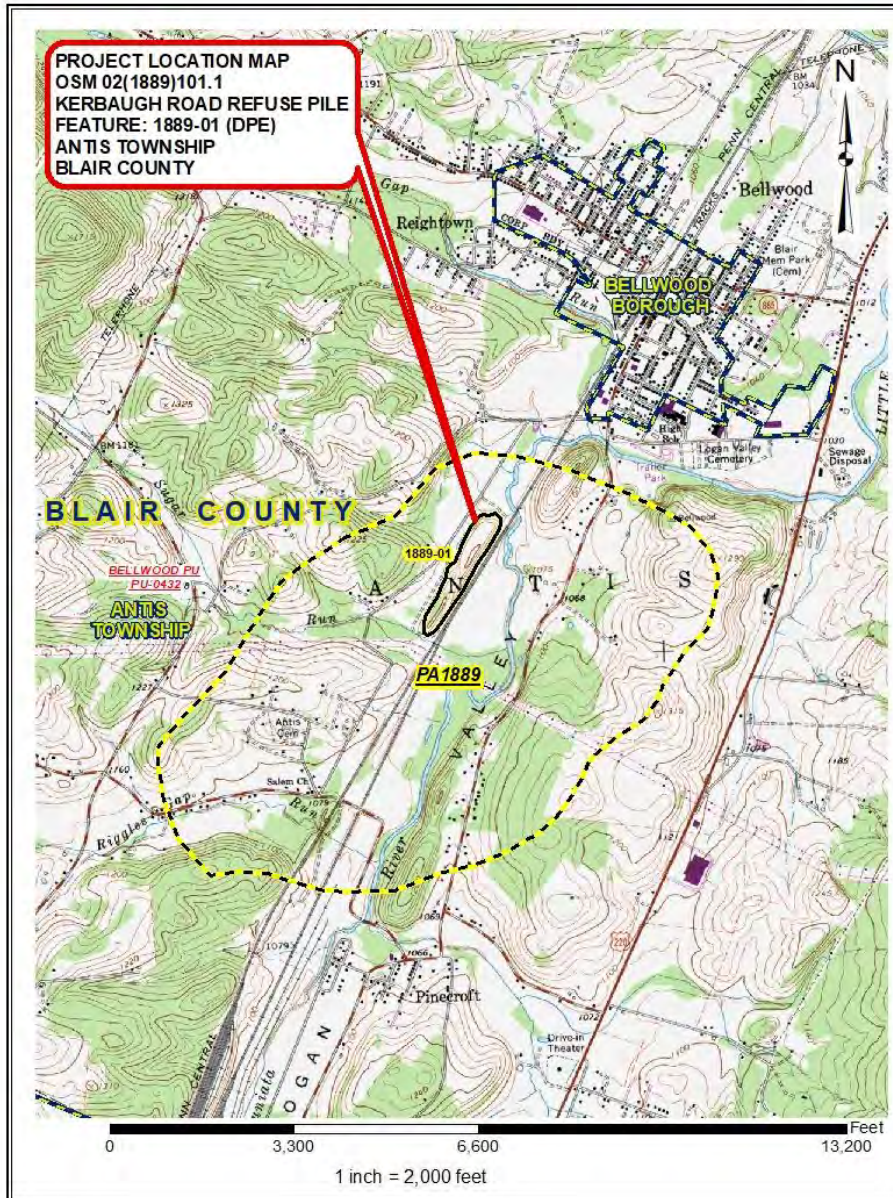
Project Partners

- Redbank Creek Watershed Trust
- The Brick House Bed & Breakfast
- Office of Surface Mining Reclamation and Enforcement
- PA Department of Environmental Protection

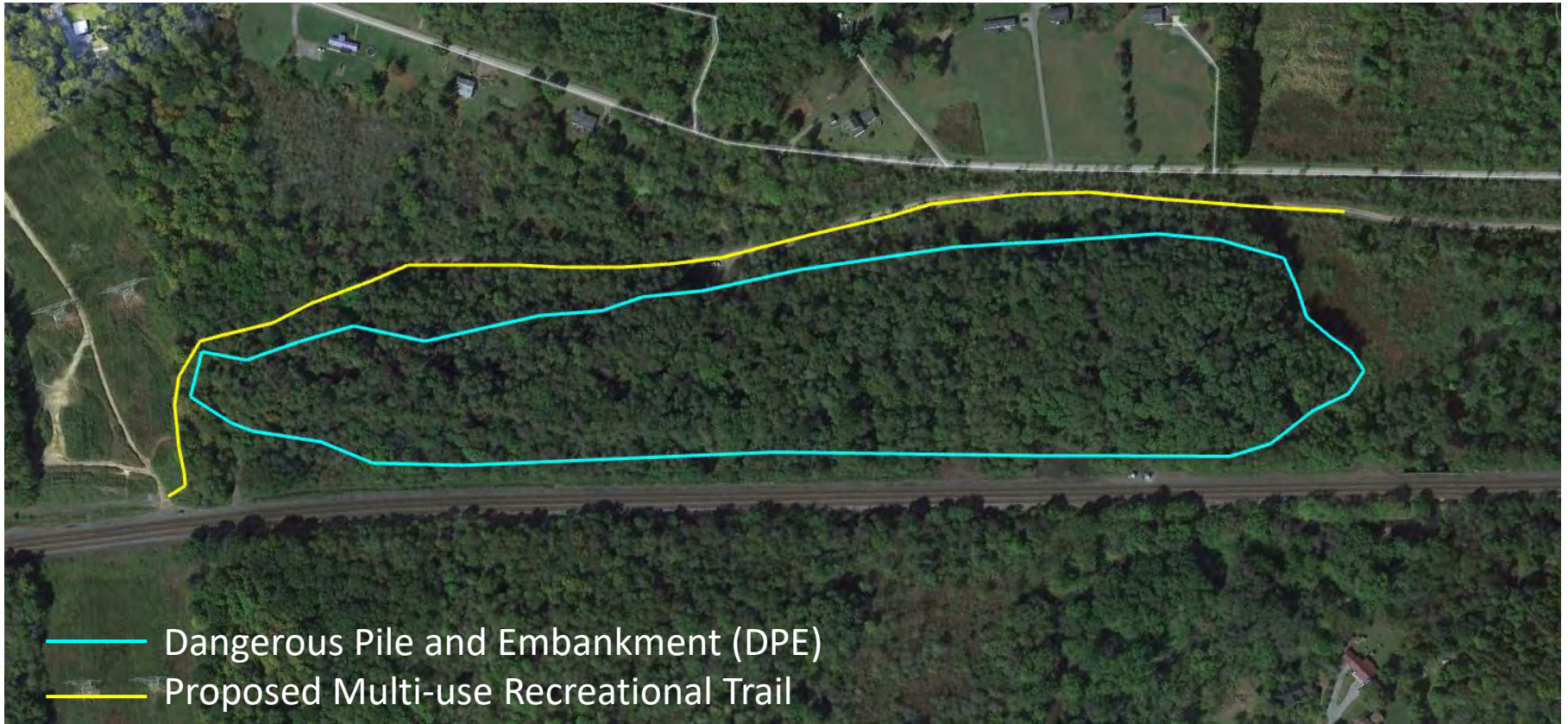
Kerbaugh Road Refuse Pile

The AML Pilot Funding will be used to reclaim the Kerbaugh Road Refuse Pile (22 acres); to construct 1.6 miles of multi-use recreational trails; to develop 5 acres of greenspace; to develop stormwater retention areas; and to construct rain gardens on the property. Through the project 22 acres of acidic mine refuse, left onsite from previous mining activity, will be abated. Completion of this project will enable Antis Township to continue to promote and expand use of the site.

Kerbaugh Road Refuse Pile



Kerbaugh Road Refuse Pile



Kerbaugh Road Refuse Pile



Kerbaugh Road Refuse Pile



Kerbaugh Road Refuse Pile



Kerbaugh Road Refuse Pile

Project Cost and Funding Sources

- Estimated Cost: \$2,904,595
- AML Pilot Funding: \$1,000,000
- Other Known Funding: \$1,904,595

Kerbaugh Road Refuse Pile

AML/AMD Measurables

- 22 acres Dangerous Pile and Embankment - Consisting of approximately 800,000 tons of refuse material

Kerbaugh Road Refuse Pile

Economic Development Measurables

- 1.6 miles – Multi-use recreational trail
- 5 Acres – Multi-use recreational greenspace
- Stormwater retention areas and rain gardens - Aid in meeting county MS4 requirements

Kerbaugh Road Refuse Pile

Project Partners

- Antis Township
- Blair County Conservation District
- Altoona-Blair County Development Corporation
- Allegheny Ridge Corporation
- Progress Funds Trail Town Program
- Interfaith Power and Light
- Central Blair Recreation Commission
- Pennsylvania Department of Conservation of Natural Resources (DCNR)
- Pennsylvania Department of Transportation (PennDOT)
- Department of Community and Economic Development (DCED)
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

Vintondale Refuse Pile Reclamation

The Vintondale Refuse Pile Reclamation Project will be funded through the AML Pilot Program to reclaim 11 acres of acidic mine refuse that is adjacent to South Branch Blacklick Creek. Nearly 70%, or 215,000 tons, of the approximate 310,000 of coal refuse will be removed from the site to prepare for 900 linear feet of trailhead and community greenspace with a gravel parking lot.

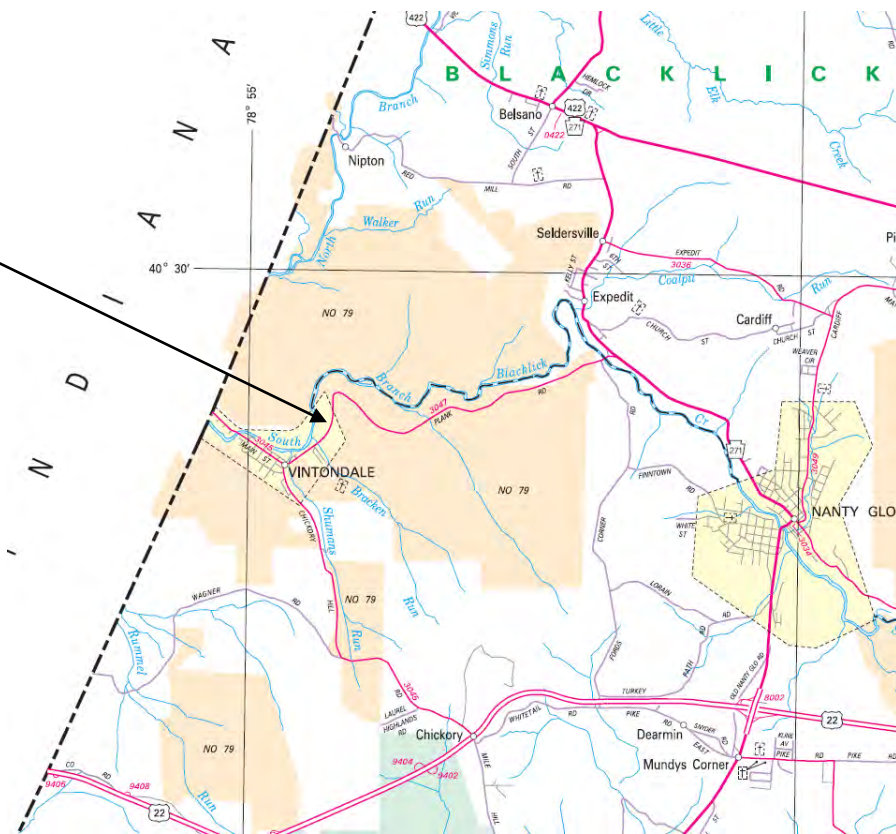
Vintondale Refuse Pile Reclamation

Removal of the refuse will lead to improvement of approximately 22 stream miles which will enable Vintondale Borough to provide opportunity for fishing as well as recreational use by improving the ground surface and building a boat/kayak launch, parking area and a recreational trail spur with public facilities for trail users such as restrooms, pavilion, and picnic area.

Vintondale Refuse Pile Reclamation

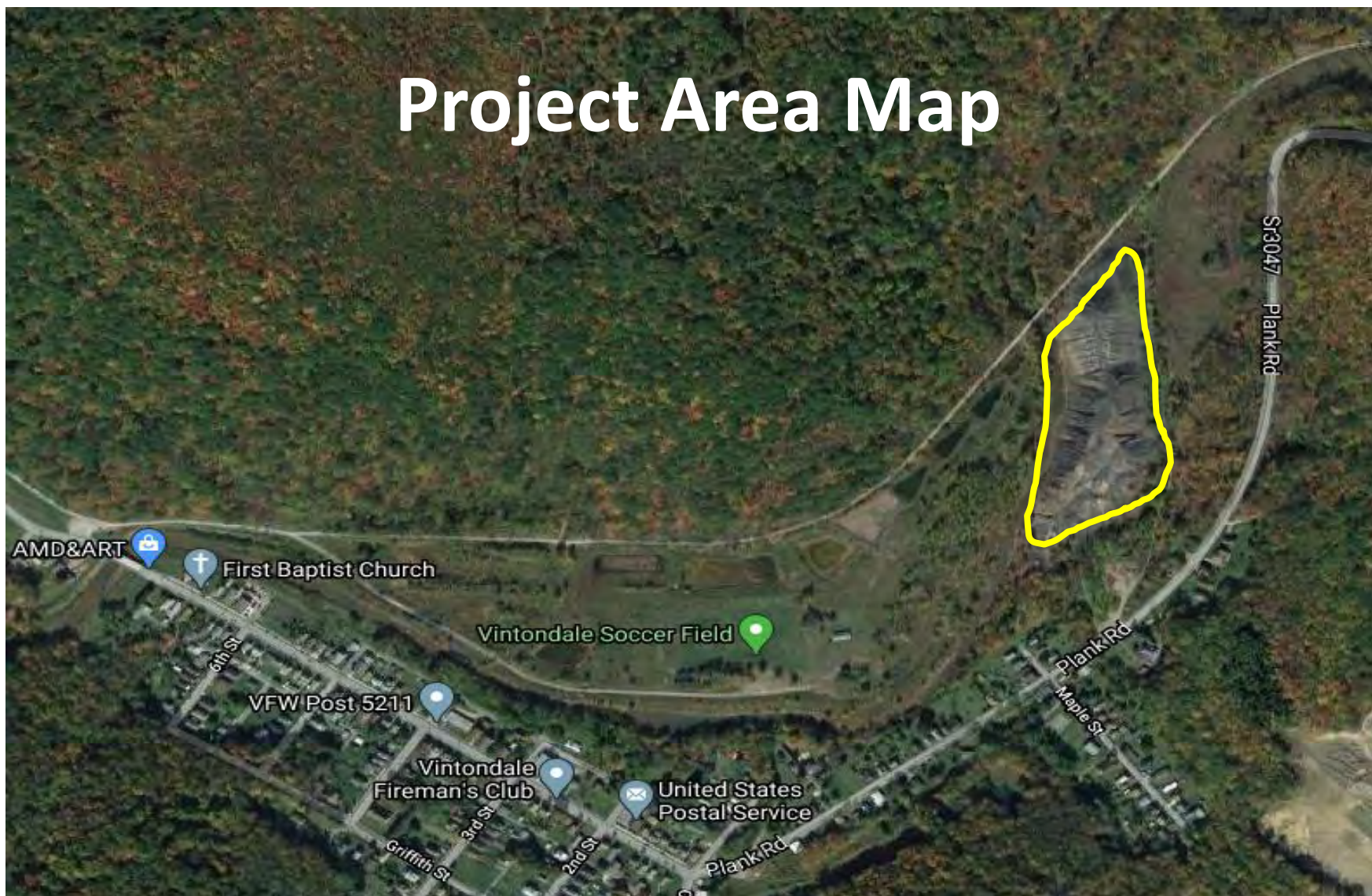
Project Location Map

Refuse
Pile



Vintondale Refuse Pile Reclamation

Project Area Map



Vintondale Refuse Pile Reclamation

Project Pictures



Vintondale Refuse Pile Reclamation



Vintondale Refuse Pile Reclamation



Project Cost and Funding Sources

- Estimated Cost: \$1,564,763
- AML Pilot Funding: \$487,638
- Other Known Funding: \$1,077,125 (In-Kind Match)

AML/AMD Measurables

- 11 acres Dangerous Pile and Embankment to be reclaimed as greenspace
- 22 stream miles to be restored

Vintondale Refuse Pile Reclamation

Economic Development Measurables

- 900 Linear Feet of trailhead
- 8,250 Square Foot, 25 vehicle capacity, gravel Parking Area
- Greenspace portions of the reclaimed refuse pile area are to be repurposed as public facilities (i.e. restrooms, pavilion and/or picnic areas) to support the adjacent Ghost Town Recreational Trail

Vintondale Refuse Pile Reclamation

Project Partners

- Blacklick Creek Watershed Association
- Indiana County Conservation District
- Cambria County Conservation & Recreation Authority
- Vintondale Borough
- Robindale Energy Services
- Landowner of the AML site
- Cambria County Board of Commissioners

Vintondale Refuse Pile Reclamation

Project Partners (continued)

- Indiana County Board of Commissioners
- Indiana County Parks and Trails
- Cambria County Chamber of Commerce
- Visit Johnstown (Cambria County Tourist Agency)
- Evergreen Conservancy
- Conemaugh Valley Conservancy
- Pennsylvania Department of Environmental Protection
- Office of Surface Mining Reclamation and Enforcement

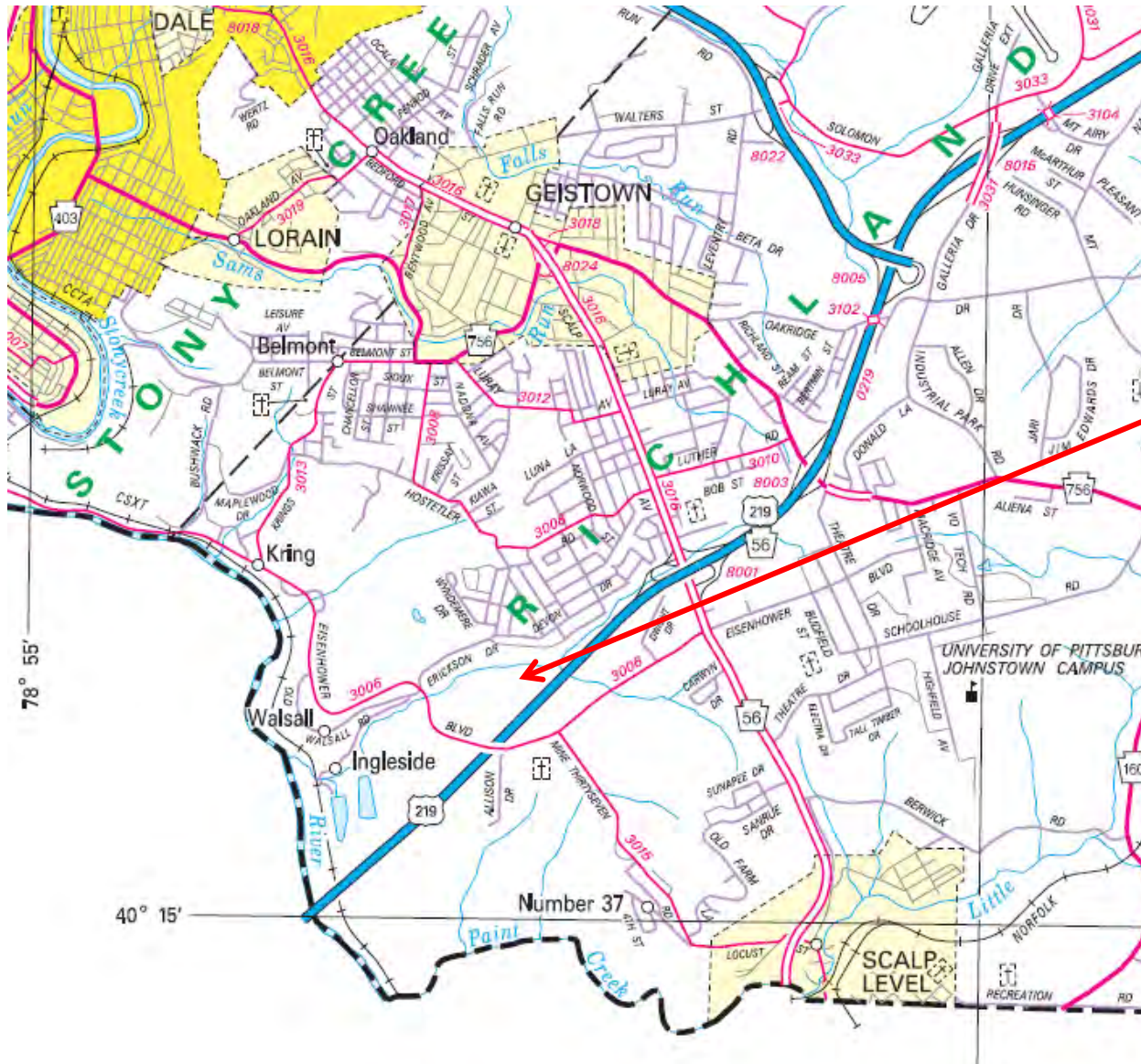
Ingleside Northeast

Through this project, 5,900 linear feet of dangerous highwall (DH) will be eliminated by backfilling it with 30 acres of associated spoil area. The four DHs average 30-40 feet in height and have rock face sections that are severely eroding. The approximate 70-acre parcel owned by East Hills Development Company, Inc. (Company) will be graded and compacted to be suitable for building upon. The grading plan would optimize the space available for building footprints. The construction access road used during reclamation activities would remain in place to be used as a future residential development entrance.

Ingleside Northeast

The Company is interested in developing the property for manufactured homes or a residential subdivision. Utility mains could be installed along the primary access road leading to the site to prepare for this type of residential development. Other redevelopment of the site could be recreational and potentially serve the surrounding area with a public park, hiking/biking trails, or another type of public facility.

Ingleside Northeast



OSM 11(2713)102.1
Ingleside Northeast
Richland Township
Cambria County

Ingleside Northeast



Ingleside Northeast



Ingleside Northeast



Ingleside Northeast



Project Cost and Funding Sources

- Estimated Cost: \$2,100,000
- AML Pilot Funding: \$2,100,000

Ingleside Northeast

AML/AMD Measurables

- 5,900 Feet Dangerous Highwall
- 30 Acres Spoil Area

Economic Development Measurables

- 70-acre parcel compacted and suitable for residential development
- 1,500 feet of construction access road ready to be converted for future residential development entrance

Project Partners

- Richland Township Supervisors
- Cambria County Commissioners
- East Hills Development Company, Inc.
- Office of Surface Mining Reclamation and Enforcement
- PA Department of Environmental Protection

Five Mile Hollow

Project Description

- The Five Mile Hollow Project, OSM 18(1124,6673) 101.1, will address approximately 18,000 feet of P2 Dangerous Highwall in Leidy Township, Clinton County as a Category A AML Pilot project.
- In total 100 acres of State Forest property will be reclaimed.

Five Mile Hollow

Project Description

- The site is located on public land, Pennsylvania State Forest property, that is designated for off-road recreational vehicle use. Approximately 16,000 linear feet of trail will be built/improved.
- The State Forest ATV Trail system and other public outdoor recreational opportunities present on and adjacent to this site are a significant economic benefit to the local community.

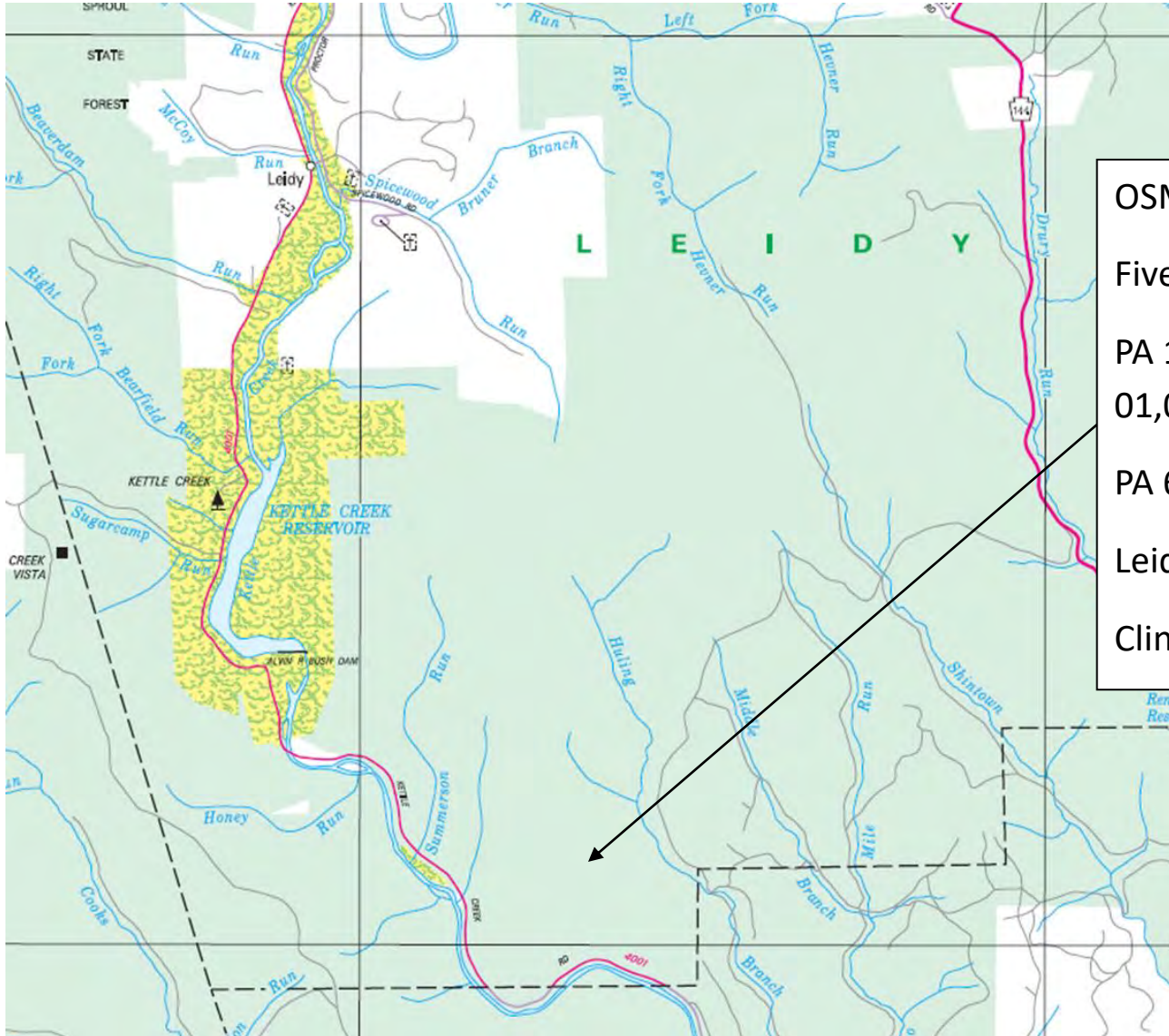
Project Description

- A mine drainage source remediation plan aimed at reducing acid mine drainage pollution originating from the site, and the subsequent stream degradation of the Huling Branch of Two Mile Run, Two Mile Run and Kettle Creek will be implemented as part of the project.
- Source remediation will consist of the addition of alkaline materials blended into the backfill; selective handling of acid forming spoil materials; the installation of subsurface drainage controls to capture groundwater and help isolate acid forming materials; and the removal of any buried coal refuse or remaining crop line coal which may be degrading groundwater associated with the site.

Project Description

- The Five Mile Hollow Project is contiguous to PA DEP BAMR's Huling Branch Reclamation Project, OSM 18(6672) 201.1, which received OSMRE's National Abandoned Mine Reclamation Award in 2017 for its exemplary approach that addressed a variety of AML problems. The Huling Branch East, OSM 18(1123,6679)101.1, 2017 AML Pilot project is also adjacent to the Five Mile Hollow Project.
- The Five Mile hollow project will build upon and further enhance the environmental and economic impacts of the previous Huling Branch Projects.

OSM 18(1124,6673) 101.1 Five Mile Hollow



Project Location Map

OSM 18(1124,6673)101.1

Five Mile Hollow

PA 1124 Features:

01,02,03,04,05,06,08,11

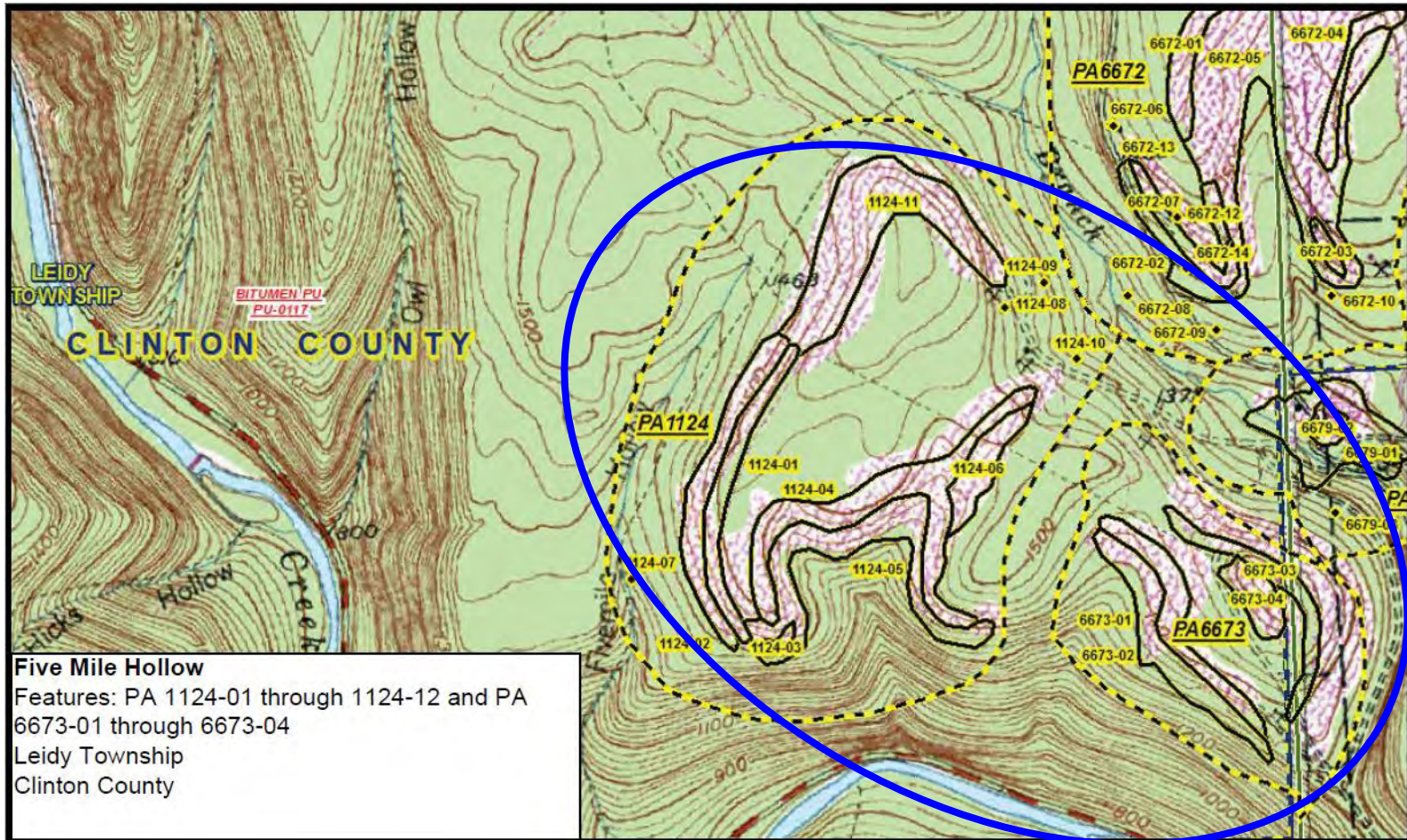
PA 6673 Features: 01,02,03,04

Leidy Township

Clinton County

OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Area Map



OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Pictures



OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Pictures – PA 1124 (DHs and SAs)



OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Pictures



OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Pictures – PA 6673 (DHs and SAs)

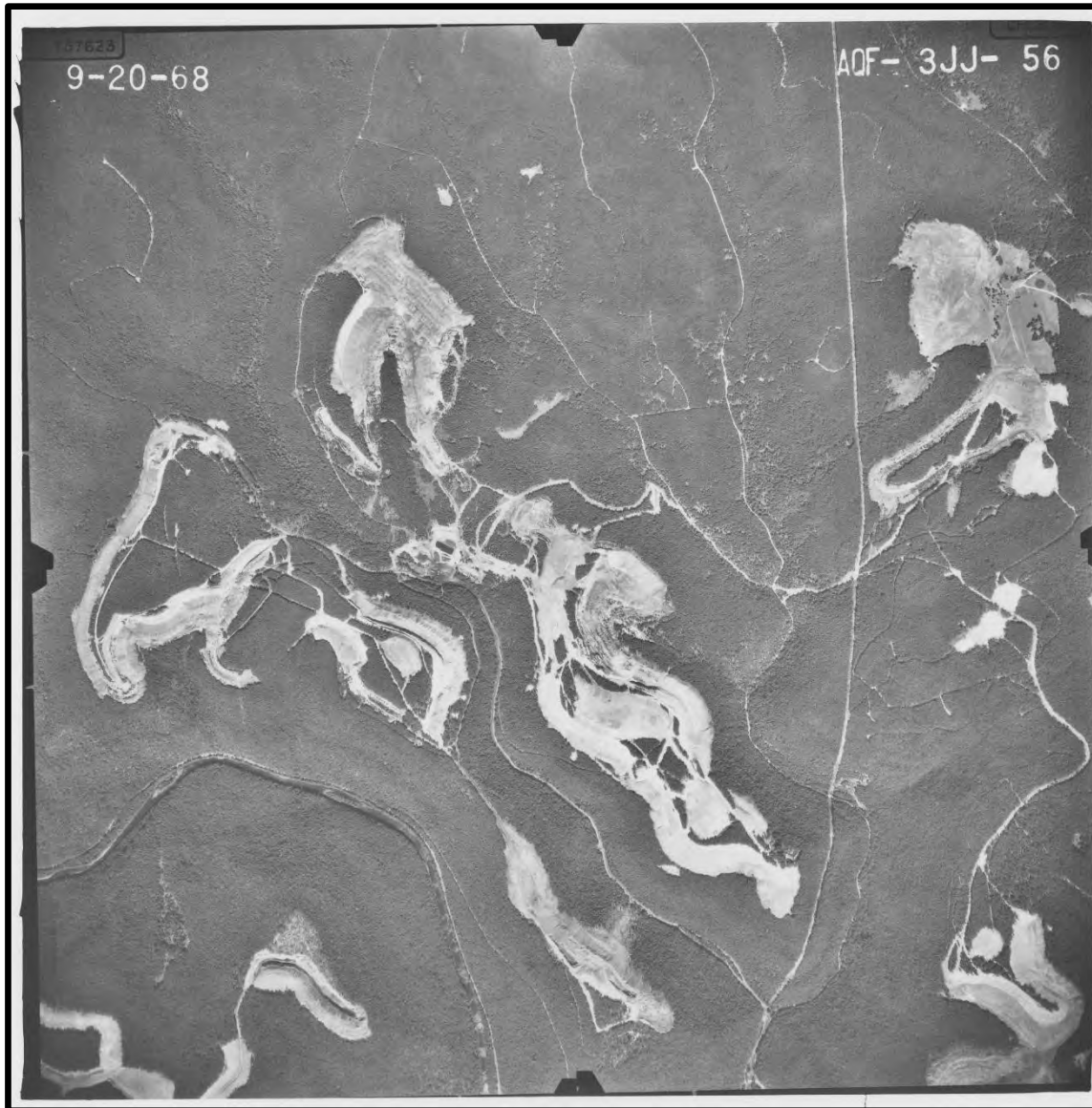


OSM 18(1124,6673) 101.1 Five Mile Hollow

Project Pictures



OSM 18(1124,6673) 101.1 Five Mile Hollow



Project Pictures

Project Cost and Funding Sources

- Estimated Cost: \$6,443,000
- AML Pilot Funding (ED-03 Non-Water Supply Reclamation): \$6,443,000
- Regular AML Funding: \$0
- Regular AMD Funding: \$0
- Other Known Funding: \$0

AML/AMD Measurables

- 100 acres of State Forest property will be restored
- Approximately 18,000 linear feet of Dangerous Highwall will be reclaimed
- A mine drainage source remediation plan aimed at reducing acid mine drainage pollution originating from the site will be implemented

Economic Development Measurables

- Trail improvements of approximately 16,000 linear feet of the PA DCNR Whiskey Springs ATV trail system. This portion of the Sproul State Forest hosts annual events including:
 - Relay For Life's Cruise for a Cure
 - National Rattlesnake Enduro Race
- Local campgrounds, hotels, and businesses will see an increase in tourists and revenue

Economic Development Measurables

- Elk are starting to migrate toward the area and reclamation would promote a more natural environment and consequent increases in tourism and recreational opportunities
- Water quality improvement of Kettle Creek & Huling Branch and subsequent improvement in downstream Trout Stocked Fisheries (TSF)

Project Partners

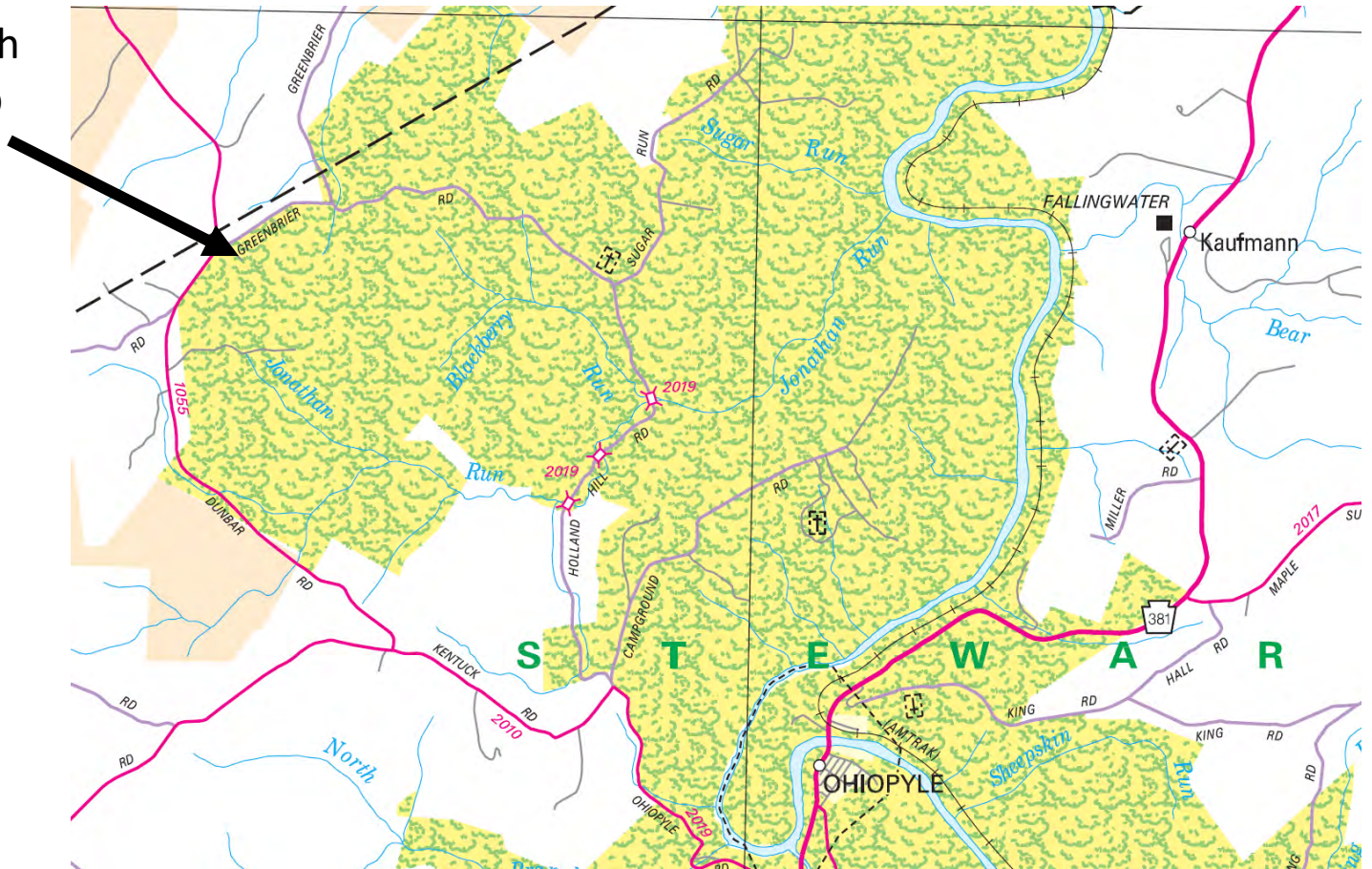
- PA Department of Conservation and Natural Resources
- PA Fish and Boat Commission
- Clinton County Conservation District
- Western Clinton Sportsman Association
- Lycoming College & Penn State University (Hazelton)
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

Full Gospel Church

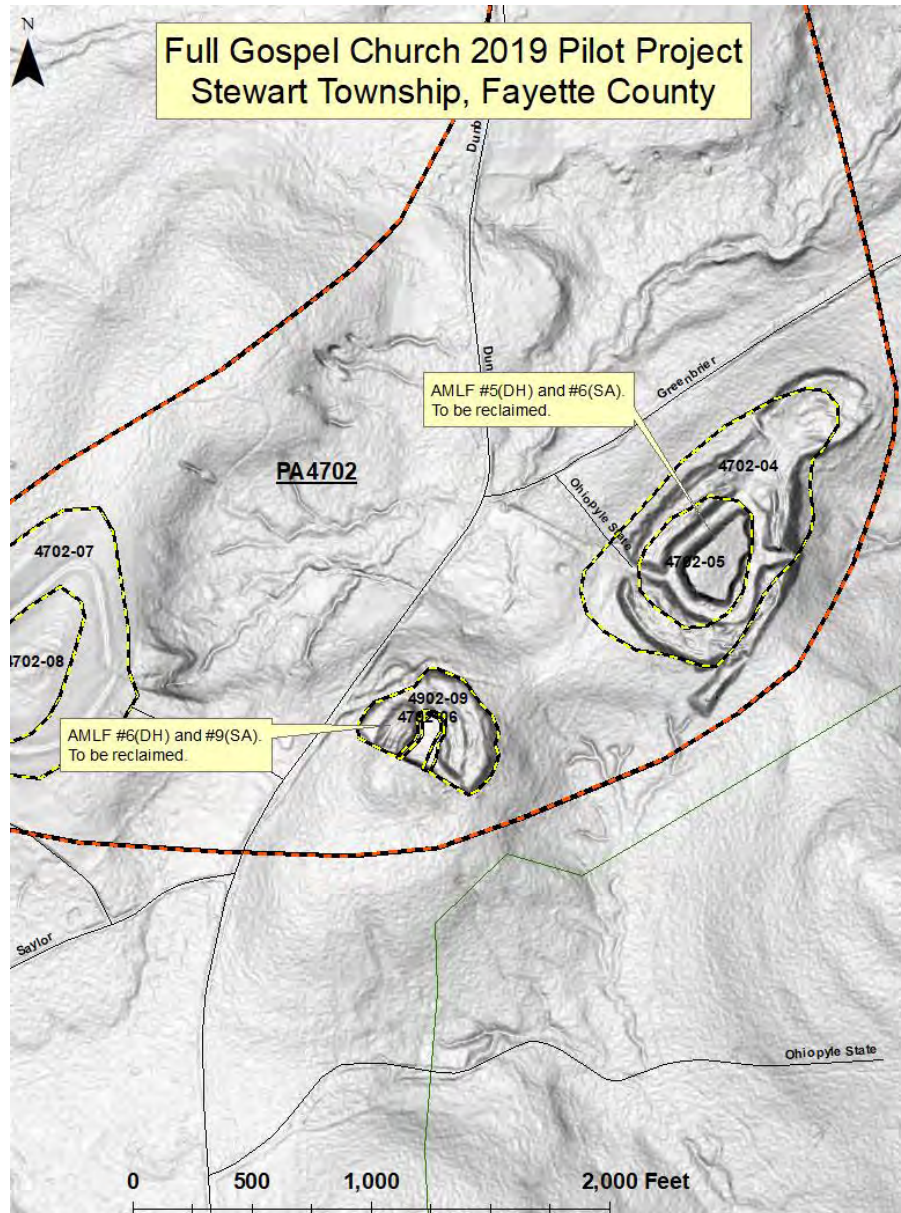
- Project will reclaim a total of 2,700-feet of Priority 2 Dangerous Highwalls (DH), with heights up to 30 feet.
- This project will protect the public from the hazards of the Dangerous Highwalls while enhancing the recreational opportunities of Ohiopyle State Park, which qualifies this project as a Category B Project through the AML Pilot Program. Reclamation will improve safety for 1.5 million annual park visitors.
- Work at the site will include clearing and grubbing, backfilling the highwalls with adjacent spoil, creating a 370-foot-long access road, creating a parking lot with multiple parking spaces, gating the access road, and re-vegetating the site.
- The Forestry Reclamation Approach (FRA) will be used to re-vegetate the site.

Full Gospel Church

Full Gospel Church
Stewart Township
Fayette County



Full Gospel Church



Full Gospel Church

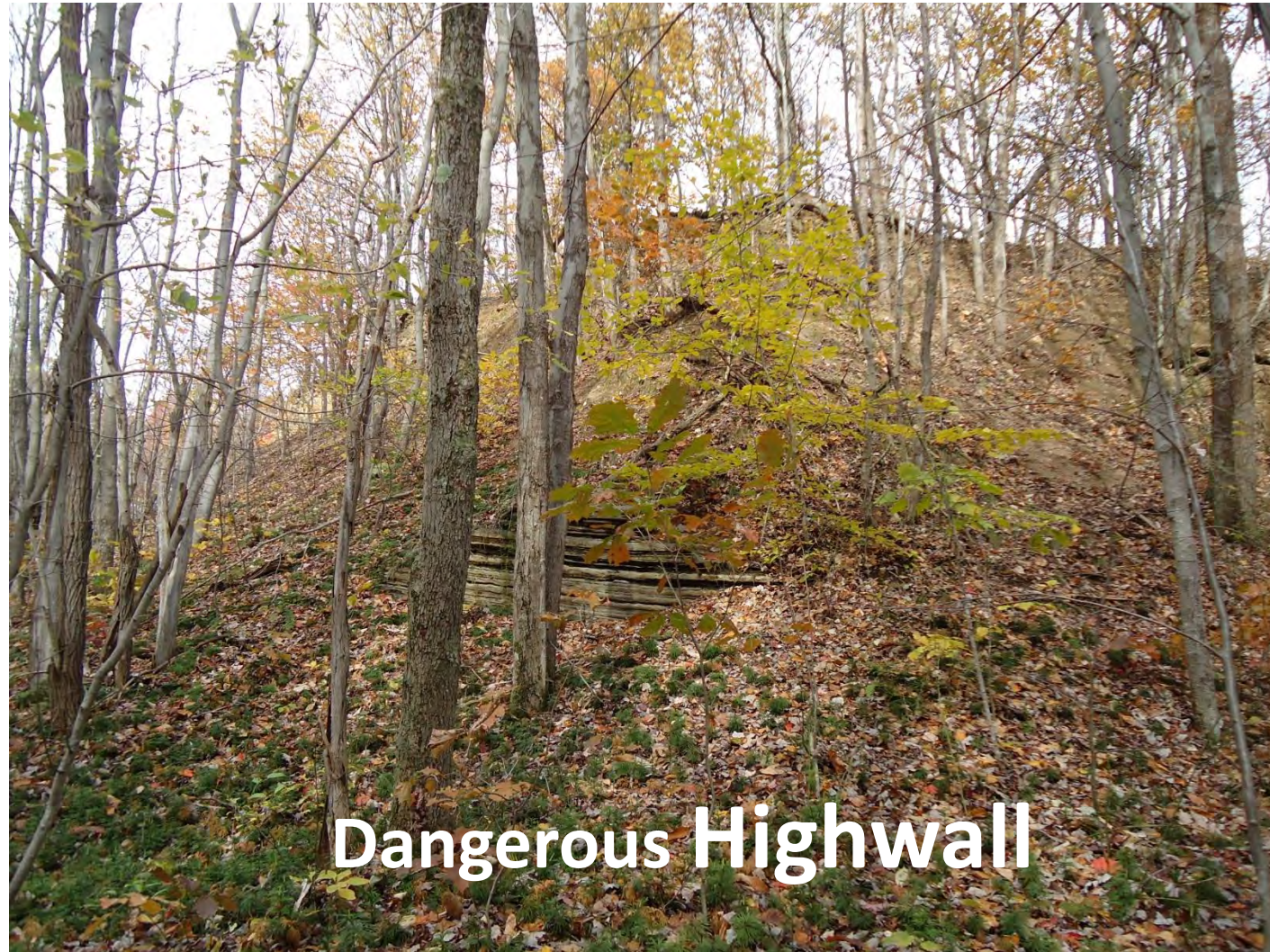


Full Gospel Church



Dangerous Highwall

Full Gospel Church



Dangerous Highwall

Full Gospel Church



Spoil Pile

Full Gospel Church

Project Cost and Funding Sources:

- Estimated Cost: \$514,355
- AML Pilot Funding (ED-03 Non-Water Supply Reclamation): \$500,000
- Regular AML Funding: \$4,355
- Regular AMD Funding: N/A
- Other Known Funding: \$10,000 (DCNR)

Full Gospel Church

AML/AMD Measurables:

- 2,700 Feet of Dangerous Highwall
- 18 Acres of spoil
- Stabilization of abandoned surface mines

Full Gospel Church

Economic Development Measurables:

- Increase in user days
- Expanded recreational opportunities
- Expanded access to an underutilized portion of Ohiopyle State Park

Full Gospel Church

Project Partners:

- Pennsylvania Department of Conservation and Natural Resources
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

Powdermill Nature Reserve

This project will address the rehabilitation of two existing acid mine drainage (AMD) passive treatment systems treating a total of 60 gallons per minute (gpm) of AMD to maintain the high quality (HQ) designation for 1.5 miles of the receiving stream, Laurel Run, and address two abandoned strip mine sites with a total area of 20 acres and 3,300 feet of dangerous highwall.

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)

At one of these sites an educational area will be partially restored to present the appearance of the mine during its active years. The other site will use Appalachian Regional Reforestation Initiative (ARRI), Forestry Reclamation Approach (FRA) and incorporate small impounded areas to create habitat for amphibians and Golden-winged warblers.

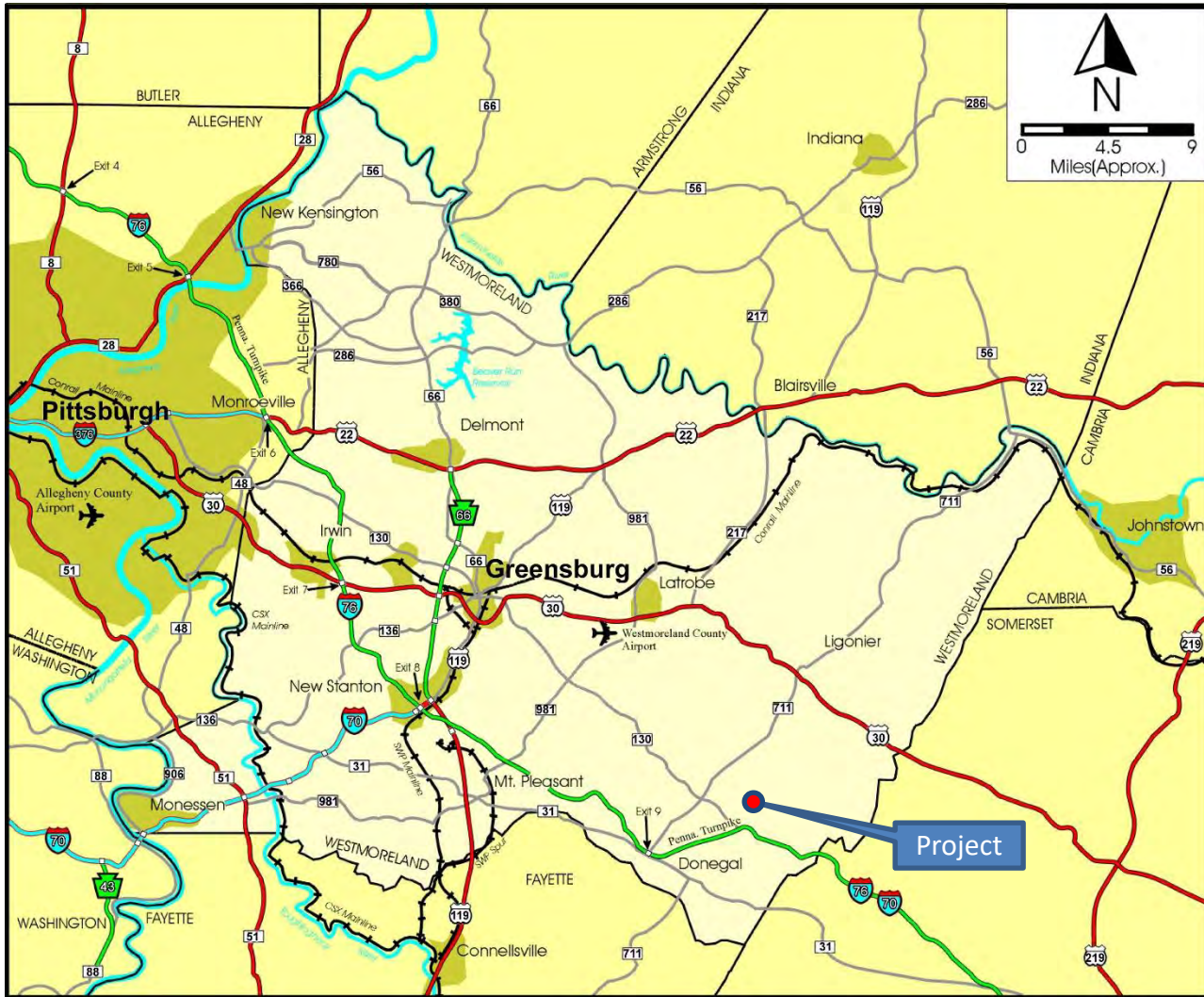
Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)

Additionally, 3,600 feet of the existing PNR trail system will be refurbished and 3,300 feet of new trail constructed to create an educational resource highlighting the history of coal mining at PNR. PNR is the environmental research and education field station for the Carnegie Museum of Natural History, Pittsburgh, PA.

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)



Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)

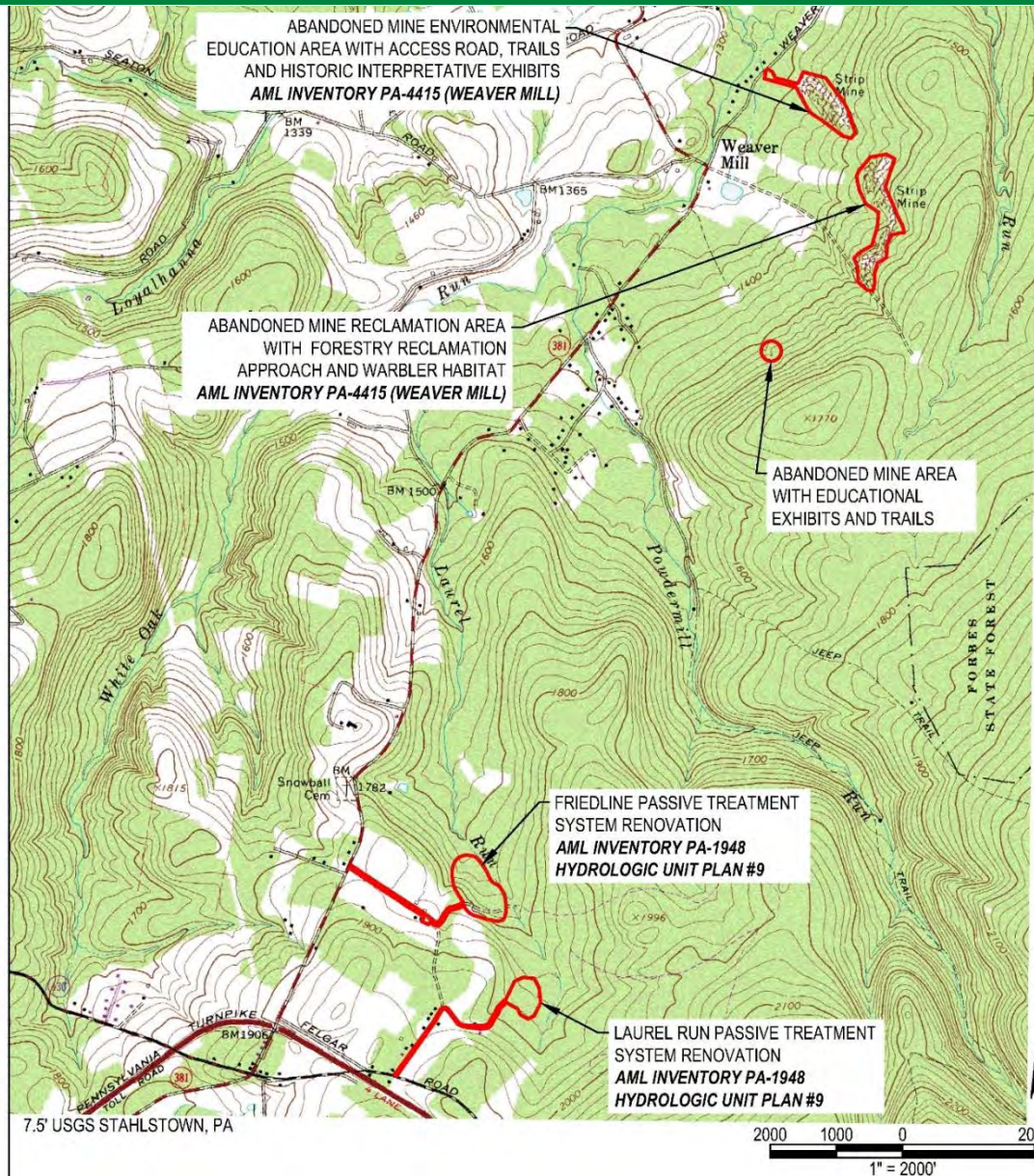


Westmoreland County



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)



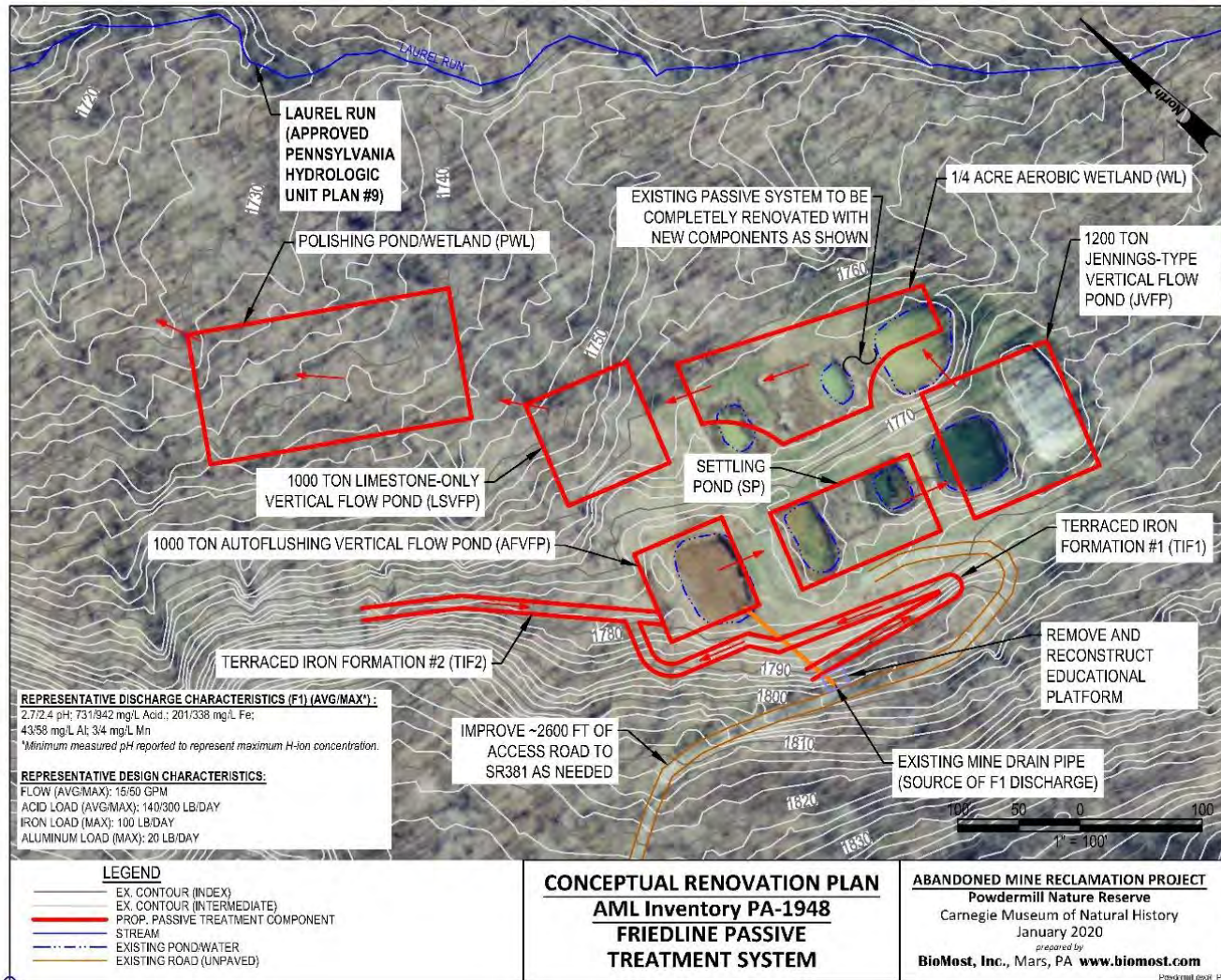
Project Work Site Locations

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)

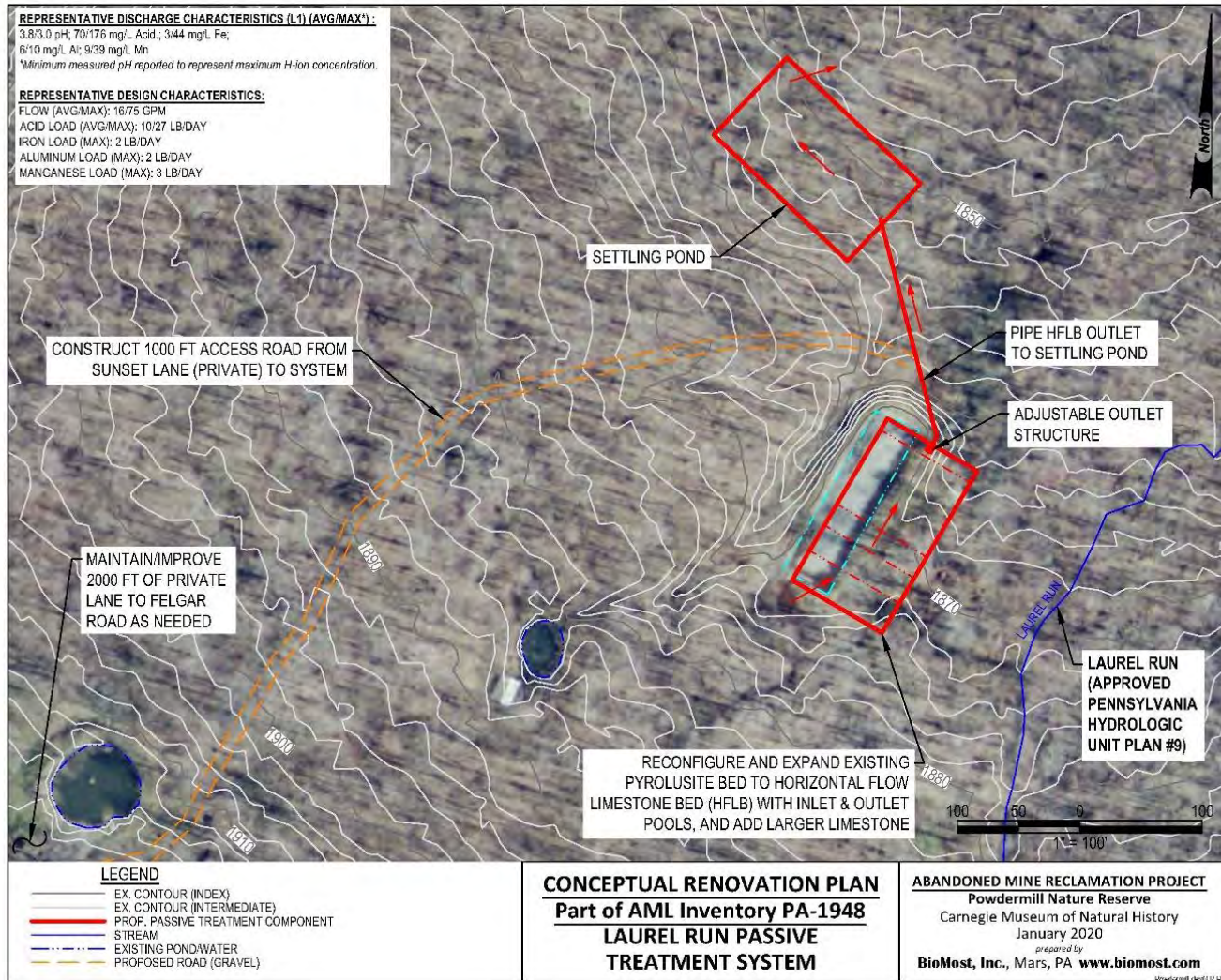


Original Friedline Discharge and Kill Zone
Prior to Passive Treatment System Construction

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)



Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)



Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)

AMLF 4415-02

Site Of Proposed Partial Renovation To Provide An Educational Glimpse Of An Active Strip Operation And The Natural Condition Of The Coal Therein

Carnegie Museum staff, 1957

Note Visible Kittanning Coal Seam with Block Remaining In-place Within the Pit in the Background



Powdermill Director John Wenzel, 2020
Same Kittanning Coal Block Remaining In-place
Within the Unreclaimed Pit

Mine Mitigation, Habitat Restoration, and Educational Trails at Powdermill Nature Reserve (PNR)



Final Stop on the Educational Trail, Historical Hand-dug Mine of Unknown Age.

Approximately 2,660 cubic yards of earth moved by hand as an interesting contrast to each of the other mines sites, and a curious feature to find in an otherwise natural, healthy forest.

Project Cost and Funding Sources

- Estimated Cost: \$1,854,470
- AML Pilot Funding: \$1,682,078
- Other Known Funding: \$172,392 (In-Kind Match)

AML/AMD Measurables

- Rehabilitate 2 existing passive treatment systems treating a total of 60 gpm of AMD
- Reclaim 20-acre abandoned strip mine area which includes 3,300 feet of dangerous highwall and 14 acres of spoil.

Economic Development Measurables

- Construct 3,300 feet of new hiking trail
- Refurbish 3,600 feet of existing hiking trail
- Construct 3 observation platforms, trail signage and produce educational pamphlets
- Drone coverage of all construction to produce phased 3D photography and analysis of the work for public distribution

Project Partners

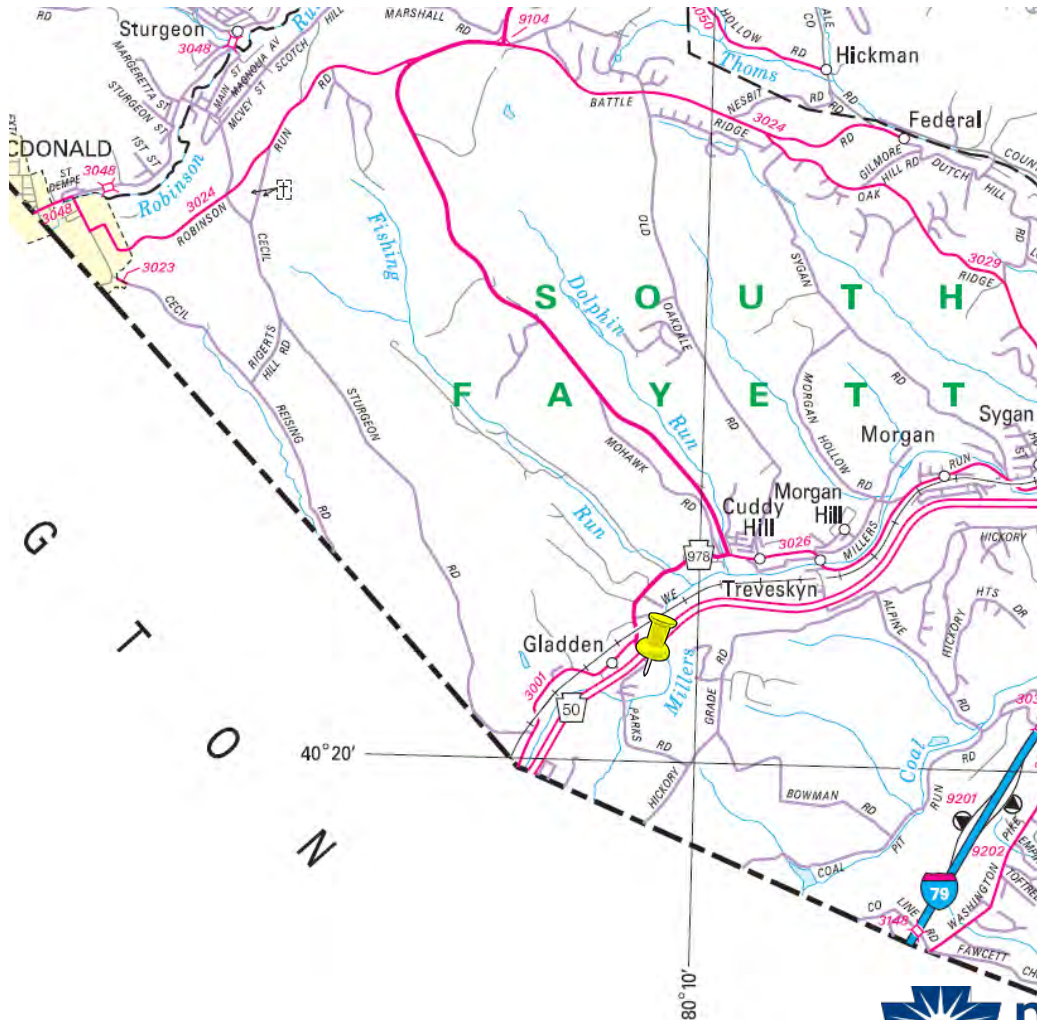
- Carnegie Institute
- Loyalhanna Watershed Association
- Dr. Jeffrey Larkin, Indiana University of Pennsylvania,
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

Gladden AMD Active Treatment Plant

In the continuing efforts to remediate acid mine drainage (AMD) discharges from the Gladden Discharge to Millers Run, an AMD treatment plant will be built. The plant will have the ability to treat 2.2 million gallons per day of AMD and will remove 690 pounds per day of iron pollution treating Miller Run for 4 miles and Chartiers Creek for an additional 3.5 miles. These sections of stream will be restored to stocked trout fisheries and will be stocked by the PA Fish and Boat Commission. During construction, a 100-foot dangerous highwall will also be removed.

The treatment plant could be utilized as an educational tool for local schools. The Chartiers Valley High School and South Fayette High School are located within five miles of the proposed treatment plant. Tours of the Gladden AMD Treatment plant will provide an educational opportunity into the improved water quality of Millers Run and mining history of the area, not only for local schools but for all citizens of Allegheny County.

Gladden AMD Active Treatment Plant



 **Gladden Plant Site,
Allegheny County**

Gladden AMD Active Treatment Plant



Aerial View

Gladden Plant location and Gladden Discharge location with stream discoloration

Gladden AMD Active Treatment Plant



Gladden Acid Mine Discharge

Gladden AMD Active Treatment Plant



Dangerous Highwall

Gladden AMD Active Treatment Plant



Millers Run below Gladden



Millers Run Mouth Into Chartiers Creek

Project Cost and Funding Sources

- Estimated Cost: \$13,048,446
- AML Pilot Funding: \$3,000,000
- Previously Approved 2017 AML Pilot Funding: \$3,012,442
- AMD Set-Aside Funding: \$7,036,004

AML/AMD Measurables

- 690 pounds of iron removed per day
- 2.2 million gallons per day of AMD treated
- 7.5 stream miles to be restored
- 100-foot Dangerous Highwall Reclaimed
- Tours of AMD plant provides educational tool for the schools and citizens of Allegheny County

Economic Development Measurables

- Restore 7.5 miles of streams back to stocked trout fishery
- Generate approximately \$891,000 per year in revenue in local recreational economy
- Aesthetically pleasing Millers Run can accompany the 300-acre Newbury Development currently under construction

Gladden AMD Active Treatment Plant

Project Partners

- South Fayette Conservation Group
- South Fayette Township
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

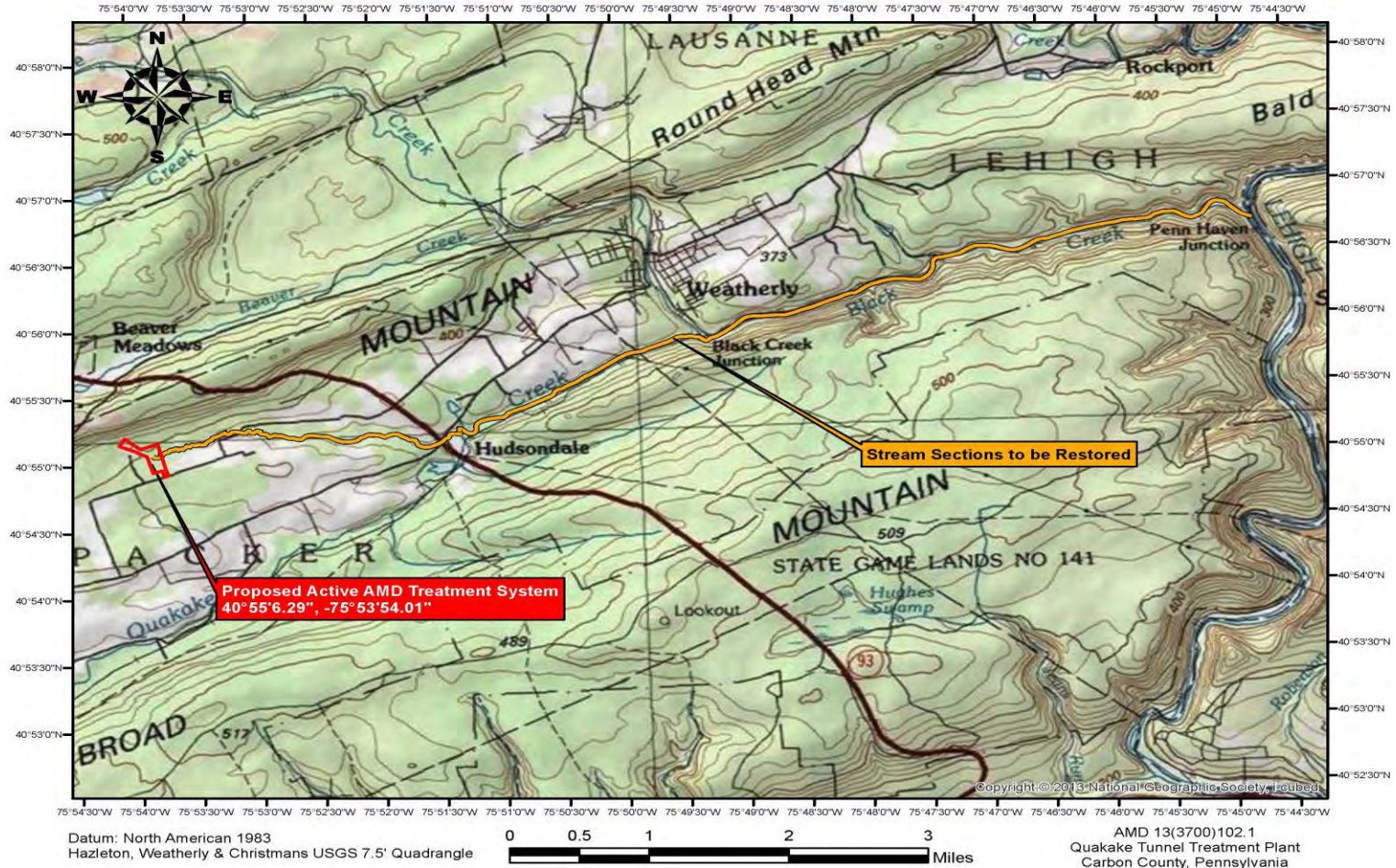
Quakake Tunnel Treatment Plant

This project is a continuation of the efforts to restore the Black Creek Watershed by actively treating the Quakake Tunnel discharge in Carbon County. Once the treatment plant is in operation it will treat flows up to 10,000 gallons per minute and restore approximately eight miles of streams within the watershed.

Quakake Tunnel Treatment Plant

This project is being completed in conjunction with the Weatherly Borough Trail Phase 1 Project, AMD 13(3700)103.1(GA), which is funded by the 2017 AML Pilot Program. Through this project a 1-mile walking trail will be constructed near the existing Weatherly Borough building to the confluence of Quakake and Black Creeks. Once the treatment plant is in operation and the pedestrian trail is completed, the public will have access to the newly restored streams within the Black Creek Watershed.

Quakake Tunnel Treatment Plant



Quakake Tunnel Treatment Plant



Quakake Tunnel Treatment Plant



Quakake Tunnel Treatment Plant



Quakake Tunnel Treatment Plant



Quakake Tunnel Treatment Plant

Project Cost and Funding Sources

- Estimated Cost: \$19,575,000
- AML Pilot Funding: \$ 3,000,000
- AMD Set-Aside Funding: \$11,500,000
- Other Known Funding:
 - (2017 AML Pilot Program) \$3,000,000
 - (Weatherly Borough) \$2,075,000

Quakake Tunnel Treatment Plant

AML/AMD Measurables

- Treatment of AMD with an Average Flow of 6,000 gpm
- 8 miles of stream restoration
- One-mile walking trail (Weatherly Borough Project)

Quakake Tunnel Treatment Plant

Economic Development Measurables

- 8 miles of fishing streams restored
- 1 Mile walking trail (Weatherly Borough Trail Project)
- Improved opportunities for hiking, fishing and sightseeing
- Increased tourism to the area

Quakake Tunnel Treatment Plant

Project Partners

- Weatherly Borough
- Carbon County Commissioners
- PA Department of Community and Economic Development
- Wildlands Conservancy
- United States Geological Survey
- Office of Surface Mining Reclamation and Enforcement
- Pennsylvania Department of Environmental Protection

Morris Run AMD Treatment Plant

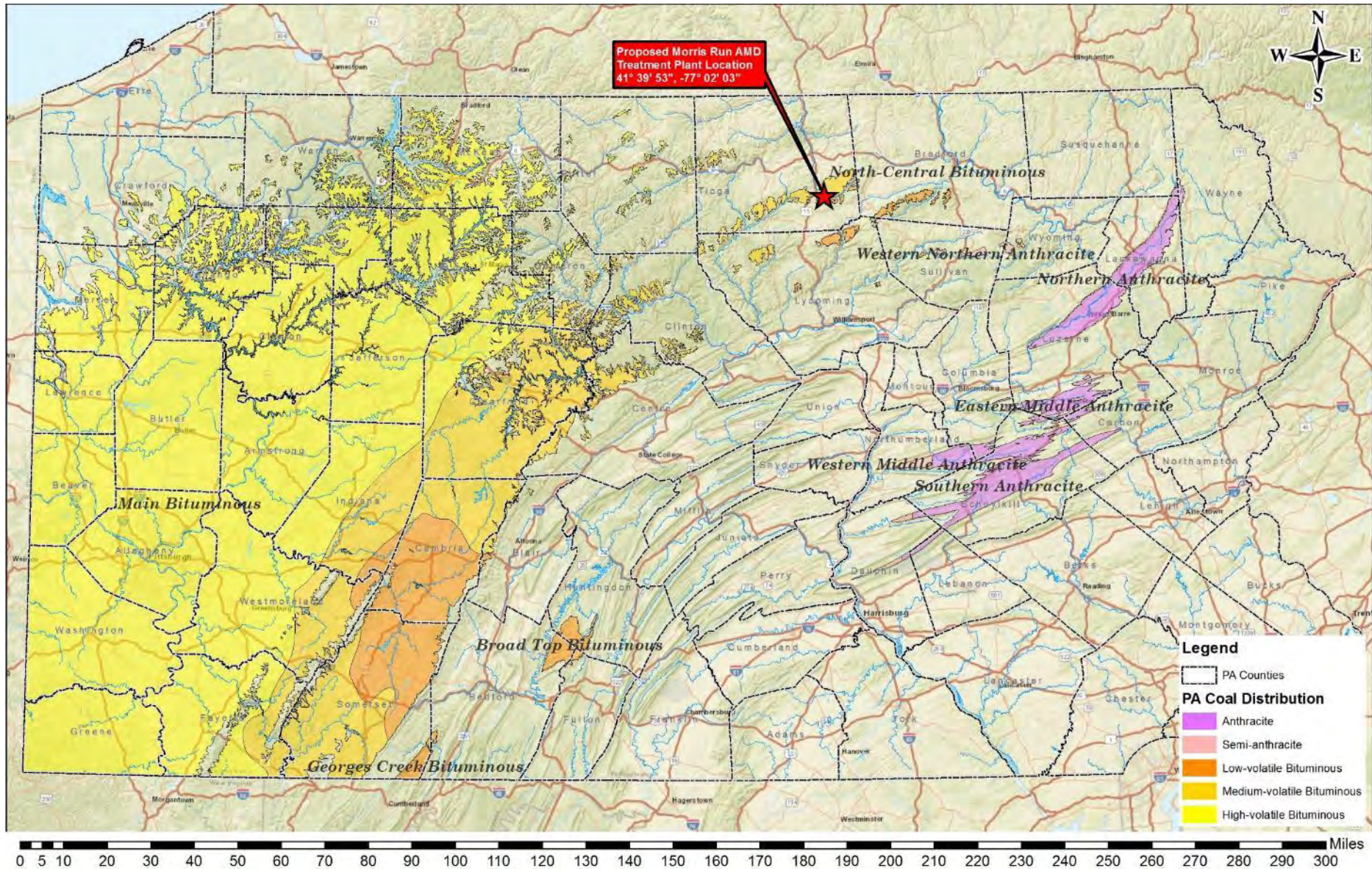


Tioga River at Blossburg, PA – Photo shows severe impact from acid mine drainage. There is little to no aquatic life in the river.

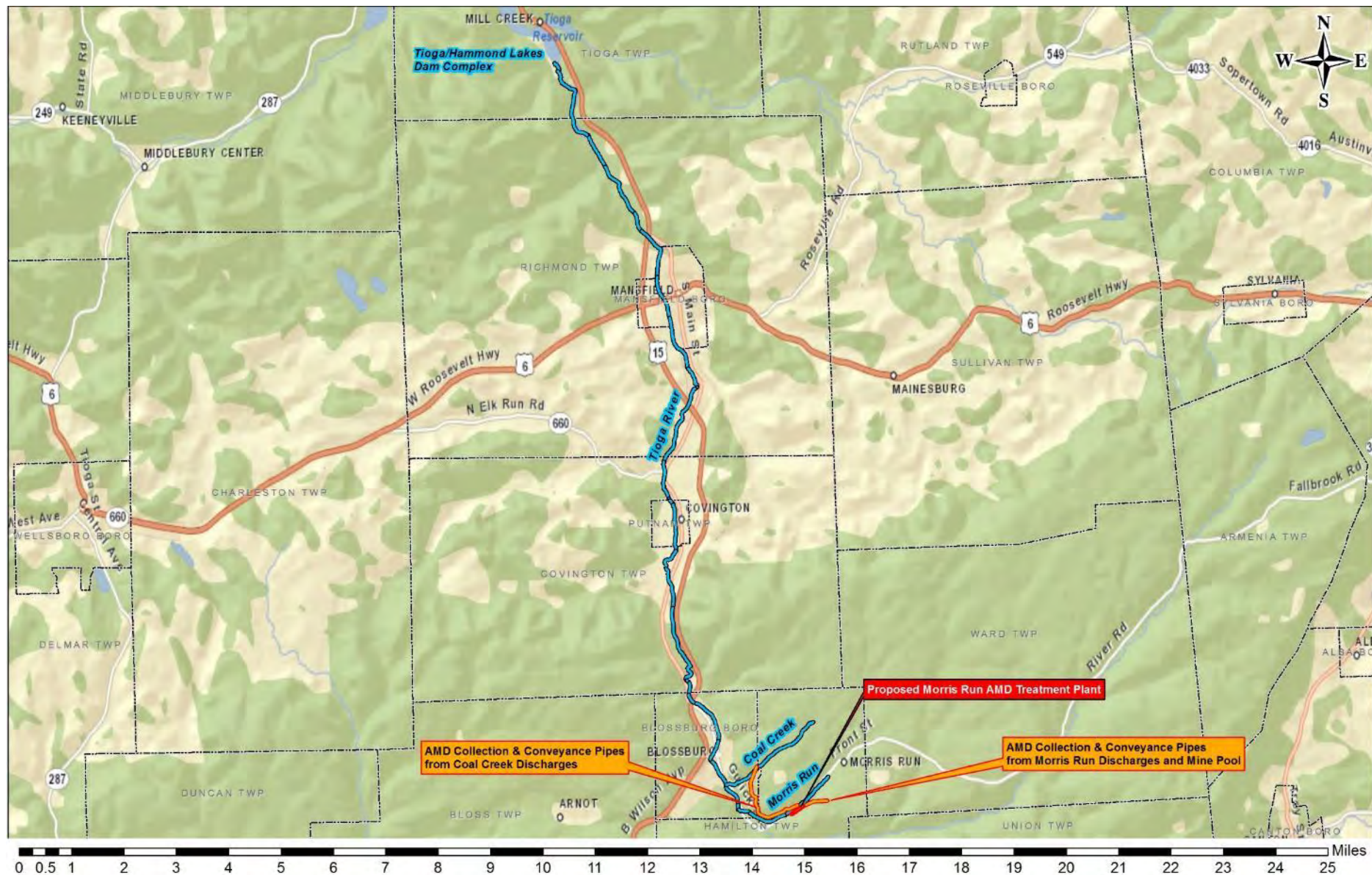
Morris Run AMD Treatment Plant

AML Pilot funding will be used to design and construct an active AMD treatment system with the intent of restoring the Tioga River. The Tioga River is impaired due to low pH and high concentrations of metals. AMD will be collected from discharges along Morris Run, Coal Creek and adjacent mine pools via directional-drilled pipes then conveyed to a centralized treatment plant near Morris Run.

Morris Run AMD Treatment Plant



Morris Run AMD Treatment Plant



Morris Run AMD Treatment Plant



The East Mine Discharge along Morris Run is a continuous AMD discharge from a mine opening with an average flow of 300 GPM. Average water chemistry values are: pH=2.9, Al=40 mg/l, Fe=10 mg/l, Mn=30 mg/l, acidity=400 mg/l, alkalinity=0 mg/l.

Morris Run AMD Treatment Plant



The Coal Creek Discharge is the largest volume discharge within the Tioga River Watershed and is responsible for 45% of the total acidity load to the Tioga River.

Morris Run AMD Treatment Plant



AMD discharge from the Lake Mine Complex. Average flow is 1,300 GPM. Average water chemistry values: pH=3.2, Al=20 mg/l, Fe=8 mg/l, Mn=25 mg/l, acidity=230 mg/l, alkalinity=0 mg/l.

Morris Run AMD Treatment Plant

Tioga/Hammond Dam



Significant Benefits

- Restore a total of twenty (20) miles of streams back to a natural state as a wild trout and stocked trout fishery
- Improve water quality within 500-acre Tioga Lake and ultimately the entire 1,200-acre Tioga/Hammond Dam Complex; only half of the complex is good water quality
- Produce positive economic benefits to the Tioga/Hammond Dam Complex recreation area

Project Partners

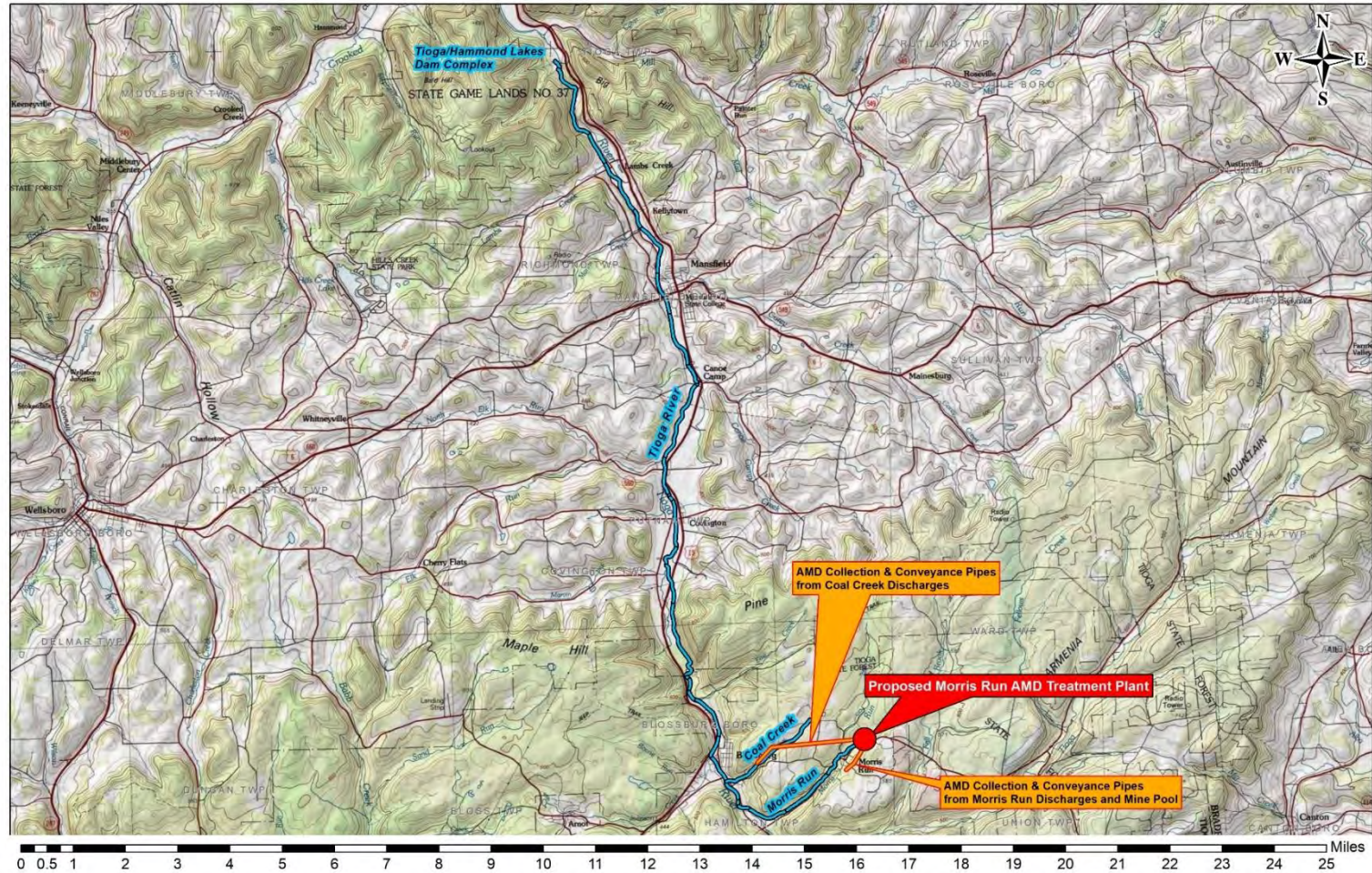
- PA Department of Conservation and Natural Resources
- Susquehanna River Basin Commission
- Tioga County Conservation District
- Tioga County Concerned Citizens Committee
- Office of Surface Mining Reclamation and Enforcement
- PA Department of Environmental Protection

Morris Run AMD Treatment Plant

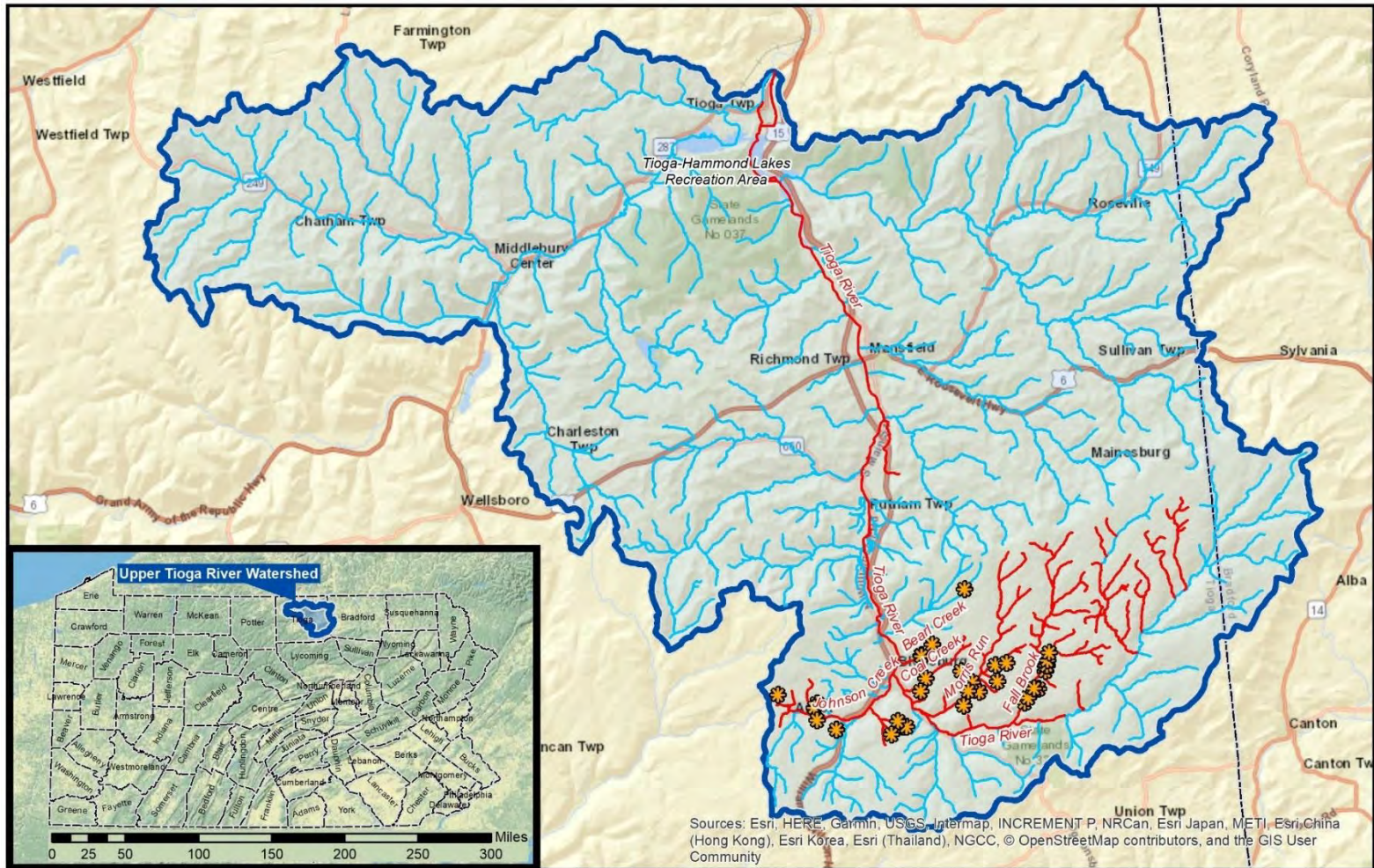
To continue to restore the Tioga River, AML Pilot funding will be used to design and construct an active acid mine drainage (AMD) treatment plant to treat mine discharges along Morris Run and Coal Creek and thereby also significantly improving water quality downstream at the ACOE Tioga/Hammond Dam Complex. The Tioga River is impaired from AMD with low pH and very high concentrations of metals, such as iron and aluminum. A total of 20 miles of stream will be restored, 18 miles of Tioga River, one mile of Morris Run and one mile of Coal Creek.





Upon completion of the project, it is estimated that \$875,000 per year in revenue will be generated, through fishing and recreation, for the local economy as the area will see an increase of visitors to enjoy the newly restored watershed. U.S. Route 15 parallels the Tioga River providing access to the waterway.

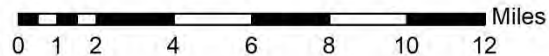
Morris Run AMD Treatment Plant



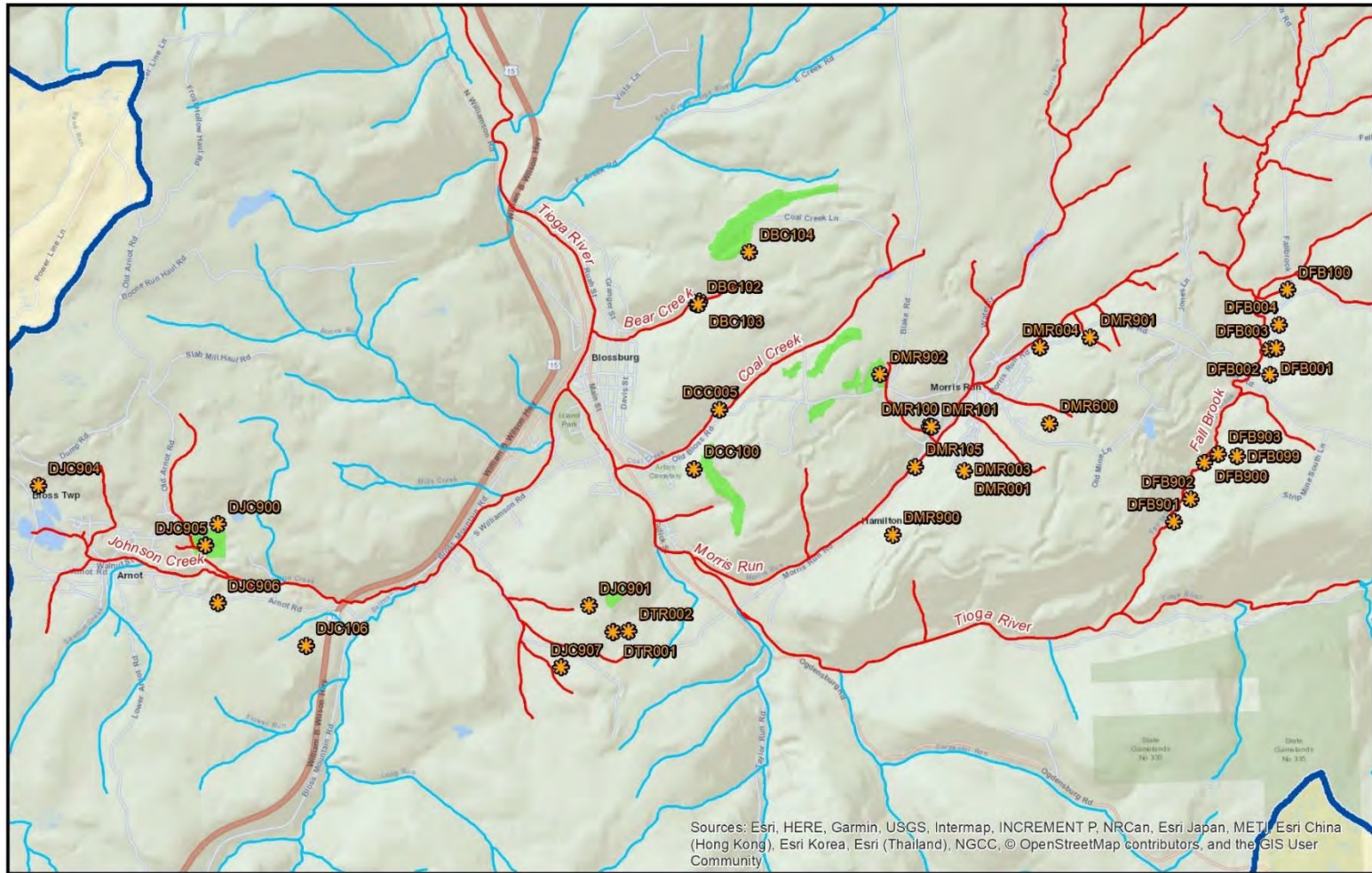
Morris Run AMD Treatment Plant



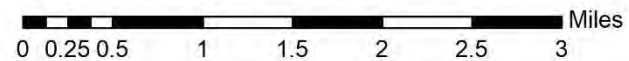
-  AMD Discharges in Watershed
-  303(d) Attaining Streams
-  303(d) Non-Attaining Streams
-  Upper Tioga River Watershed



Morris Run AMD Treatment Plant



- AMD Discharges in Watershed
- 303(d) Non-Attaining Streams
- 303(d) Attaining Streams
- Upper Tioga River Watershed
- AML Abatement Projects



Morris Run AMD Treatment Plant



Tioga River in Blossburg, PA – Photo shows severe impact from AMD. There is little to no aquatic life in the river.

Morris Run AMD Treatment Plant



Tioga River meets Tioga/Hammond Dam Complex: As the AMD-impaired Tioga River mixes with alkaline lake water it neutralizes, and high levels of dissolved metals begin to precipitate. The unnatural blue-green color visible within Tioga Lake is precipitation of these metals, such as aluminum.

Morris Run AMD Treatment Plant

Project Cost and Funding Sources

- Estimated Cost: \$12,000,000
- AML Pilot Funding: \$2,189,522
- Previously Approved 2018 AML Pilot Funding: \$4,000,000
- Previously Approved AMD Set-Aside Funding: \$5,810,478

AML/AMD Measurables

- Treat up to 6,000 gallons per minute of AMD
- Restore 18 miles of the Tioga River
- Restore one mile of Coal Creek
- Restore one mile of Morris Run
- Significantly improve water quality downstream within the 500-acre Tioga Lake

Morris Run AMD Treatment Plant

Economic Development Measurables

- Return 20 miles of streams to a wild trout and stocked trout fishery
- Increase number of visitors to this rural area for outdoor recreation and tourism
- Generate approximately \$875,000 per year in revenue for the local economy
- Establish new businesses locally, create jobs, and fuel economic growth

Morris Run AMD Treatment Plant

Project Partners

- Susquehanna River Basin Commission
- PA Dept. of Conservation and Natural Resources
- Tioga County Concerned Citizens Committee
- Tioga County Conservation District
- Hamilton Township
- Blossburg Municipal Authority
- Office of Surface Mining Reclamation and Enforcement
- PA Department of Environmental Protection



**For more information about
the AML Pilot Program in
Pennsylvania, visit:
dep.pa.gov/AML-Pilot**

Tom Wolf, Governor

Patrick McDonnell, Secretary