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August 11, 2025

VIA ELECTRONIC FILING

Matthew L. Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
Harrisburg, PA 17120

**Re: Application of PECO Energy Company Filed Pursuant to 52 Pa. Code §§ 57.71 *et seq.* for Approval of the Siting and Construction of the Brandon Shores Retirement Mitigation Project Located in Peach Bottom Township, York County, Pennsylvania and Petition for Waiver of 52 Pa. Code § 57.72(c)(10)
Docket Nos. A-2024-3051467 & P-2025-3053944**

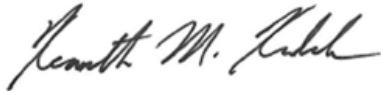
Dear Secretary Homsher:

Enclosed for filing in the above-captioned proceeding are PECO Energy Company's Responses to the Data Requests of the Bureau of Technical Utility Services, Question Nos. A-16 to A-19.

As indicated on the enclosed Certificate of Service, copies have been served upon all parties of record.

If you have any questions, please call me directly at 215.963.5384.

Very truly yours,



Kenneth M. Kulak

KMK/ap

Enclosure

c: Per Certificate of Service (w/encls.)

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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Application of PECO Energy Company :	
Filed Pursuant to 52 Pa. Code §§ 57.71 <i>et</i> :	
<i>seq.</i> for Approval of the Siting and :	Docket Nos. A-2024-3051467
Construction of the Brandon Shores :	P-2025-3053944
Retirement Mitigation Project Located in :	
Peach Bottom Township, York County, :	
Pennsylvania and Petition for Waiver of 52 :	
Pa. Code § 57.72(c)(10) :	

**RESPONSE OF PECO ENERGY COMPANY
TO DATA REQUESTS OF THE BUREAU OF TECHNICAL UTILITY SERVICES**

TUS-A-16:

Reference TUS Data Requests, Response to A-4. Please state the number of existing transmission structures to be removed as part of the subject project.

RESPONSE:

Attachment 19 identifies existing transmission structures that will be removed as part of both the Brandon Shores Retirement Mitigation Project (“Brandon Shores Project”) and the PJM 2022 Reliability Window #3 Project (“PJM22RW3 Project”) in Docket No. A-2024-3051463. Within the scope of the Brandon Shores Project, PECO proposes to remove 29 existing transmission structures as follows:

- 7 transmission structures from the existing 220-08 Line
- 19 transmission structures from the existing 220-93 Line
- 3 transmission structures from the existing 5012 Line

The remaining existing structures indicated on Attachment 19 to be removed within the scope of the PJM22RW3 Project.

TUS-A-17:

Reference TUS Data Requests, Response to A-9. Please confirm the interrelation between the subject project and the PJM 2022 Reliability Window # 3 Project is limited to construction timing and the use of a common right-of-way and/or transmission corridor. If any other interrelation between the projects exists, please provide a detailed explanation.

RESPONSE:

The Brandon Shores Project and PJM22RW3 Project are interrelated because the projects share similar construction timing and the majority of the new transmission line construction will occur within a common transmission corridor. In addition, the scopes of work for each project take into account the design of the other respective project. For example, removal of transmission structure of the existing 220-93 Line and 5012 Line will support the construction of the new 5040 Line, 5042 Line, 5047 Line. Similarly, the design of PJM22RW3 Project's new 5042 Line reflects the fact that transmission structures of the existing 220-93 Line will be removed as part of the Brandon Shores Project.

While the Brandon Shores Project primarily resolves the issues described in response to TUS-A-8, as PECO explained in response to TUS-A-9 and in the Application at page 13, the project will also support the mitigation of reliability concerns that are primarily addressed by the PJM22RW3 Project.

TUS-A-18:

Reference TUS Data Requests, Response to A-9 and Application, Paragraph 23. Please explain how the subject project and the PJM 2022 Reliability Window # 3 Project function in conjunction with one another. Additionally, please explain whether the elements to be leveraged are limited to construction timing and land rights.

RESPONSE:

The Brandon Shores Project and PJM22RW3 Project will function in conjunction with one another for the same reasons they are interrelated as described in response to TUS-A-17. PECO confirms that the elements of each project that are leveraged to support the other respective project are construction timing and land rights. PECO also notes that the projects' construction will be more efficient if conducted at approximately the same time than if constructed separately because PECO will coordinate the construction sequences of the projects to avoid duplicative work activities or potential rework.

TUS-A-19:

Reference the Application, Revised Attachment 10, Section 3.4.2. Please explain whether the archaeological surveys have been completed and provide the results as well as any compensatory measures that may need to be implemented.

RESPONSE:

PECO is providing an archaeological survey as Attachment TUS-A-19 that PECO submitted to the Pennsylvania State Historic Preservation Office ("PASHPO") on July 10, 2025. Review of the survey is pending and the PASHPO did not provide a timeline for when a response on the survey will be provided to PECO. PECO will provide PASHPO's

response on the archaeological survey to the Bureau of Technical Utility Services promptly upon receipt.

ATTACHMENT TUS-A-19

Phase I Archaeological Survey Report
Brandon Shores Retirement Mitigation/PJM 2022 Reliability
Window #3 Projects

Peach Bottom Township, York County, Pennsylvania

ER Project # 2024PR01978

Prepared for

PECO Energy Company

Prepared by

AECOM Technical Services, Inc.
Andrew Wyatt, M.A.

AECOM
437 High Street
Burlington, New Jersey 08016

July 2025

Abstract

AECOM Technical Services, Inc. (AECOM) conducted a Phase I archaeological survey for PECO Energy Company's (PECO) Brandon Shores Retirement Mitigation/ PJM 2022 Reliability Window #3 Projects (Projects), located in Peach Bottom Township, York County, Pennsylvania. PECO will be rebuilding a series of existing transmission lines supported by the installation of new steel monopoles. The Projects extend southwest from Peach Bottom North Substation to the Pennsylvania/Maryland border. The Projects are entirely within Pennsylvania. Another reach of the Projects extends south-southeast from the Peach Bottom North Substation to the Peach Bottom South Substation. The Projects also includes new transmission lines and associated poles to serve the new Bramah Substation, which will be constructed by Transource and permitted separately from the PECO Projects. An expansion of the existing Peach Bottom North Substation is also included in the Projects. Length of the Projects is approximately 12.13 kilometers (~7.54 miles). The Projects are in upland settings west of the Susquehanna River in the Piedmont Upland Section of the Piedmont Physiographic Province. The Project lies in Watershed 7I of the Lower Susquehanna River sub-basin.

The Phase I archaeological survey was conducted in areas of proposed ground disturbance for the Projects. The Projects' area of potential effects (APE) for archaeological resources is approximately 36.62 hectares (~90.49 acres). Two previously recorded nineteenth- through twentieth-century historic archaeological sites, 36YO0499 and 36YO0500, extend into the Projects' APE. Field testing included the excavation of shovel test pits (STPs), the majority of which were excavated at 15-meter (49.2-foot) and 30-meter (98.4-foot) intervals. A smaller number of STPs were excavated at 7.5-meter (24.6-foot) intervals around the two historic archaeological sites. A total of 673 STPs were excavated.

Portions of Sites 36YO0499 and 36YO0500 extended into the APE. Site 36YO0499 consisted of architectural and domestic artifacts from the Sample Farm, which was razed between 2007 and 2008. A total of 24 artifacts were recovered from a 160 square-meter (0.04 acre) area within limits of disturbance (LOD) for proposed access road AR161. The artifacts were recovered from a plowed horizon that displayed evidence for the farmstead's demolition. Site 36YO0500 yielded 10 architectural and indeterminate artifacts from disturbed contexts. These artifacts and a partially intact, dry-laid limestone foundation were located within the LOD for proposed work pad P155. A concrete cistern and a depression with displaced foundation stones were located outside of the LOD. The function of the former structure could not be determined as no artifacts were recovered from STPs excavated within and immediately adjacent to it; however, the absence of associated artifacts suggests it was an outbuilding rather than a house or house-associated structure. Based on the data collected during the Phase I archaeological survey, AECOM recommends that the portions of 36YO0499 and 36YO0500 within the APE are unlikely to contribute to the National Register of Historic Places eligibility of the two sites and that no further archaeological investigation is necessary prior to construction of the Projects. AECOM also recommends that the west, south, and east boundaries of P 155 be fenced during construction to prevent inadvertent damage to portions of this site that extend outside of the APE.

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1

Introduction and Project Description

AECOM Technical Services, Inc. (AECOM) conducted a Phase I archaeological survey for PECO Energy Company's (PECO) Brandon Shores Retirement Mitigation/ PJM 2022 Reliability Window #3 Projects (Projects), located in Peach Bottom Township, York County, Pennsylvania. PECO will be rebuilding a series of existing transmission lines supported by the installation of new steel monopoles. The Projects extend southwest from Peach Bottom North Substation to the Pennsylvania/Maryland border. The Projects are entirely within Pennsylvania. Another reach of the Projects extends south-southeast from the Peach Bottom North Substation to the Peach Bottom South Substation. The Projects also includes new transmission lines and associated poles to serve the new Bramah Substation, which will be constructed by Transource and permitted separately from the PECO Projects. An expansion of the existing Peach Bottom North Substation is also included in the Projects. Length of the Projects is approximately 12.13 kilometers (~7.54 miles).

The transmission line rebuilds will consist of removal of existing steel lattice towers, existing conductors and other electrical equipment and rebuilding the transmission lines. The Projects' area of potential effects (APE) is approximately 36.62 hectares (ha) (~90.49 acres [ac]) and includes all areas of proposed ground disturbance, which are limited to the following features:

Work Pads

- Work pads of various sizes will be used to allow construction vehicles to access locations where existing steel lattice structures will be removed and new poles will be installed. A total of 207 temporary work pads are included in the Projects. Work pad types include:
 - 1) Stone/gravel work pads. In some cases, stone/gravel will be removed after construction. In other cases, the stone/gravel will be mechanically incorporated into the upper layer of soil and revegetated after construction.
 - 2) Matted work pads. Wood/timber matting will be installed on the ground surface as a single layer or in multiple layers (cribbed) to achieve a level surface.

Access Roads

- Access roads will be matted or covered with stone/gravel. The majority of stone/gravel access roads will be mechanically incorporated into the upper layer of soil and revegetated after construction. A small number of permanent stone/gravel access roads will be installed. Existing gravel access roads and dirt farm lanes will be used. These are referred to as "Drive on Grade" (DOG) access roads. Ground disturbance to existing access roads will be minimal and primarily limited to repair after construction.

Laydown Area

- A 4.04-ha (~10-ac) laydown area located north of Wiley Road will be established using crushed stone/gravel, which will be incorporated into the surface soil horizon after construction.

Peach Bottom North Substation Expansion

- The Peach Bottom North Substation expansion (PBNE) will involve placement of fill and construction of a new permanent access south of the existing substation.

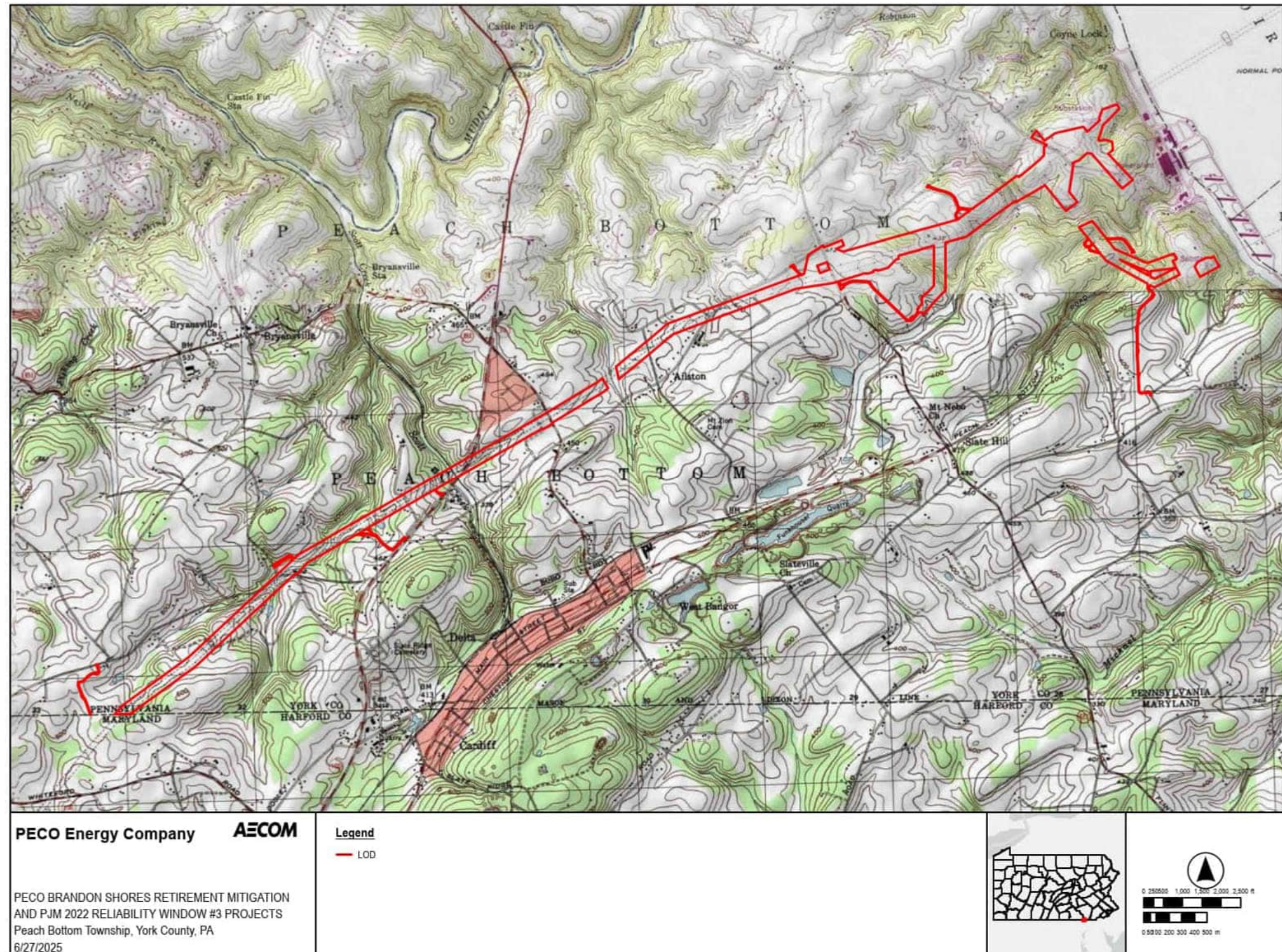


Figure 1. Projects location map.

Sediment Basins

- Two sediment basins will be constructed (excavated) near the PBNE.

Andrew Wyatt served as the Principal Investigator for the Projects. Luka Eglesia and Jason Sass supervised and carried out Phase I fieldwork with archaeological technicians Nicholson Abasi, Margaret Brown, Unique Jenkins, Kevin McKain, Sophia Mummert, Layla Myers, Cameron Reeves, and Robert Szczotka. Fieldwork was carried out in five separate mobilizations on December 16-18, 2024, March 10-14, May 19, 20, June 2, 3, and June 18-20, 2024 as design progressed and property access became available.

Environmental Setting

PHYSIOGRAPHY, GEOLOGY, AND DRAINAGE

The Projects are located in the Piedmont Upland Section of the Piedmont Physiographic Province. The section's topography was formed primarily through fluvial erosion, but areas influenced by periglacial mass wasting are present in the northern part of the section. The section includes broad, rounded to flat-topped hills and shallow valleys. Local relief is low to moderate (Sevon 2000). Elevation ranges from approximately 166 m (~545 ft) above mean sea level (amsl) at the western extent of the APE to 116 m (~380 ft) amsl in the Peach Bottom North Substation.

Bedrock underlying the APE is mapped as the Paleozoic-age Peters Creek Schist Formation, which consists of chlorite-sericite schist containing interbedded quartzite. Approximately 1.5 km (~0.9 mi) south of the Projects, the Peach Bottom Slate and Cardiff Conglomerate Formations, undivided (also Paleozoic), extend southwest to northeast (Berg 1980, Berg and Dodge 1981). The slate component of this formation was mined commercially from ca. 1805 through the nineteenth and early twentieth centuries south of Delta Borough (Gibson 1886: 767-768). The primary stone types used by Native Americans in York County were quartz and quartzite, which are present as float in soils throughout the county. From the Late Archaic through Late Woodland periods, rhyolite from South Mountain in Adams County also comprises a significant portion of artifact assemblages on some sites.

The Projects are located in Watershed 7I of the Lower Susquehanna River sub-basin. Several first- and second-order streams extend through the APE, flowing north to Muddy Creek, a direct tributary to the Susquehanna River. Other small streams with headwaters closer to the Peach Bottom North Substation contribute to or flow directly into the Susquehanna River north of the Peach Bottom South Substation (Figures 2a through 2f). The Susquehanna River east of the APE is also referred to as the Conowingo Reservoir because it is impounded by the Conowingo Dam. The Conowingo Dam is located approximately 13.6 km (~8.4 mi) south of the Project in Maryland and was constructed between 1926 and 1928 for water-powered electricity generation.

LANDFORMS, SOILS, AND VEGETATION

From the Maryland state line, the Projects extend northeast over moderate to steeply sloped side slopes, narrow, low-order stream valleys, and a north-trending ridge west of Scotts Creek. From that point, the Projects traverse more level terrain to Booker Road. East of Booker Road, the dominant landform is a broad, level hilltop that houses the Peach Bottom North Substation overlooking the Susquehanna River. From this point, the Projects extend southeast over steep sideslopes to the Peach Bottom South Substation.

The majority of soils in the APE developed in residuum weathered from micaceous schist and phyllite (Table 1). Their genesis in residuum precludes the formation of deeply buried archaeological deposits; therefore, sites and artifacts are expected only in the surface soils and the upper subsoil in residual soils. Residual soils assigned to the Chester, Glenelg, Mt. Airy, and

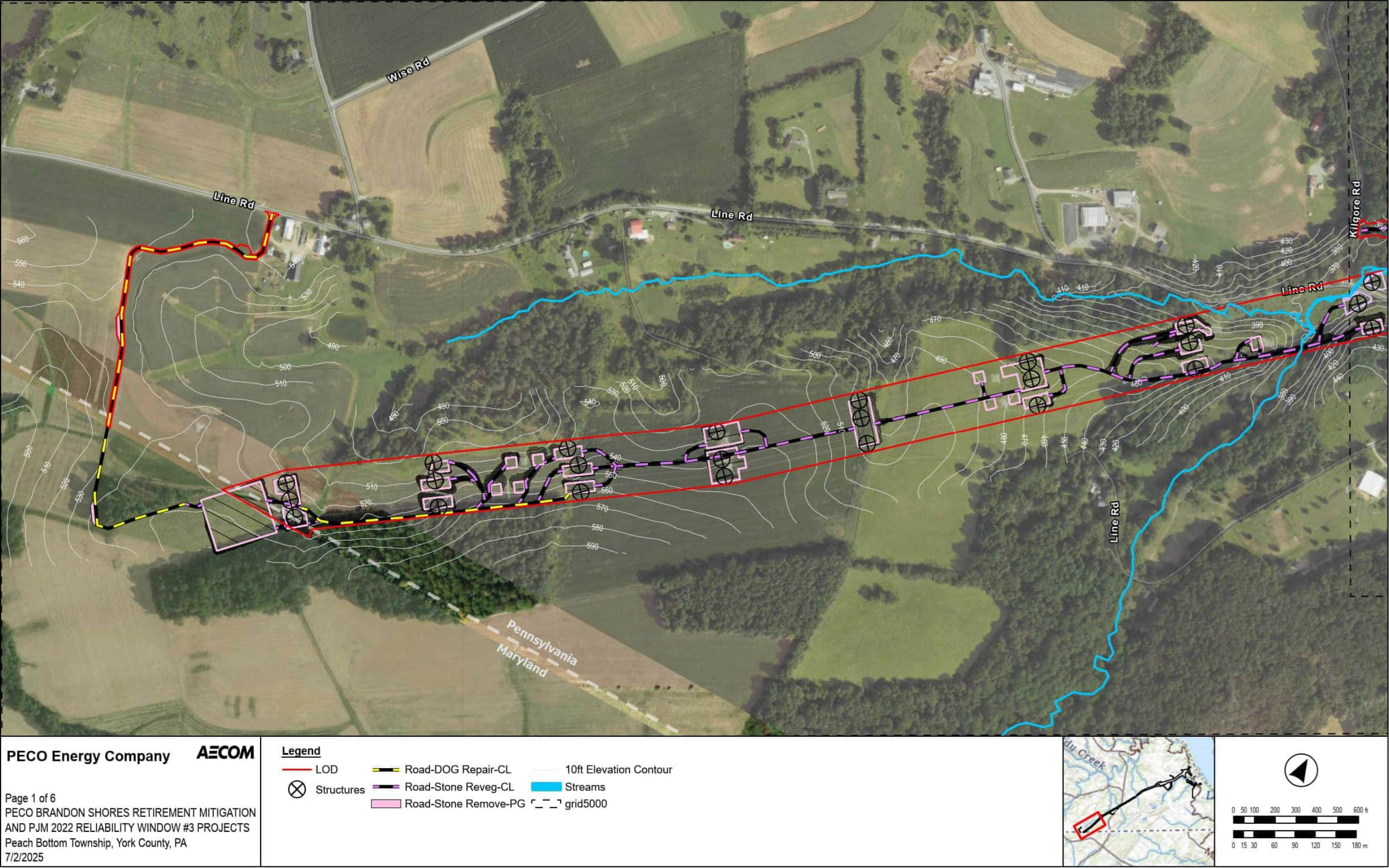


Figure 2a. Aerial view of the Projects.

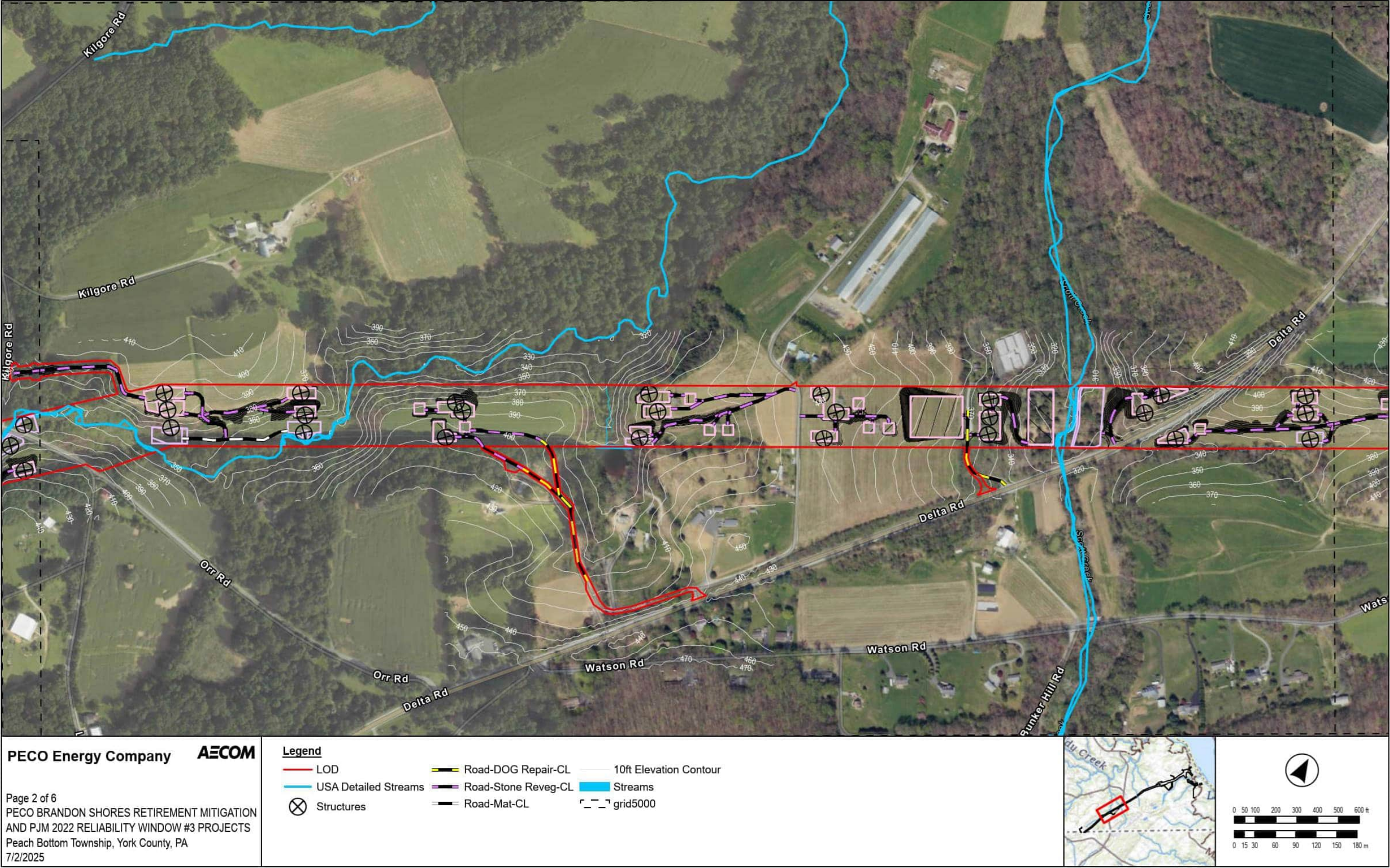


Figure 2b. Aerial view of the Projects.

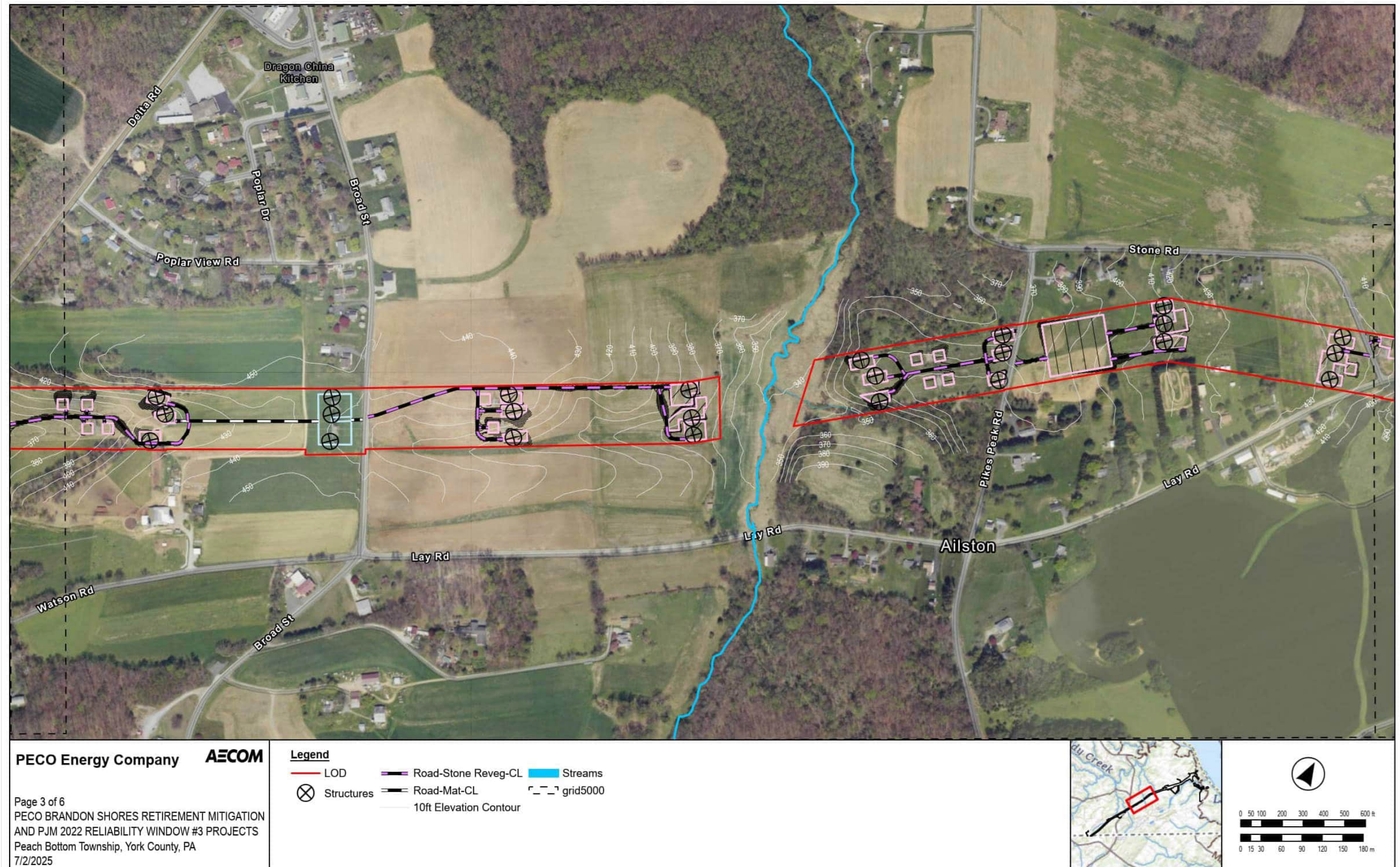


Figure 2c. Aerial view of the Projects.

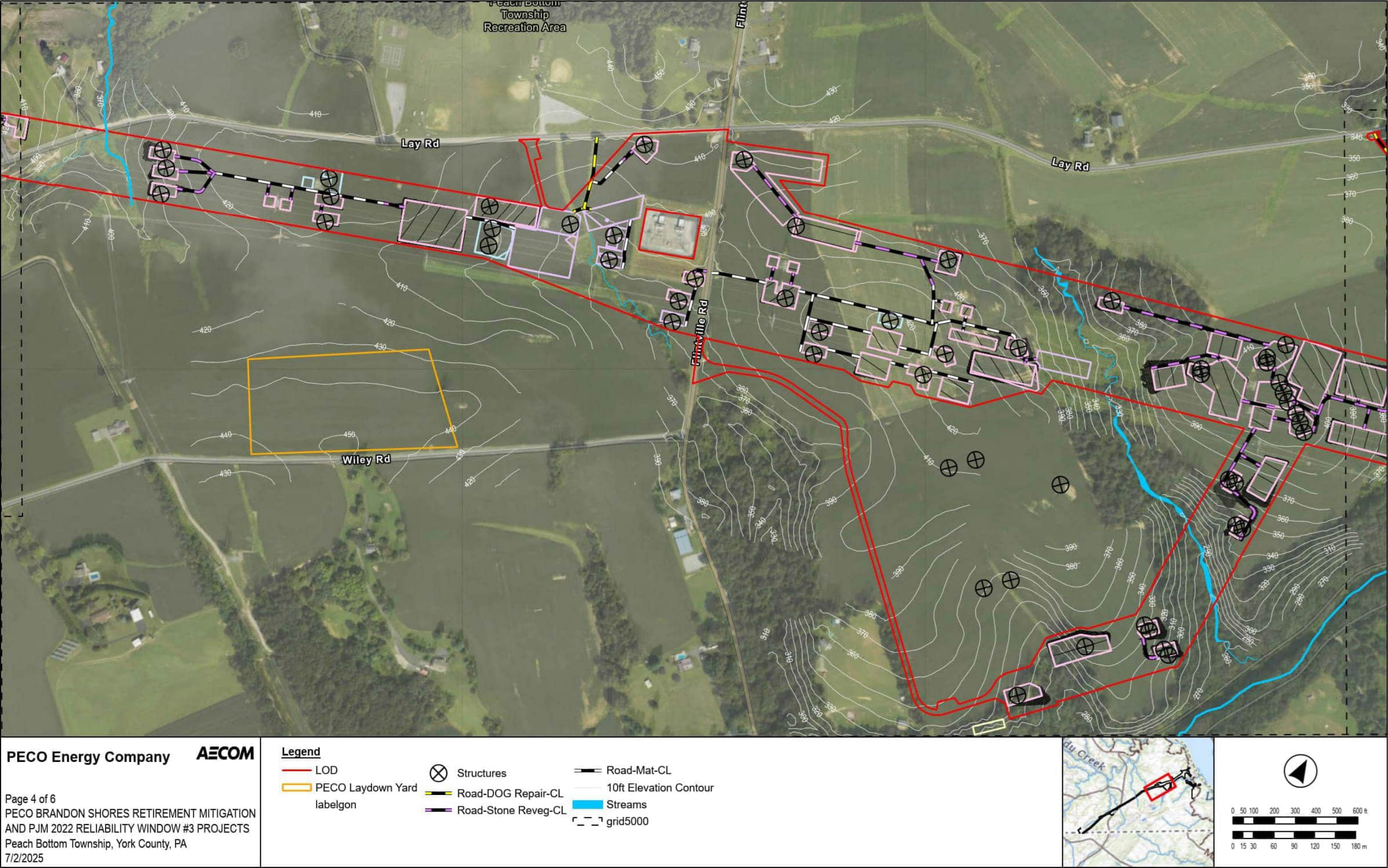


Figure 2d. Aerial view of the Projects.

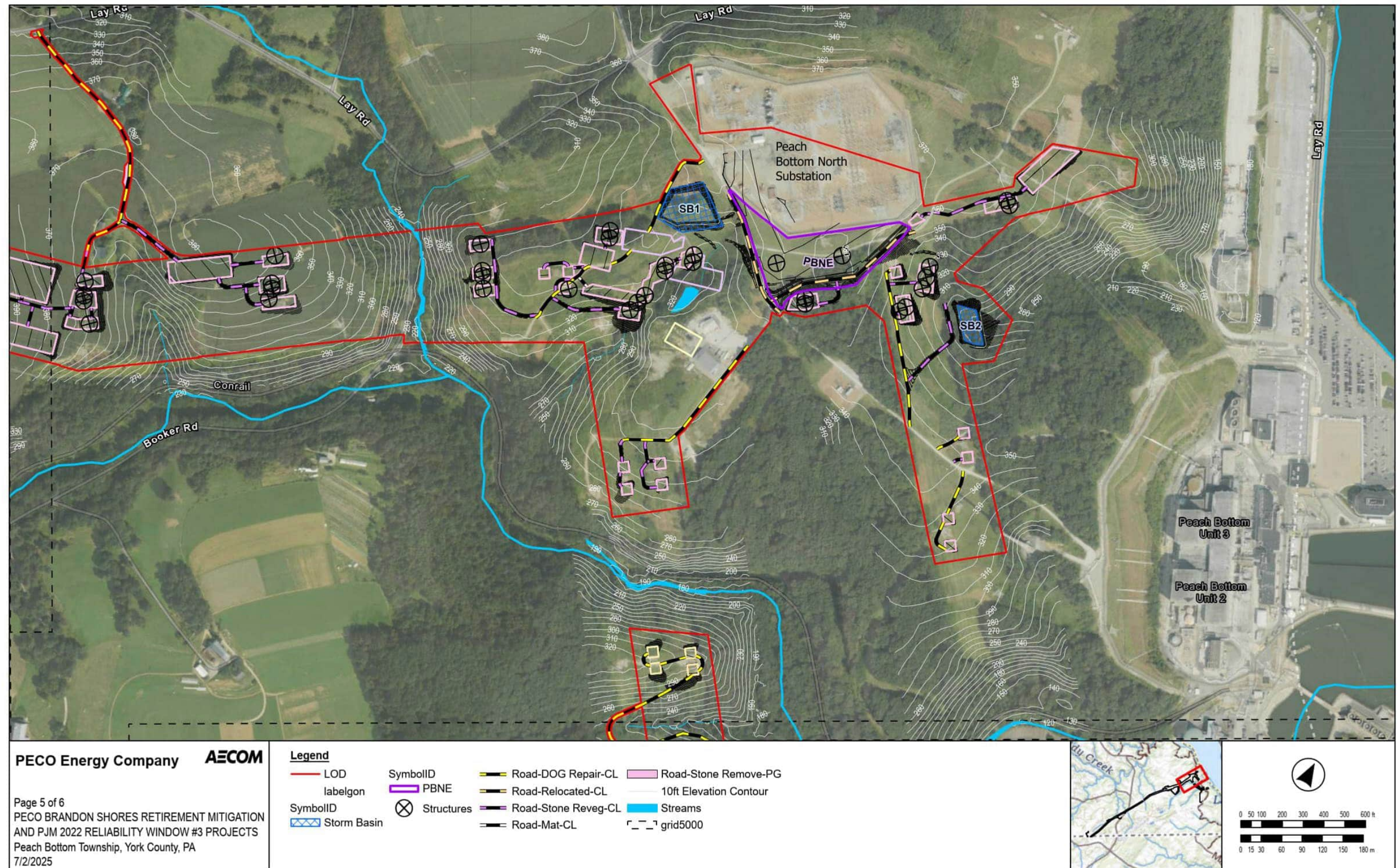
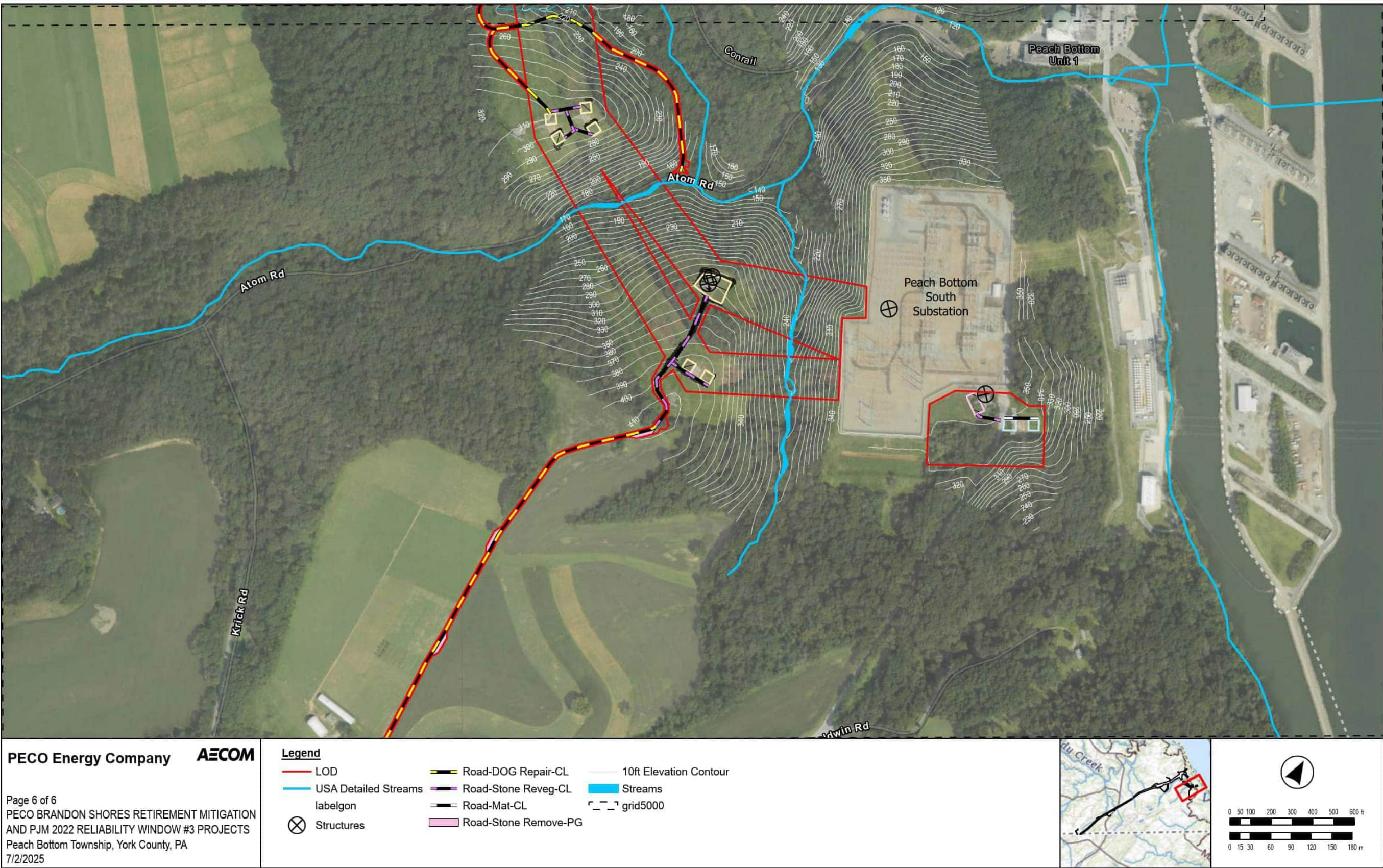


Figure 2e. Aerial view of the Projects.



Manor series soils comprise approximately 95.7 percent of the APE. Codorus silt loam is the only soil mapping unit in the APE that was formed in alluvium. It is mapped on the floodplains of Scotts Run and other, smaller tributary streams. The Codorus series is described as very deep, moderately well drained, and somewhat poorly drained soil. A typical profile consists of an Ap-Bw1-Bw2-C1-C2 horizon sequence. The Ap and Bw1 horizons are silt loam, while the Bw2 and C1 horizons are composed of loam. The C2 horizon is loam with stratified sand and gravel. There is some potential for buried archaeological deposits in Codorus silt loam (Web Soil Survey 2024)

Table 1: Soil Mapping Units in the APE

Mapping Unit	Genesis	Drainage	Landform Setting	Percentage of APE
Chester silt loam, 3 to 8 percent slopes	Residuum (MS)	Well drained	Summits, hillslopes	7.0
Chester gravelly silt loam, 3 to 8 percent slopes, moderately eroded	Residuum (Phy)	Well drained	Shoulder, hillslopes	>0.1
Codorus silt loam	Alluvium	Moderately well drained	Floodplains, toeslopes	4.3
Glenelg channery loam, 3 to 8 percent slopes	Residuum (MS)	Well drained	Summit, shoulder, backslopes	19.1
Glenelg channery silt loam, 8 to 15 percent slopes	Residuum (MS)	Well drained	Summit, shoulder, backslopes	33.2
Glenville silt loam, 3 to 8 percent slopes	Colluvium (Metamorphic)	Moderately well drained	Footslope, backslope	1.4
Mt. Airy and Manor soils, 3 to 8 percent slopes	Residuum (MS)	Somewhat excessively drained	Backslope, summit, shoulder	0.5
Mt. Airy and Manor soils, 8 to 15 percent slopes	Residuum (MS)	Somewhat excessively drained	Backslope, summit, shoulder	9.9
Mt. Airy and Manor soils, 15 to 25 percent slopes	Residuum (MS)	Somewhat excessively drained	Backslope, summit, shoulder	18.4
Mt. Airy and Manor soils, 25 to 35 percent slopes	Residuum (MS)	Somewhat excessively drained	Backslope, summit, shoulder	0.1
Mt. Airy and Manor soils, 25 to 60 percent slopes, extremely stony	Residuum (MS)	Somewhat excessively drained	Backslope, summit, shoulder	6.1
Total				100%

Braun (1950) classified pre-Colonial vegetation in Pennsylvania's Piedmont as part of the Oak-Chestnut Forest Region. The forest composition of eastern Pennsylvania after 5000 BP was in many ways similar to that of the pre-1930s oak-chestnut forest Braun describes. Floodplain and terrace soils along the creeks supported mesophytic species such as beech, oak, tulip tree, ash, sugar maple, and walnut. Valley floor forests were predominantly white oak, with maple and hickory as minor components. Edible tubers, berries, and fruits were abundant in the understory. Upland areas supported forest communities dominated by chestnut and various species of hickory and oak. While generally less productive than the valley floor, the upland forest also

contained a number of edible plant species. Although similar in composition, the primary, or climax, forest differed from modern secondary forests in that the former were characterized by canopy gaps resulting from falls of senescent trees that provided clearings favorable to a number of edible resources. Earlier vegetation patterns are discussed in Section 3, Prehistoric Context.

3

Background Research

Background research was conducted prior to the Phase I field survey to develop historic contexts for evaluating the potential significance of any archaeological sites identified by the Phase I survey. The locations of previously recorded archaeological sites were identified, and the results of previous archaeological research in the area were synthesized. Sources consulted during background research included the archaeological and historical data in the PA SHPO's online Pennsylvania's State Historic and Archaeological Resource Exchange (PA-SHARE), published and unpublished primary and secondary sources, aerial photographs, and historic and contemporary atlases and maps. These sources of information were used to develop expectations regarding the locations and types of archaeological sites that might be encountered during the Phase I survey.

PREHISTORIC CONTEXT

Pre-Clovis (ca. 16000 to 11500 BP)

Over the last 20 years, most archaeologists have accepted mounting evidence that Native Americans were present throughout North America before 13,000 BP, and perhaps as early as 16,000 BP. Early radiocarbon dates (ca. 16,000 BP) from Meadowcroft Rockshelter, reported nationally in 1977 (Adovasio et al. 1977), met with skepticism, as did dates of ca. 14,000 BP from the Monte Verde site in Chile (Dillehay 1989). In the intervening years, however, the excavation and analysis of other sites predating 12,000 BP from the Pacific to Atlantic coasts (e.g., Paisley Cave, Oregon, Cactus Hill, Virginia, Buttermilk Falls, Texas), together with wide acceptance of the dates from Monte Verde (Dillehay 1997, Meltzer 2009), have resulted in a nearly discipline-wide paradigm shift from the "Clovis First" model to an acceptance of a long period of initial colonization.

The Cactus Hill site in Virginia's coastal plain produced blade cores, blade tools, and thinned, lanceolate bifaces with an associated radiocarbon date of $15,070 \pm 70$ BP. This assemblage is distinctive in material and technology from the overlying Clovis component, dated to $10,920 \pm 250$ BP, and is vertically separated by 0.07 to 0.20 meters (0.2 to 0.7 feet) of sand (McAvoy and McAvoy 1997:167). If the radiocarbon assays from Cactus Hill accurately date the artifact assemblages (a hypothesis which is supported by pedological analysis at Cactus Hill [Wagner and McAvoy 2004]), the lithic technology of Pre-Clovis peoples appears qualitatively different from that of Clovis peoples.

Paleoindian (ca. 11500 to 10000 BP)

Paleoindian sites are most commonly identified by the presence of distinctive fluted bifaces. Other parts of the toolkit include formal flake tool types and large, bifacial cores. In general, Paleoindian toolkits are marked by a conspicuous use of high-quality cryptocrystalline lithic materials that often originate at considerable distances from their point of discard. The former characteristic is inferred to result from a need for durability over numerous episodes of intensive use at locations distant from sources (Goodyear 1979), while the distances from sites to sources

have been used to estimate maximum travel distances ranging from 75 to 400 kilometers for eastern North America (Custer and Stewart 1990). Carr and Adovasio (2002) note that while western fluted point occupations are often associated with the remains of extinct megafauna, eastern Paleoindian subsistence is more poorly understood. There are currently no unequivocal archaeological associations of Paleoindian components with extinct megafauna in eastern North America, although caribou was tentatively identified at Whipple (Curran 1984), Holcombe Beach (Fitting et al. 1966), and Cummins (Julig 1984). Paleoindian toolkits do not include the specialized tools for plant processing that became common during the Archaic period, a fact that has been interpreted to signify limited reliance on gathered foodstuffs. A greater emphasis on hunting has also been proposed on theoretical grounds (Kelly and Todd 1988, Waguespack and Surovell 2003). Nevertheless, seed and fish remains from Shawnee-Minisink suggest that more generalized foraging adaptations may have been practiced (Dent and Kauffman 1985). The Paleoindian artifact assemblage from Shawnee-Minisink is also instructive in that 91 percent of the lithic artifacts are composed of locally available black chert (Marshall 1985). These characteristics support Dent's (2002) observation that Paleoindian adaptations were likely to have been highly variable within the eastern United States.

Various site typologies/settlement patterns are envisioned for eastern Paleoindians (Custer et al. 1983, Gardner 1974, 1989, Lantz 1984, 1985). Carr and Adovasio (2002: 36) provide data indicating that approximately 80 percent of Paleoindian sites in the Piedmont province are located near third-order or larger streams, while only 20 percent are located near smaller streams. These authors suggest that Custer et al.'s (1983) cyclical, quarry-focused settlement pattern model (an elaboration of Gardner's work) best explains the high frequencies of jasper on Paleoindian sites in the Piedmont (Carr and Adovasio 2002: 40-41). Under this model, group territories and associated sites are small, and the settlement system involved movements between hypothetical base camps near the Flint Run, Hardyston, and Iron Hill quarries. It must be remembered, however, that all Piedmont Paleoindian site data are based on surface collected artifacts; therefore, site size, function, and assemblage composition are poorly understood. Nevertheless, there do seem to be geographically distinct patterns of Paleoindian raw material use and site size/assemblage richness between glaciated and unglaciated portions of the Commonwealth that are probably the result of distinctive settlement systems (Carr and Adovasio 2002, Meltzer 1984, 1988).

King's (1994) interpretation of pollen cores from ponds and bogs in eastern Pennsylvania provides a broad picture of changing vegetation communities from the Late Glacial (15,000-10,000 BP) to the Late Holocene. During the first 3,000 years of the Late Glacial period, tundra was present within 45 to 100 km of the ice front as it moved north. This "tundra zone" is likely to have included more northerly portions of Adams and York counties. Formerly periglacial areas were first vegetated by cold-adapted sedges and other wetland plants. By 13,000-12,000 BP, eastern Pennsylvania supported a mosaic of boreal-like forests, open habitats where willow and alder were present, along with extensive wetlands and areas of grassland. Throughout the latter part of the Late Glacial, the stable yet cold Polar Frontal Zone was present over Pennsylvania, which promoted the closing of boreal forests that is suggested by pollen data from Tannersville Bog, Panther Run, and Bear Meadows. Minor deciduous components were present in the Ridge and Valley by ca. 10-9,000 BP, which may imply that lower elevation

Piedmont settings may have contained more extensive deciduous forests during the Paleoindian period (Delcourt and Delcourt 1994).

Pennsylvania experienced the most dramatic changes in faunal composition toward the end of the Late Glacial period. Prior to this transition, faunal communities were characterized by the association of species that are now either extinct, regionally extirpated, or that have persisted into the modern period. Thirteen mammal species that became extinct during the Late Glacial have been recovered from Pennsylvania paleontological sites, several of which were documented at Bootlegger Sink, York County (Guilday et al. 1966). In addition, ten mammal species were present in the Late Glacial that occupy more northerly or westerly ranges today, the most economically important of which may have been caribou (Toomey and Fay 1994: 26). The co-occurrence of these species has been termed “non-analogous” and the most common explanation advanced for this situation is decreased seasonal variation during the Late Pleistocene (Lundelius et al. 1983). The variety of Pennsylvania’s Late Glacial fauna also suggests a mosaic of ecological settings that included grasslands, deciduous and boreal forests, and tundra-like habitats (Toomey and Fay 1994), which compliments environmental reconstructions based on pollen frequencies.

Early Archaic (10000 to 8500 BP)

The Early Archaic period (10,000 to 8,900 BP) is not well represented in the Potomac headwaters or the lower Susquehanna drainage (Carr 1998a, Carr and Adovasio 2002), and this summary necessarily draws on data from excavated sites in the greater Middle Atlantic region. This cultural period generally coincides with the Early Holocene environmental period. As the Laurentide ice sheet further decreased in size during the Early Holocene (10,000-8,000 BP), zonal flow from the warm, dry Pacific Air mass dominated Pennsylvania’s climate, and restricted intrusions of the Maritime Tropical Air mass. The result was the gradual replacement of boreal elements in lowland settings by oak-hemlock forests, although mixed conifer-hardwood forests and spruce-fir forests would have still been present at progressively higher elevations. This transition was probably complete by the beginning of the Middle Holocene (8,000-5,000 BP) (Delcourt and Delcourt 1994: 13).

The Early Archaic period was initially designated by researchers based on the exploratory excavations at St. Albans (Broyles 1971) and Doershuk (Coe 1964). Projectile point types such as Charleston, Amos, Kessel, Palmer, and Kirk (stemmed and notched) forms are diagnostic of the period. Plant food collection and processing is thought to have taken up a larger percentage of the subsistence activities of these groups and contributed a substantially larger part of the diet than during the Paleoindian period (Meltzer and Smith 1986). Botanical data from Early Archaic contexts at the Shawnee Minisink site suggest that a wider variety of floral species was utilized (Dent and Kauffman 1985). Pennsylvania’s Early and Middle Holocene fauna is known only from three sites (Hosterman’s Pit, Meadowcroft Rockshelter, New Paris #3), and although the assemblages are not large or diverse, they contain no species that were not present in the Historic period, with the exception of red fox and opossum (Toomey and Fay 1994: 35). Fauna from these periods suggest that deciduous woodland conditions prevailed in Pennsylvania; open-habitat and boreal species are rare or absent in these few assemblages (Toomey and Fay 1994: 36). The addition of chipped stone adzes, drills, and significant numbers of cobble tools to Early

Archaic toolkits serve as proxy data for a greater diversity of subsistence and maintenance activities during the period.

Early Archaic sites in the Potomac headwater drainages and the Piedmont portion of the lower Susquehanna drainage typically contain examples of the projectile types noted above for the sub-period, along with small collections of flake tools and debitage, however, no stratified examples are known. Early Archaic sites in upland settings are most frequently associated with upland bogs and the swampy floodplains of low-order streams (Custer 1996:125, Custer and Wallace 1982). Carr's analysis of lithic types represented by diagnostic Early Archaic projectile points indicates that rhyolite usage greatly increases from Paleoindian levels in the Susquehanna drainage; however, no data is provided for the Potomac drainage in Pennsylvania (Carr 1998a:56). The Early Archaic utilization of rhyolite suggests that forays into South Mountain began during this period. Carr (1998a:58-59) also notes a decline in the use of riverine settings and a lack of patterned use of different topographic settings by Early Archaic peoples in comparison to earlier Paleoindian groups and later bifurcate-using groups, attributing the difference to rapid environmental change during the Early Holocene. In general, Carr feels that there are sufficient similarities in settlement patterning and lithic preferences to include Early Archaic groups in an "adaptive pattern" similar to that of Paleoindian groups, the primary difference between the two being the less riverine-oriented site preferences exhibited during the Early Archaic. Carr is in agreement with several authors (Custer 1996, Gardner 1989, Stewart and Cavallo 1991) that greater organizational differences existed between Early Archaic groups and those of the Middle Archaic period (cf. Cowin 1991, Funk 1991).

Middle Archaic (8500-5000 BP)

Reported Middle Archaic sites in Pennsylvania are more numerous than either Early Archaic or Paleoindian sites. The majority (75 percent) of the Middle Archaic sites recorded in the PASS files were dated on the basis of the recovery of bifurcate-based points (Carr 1998b). Dates associated with bifurcate types in the Middle Atlantic region generally range from ca. 8,500 to 8,000 BP. Numerous authors have pointed out that sites from the later Middle Archaic are under-represented (Bergman et al. 1994, Carr 1998b, Custer 1996, Stewart 1991). Custer (1996:139-143) suggests that, at least in the lower Susquehanna Valley, many of the diagnostic projectile points used to mark the Late Archaic were first produced in the late Middle Archaic, resulting in the inflation of the number of Late Archaic sites.

During the early portion of the Middle Archaic sub-period, deciduous, mast-bearing tree species began to dominate forests in both upland and lowland settings, possibly due to the onset of warmer and wetter climate during the Atlantic climatic period (Davis 1983, Delcourt and Delcourt 1994, Vento and Rollins 1990). The increase in mast-producing species would have increased the carrying capacity of upland environments, resulting in higher terrestrial game populations. It is probably not coincidental that the earliest sustained utilization of upland settings began during the early Middle Archaic. Custer (1996:160-162) lists the following additional trends for the Middle Archaic in southeastern Pennsylvania: (1) a greater diversity of tools-particularly heavy woodworking tools, suggesting a wider range of tasks and (possibly) localized forest clearance; (2) flake core as opposed to biface core technology, possibly

indicating more expedient approaches to tool production and use; and (3) a wider range of raw materials utilized, suggesting the localization of lithic catchments and perhaps smaller territories.

Although the corpus of excavated, stratified early Middle Archaic sites in the Susquehanna drainage is small (Custer et al. 1996, Jacoby et al. 1998, Raber 2003, Wall et al. 2002), they can be characterized as small, short-term base camps or resource procurement sites with few indications of reoccupation. This patterning is seen as indicative of a foraging settlement/subsistence system (*sensu* Binford 1980), where frequent moves are made between resource locations and little to no emphasis is placed on storage. This strategy is practical in environments with relatively even resource distributions or where social boundaries do not place strict limits on resource procurement. The repeated use of a specific landform is a common pattern in the Middle Atlantic, but the occupations do not often overlap, which is substantially different from the Late Archaic pattern of dense, overlapping occupations over a broad portion of a landform (Stewart and Cavallo 1991, Wall et al. 1996). Custer notes that Middle Archaic site locations are poorly known in the Piedmont, but, citing Kavanaugh's (1982) study of the Monocacy drainage, upland site locations tend to be situated in many of the same settings as during the Paleoindian and Early Archaic periods (Custer 1996:158).

Stewart's examination of rhyolite distribution in the Piedmont of Maryland and Pennsylvania suggests that by the early Middle Archaic, 78 percent of temporally diagnostic artifacts were manufactured from this material, indicating more regular forays into the Blue Ridge at this time (1983:56). This hypothesis is supported by Carr and Winter's work at a rhyolite quarry site (36AD153) on South Mountain, Adams County, Pennsylvania. Excavation of one quarry pit at this site revealed two hearths located near the base of the pit, which returned wood charcoal dates of 7550±130 BP and 7970±125 BP. A Kirk Stemmed point was recovered higher in the pit fill (Carr and Winters 2001).

Late Archaic (5000-3000 BP)

Most of the recorded Archaic sites in Pennsylvania are attributed to the Late Archaic period (5000 to 3000 BP). This period bridges the late Middle Holocene and Late Holocene environmental periods. Perhaps the most significant vegetational change of the Middle Holocene was the catastrophic reduction in hemlock ca. 4,500 BP. Although Vento and Rollins (1990) indicate that warm-dry conditions associated with the Sub-Boreal climatic period may have been responsible for hemlock decline, Davis (1981, 1983) attributes the sharp and nearly simultaneous drop in hemlock pollen throughout its range to a possible pathogen attack. More recent paleoenvironmental work in Ontario links the hemlock decline to insect-driven defoliation (Bhury and Fillion 1996). Prior to its recovery nearly 2,000 years later, increased oak, hickory, and beech pollen apparently filled the gap created by hemlock's decline (Delcourt and Delcourt 1994, Fuller 1998). The return to warm and dry climate ca. 5,000 to 3,000 BP (variously called the Xerothermic or Hypsithermal period) is suggested by several Middle Atlantic researchers (Custer 1988, Curry and Custer 1982, Stewart 1990a, Vento and Rollins 1990). Custer (1988), in particular, sees the desiccation of upland water sources and forests as causal factors in Late Archaic cultural developments. Curry and Custer (1982) and Stewart (1990a) present evidence for increased aeolian deposition and site burial in the Piedmont and Coastal Plain portions of New Jersey, Maryland, and Delaware. However, there is at present no compelling evidence to

suggest desiccation of upland environments in Pennsylvania's Piedmont. Pollen profiles presented by Watts (1979) for Longswamp, Berks County show no significant increases in non-arboreal pollen during the interval in question.

Many of the cultural trends seen on Late Archaic sites were apparently based on patterns that developed during the later Middle Archaic period. Late Archaic sites, generally, display increased use of local lithic resources, greater numbers of cobble-based and ground stone tools, more expedient approaches to lithic technology, and greater use of upland locales. Differences between the two periods are more a matter of scale. Through the Late Archaic period, site size and complexity increased in floodplain and terrace settings along major rivers and tributary streams, the number of features per site area generally increased, and the frequency of extensive fire-cracked rock scatters and concentrations (often called platform hearths) in these settings increased, particularly during the interval between ca. 3800 and 2750 BP (aka Terminal Archaic after Snow 1980). The pattern of small, spatially restricted activity areas seen during the Middle Archaic gave way to intensively and repeatedly reused locations that are presumed to have functioned as base camps (Custer 1996). These river-proximal locations are complemented by numerous small sites with limited tool inventories in uplands, which suggests that settlement/subsistence systems were trending towards a more logistical organization (Binford 1980) than was the case for Middle Archaic groups.

Late Middle Archaic/early Late Archaic groups in the Susquehanna Drainage were involved in some level of horticulture. Cucurbita rind fragments recovered from late Middle Archaic contexts at the Memorial Park site (36CN164) on the Susquehanna River's West Branch have been directly dated to 5404 ± 552 BP (Hart and Asch Sidell 1997:527). The intensification of the exploitation of different food resources during this period, the regionalization of projectile point styles, and the exchange of stone for tool manufacture are thought to be associated with an increase in Late Archaic populations, territorial circumscription, and greater levels of sedentism (Custer 1996).

The exchange of non-local lithic materials in the form of partially finished to finished artifacts began in the early portion of the period and increased significantly from ca. 3600 to 3000 BP. Steatite bowls from southeastern Pennsylvania and northern Maryland sources were exchanged throughout the Middle Atlantic and Northeast during this interval (Truncer et al. 1998), as was jasper from the Reading Prong (Hatch 1993), and rhyolite from the Blue Ridge (Stewart 1984). Various authors have proposed that increased regional exchange during the waning years of the Late Archaic was a response to the reduction in the size of resource procurement territories as population density increased. More frequent gift exchange would have served to promote alliances/debt relations between distant social groups that could be used to offset local resource shortfalls (Custer 1988, Stewart 1989). Other positive aspects of more formalized group alliances would have included the transmission of technological, social, and environmental information and the ability to adjust group size/composition over a larger spatial scale.

Very few stratified sites with Late Archaic components are known for the lower Susquehanna Drainage or the Potomac headwater drainages. For the former area, the best example of a floodplain/terrace base camp is the City Island site. The most spatially extensive occupation of the site appears to date between 4000 and 5400 BP, based on three radiocarbon dates (Myers et

al 1995:8-21). These assays calibrate between 2930 and 3960 BC, spanning the late Middle Archaic and the early Late Archaic. During this interval, the site appears to have been used as a series of base camps. Caches of bifaces and ground stone tools suggest planned, cyclical re-use of the site, possibly on a seasonal basis. Large hearths and extensive scatters of fire-cracked rock indicate re-use of the site as well as extensive resource processing (Myers et al 1995:6-92, 117, 8-15).

Late Archaic settlement patterns and site functions in the Piedmont west of the Susquehanna River are not well understood, however Custer (1996:199-201) suggests that the trends indicated in Kavanaugh's (1982) survey of the Monocacy Valley are probably applicable to this portion of the Commonwealth. In the latter area, the number of sites with Late Archaic components increases over those of earlier Archaic sub-periods, and for the first time, these sites are found in all environmental zones (Custer 1996:200).

Early Woodland (3000 to 2000 BP)

Regionally, this sub-period is marked by increased burial ceremonialism, greater use of pottery, and increased sedentism. The cyclical re-use of sites, especially base camp sites on major river terraces, appears to continue from the Terminal Archaic; however, evidence for horticulture is sparse (Custer 1996:217, Stewart 2003:6-7). Early Woodland diagnostic artifacts include Meadowood, Hellgramite, Adena, and Rossville projectile point types, and a variety of pottery types. Although Custer posits regional population increases after 3000 BP, data compiled for Pennsylvania's portion of the Susquehanna and Potomac drainages suggest that Early Woodland (and Middle Woodland) site numbers decrease precipitously from Late Archaic levels (Wyatt 2003:36, Table 1). While this data could be interpreted as the result of population decline, it is equally likely that some Early Woodland sites without pottery are attributed to the Late Archaic on the basis of generalized stemmed and notched projectile forms (Custer 1996:227, Stewart 2003:8, Wyatt 2003:42-44). Increased burial ceremonialism in the Lower Susquehanna drainage/Potomac headwaters is suggested by collectors' finds of Adena-related materials (Smith 1972, 1979), but there is no indication that mortuary sites comparable to the Delmarva Adena Complex (Custer 1984, Thomas 1970, 1976) are present in these areas.

The earliest known pottery vessels produced in the Susquehanna drainage were thick-walled, flat-bottomed, steatite-tempered forms that have been included in the Marcey Creek type (Manson 1948). Two dates associated with the type from the Monocacy site in the Potomac drainage range between 2900±95 and 2495±95 BP (Ayers 1972), however an earlier date of 3160±100 BP was secured from a feature in close proximity to steatite-tempered sherds in a sealed context at the Jacobs site on the North Branch of the Susquehanna River in Luzerne County (Weed and Wenstrom 1994:99, 113-117). This date, together with the association of Marcey Creek sherds and Orient Fishtails in other stratigraphically sealed and radiocarbon-dated contexts in the Susquehanna and Delaware drainages, indicates that initial pottery production began during the Terminal Archaic period (Kinsey 1972:451). The frequency of use, formal variability, and range of temper types increased through the Early Woodland. In general, forms became predominantly conoidal, with wall thickness and temper size gradually decreasing (Custer 1996:223, Smith 1978).

Smith's excavations at the Three Mile Island site produced a substantial Early Woodland ceramic assemblage, suggesting a base camp occupation; unfortunately, no features were encountered to support the inferred site function or to date the ceramics. Nevertheless, the changes noted above for wall thickness and temper size were established based on limited vertical stratification (Smith 1977:12-30). Early grit-tempered pottery was recovered in a stratified context at site 36YO246 near Goldsboro, York County. Wood charcoal from a pit feature containing "rock tempered" exterior cord-marked, interior-smoothed pottery, rhyolite debitage, and carbonized hickory nutshells, which returned a date of 2520±70 BP (Kinsey 1992:9). No characterization of site function was possible due to the small area excavated, and the site was avoided during construction.

Limited testing of site 36YO337, located on a high terrace of the Susquehanna River upstream from 36YO246 produced a similar association of rhyolite debitage and thick, quartz-tempered, exterior cord-marked pottery in several plow-truncated features. Wood charcoal from Feature 2 yielded a date of 2300±80 BP (Rue and Diamanti 2001:15). Although no projectiles were recovered from pottery-bearing features, Rue and Diamanti suggest that the most numerous projectile type found at the site is formally similar to the Calvert type found in association with early pottery at the Three Mile Island site.

Middle Woodland (2000 to 1000 BP)

Excavated examples of Middle Woodland sites in the lower Susquehanna drainage are few in number, and no excavated components from this time period represent the Piedmont portion of the Potomac headwater drainages. As Stewart notes for Pennsylvania as a whole, this lack of excavated sites inhibits the construction of even rudimentary settlement/subsistence models (Stewart 2003:20-21). Throughout the Middle Atlantic, Fox Creek projectile point types are diagnostic of the initial part of the period (2,000 to 1,500 BP), while Jacks Reef and possibly basal notched projectile types are diagnostic of sites of the latter half of the period. Triangular points became more common from ca. 1400 BP and became the dominant projectile form during the Late Woodland. Stone and pottery pipes continue to be used and ground stone gorgets are more common than in the Early Woodland. Pottery exhibits much greater variation throughout the region. In coastal areas of Delaware, New Jersey, and New York, as well as the area around Chesapeake Bay, cordmarked, shell-tempered Mockley pottery (Stephenson et al. 1963) dates between ca. 1900 and 1100 BP (Custer 1984, Dent 1995). This type is also seen in the extreme lower Susquehanna Valley at the Conowingo site (18CE14, MacNamara 1983) and at an interior rockshelter overlooking Tucquan Creek (36LA11, Kent and Packard 1969:35-36). At the latter site, a number of Mockley sherds were in stratigraphic association with a basal notched point. This, along with other contextual data that basal notched points are Early to Middle Woodland in age (Kent and Packard 1969:32).

Other excavated Middle Woodland components in the lower Susquehanna drainage include the Three Mile Island site. As noted above, Smith was able to construct a relative pottery sequence for the site, assigning Susquehanna Net/Fabric Impressed, Accokeek Cordmarked, Susquehanna Cordmarked, and a number of other types to the Middle Woodland (Smith 1978:23-25, Figure 7). Although Clemsons Island pottery is rarely found south of the Ridge and Valley Province, its presence on sites in the lower Susquehanna drainage would provide relative dates between ca.

1200 and 700 BP. This is a particularly important time range because sites dating from the late Middle Woodland through early Late Woodland sub-periods are virtually unknown in the Lower Susquehanna in Pennsylvania.

Late Woodland (1,000 to 400 BP)

The Late Woodland is marked by an almost region-wide transition to horticultural practices and a shift to larger, more permanent settlements throughout the Middle Atlantic. In the upper and central Susquehanna drainage, settlement in floodplain hamlets began by ca. 1200 BP (Hart 1995, Stewart 1990b, 1994, 1995). Although the status of these settlements as year-round habitations is far from clear, their occupants managed complex horticultural systems that involved the cultivation of maize, squash, sunflower, chenopodium, knotweed, and little barley (Hart and Asch Sidell 1996, King 1992, Miller 1993). In the lower Susquehanna drainages, however, the period from ca. 1200 to 700/600 BP is poorly understood.

Sites of the Shenks Ferry archaeological culture are widely distributed in the Piedmont portion of the lower Susquehanna drainage in Lancaster County, dating between ca. 700 and 400 BP (Custer 1996:274, Table 25). Shenks Ferry sites are most often identified on the basis of fairly distinctive incised pottery that is predominantly tempered with metamorphic rock (Heisey 1971, Witthoft and Farver 1952). Due to lack of sites dated between ca. 1200 and 700 BP, the origins of this archaeological culture are very poorly understood. Kinsey and Graybill (1971) delineated three successive Shenks Ferry phases that are based on changes in pottery construction and settlement patterns. The Blue Rock phase is the earliest of the three and is characterized by settlement in non-palisaded farmsteads or hamlets (i.e. Blue Rock [Heisey and Witmer 1964], Shenks Ferry [Herbstritt and Kent 1990]). Kinsey and Graybill (1971:36) postulate that Stewart Phase Shenks Ferry (*sensu* Witthoft 1954) inhabitants of the West Branch and North Branch valleys of the Susquehanna River moved into the Piedmont at the end of the Blue Rock phase, and that the development of planned, fortified villages began during the ensuing Lancaster and Funk phases. Examples of these large village sites include the Murry site (Kinsey and Graybill 1971), Mohr (Gruber 1971), and Slackwater (Custer et al. 1993).

Circular palisades enclose all known Shenks Ferry villages, but the arrangement of houses within the palisade appears to be somewhat variable. At both Murry and Mohr, village layout includes two concentric rings of subrectangular houses which surround a central plaza (Kinsey and Graybill 1971, David Mudge, Temple University, personal communication 1998). Similar Late Woodland/Late Prehistoric village plans are typical of archaeological cultures in the Ohio and Potomac valleys. Village layout at the Slackwater site, however, appears crowded, with many house patterns almost touching (Custer et al. 1993). Circular structures occupy the plaza at both Murry and Slackwater and have been interpreted as men's lodges/ceremonial structures (Kinsey and Graybill 1971) and ritual structures (Custer et al. 1993, Custer 1996:282-283), respectively. The geographic distribution of Shenks Ferry villages appears to have become more restricted through time, although the reasons for this trend are unclear. Kinsey and Graybill (1971) note that Blue Rock Phase sites can be found throughout the lower Susquehanna drainage south of Blue Mountain, while Lancaster and Funk Phase villages appear to be restricted to Lancaster County. The majority of village sites are located either on high terraces of the Susquehanna or on upland landforms in close proximity to Conestoga Creek.

While maize has been recovered from these sites and greater levels of horticultural investment is almost certain for Shenks Ferry, very little botanical or other subsistence data is available for the later portion of the Late Woodland period. Shenks Ferry features have thus far yielded no European trade goods, indicating that the archaeological culture did not persist long past ca. 400 BP. The co-occurrence of Shenks Ferry and Susquehannock pottery in features at the Shenks Ferry site has long been interpreted as evidence of contact between these groups (Cadzow 1936, Witthoft 1959). Explanations for the “disappearance” of Shenks Ferry archaeological culture include conquest/integration with Susquehannock ethnic groups (Kent 2001, Kinsey and Graybill 1971, Witthoft 1959), or depopulation via European-introduced disease (Graybill 1989).

HISTORIC CONTEXT

Contact (A.D. 1600 to 1720)

In the lower Susquehanna Valley, the earliest documented contact between the Susquehannocks and Europeans was the 1608 meeting with Captain John Smith and his crew from Jamestown at the head of the Chesapeake Bay (Barbour 1986:148-150). Culturally and linguistically, the Susquehannocks were closely related to other Iroquoian groups in New York and Canada (Jennings 1978, Kent 2001, Mithun 1981). The current model of Susquehannock culture history places their migration from the upper Susquehanna Valley to the lower Susquehanna Valley and upper Potomac Valley around 1575 (Kent 2001). The Susquehannocks lived in longhouses within compact palisaded villages and practiced maize-bean-squash-based agriculture. From the 1620s through the 1660s, the Susquehannocks were the primary fur suppliers to the English colonies of Maryland and Virginia, and to the Dutch and Swedish settlements on the Delaware Bay. Sometime between 1673 and 1675, the Susquehannocks abandoned the lower Susquehanna Valley; however, the cause of their relocation is disputed. Despite Jesuit records from 1675 indicating a decisive Five Nations defeat of the Susquehannocks, Jennings (1968:31-34, 1984:135-141) surmised that Lord Baltimore invited the Susquehannocks to live in Maryland, while Tooker (1984) supported the traditional account of dispersal by the Five Nations.

Maryland colonial documents suggest that at least some of the Susquehannocks returned to the lower Susquehanna Valley by 1676 and that others lived among the Seneca and Lenape (Kent 2001:48-55, Jennings 1984:149-154). Between this date and 1690, Susquehannock presence in the lower Susquehanna is poorly understood, but a Susquehannock town is indicated in the area by Maryland documents of 1690 and 1693 (Kent 2001:56-58).

Throughout their tenure in the lower Susquehanna Valley, the Susquehannock’s village sites were located on high terraces and other landforms overlooking the Susquehanna River in Lancaster, York, and Cumberland Counties. To date, archaeological investigations have focused on these village sites; no Susquehannock archaeological sites have been identified outside of this riverine corridor. As a result, their utilization of interior uplands is poorly understood, and there is no evidence for Susquehannock use of the Potomac sub-basin in Pennsylvania.

Colonial Period (A.D. 1682 to 1776)

The area west of the Susquehanna River that would become York County was originally part of Lancaster County. Land on both sides of the river were sold by the Haudenosaunee to Governor Dongan of New York, who then deeded the area to William Penn in 1684. The immediate descendants of the Susquehannock, called “Conestogas” by the English, contested the Haudenosaunee’s right to sell this land and granted a separate deed to William Penn for his use of the area in 1700. Neither deed, however, allowed for settlement west of the Susquehanna River by persons other than Penn and his descendants. Nevertheless, by 1729, Palatine Germans settled near Kreutz Creek in east-central York County, while English Quakers occupied the Pigeon Hills area of south-central York County. Through the 1730s, Scotch-Irish and English settlers moved into the southeastern corner of the county in present-day Chanceford, Fawn, and Peach Bottom Townships (Gibson 1886: 17-19). Early settlers crossed the Susquehanna River by ferries established at Wrightsville (1730) and Peach Bottom (1738) (Gibson 1886: 279, 326). These early colonial settlements were contested by the Conestoga and the more powerful Haudenosaunee until the latter agreed to deed clear title to lands west of the Susquehanna River to William Penn’s sons in 1736 (Gibson 1886:33-40). The earliest overland travel route through present-day York County was the Monocacy Path, which extended from west from Wright’s Ferry to York, then southwest through Hanover into Maryland (Wallace 1993: 105). Originally a Native American path, it was widened under the authority of the Lancaster court in 1739. Residents of smaller settlements and burgeoning towns petitioned the Lancaster County court, and after its formation, the York County court, to authorize roads to York or extending north to Carlisle from the 1740s through the 1780s (Gibson 1886: 321-326).

Baltzer Spangler obtained permission from Thomas Penn to plat what would become the town of York. The town was surveyed by Thomas Cookson in 1741 and was the first Euro-American town center west of the Susquehanna River. Referred to as “Yorktown” throughout the eighteenth century, it was named after the northern English town of York, even using York’s White Rose as its emblem. Because the land was initially part of Lancaster County, the residents of the area petitioned the Lancaster Provisional Assembly to form their own government, with Yorktown as the new county seat. In 1749, York County became the fifth county in colonial Pennsylvania and included the area of present-day Adams County until 1800. At its founding, the county held 1,466 taxable residents and a population of about 6,000. In 1767, surveyors Mason and Dixon established the current boundary between York County and the State of Maryland, ending the violent confrontations between settlers in the border area. (Gibson 1886: 96, 66-69, 83, 299-300).

Subsistence farming, with agricultural surplus going to local markets formed the primary economy of the county in the eighteenth century, along with milling, blacksmithing, and more specialized trades in York and other larger towns. Iron production began in the Pigeon Hills at Spring Forge (1756-1850) and Mary Ann Furnace (ca. 1763-1801). Hallam Forge/Codorus Forge, located at the confluence of Codorus Creek with the Susquehanna River operated from 1765 and 1884 and is credited with supplying the Continental Army with cannons and ordnance at Valley Forge during the winter of 1777-1778 Gibson (1886: 484-486).

Doutrich (2000) argued that York County's support for and participation in the American Revolution transformed the county from a loose aggregation of ethnically isolated settlements into an economically progressive American community. In 1774, leading York County residents raised money and goods for the people of Boston in response to the English Parliament's punishment of the city, established a Committee of Correspondence, and began voluntary military drills. In August 1775, York County sent a volunteer 81-man rifle company composed of Scots-Irish and Germans to join the Continental Army in Cambridge, Massachusetts. By the end of that year, approximately 3,395 (75 percent) of York County men between 15 and 55 years of age had joined the Continental Army (Doutrick 2000: 91-93). During the British occupation of Philadelphia, the Continental Congress retreated to York from September 1777 to June 1778, where they passed the Articles of Confederation. It was during this interval that stage lines began carrying passengers and mail between Lancaster, Reading, and York. By 1783, York County's population had grown to 27,007 persons of European descent and 657 enslaved persons of African heritage (Gibson 1886: 301, 327).

Prior to its establishment in 1815 from the eastern portion of Fawn Township, Peach Bottom Township was settled primarily by Scotch and Scotch-Irish Presbyterians beginning around 1725 when the Peach Bottom Ferry was established across the Susquehanna River from Lancaster County to what would become Peach Bottom village. These early settlers cleared small tracts of forest for dwellings and cultivated potatoes, wheat, and rye for subsistence. By 1752, a road was laid out from Peach Bottom Ferry to an existing road leading to Yorktown. The area of Peach Bottom, Fawn, and Lower Chanceford Townships was referred to as "The Barrens" due to relatively poor soil and throughout the eighteenth century farmers would shift agricultural plots to maintain soil fertility (Gibson 1886: 761-765). Later nineteenth-century histories provide little information on the presence of eighteenth century mills or trades other than farming; however, a few must have existed.

Peach Bottom Township

Peach Bottom village and Slate Hill became the primary centers of economic activity in eastern Peach Bottom Township in the early nineteenth century. Peach Bottom village was located on higher terraces of the Susquehanna River at a first-order stream confluence and was partially inundated by Conowingo Reservoir when the Conowingo Dam was put into operation in 1928. The remaining buildings in Peach Bottom village were razed prior to 1967 for the construction of the Peach Bottom Atomic Power Station (Wikipedia 2024).

A grist mill and store near Peach Bottom Ferry were established in 1798 and a post office followed in 1815 (Gibson 1886: 765). Most of the commercial American shad fisheries on the Susquehanna River in Pennsylvania were located in York County from Wrightsville to the Maryland state line. John Kirk, who established the mill and store at Peach Bottom, operated seventeen shore and island fishing stations in the Susquehanna River at Peach Bottom between 1806 through 1821. His fishery continued under subsequent owners until the construction of Conowingo Dam, which ended shad migration north in the Susquehanna River and the historically important commercial shad fishery (Gerstell 1998).

Slate mining and the production of slate roofing tiles were important early nineteenth-century industries in Peach Bottom Township, with the first large-scale quarries opened between 1805 and 1812. By 1858, there were 11 slate quarries in the township, and many of these were operated by Welsh immigrants with extensive experience in slate mining in northern Wales before coming to Pennsylvania in the 1840s. Welsh immigrants established small, tight-knit communities near the quarries which bear the names of towns and areas in Wales, such as West Bangor and Ailston. The slate quarry owned and operated by Welshman John Humphrey was established in 1849 and remained in business until 1911, producing roofing slate, tombstones, and grave covers (Gibson 1886: 767-768; Jones 1999).

The shad industry and slate quarrying in Peach Bottom Township increased in scale through the mid- to late nineteenth century due to two major transportation improvements, which provided access to Baltimore markets. The Susquehanna and Tidewater Canal (S&T Canal) opened in 1840 and extended from Wrightsville, Pennsylvania to Havre de Grace, Maryland. Although beset by structural problems in its early years and subject to natural disasters throughout its life, the S&T Canal primarily carried coal and timber from its junction with the Susquehanna Canal but also salted and packed shad, slate, and agricultural surplus from Peach Bottom Township downstream to Havre de Grace where it was off-loaded to ships bound for Baltimore (Gibson 1886: 333-335). In 1872, the Reading Railroad purchased the canal, largely for its coal-carrying capacity. The railroad abandoned the canal following severe flood damage in 1894. Boats ran on parts of the S&T for a few more years but by 1902 all operations along its length had ceased (Shank 1973:69-72).

The narrow-gauge York and Peach Bottom Railroad, operating between 1864 and 1876, was constructed from York southeast to Delta and then east to Peach Bottom village. In 1884, a second narrow-gauge line, the Baltimore and Delta Railroad, was opened in Peach Bottom Township, giving Delta and the township an outlet to an even larger market. The railroads were consolidated as the Maryland and Pennsylvania Railroad in 1891. In 1958, the railroad discontinued service south of Whiteford, Maryland, just south of Delta, but the line was briefly revived with extensive grade modifications between 1967 and 1970 to carry heavy freight for the construction of the Peach Bottom Nuclear Power Station (n.a. 1980:9-10).

The decline of the S&T canal, coupled with the development of the slate mining industry and the advent of sustained rail service through Delta west of the Susquehanna, led to the decline of the Peach Bottom village. In the 1960s it was destroyed and replaced by the Peach Bottom Nuclear Power Station. With Peach Bottom's decline, West Bangor briefly became a commercial center during the third quarter of the nineteenth century. It was the town of Delta, however, that ultimately became the township's commercial center. Located to the west of the APE, Delta acquired its first official post office in 1869. Eleven years later the town was incorporated as a Borough (Gibson 1886:490, 765-766).

With the decline and eventual end of slate quarrying, the population of Peach Bottom Township sank. From just under 1,900 in 1900, it dropped to about 1,600 in 1920 and around 1,300 in 1940. It remained stable for the next 20 years but still had not climbed above 1,700 by 1980. In the 1980s, the township saw its first growth spurt in 120 years, as its population leapt during the

decade to 3,444 (York Dispatch 1991). The township's population stood at 5,088 people as of July 2024 (U.S. Census Bureau 2024.)

The most noteworthy event in Peach Bottom Township in the last half of the twentieth century was the construction of the Peach Bottom Nuclear Power Station at the former site of Peach Bottom village on the Susquehanna River. Ground for the plant was broken in 1962. The plant was 60 percent complete by January of 1964 and in 1967 its first reactor was put into operation. Between 1968 and 1974, three other reactors were constructed. The former rail right-of-way to Peach Bottom was reopened, and a new rail line was constructed along it at this time in order to move parts and equipment more readily to the site (Gazette and Dispatch 1961; York Dispatch 1964; n.a. 1980:17).

PREVIOUS ARCHAEOLOGICAL SURVEYS AND RECORDED SITES

A review of PA-SHARE indicated that four archaeological surveys were conducted within 0.8 km (0.5 mi) of the Projects and identified three historic archaeological sites (Figures 3a through 3f). A Phase I archaeological survey tested the route for PECO's existing 500 kV Calpine Transmission Line and buried water lines, which run parallel to the south and west of the Projects' APE, as well as the existing Calpine Generation Facility approximately 0.97 km (~0.6 mi) south of the Projects (Cassedy et al 2001) (Figures 3d through 3f). This survey identified the Wiley Grist Mill site (36YO0344), located west of the Projects between the Peach Bottom North Substation and the Peach Bottom South Substation. The site consists of a 10-meter (m) by 7-m (~33-foot [ft] by 23-ft) structure that features mortared stone walls with an adjoining 10 m by 5.5 m (~33 ft by 18 ft) concrete pad with sills. The adjacent intermittent stream was channelized between limestone retaining walls, which Cassedy et al designated a mill race (2001: 27-33).

The authors associated the site with a grist mill labeled "G[rist] Mill R. Wiley Hrs [Heirs]" depicted on an 1876 map of Peach Bottom Township (Nichols 1876). This mill was absent from an earlier 1860 map, leading the authors to suggest that 36YO0344 was constructed prior to 1876. Based on the site's integrity, the authors recommended that 36YO0344 was potentially NRHP eligible and that Phase II investigations should be conducted if the site could not be avoided (Cassedy et al 2001:34). The site's NRHP status is listed in PA-SHARE as undetermined. Review of the 1876 map indicates that the only mill labeled "Wiley" on the map was located approximately 1.1 km (~0.7 mi) north of the location of 36YO0344. Despite the potential misattribution, the site's features suggest it is a nineteenth-century mill that is not depicted on the 1876 map or subsequent early twentieth-century topographic maps.

A Phase I archaeological survey for Transource's proposed Bramah Substation (Survey Number 2025SR00149) identified two historic archaeological sites, the Sample House site (36YO0499) and the Wiley site (36YO0500), which extend into the current Projects' APE (see Figure 3d). These sites were recorded in PA-SHARE in May 2025 and their NRHP eligibility is listed as undetermined. The accompanying Phase I survey report has not been submitted for PA SHPO review and no detailed plans or recommendations are available; however, the information below was present on PA-SHARE.

Site 36YO0499 is associated with the former location of the NRHP-eligible Sample House (2001RE00562), a historic architectural resource that appears on historic maps from 1860 (Lake 1860) and 1876 (Nichols 1876). Based on a review of aerial images, the Sample House was demolished between 2007 and 2008. The site boundaries are currently defined by an area of four consecutive STPs that yielded 49 historic artifacts that included vessel glass, serving/storage-related ceramics, and architectural artifacts from the surface soil horizon.

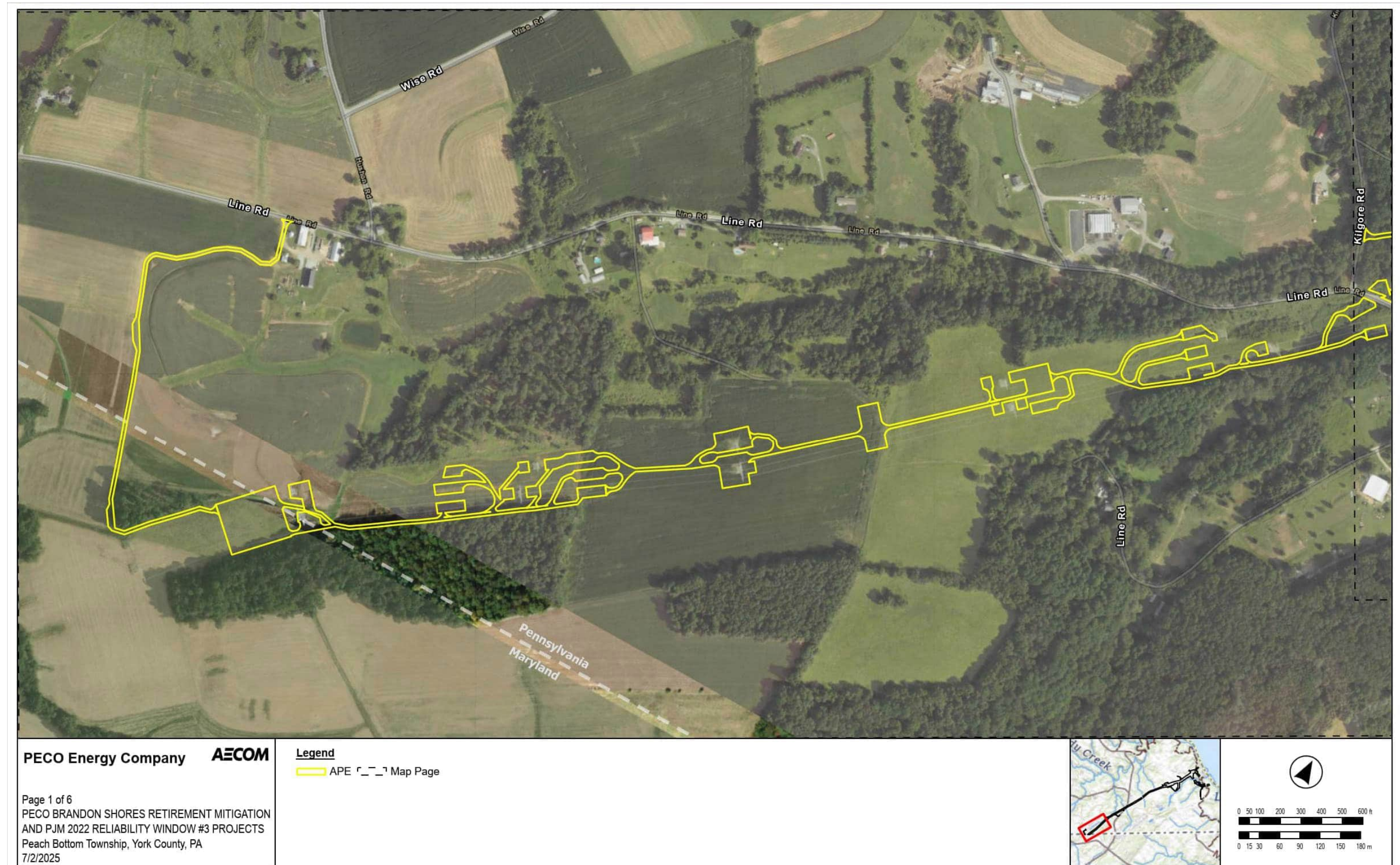


Figure 3a. Recorded archaeological sites and surveys.

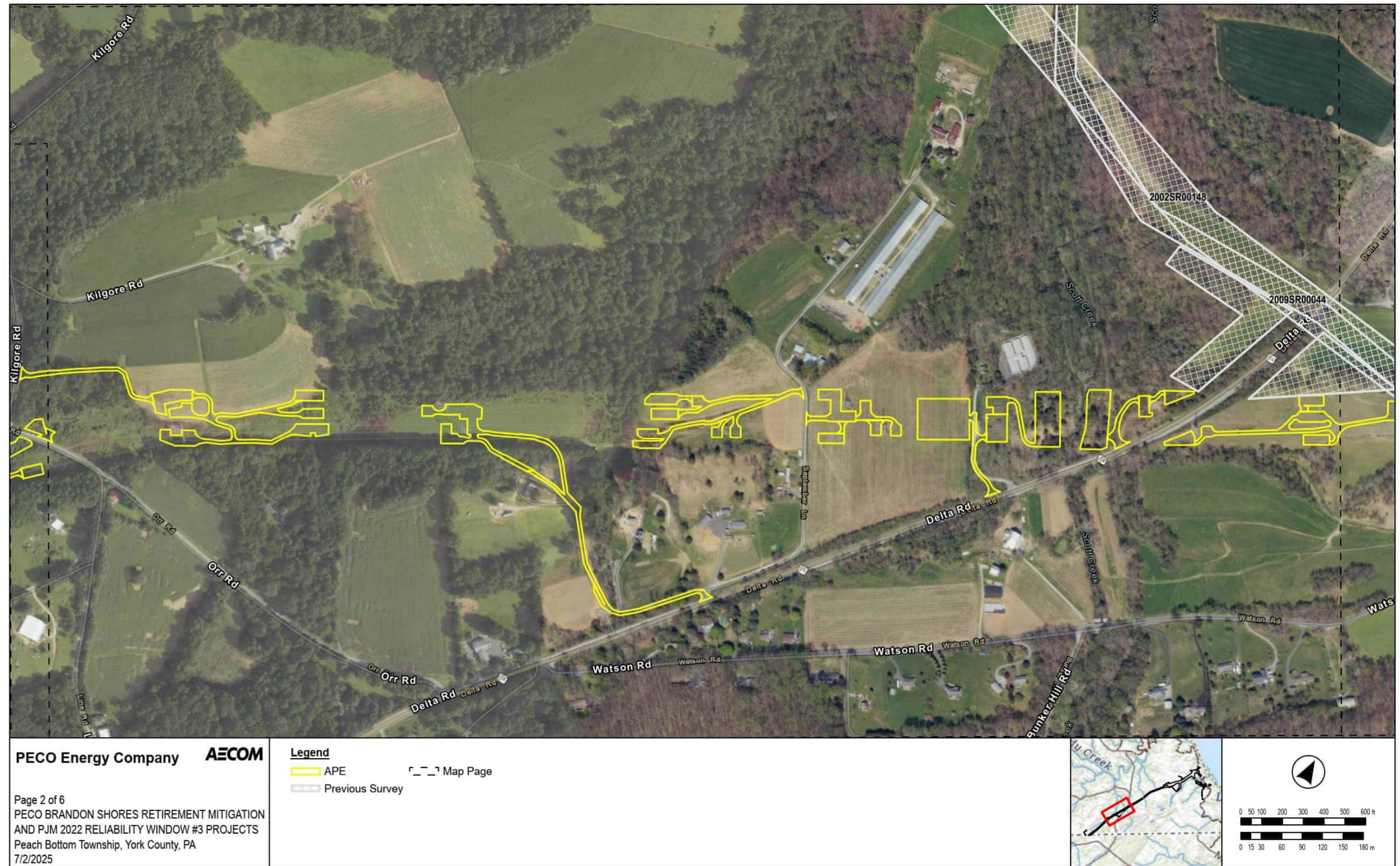


Figure 3b. Recorded archaeological sites and surveys.

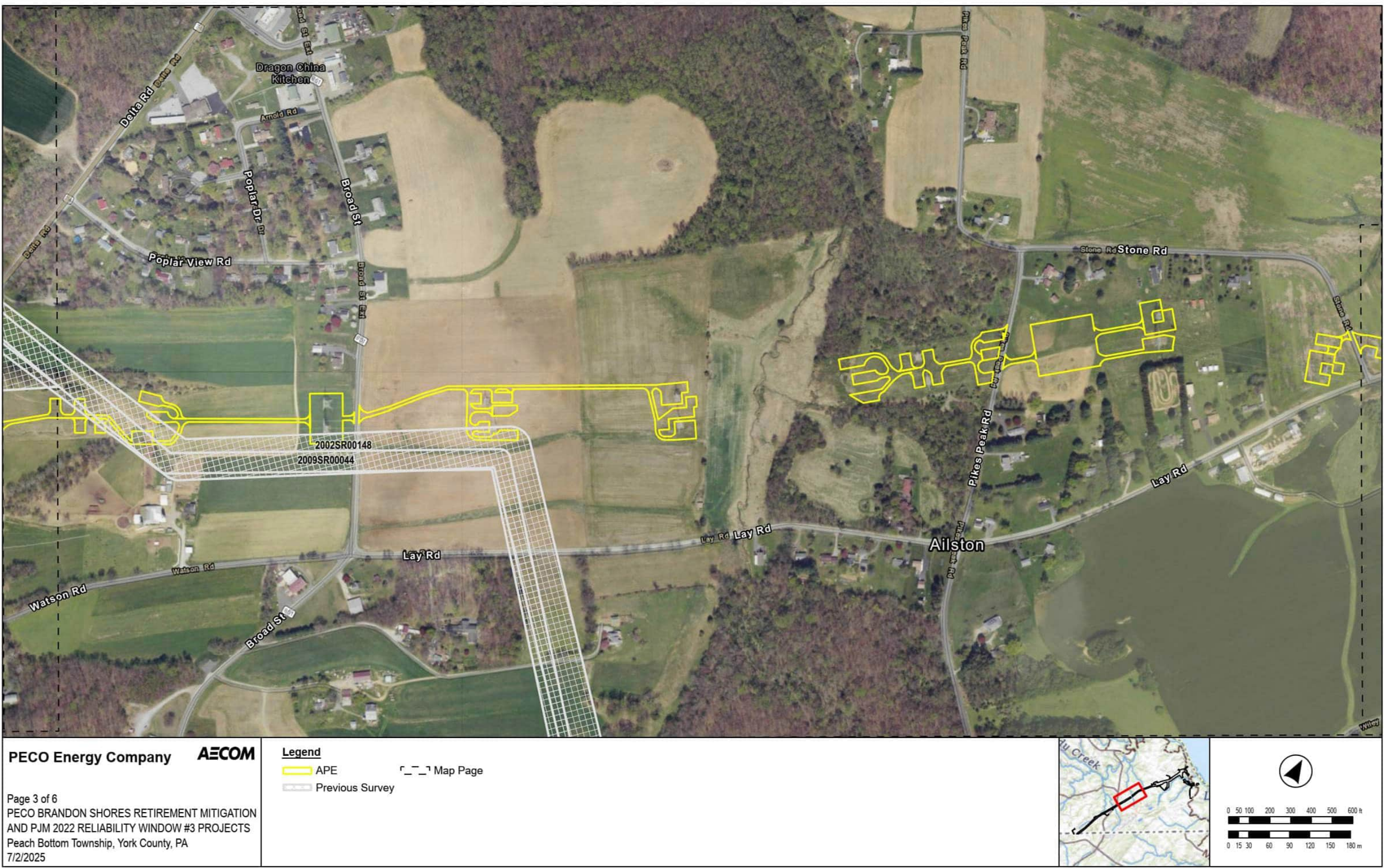


Figure 3c. Recorded archaeological sites and surveys.

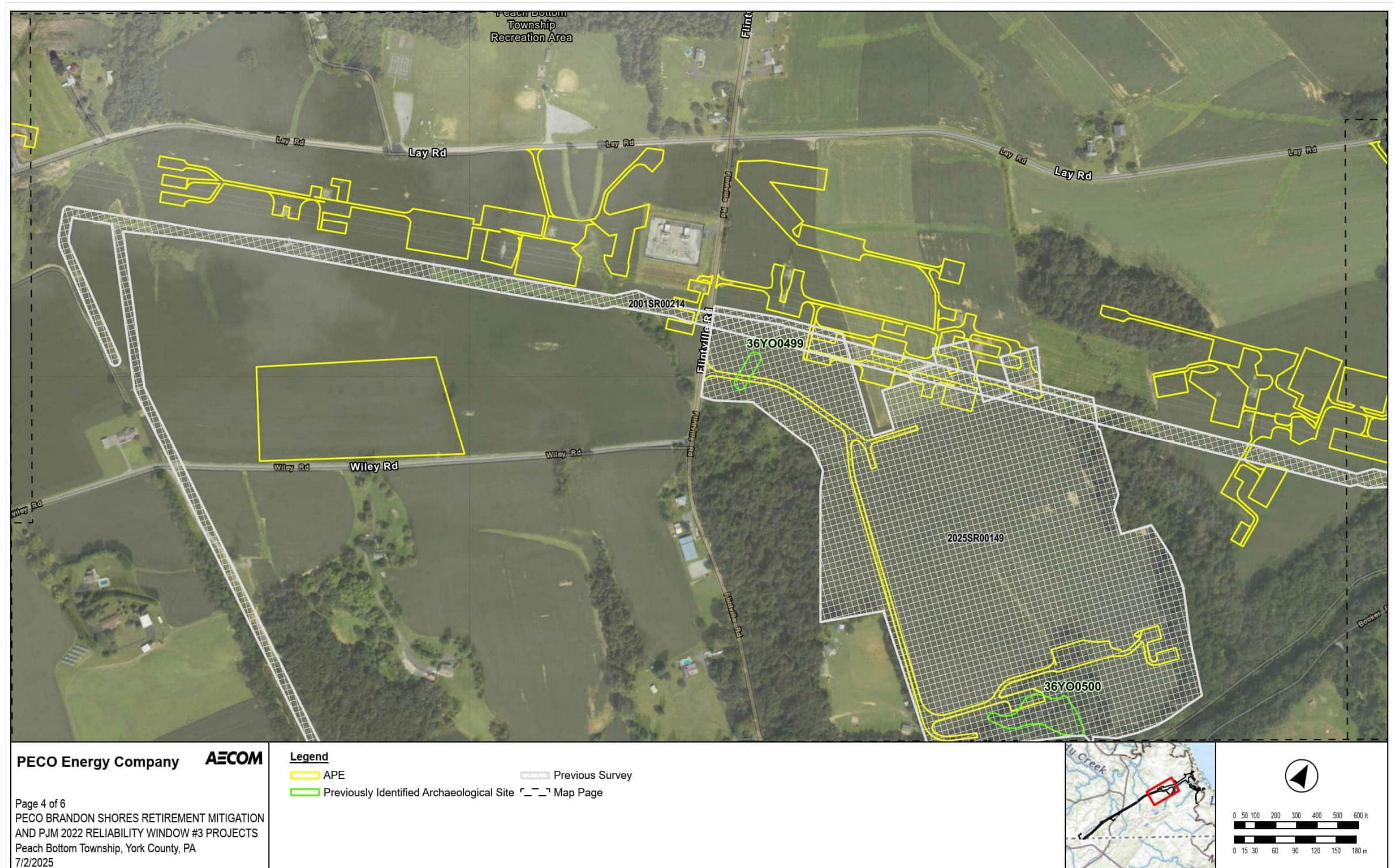


Figure 3d. Recorded archaeological sites and surveys.

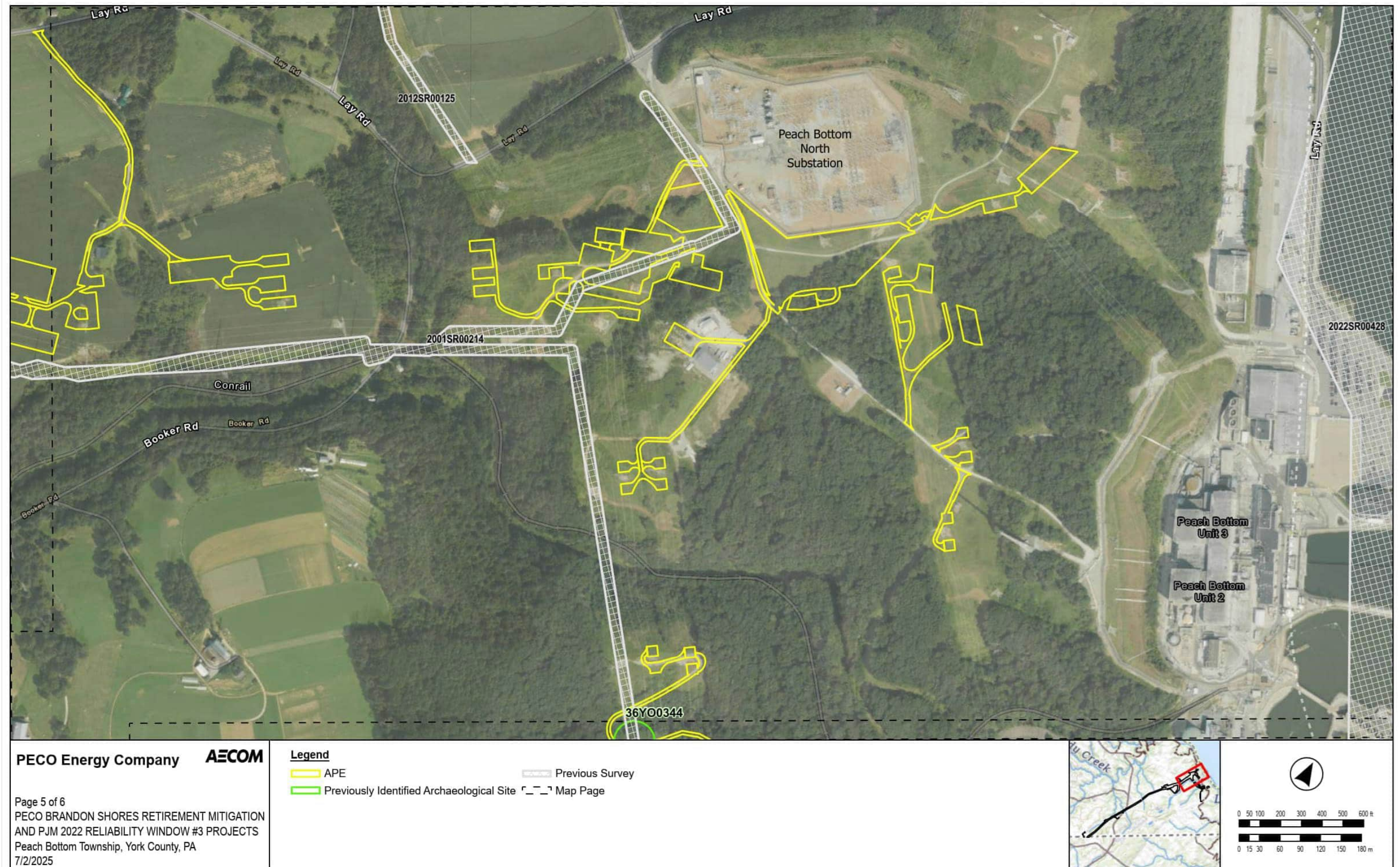


Figure 3e. Recorded archaeological sites and surveys.

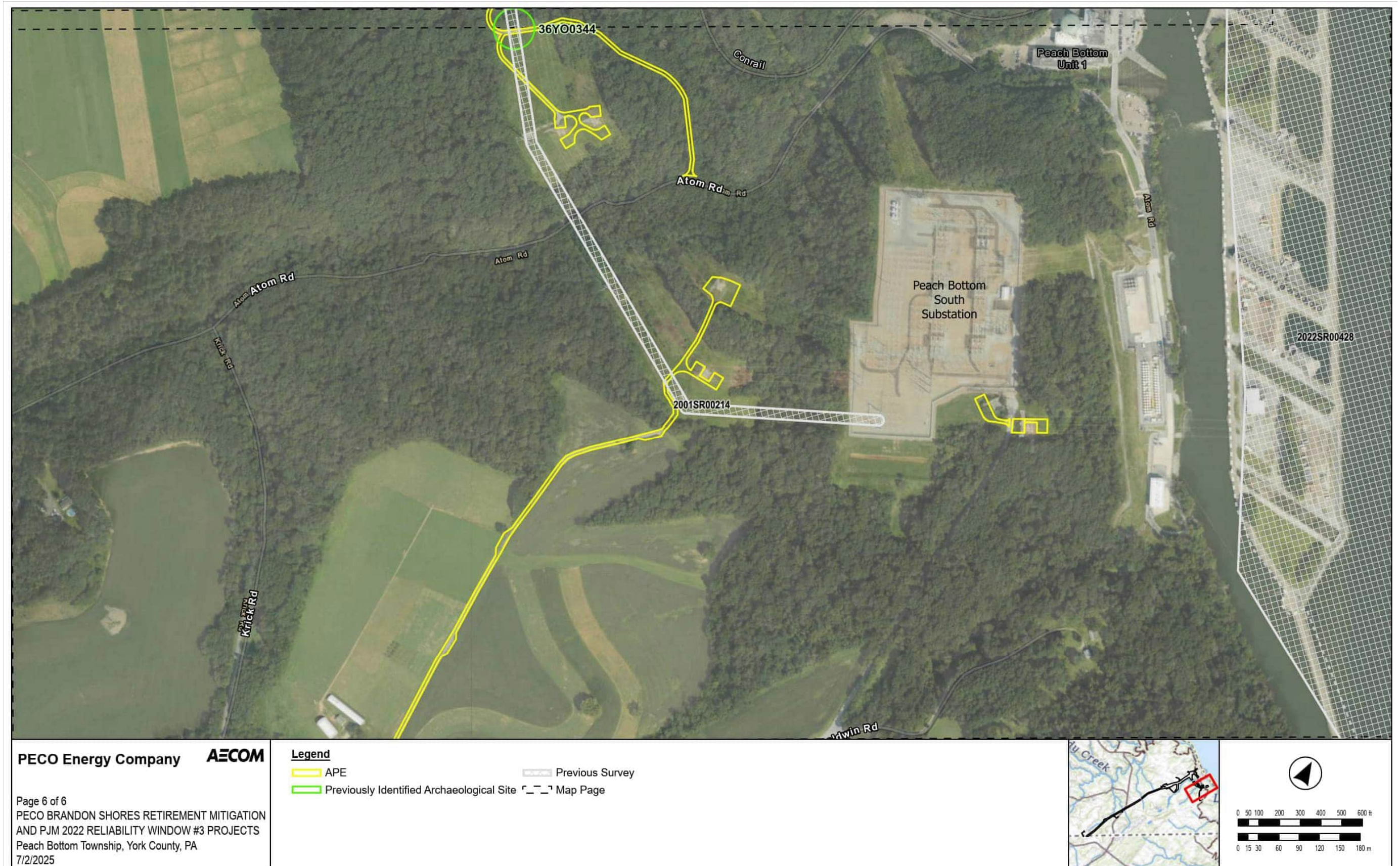


Figure 3f. Recorded archaeological sites and surveys.

Site 36YO0500 was the location of structures labeled “J.D. Wiley” on an 1860 map (Lake 1860) and “R. Wiley” on an 1876 map (Nichols 1876). The site’s boundaries occupy approximately 0.47 ha (~1.17 ac). Review of aerial photographs indicates that these structures were demolished between 1958 and 1971. Testing at the site yielded 116 artifacts from the surface soil horizon in 31 STPs. General artifact categories appear similar to those found at 36YO0499. Site photographs in PA-SHARE indicate that the site contains a stone foundation and an open concrete cistern/well head.

Wilson et al (2002) and Bergman (2009) completed Phase I archaeological surveys for a 4.8-km (~3-mi) pipeline that supplies natural gas to the Calpine Generation Facility located approximately 0.97 km (~0.6 mi) south of the Projects. This survey involved subsurface testing of an approximately 90-m- (300-ft) wide study corridor for the length of the pipeline and crossed the current Projects east of Delta Road (see Figures 3b and c). The survey extended over upland settings and narrow stream valleys similar to those that characterize the current Projects; however, no archaeological sites were identified.

Phase I archaeological survey for the relicensing of the Muddy Run Pumped Storage Facility in Lancaster County is mapped in PA-SHARE within approximately 0.21 km (0.13 mi) of the Projects’ eastern extent; however, review of the report (Sara et al 2012) indicates that all archaeological testing took place in Lancaster County (see Figure 3e).

No recorded Native American archaeological sites are mapped within 0.97 km (~0.6 mi) of the Projects.

Archaeological Site Potential

NATIVE AMERICAN SITE POTENTIAL

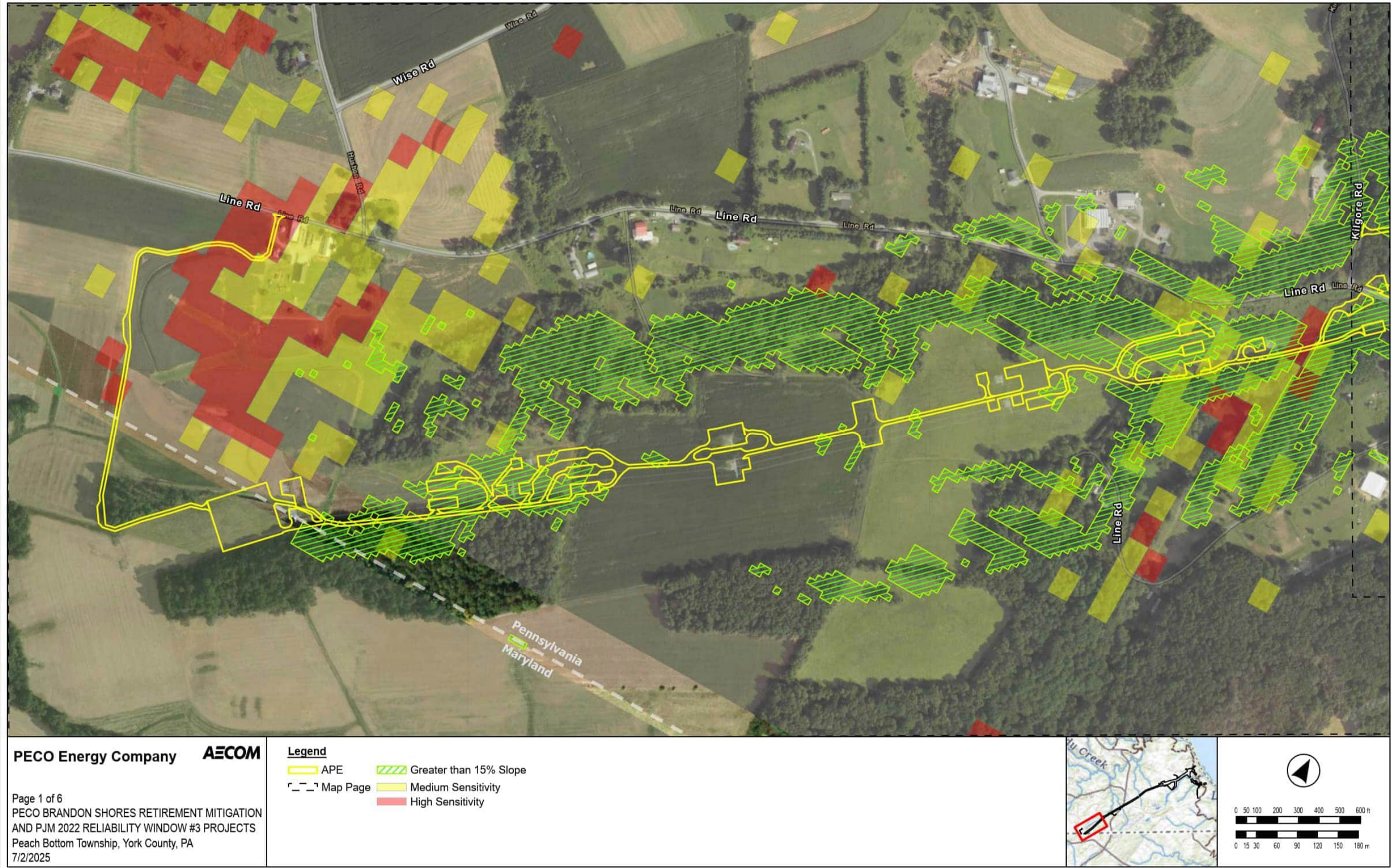
A review of PA-SHARE indicated that no Native American archaeological sites have been recorded in Peach Bottom Township. The PA SHPO's Statewide Pre-Contact Predictive Model (Model) was reviewed as an initial indication of Native American archaeological site sensitivity in the APE (Figures 4a through 4f). The Model ranked the majority of the APE (67.56 percent) as having a low probability to contain Native American archaeological sites, followed by 20.26 percent high probability, and 12.18 percent medium probability. The largest contiguous area of high probability ranking surrounds the area east of Booker Road, encompassing the gently sloped flanks of the bluff overlooking the Susquehanna River. The Peach Bottom North Substation occupies flatter portions of this bluff. Limited areas ranked as high probability are located west of Booker Road near Scotts Run and smaller tributary streams.

COLONIAL THROUGH EARLY TWENTIETH-CENTURY SITE POTENTIAL

In order to evaluate the potential for Colonial through early twentieth century archaeological sites, the APE was georeferenced and overlaid on the following maps of or including Peach Bottom Township:

- Figure 5: *Map of York and Adams Counties* (Small and Wagner 1821)
- Figure 6: *Atlas of York County, Pennsylvania* (Nichols 1860)
- Figure 7: *Shearer's Map of York County, Pennsylvania* (Lake 1876)
- Figure 8: *Belair, Maryland and McCalls Ferry, Pennsylvania* (USGS 1901, 1912)
- Figure 9: *Belair, Maryland and McCalls Ferry, Pennsylvania* (USGS 1942, 1943)

The 1821 map (Figure 5) (Small and Wagner 1821) depicts few structures near the APE. A church is located south of the APE and a mill labeled "Kings" is shown near Peach Bottom village. The 1860 map (Figure 6) (Nichols 1860) and the 1876 map (Lake 1876) (Figure 7) show greater detail. The same 12 structures appear in or adjacent to the APE on both the 1860 and 1876 maps (see Figures 6 and 7) and are summarized in Table 2 from west to east. In four cases, the ownership appears to have changed over the 16-year period between the two maps. This review indicates that some of these structures or their remnants may be present in the APE.



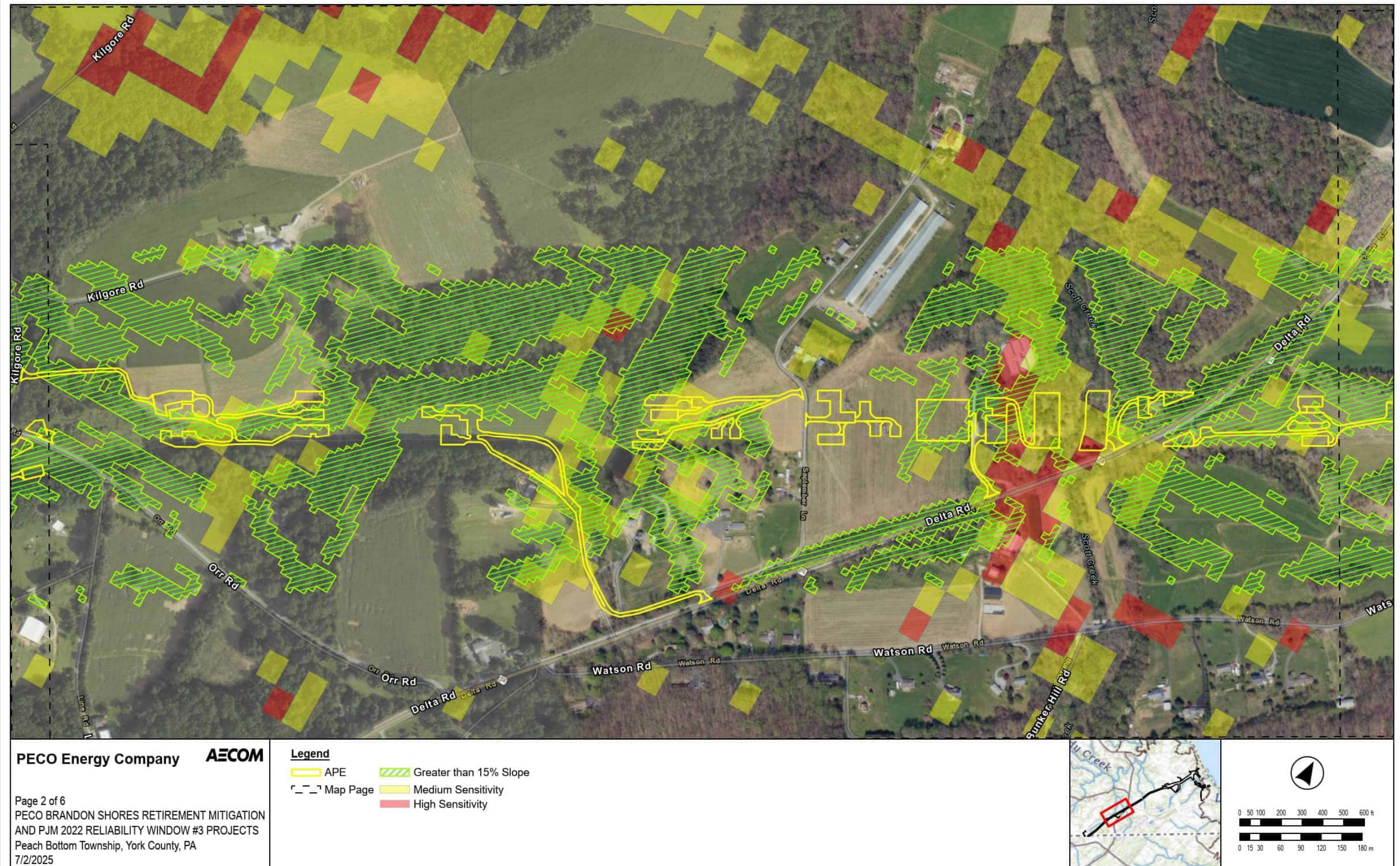


Figure 4b. Statewide Pre-Contact Predictive Model rankings.

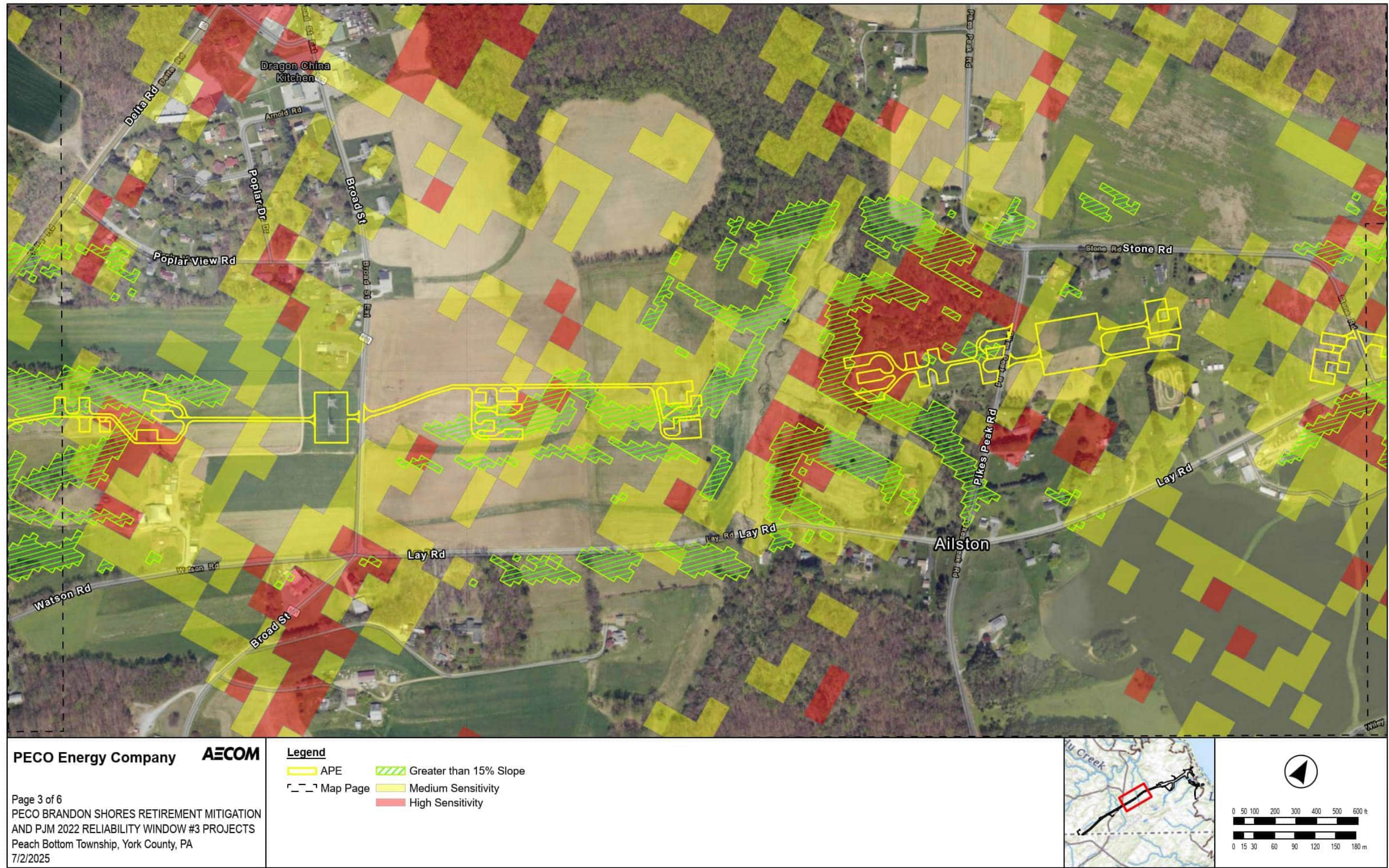


Figure 4c. Statewide Pre-Contact Predictive Model rankings.

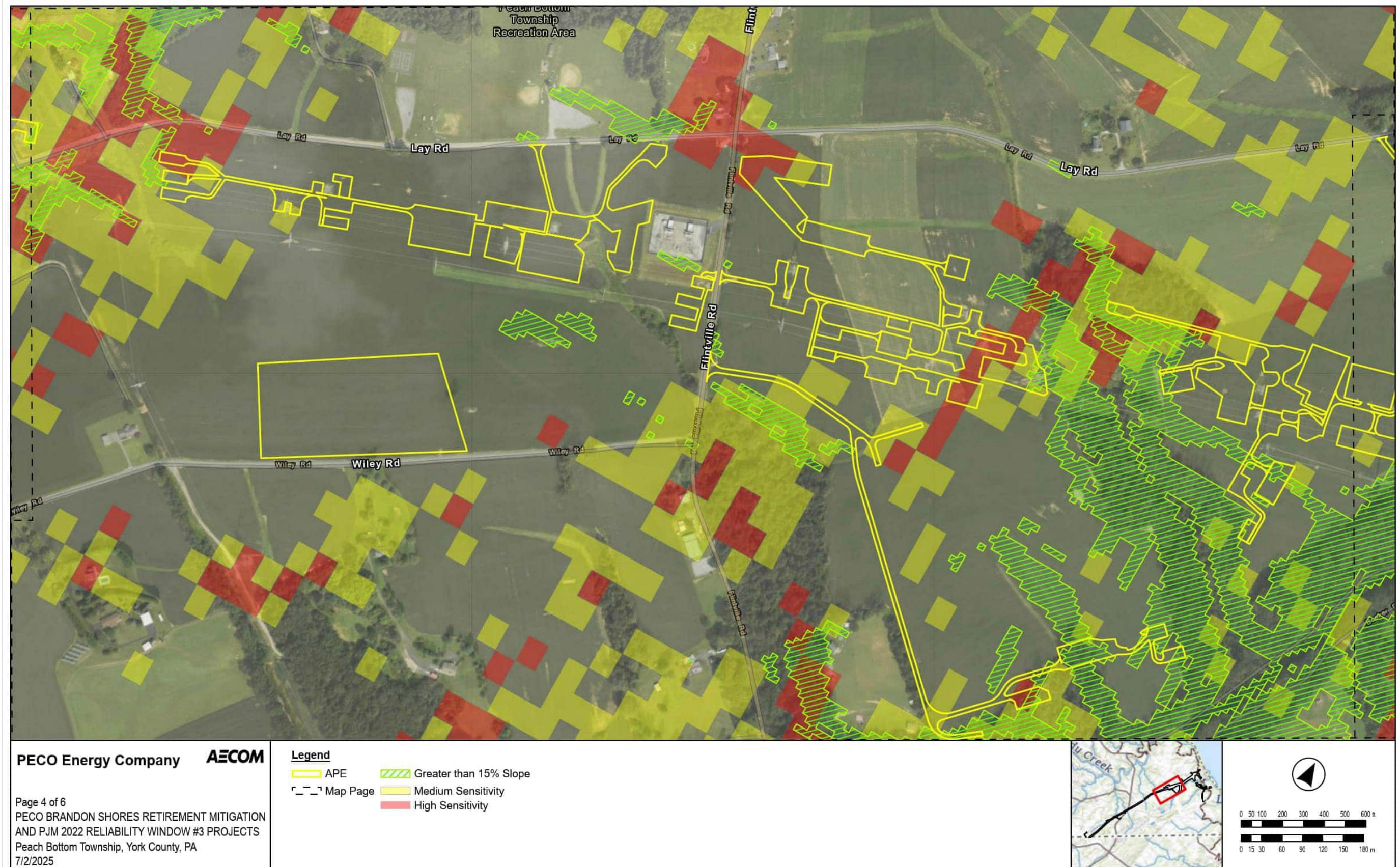


Figure 4d. Statewide Pre-Contact Predictive Model rankings.

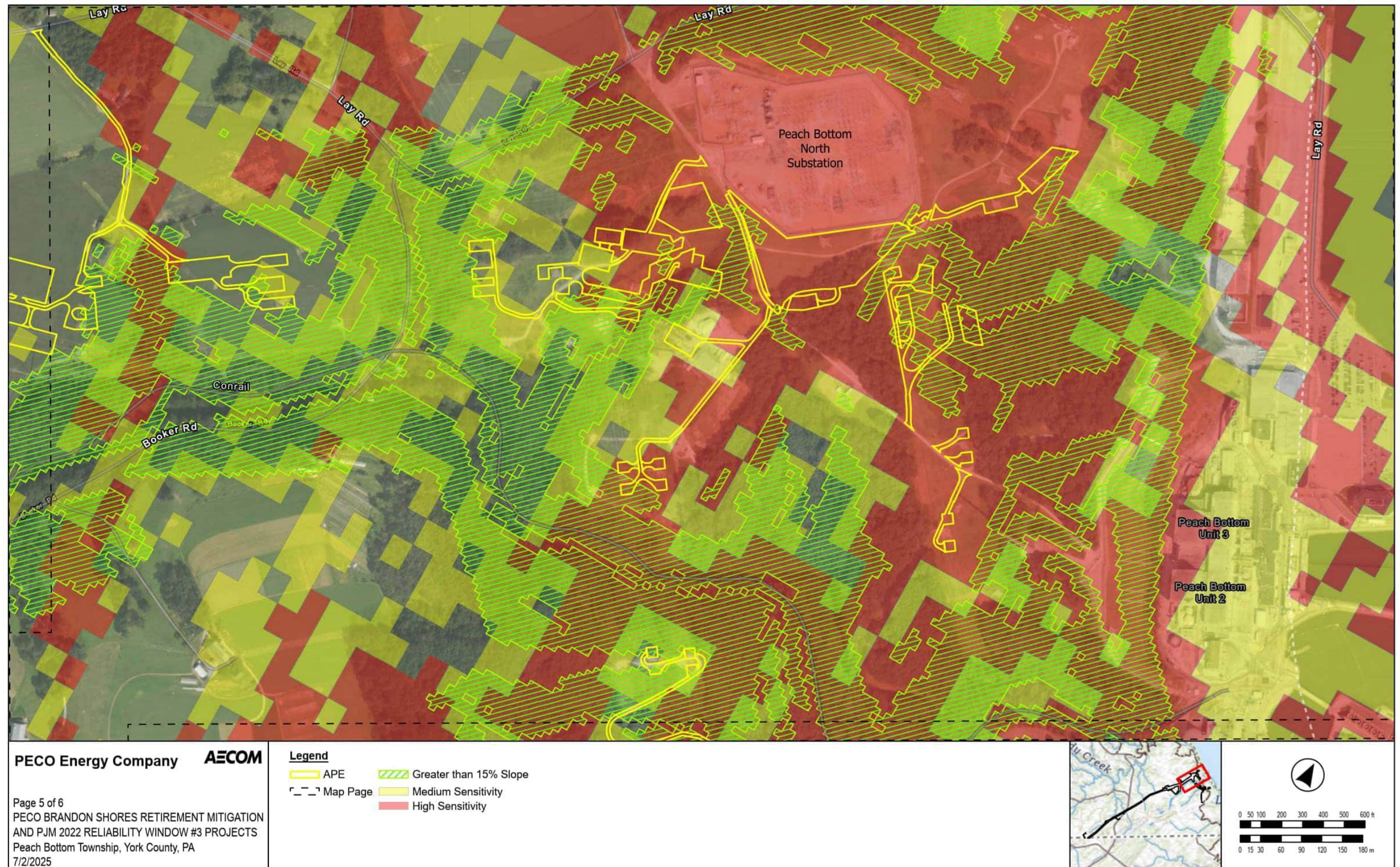


Figure 4e. Statewide Pre-Contact Predictive Model rankings.

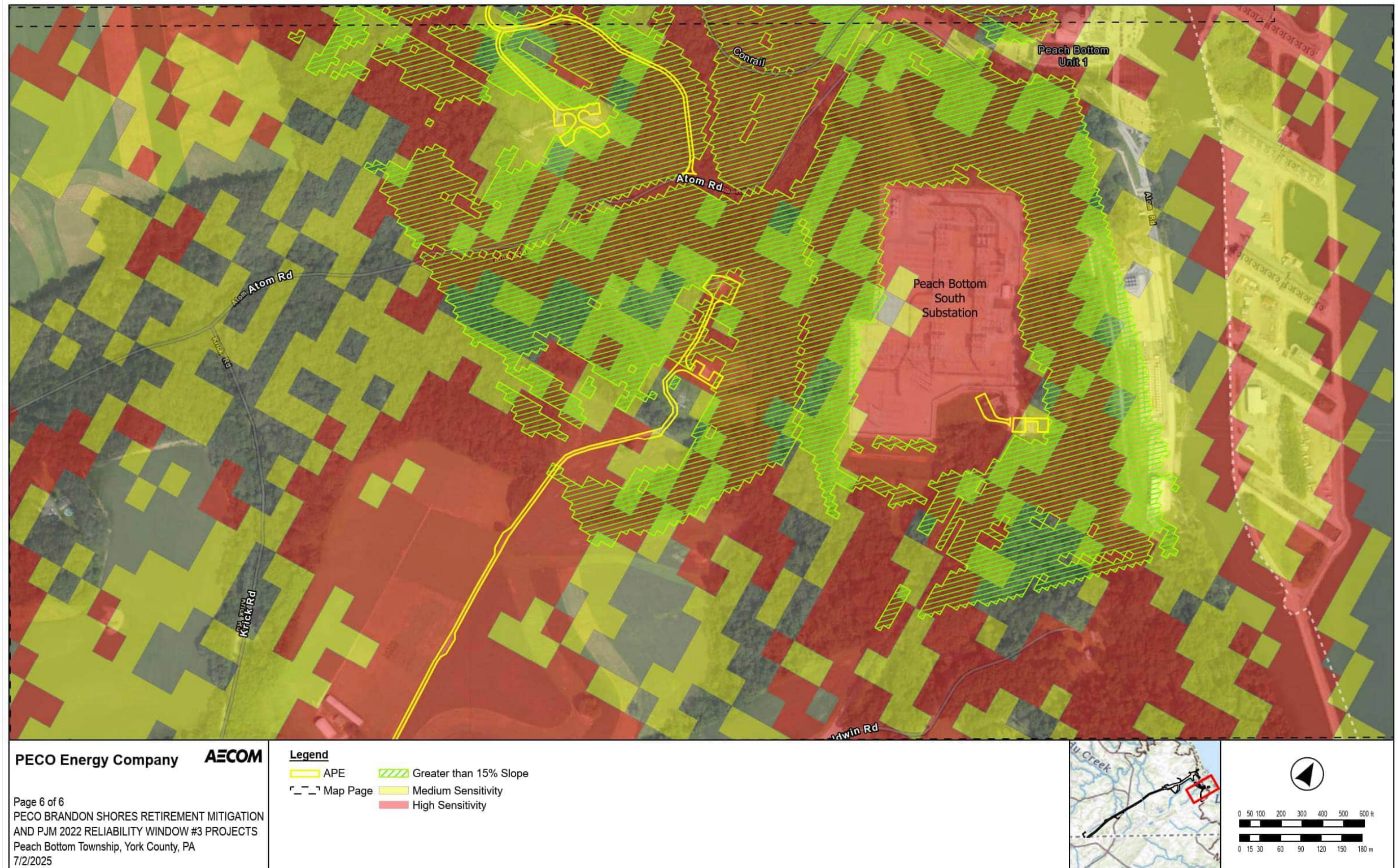


Figure 4f. Statewide Pre-Contact Predictive Model rankings.

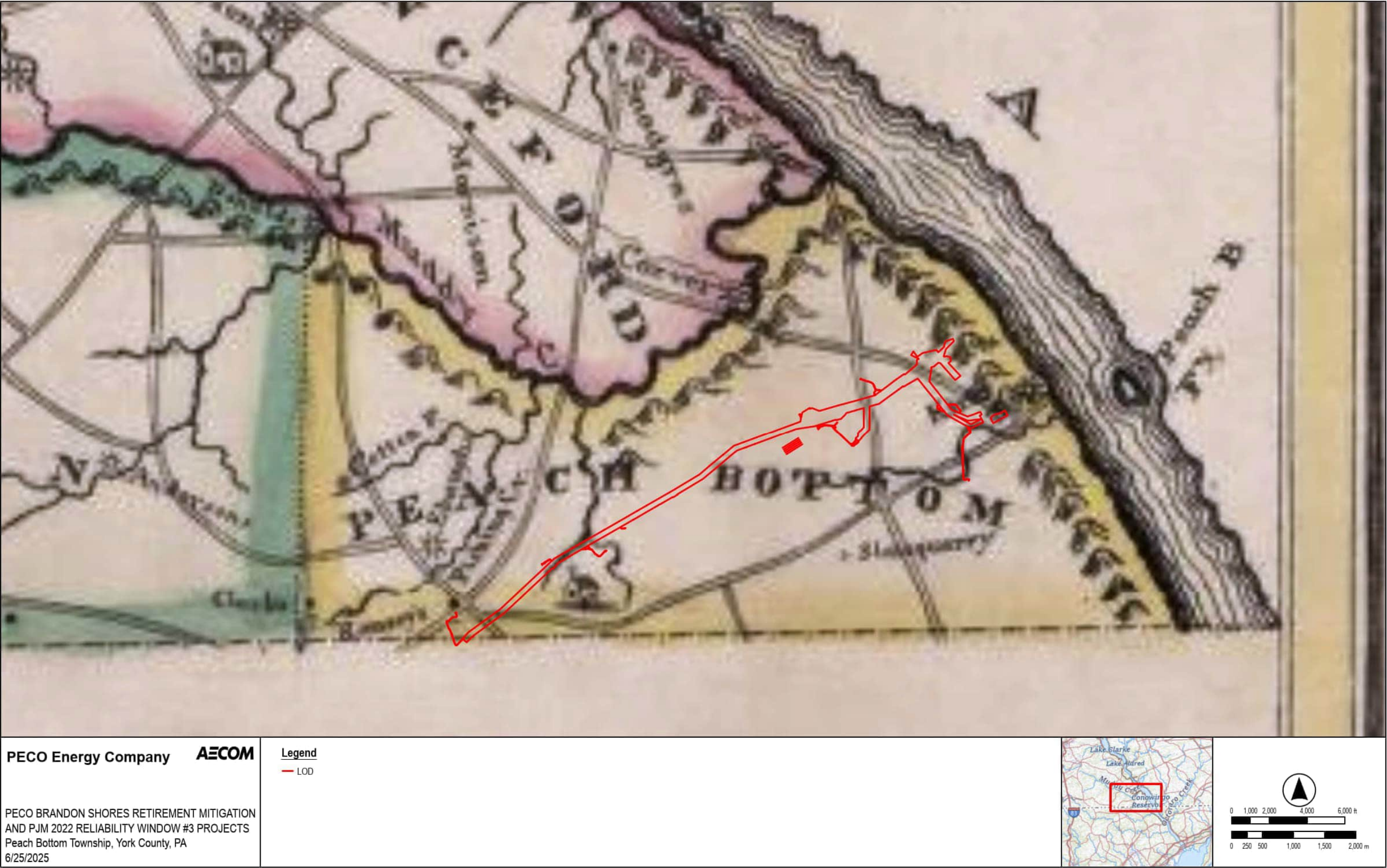


Figure 5. LOD overlaid on Small and Wagner (1821).



Figure 6. LOD overlaid on Nichols (1860).

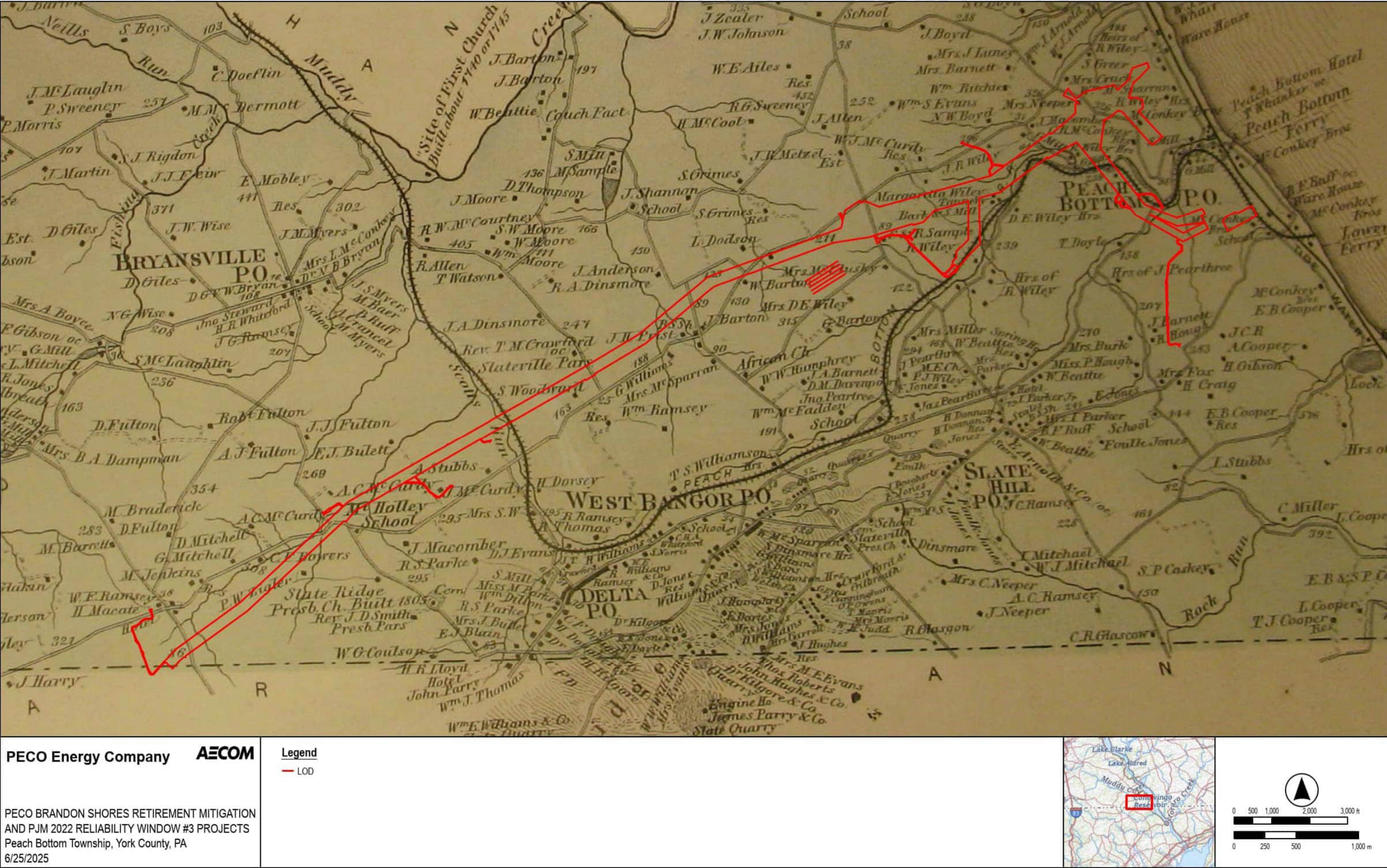


Figure 7. LOD overlaid on Lake (1876).

Table 2. Map-Documented Structures in and Near the APE, 1860 and 1876

Structure Label/ No. of Structures on 1860 Map	Structure Label/ No. of Structures on 1876 Map	Approximate Location	Relationship to APE
A.C. McCurdy/1	A.C. McCurdy/1	Between Kilgore Rd and September Ln	North of and adjacent to APE in 1860 and 1876
E. Bulett/1	A. Stubbs/1	Between Kilgore Rd and September Ln	In APE in 1860, South of APE in 1876
H Dodson/1	H. Dodson/1	Between Stone Rd. and Flintville Rd.	North of and adjacent to APE in 1860, in APE 1876
Miss C.A. Sample/1	C. & R. Sample/1	East of Flintville Rd	In APE 1860, 1876
J.D. Wiley/2	R.Wiley/2	East of Flintville Rd, North of Booker Rd	South of and adjacent to APE in 1860 and 1876
D.E. Wiley Saw Mill & Tannery/3	Margarita Wiley Tannery, bark & saw Mill/3	North of Booker Rd and South of Lay Rd	In APE in 1860, south of and adjacent to APE in 1876
W. Wiley Grist Mill/1	W. Wiley Grist Mill/1	East of Booker Rd	In APE in 1860 and 1876
J.F. Neeper/1	J.F. Neeper/1	East of Paper Mill Rd/Lay Rd Intersection	Adjacent to APE in 1860, 1876
J. McConkey/1	J. McConkey/1	In Peach Bottom North Substation	In APE in 1860, 1876

Review of 1901/1912 and 1942/1943 USGS topographic maps (Figures 8 and 9) (USGS 1901, 1912) indicates that the structures labeled H. Dodson, Miss C.A. Sample, and J.H. Wiley on the nineteenth-century maps were still extant

LATE TWENTIETH CENTURY DISTURBANCES

A 1971 aerial photograph (Figure 10) (Pennsylvania Imagery Navigator 2025) was georeferenced to evaluate potential disturbances related to the construction of the Peach Bottom North Substation, Peach Bottom South Substation as well as the proposed transmission line structure and access roads extending between them. The photograph was taken after the Peach bottom North Substation was constructed; however, the area for the PBNE south of the existing substation appears relatively undisturbed. The existing and proposed structure locations and access roads between the two substations appear as areas of high reflectivity indicative of grading as do the proposed work pad/structure location southeast of the Peach Bottom South Substation. This image was reviewed with Justin McKeel, PA-SHPO Archaeological Reviewer in a March 4, 2025 meeting. Mr. McKeel agreed that no archaeological testing was warranted in the APE south of the PBNE.

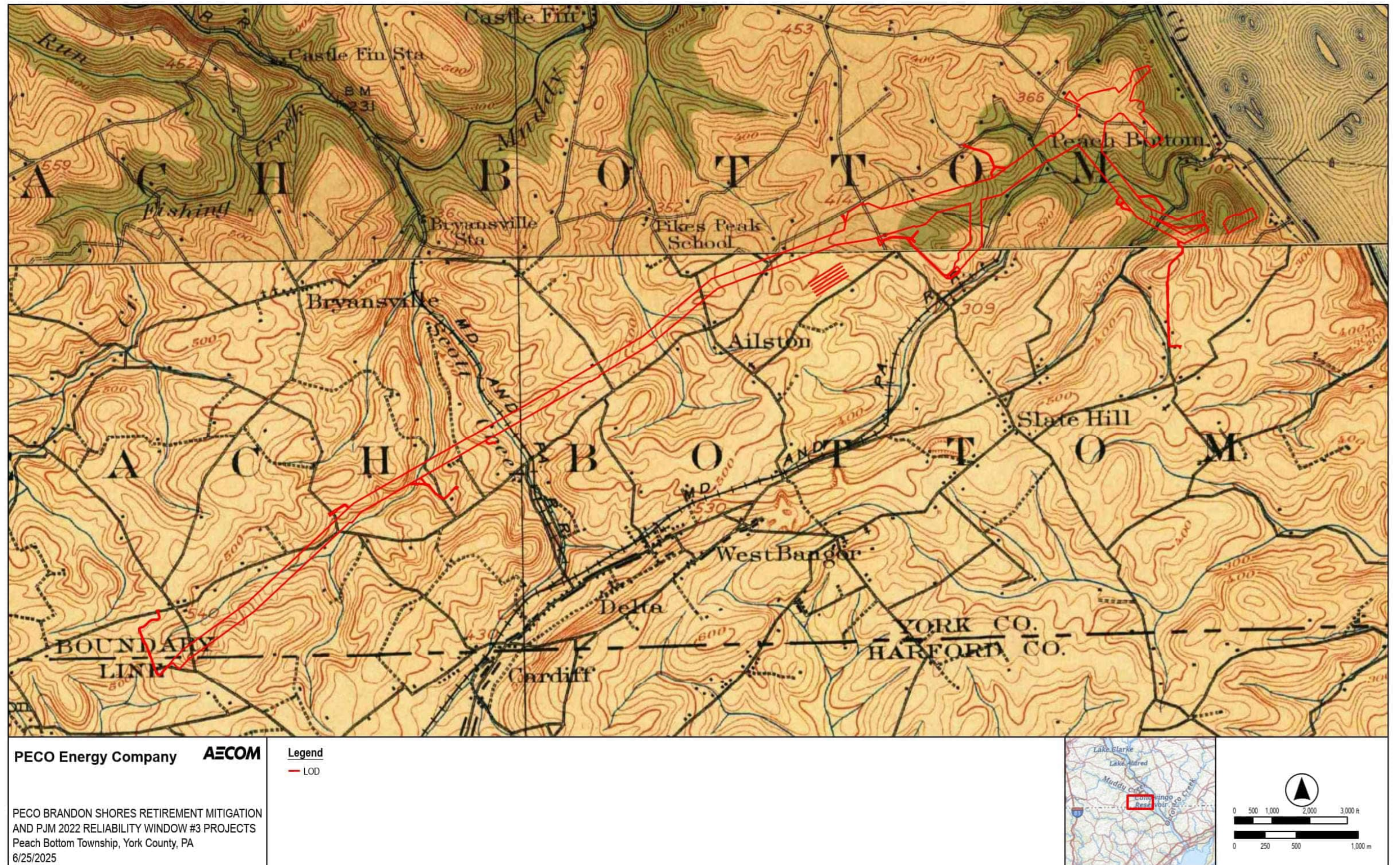


Figure 8. LOD overlaid on USGS (1901, 1912).

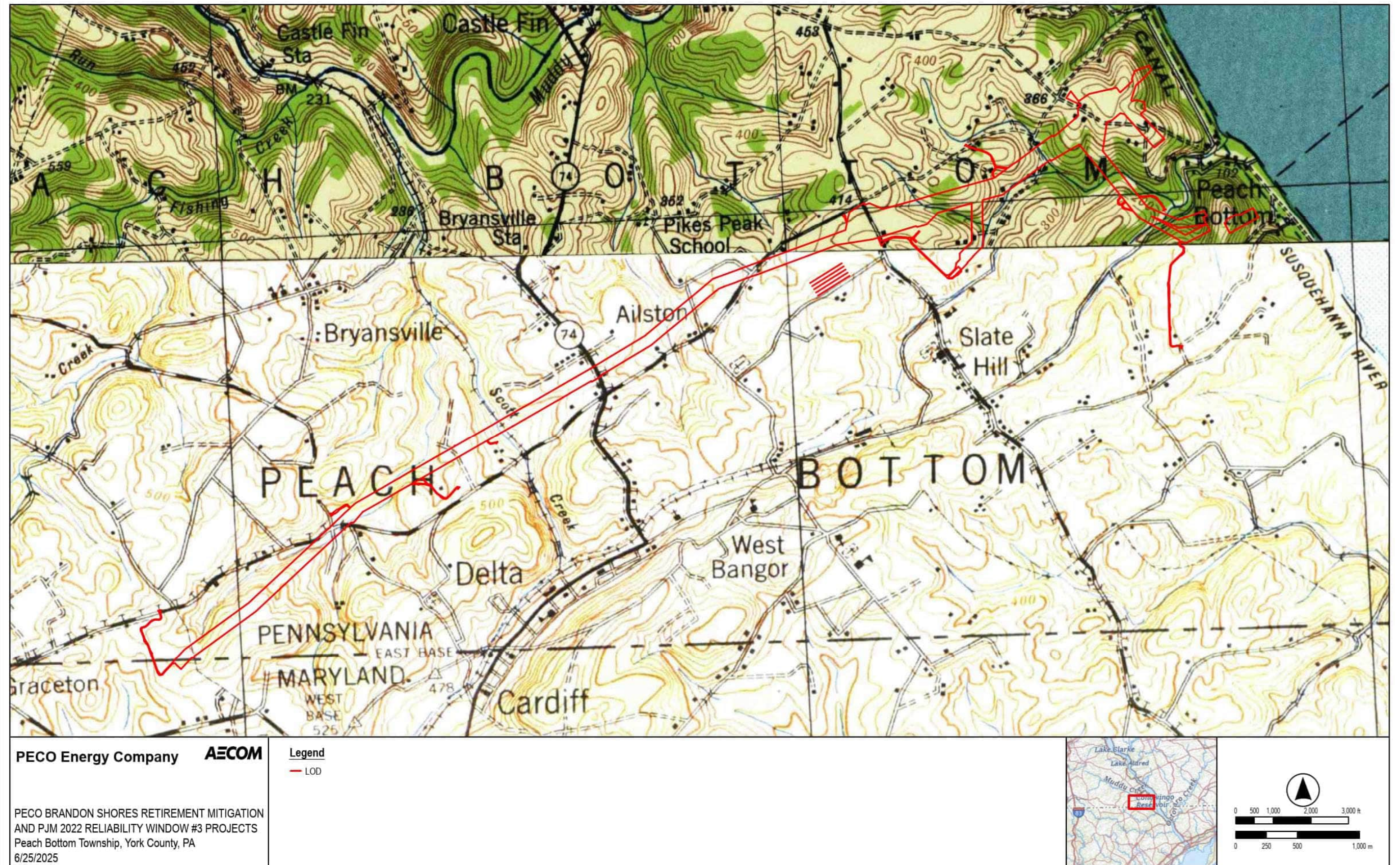


Figure 9. LOD overlaid on USGS (1942, 1943).

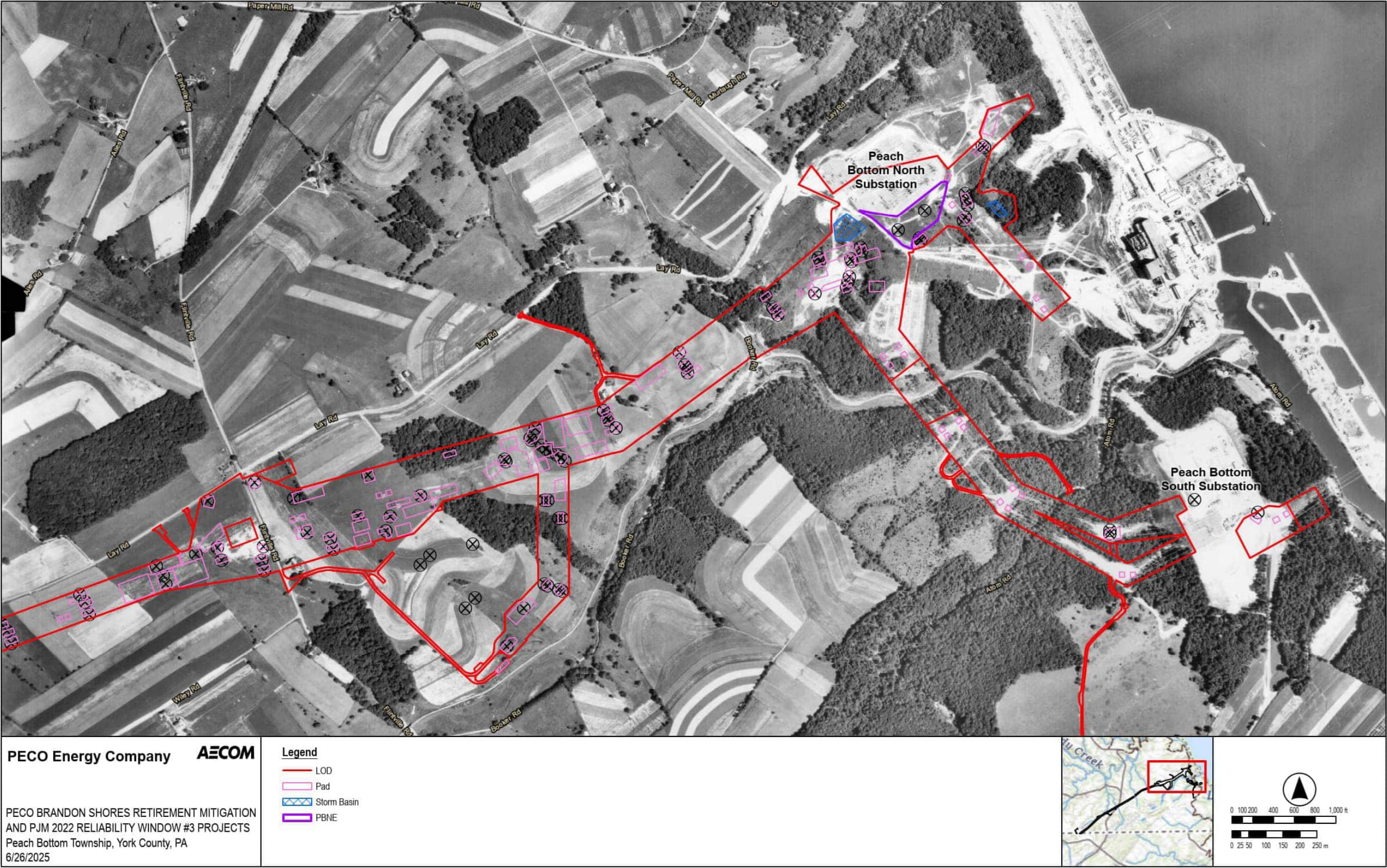


Figure 10. APE overlaid on 1971 aerial photograph (Pennsylvania Imagery Navigator 2025).

5 Methods

FIELD SURVEY METHODS

Phase I field survey methods included visual inspection and shovel test pits (STPs). STPs were pre-plotted on proposed stone/gravel work pads, access roads, the PBNE, and sediment basins based primarily on their Model-designated sensitivity rankings. In general, matted work pads and access roads were not tested unless they fell within Model-ranked areas of high probability. STPs in areas of Model-designated high probability were pre-plotted at 15-m (49.2-ft) intervals or at 16 STPs per 0.4 ha (1 ac) in irregular areas. STPs at 15-m (49.2-ft) intervals were also pre-plotted in the APE in settings near streams that the Model did not rank as high probability areas. STPs in Model-designated areas of moderate and low probability were pre-plotted at 30-m (98.4-ft) intervals or at 4 STPs per 0.4 ha (1 ac) in irregular areas. Where previously recorded historic archaeological sites 36YO0499 and 36YO0500 were mapped in the APE, STPs were excavated at 7.5-m (24.6-ft) intervals. Areas with slopes equal to or greater than 15 percent (steep slopes) were visually inspected but not tested.

STPs were assigned a unique number, plotted on field maps, and loaded into a handheld Global Positioning System unit so they could be easily navigated to in the field. Excavation of specific STPs was left to the discretion of the field director based upon 1) the archaeological potential as determined through review of historic maps, and 2) direct observation of field conditions. The field director also had the option of placing and excavating judgmental STPs if small-scale landscape features or foundations were identified in the field. The GPS unit used (Trimble Geo XH 3000®) is capable of navigating to pre-plotted STPs and recording judgmental STPs with sub-meter accuracy.

STPs measured 0.57 m (~1.9 ft) in diameter and were excavated by natural soil horizons. Fills and plowed soils (Ap horizon) were excavated as a single unit. In residual soil settings, excavation was terminated at 0.1-m (~0.33-ft) below ground surface (bgs) into subsoil horizons. In alluvial soil settings, STPs were excavated to one-m (~3.3 feet) bgs. All excavated fills and soils were screened through 6-millimeter (0.25-inch) hardware mesh for systematic artifact recovery. Notes on STPs were maintained on standardized AECOM forms, and soil profiles were recorded. Field conditions were recorded using digital photography. All STPs were backfilled, leveled, and left as close to their original condition as possible.

LABORATORY METHODS

Artifacts were taken to the AECOM archaeological laboratory where they were processed, inventoried, and analyzed. The objectives of laboratory processing and analysis were to determine—to the extent possible—the date, function, and cultural affiliation of the site, as well as to prepare the artifacts for curation. Basic analyses performed on historic artifacts included the identification of key characteristics for each object, including general form and function (e.g., cut nail – architectural), material composition (ceramic, glass, metal, etc.), ware type (creamware, lead glass, white ball clay, etc.) manufacturing technique, decoration, date of manufacture, and maker's marks (if present). All recorded artifact data was entered into a Microsoft Access® database.

6 Results

FIELD SURVEY

The APE measured 36.62 ha (~90.49 ac) and was divided into seven Survey Segments from west to east (Figure 11a through 11am). A total of 673 STPs were excavated.

SURVEY SEGMENT 1

Extent: Pennsylvania/Maryland State Line to Line Road

Project Facilities: Work pads P1 through P27, Access Roads AR1 through AR21

Figures: 11a through 11f

STPs Excavated: 72

Sites Identified: None

Survey Segment 1 extended northeast from the Pennsylvania/Maryland state line at work pad P1 to work pad P27 southwest of Line Road at a first-order tributary of Scott Run (see Figures 11a through 11f). The segment is located on moderate to steep northwest-facing slopes overlooking the Scott Creek tributary to the north (Photograph 1). The Model ranked the majority of the segment as low probability, and no map-documented historic structures were indicated; therefore, testing was primarily conducted at 30-m (98.4-ft) intervals. A typical STP profile on the slopes consisted of a 0.18-m to 0.25-m (0.6-m to 0.8-ft) brown (10YR 4/3 to 7.5YR4/4) silt loam Ap horizon overlying a strong brown (7.5YR 5/8) clay loam Bt horizon. Channers were variably present in both horizons (Figure 12). STPs were excavated at 15-m (49.2-ft) intervals along AR21 on the Scott Creek tributary floodplain (Figure 11f, Photograph 2). STP profiles consisted of a 0.14-m to 0.23-m (0.46 ft to 0.8 ft) brown (10YR 4/3) silt loam A or Ap horizon overlying a variably thick yellowish brown (10YR 5/6) silt loam Bw horizon. A brown (7.5YR 4/4) coarse sand C horizon was contacted at depths ranging from 0.4 m to 0.62m (1.3 ft to 2.1 ft) bgs (see Figure 12).

A total of 76 STPs were excavated in Survey Segment 1. Several work pads and access roads were not tested due to steep slopes. No archaeological sites were identified.



Figure 11a. Survey results map.

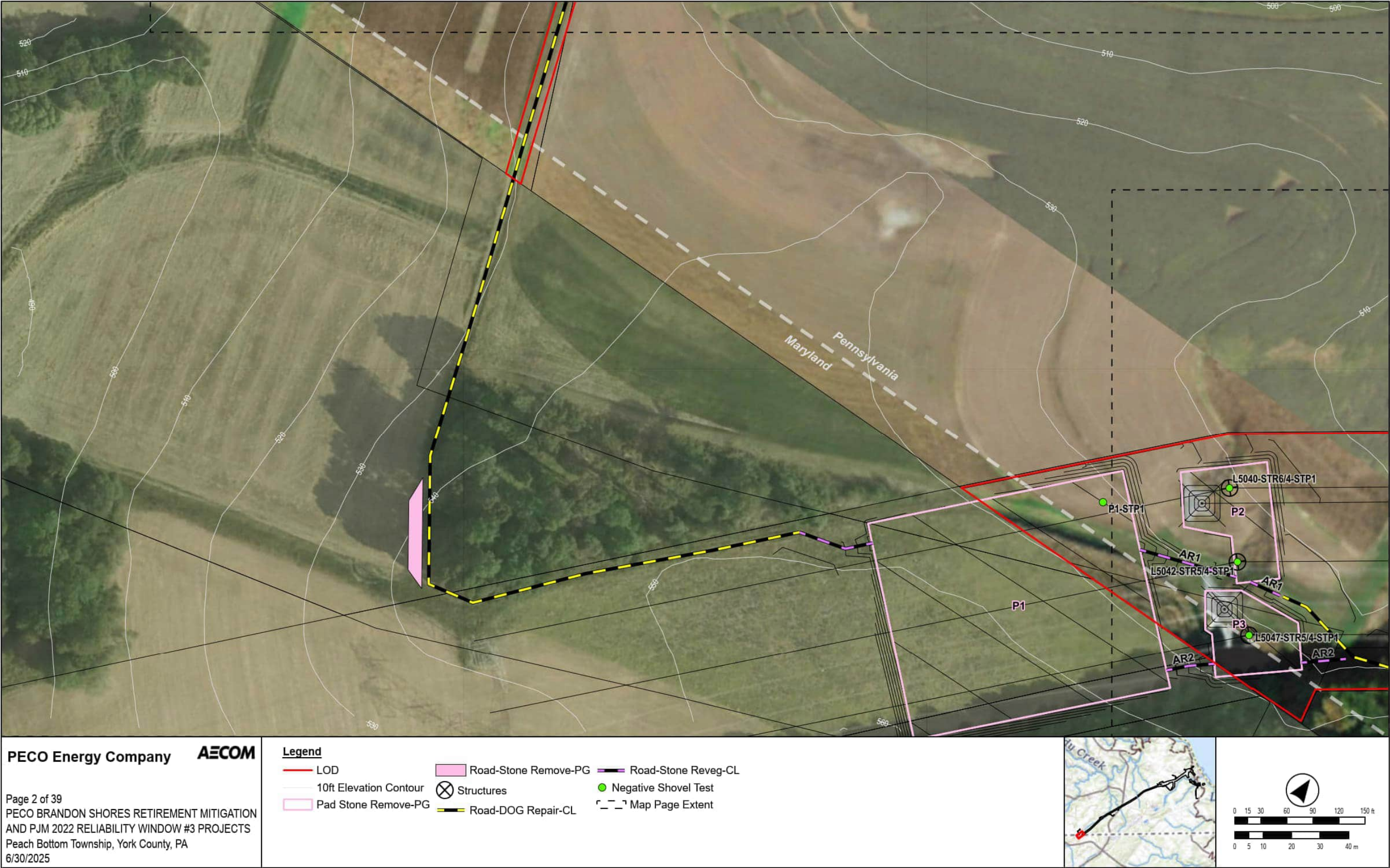


Figure 11b. Survey results map.

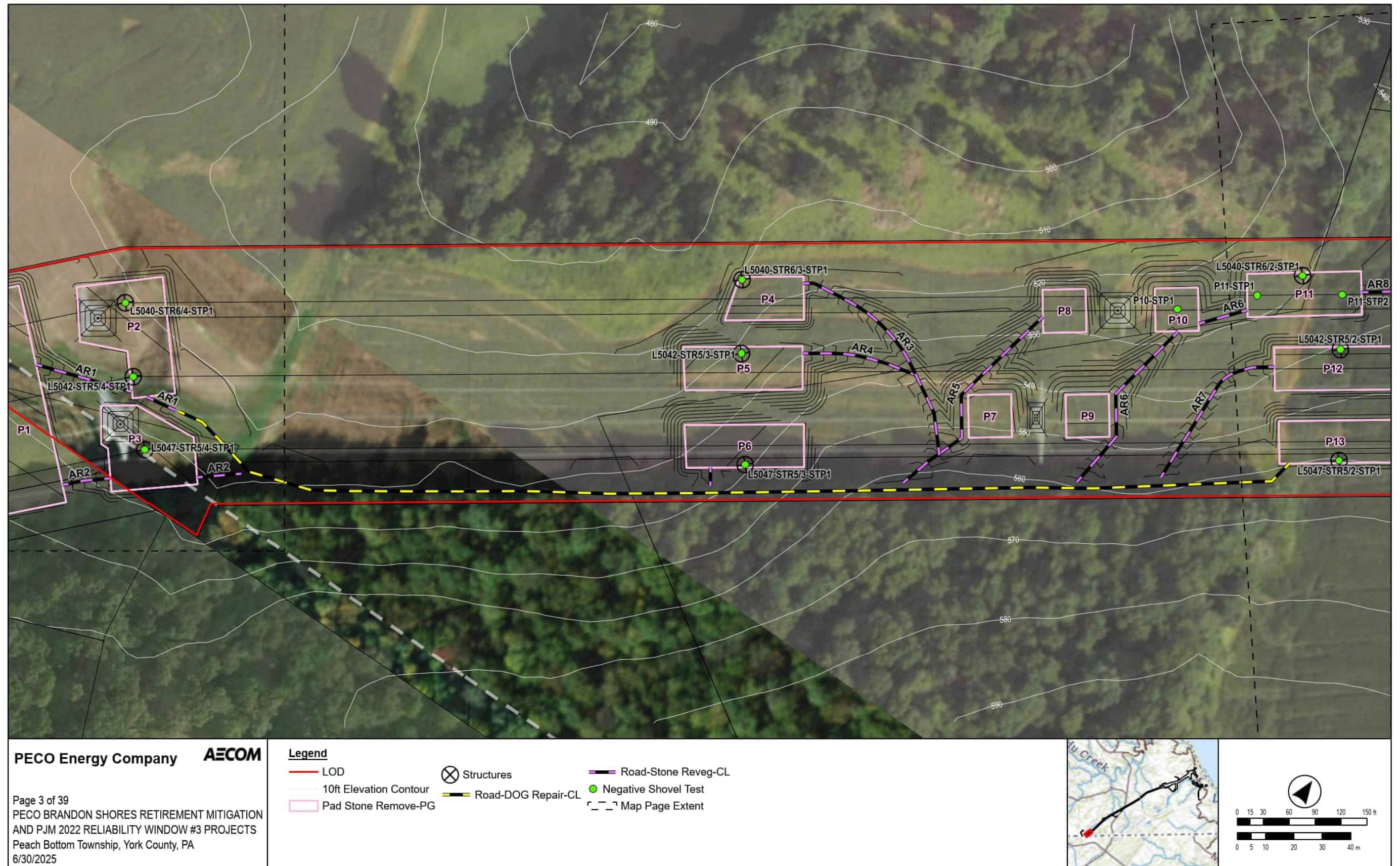


Figure 11c. Survey results map.

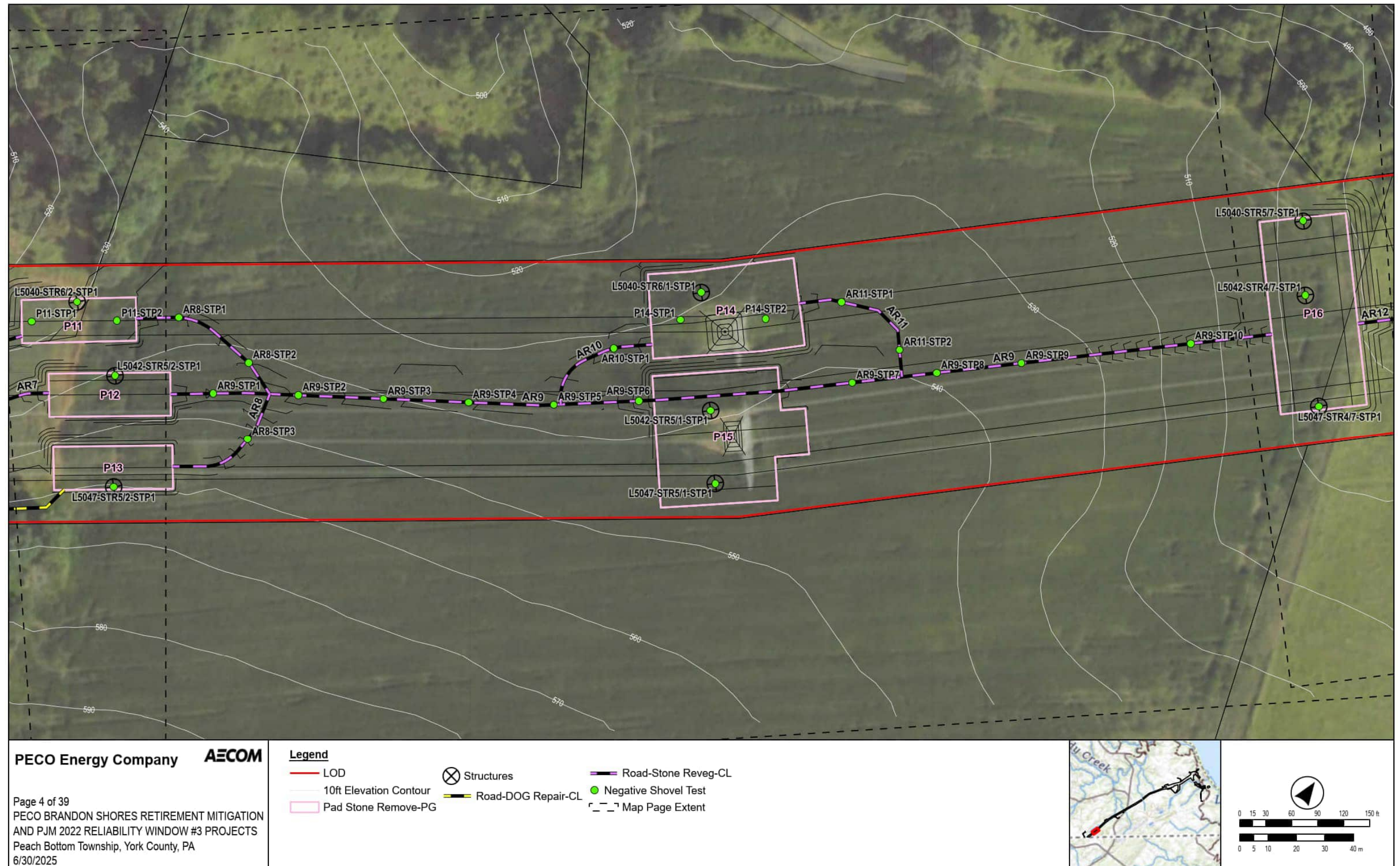


Figure 11d. Survey results map.



Figure 11e. Survey results map.

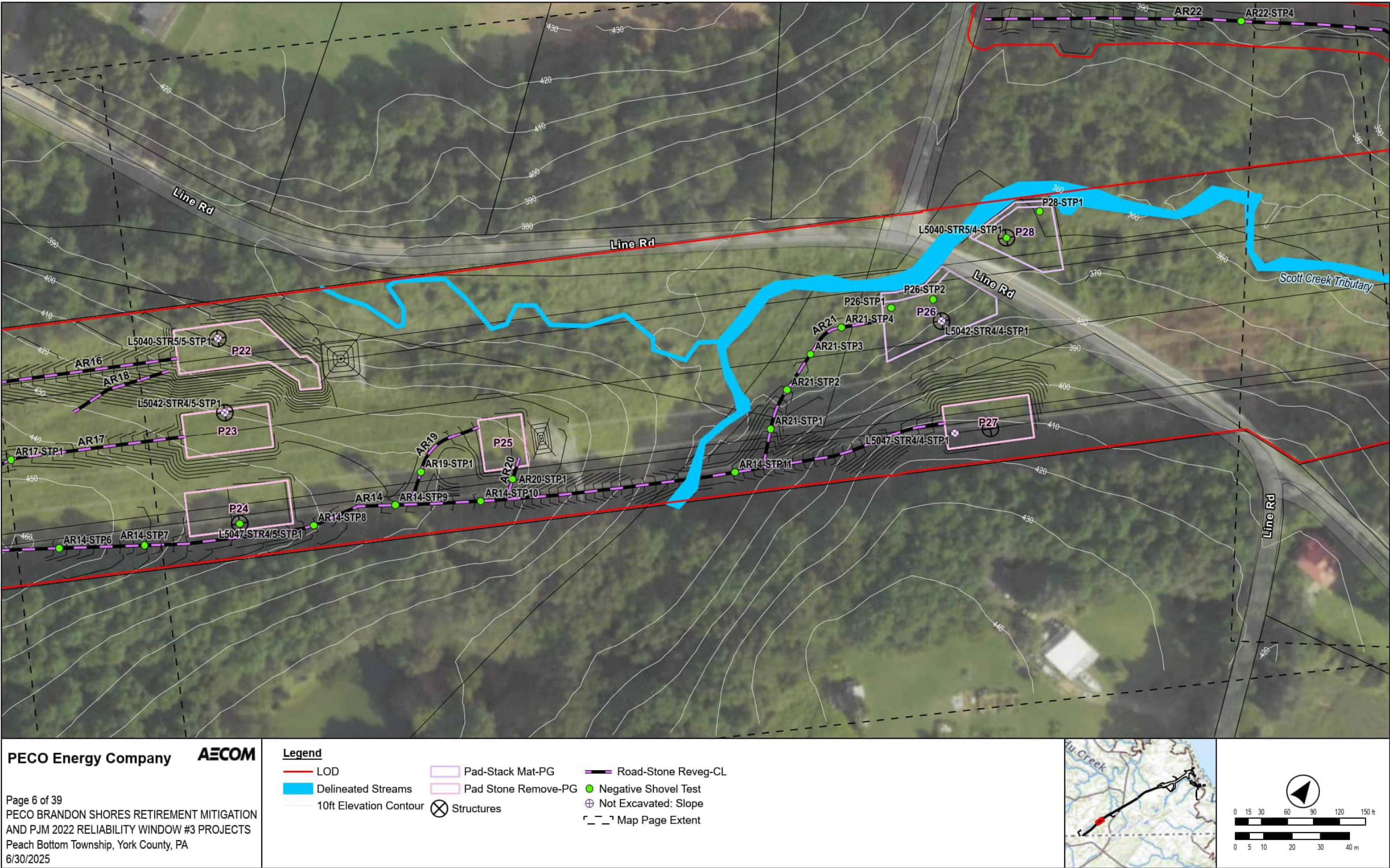


Figure 11f. Survey results map.

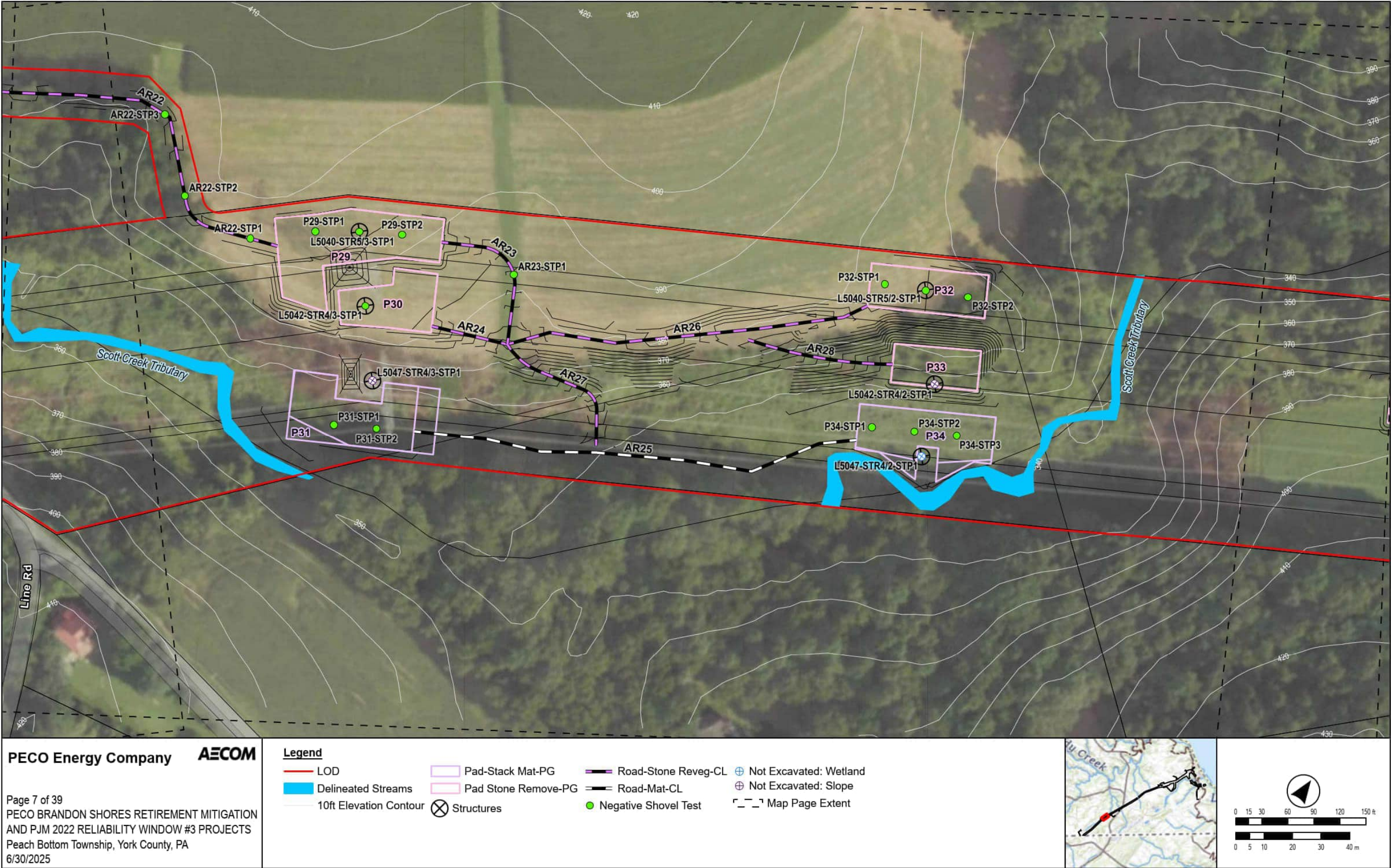


Figure 11g. Survey results map.

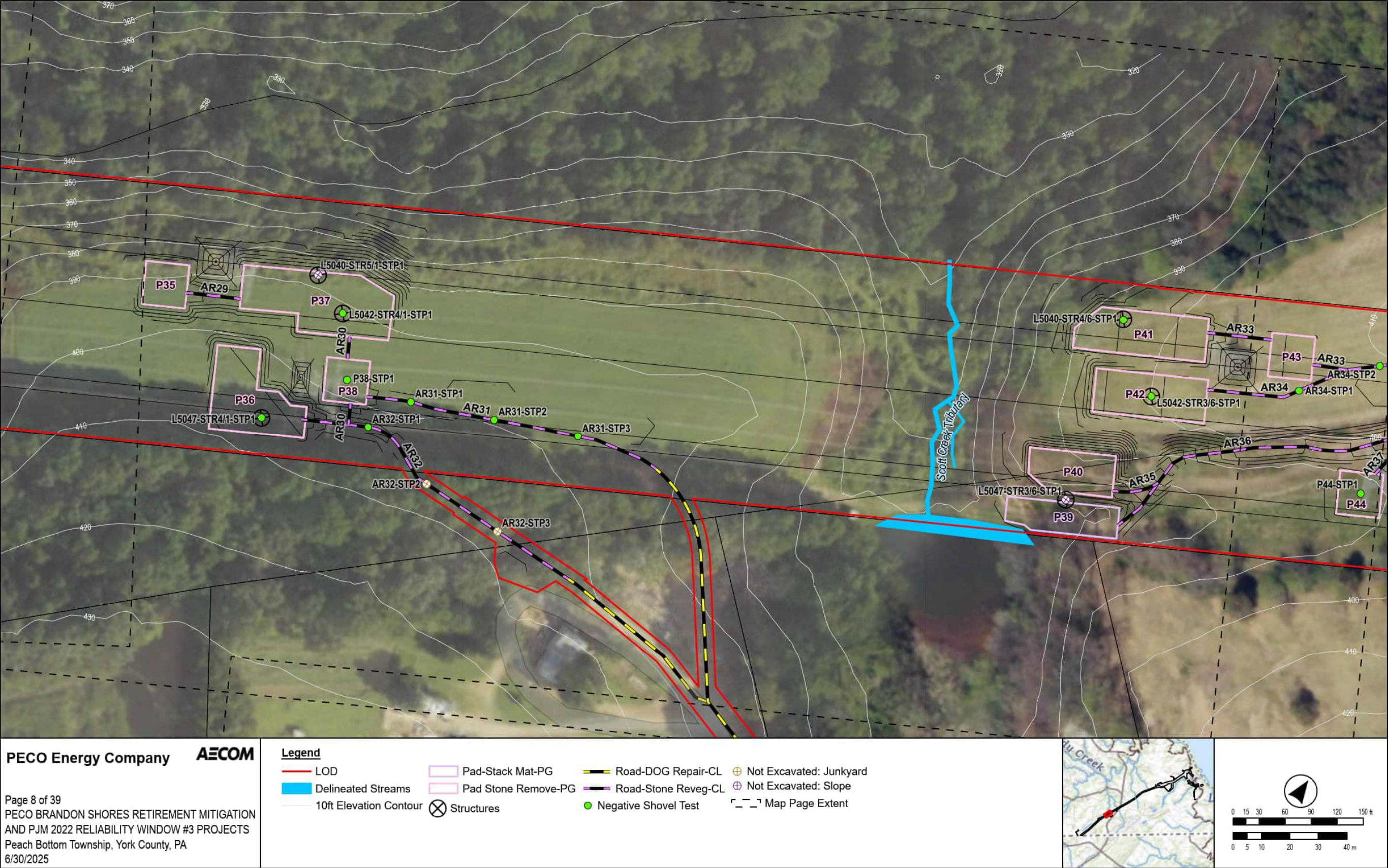


Figure 11h. Survey results map.



Figure 11i. Survey results map.



Figure 11j. Survey results map.



Figure 11k. Survey results map.

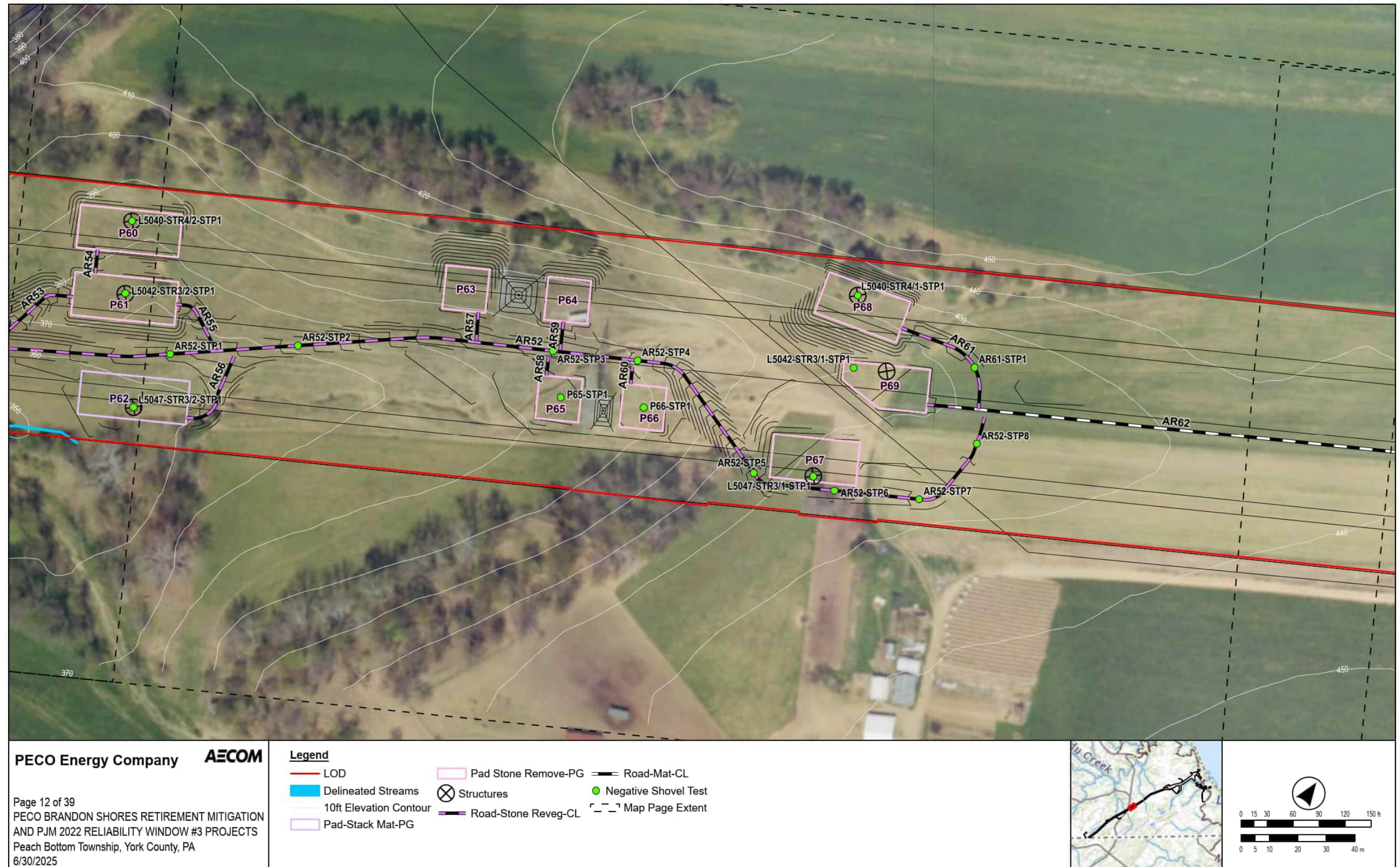


Figure 111. Survey results map.

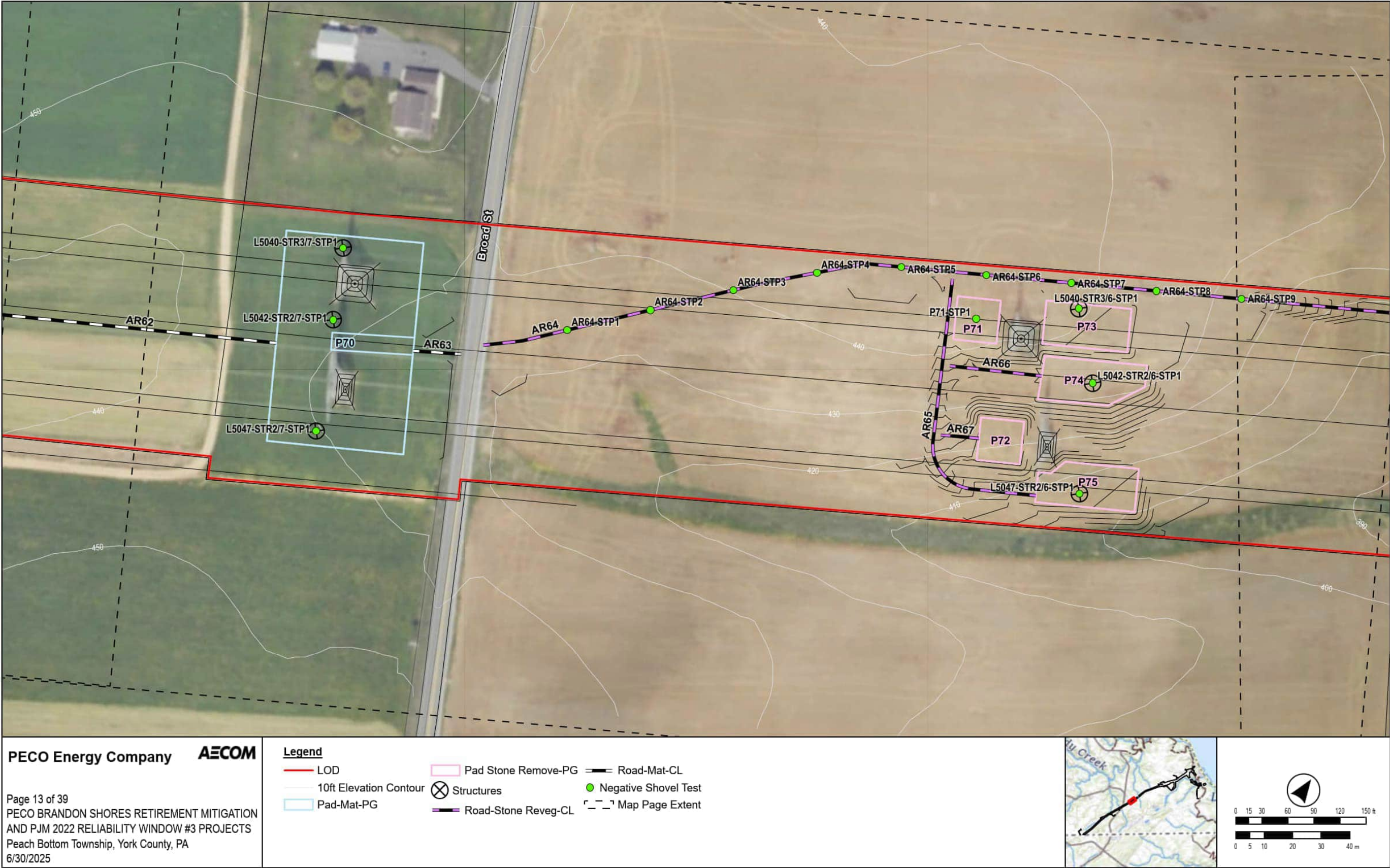


Figure 11m. Survey results map.

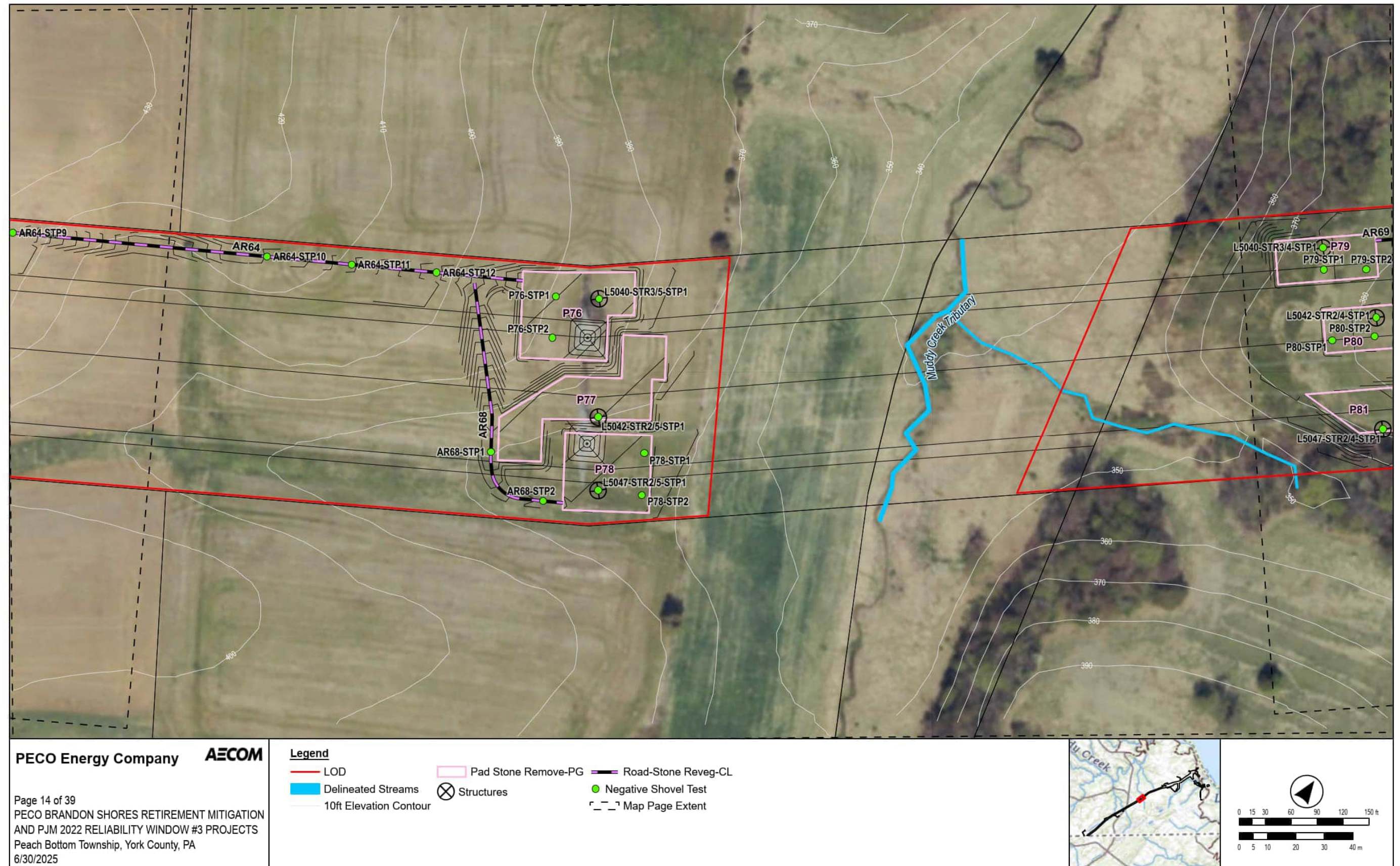


Figure 11n. Survey results map.



Figure 11o. Survey results map.

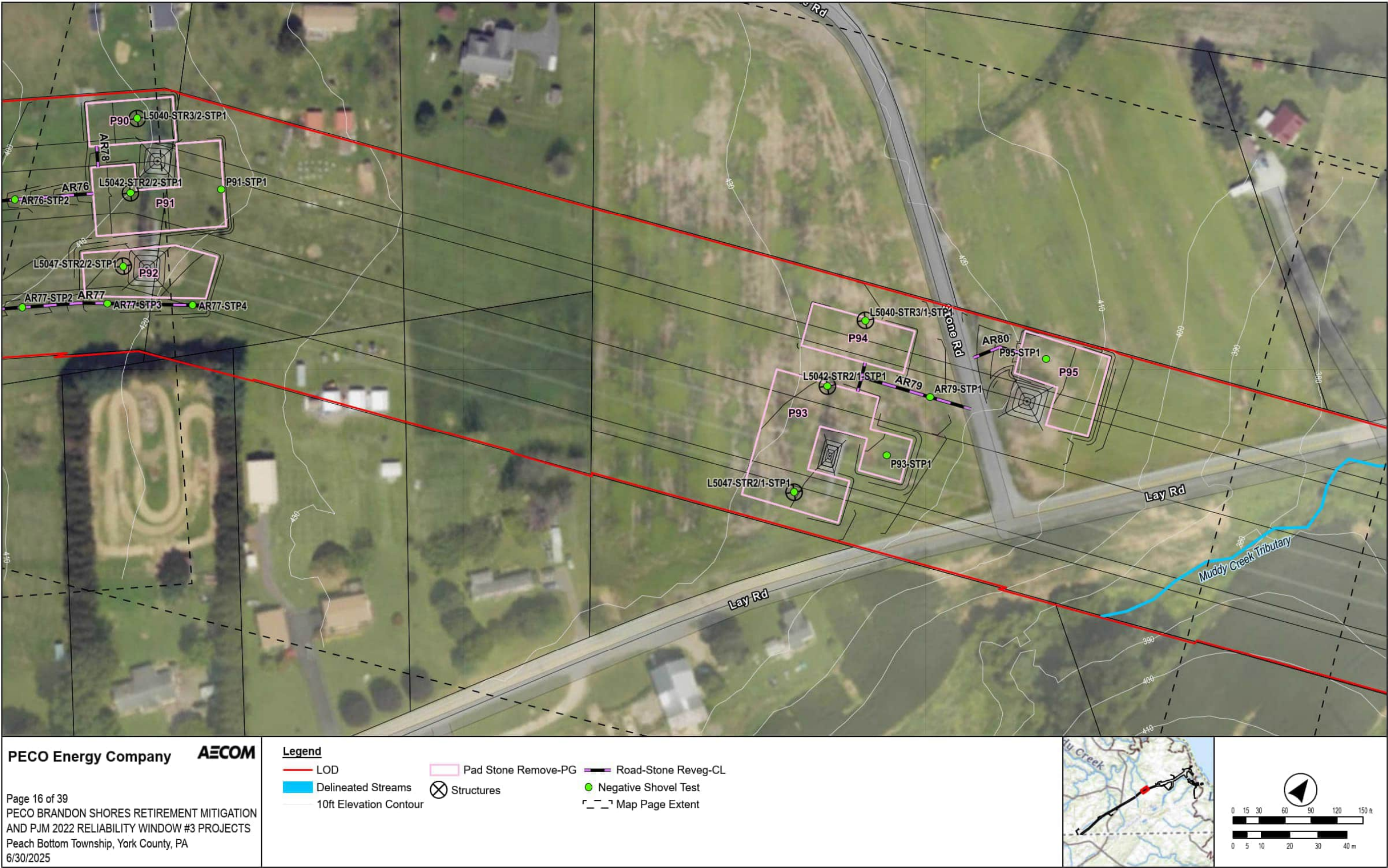


Figure 11p. Survey results map.

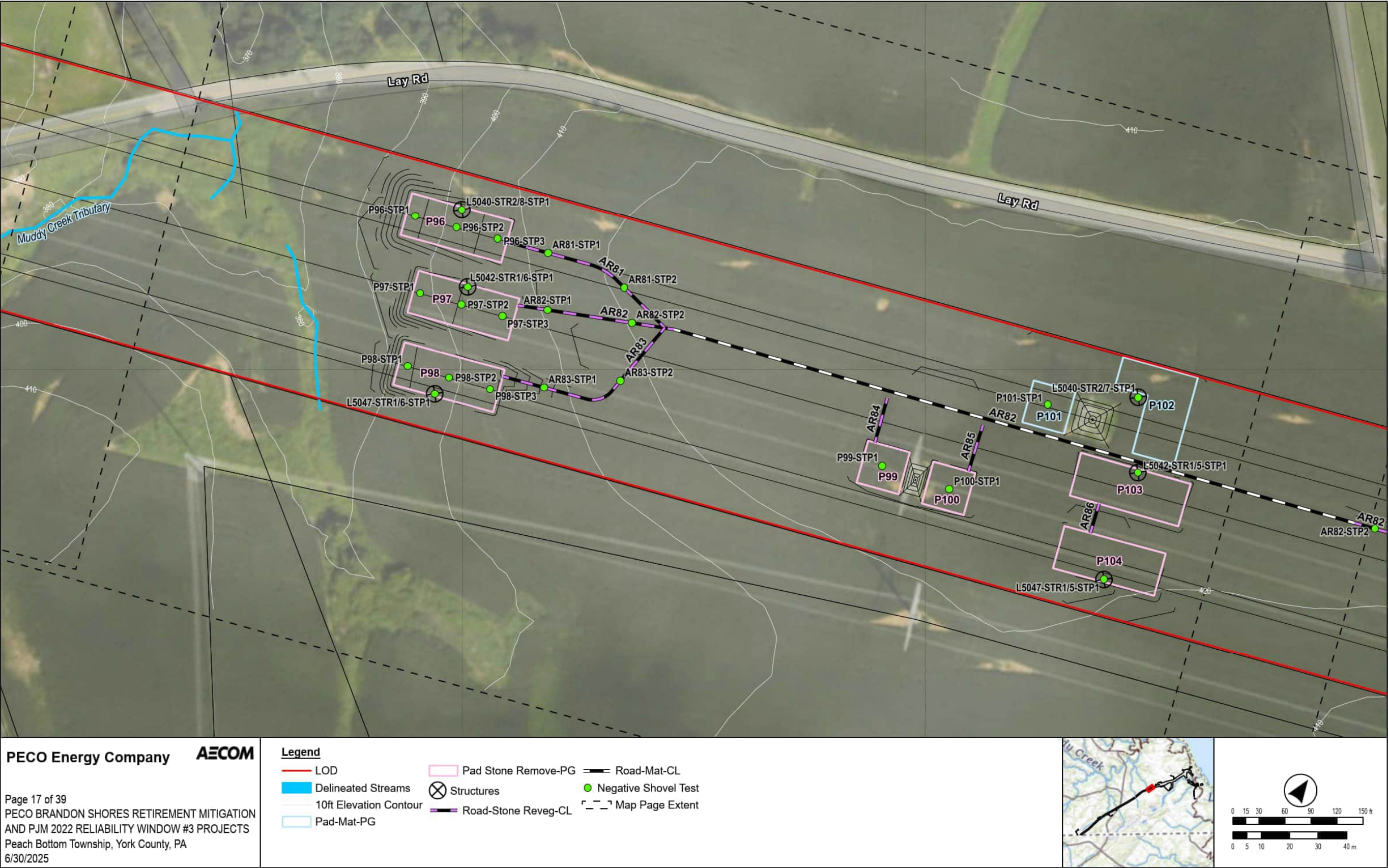


Figure 11q. Survey results map.

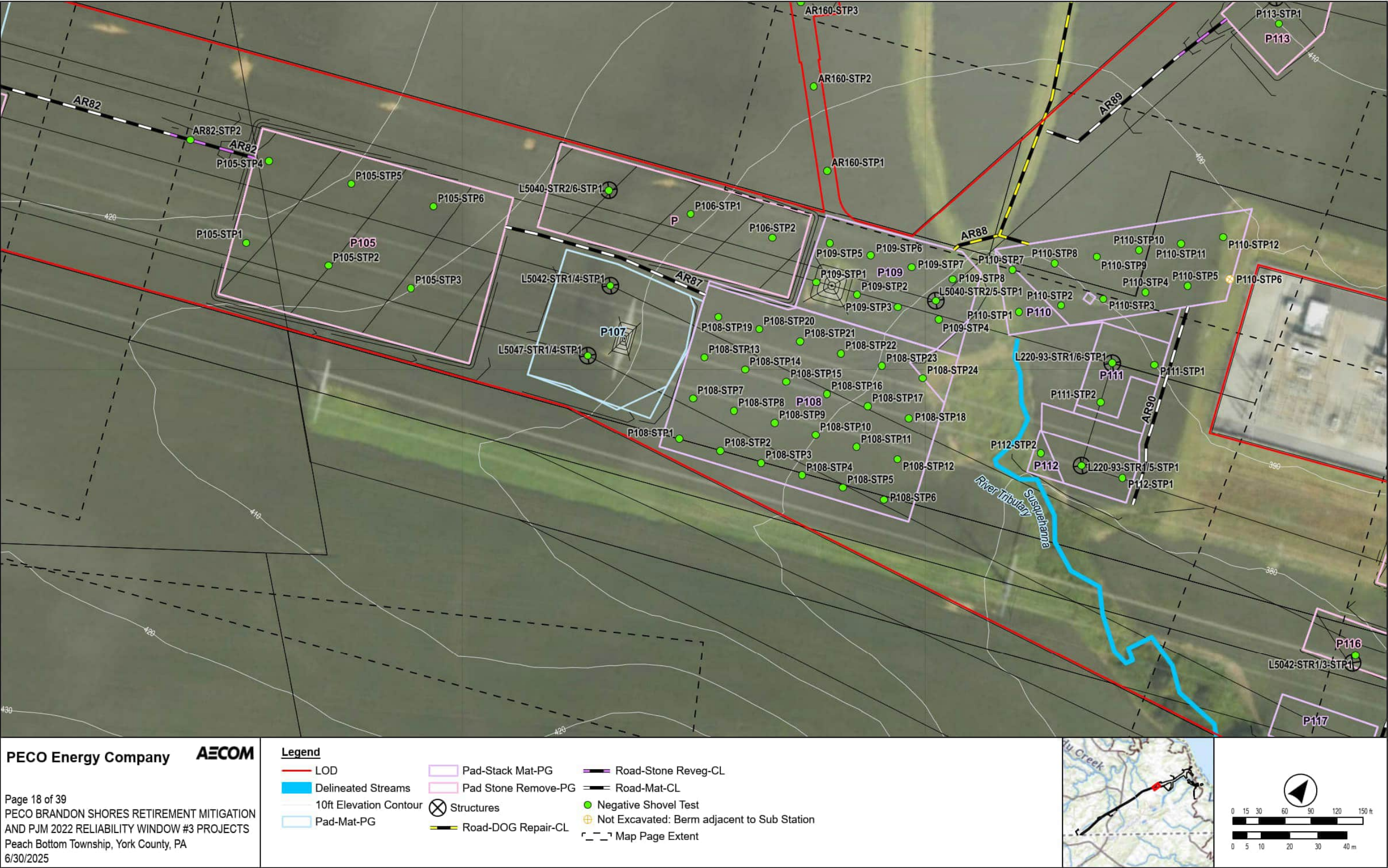




Figure 11s. Survey results map.

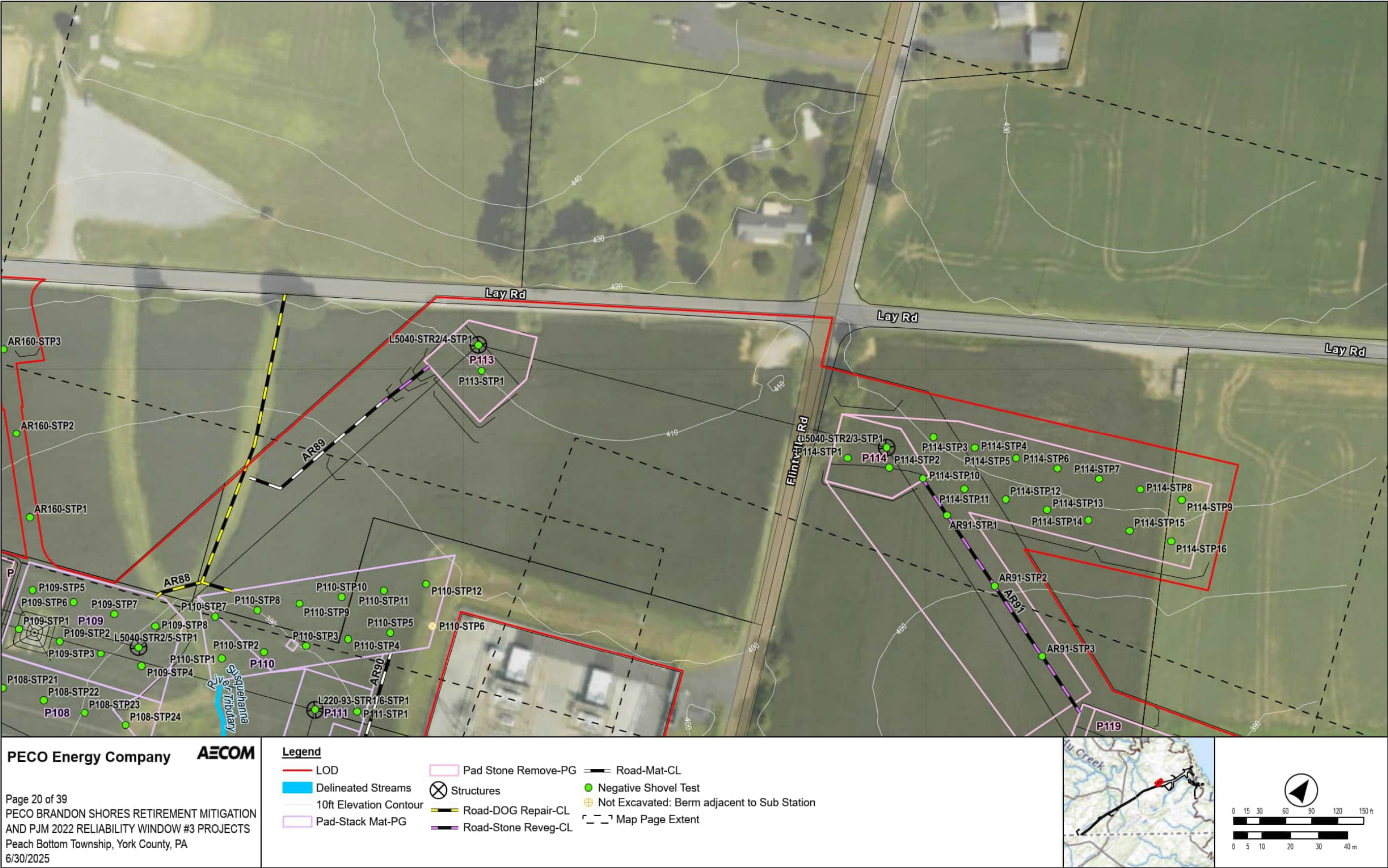


Figure 11t. Survey results map.

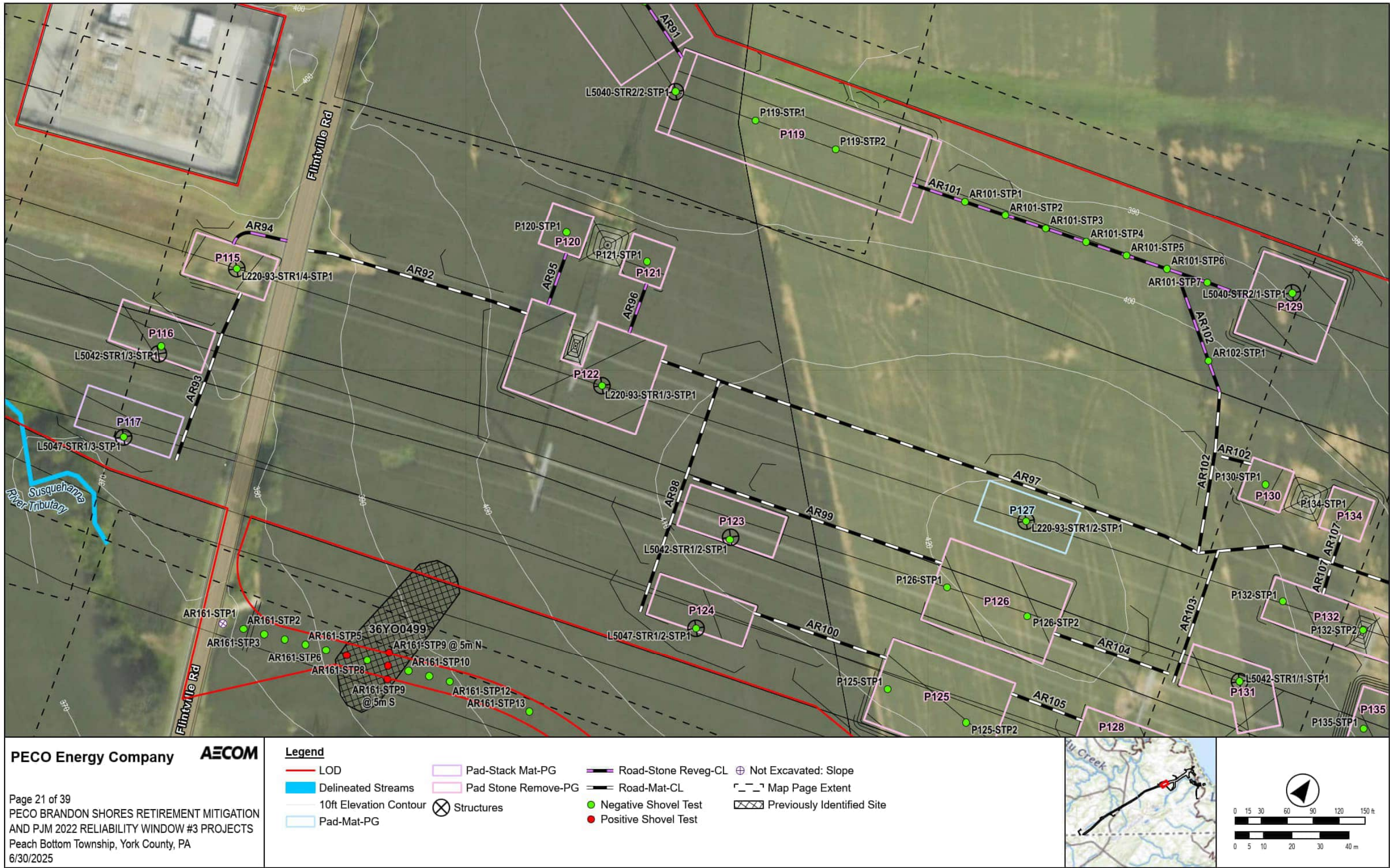




Figure 11v. Survey results map.

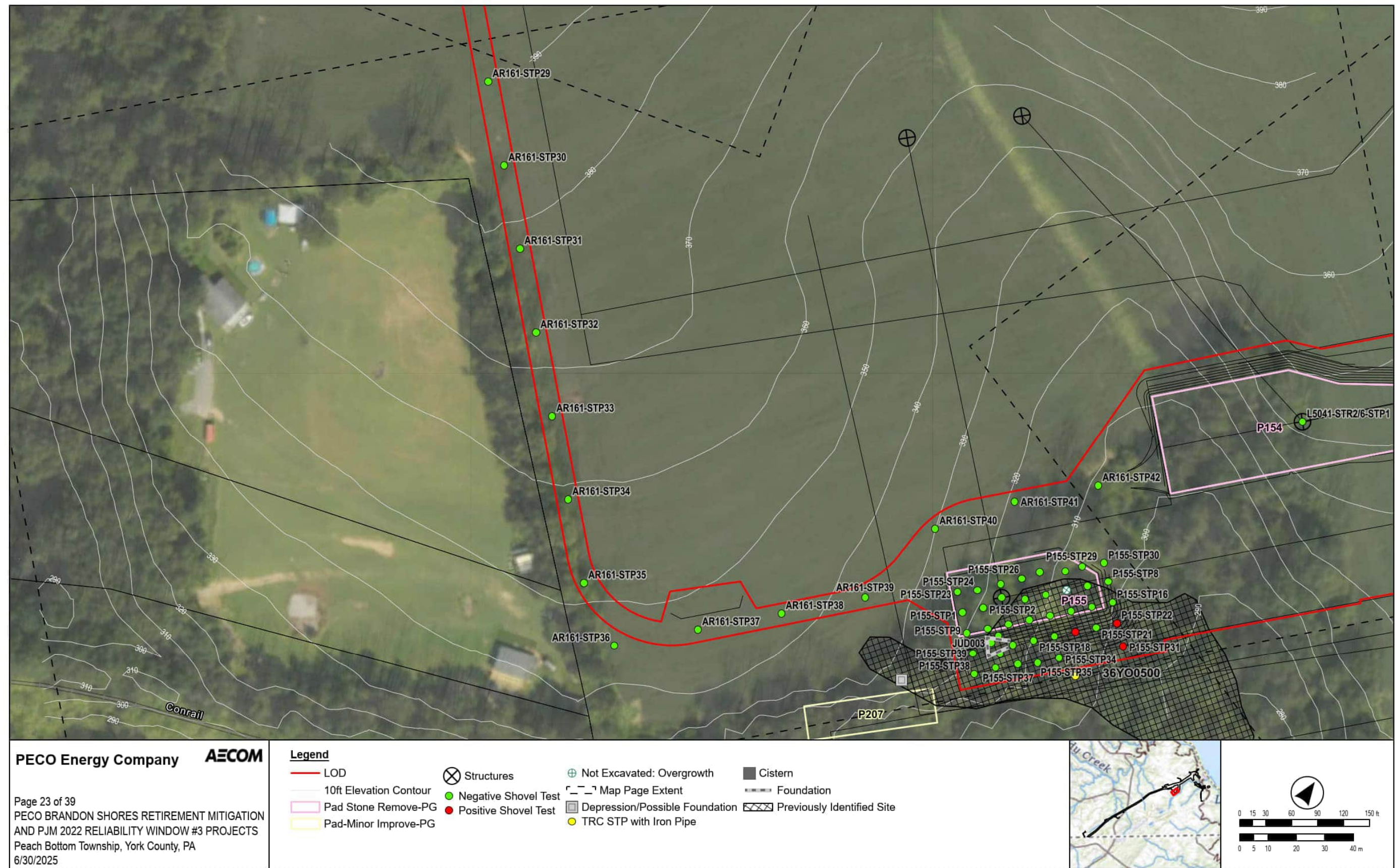


Figure 11w. Survey results map.

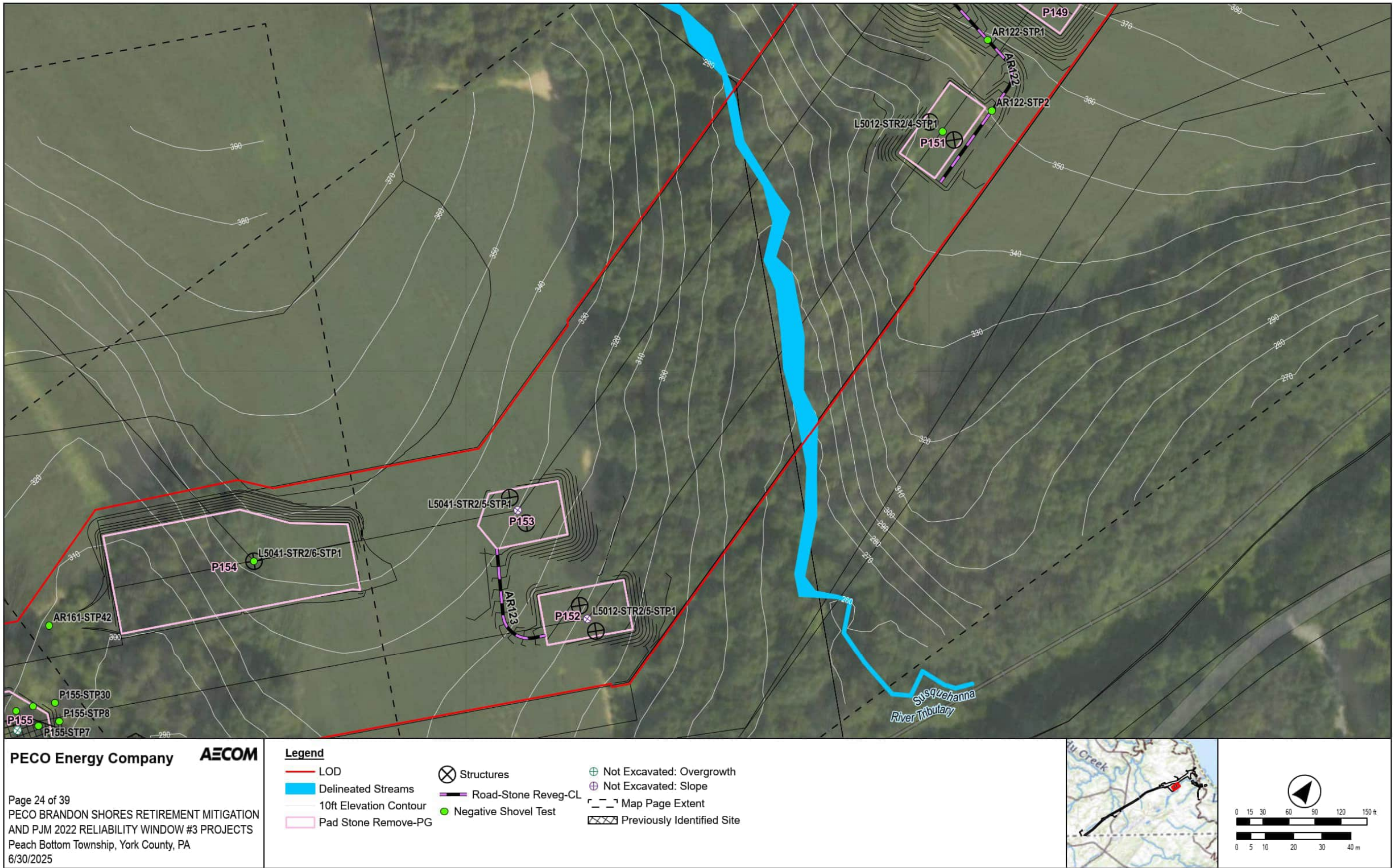
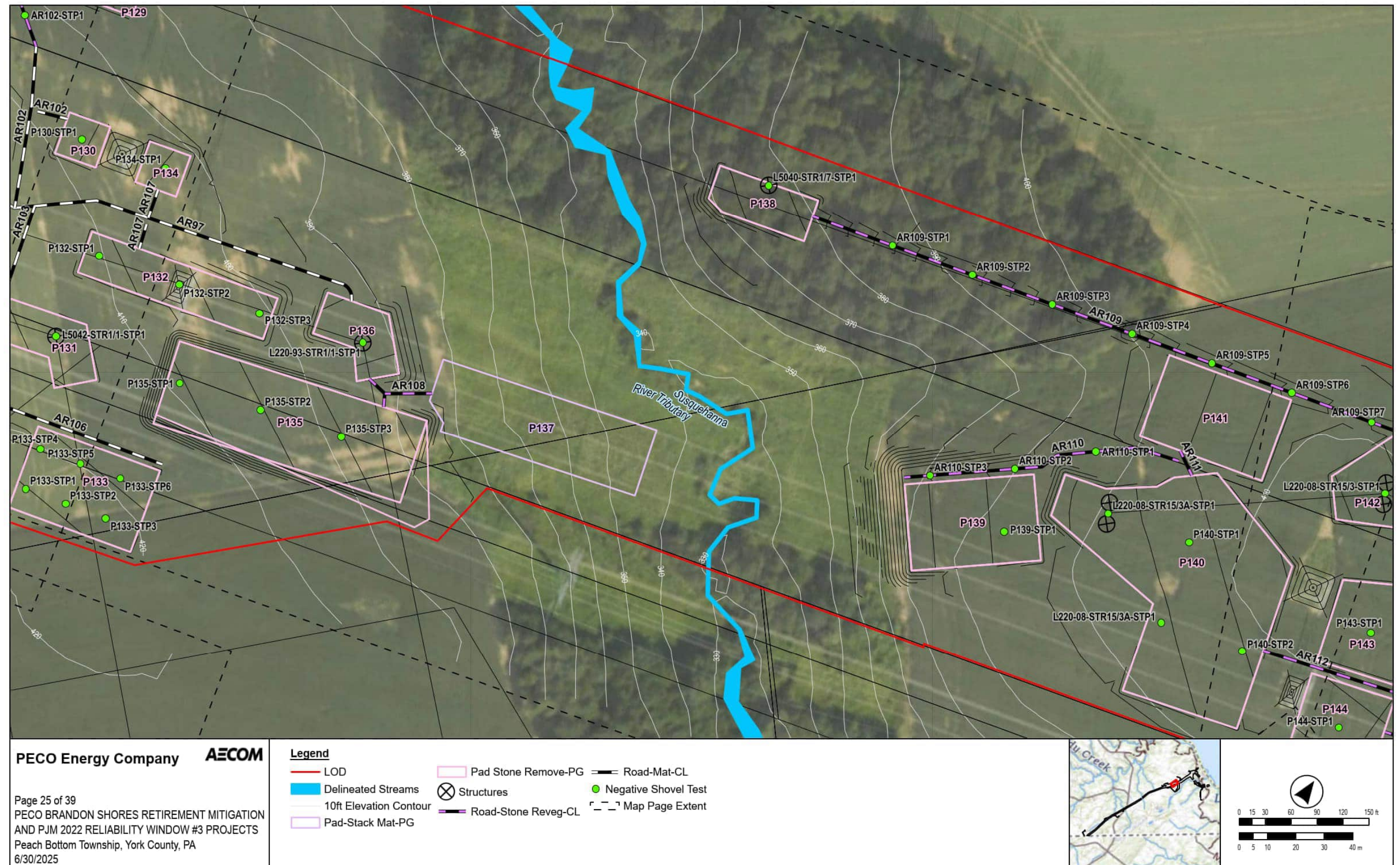


Figure 11x. Survey results map.



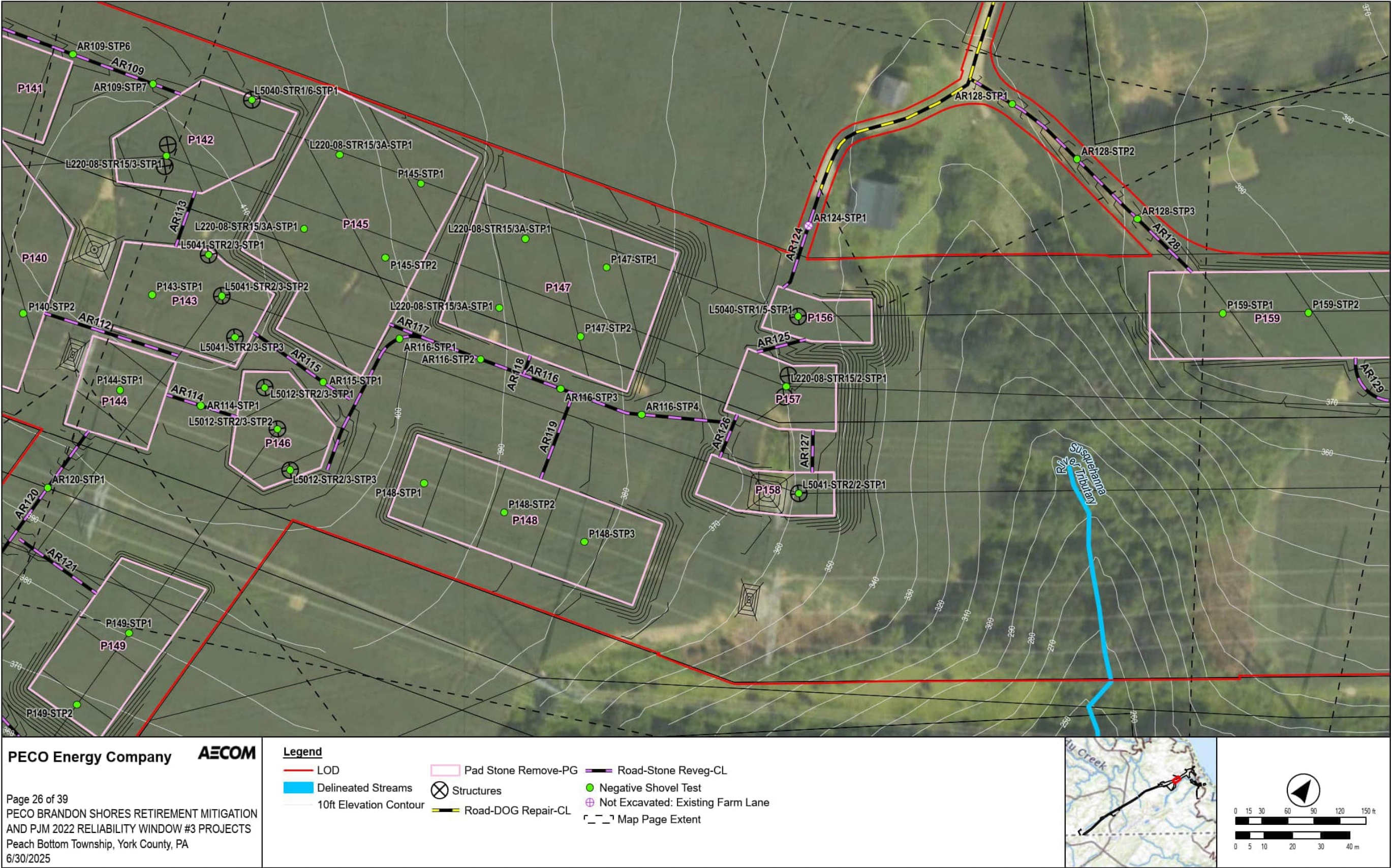


Figure 11z. Survey results map.



Figure 11aa. Survey results map.

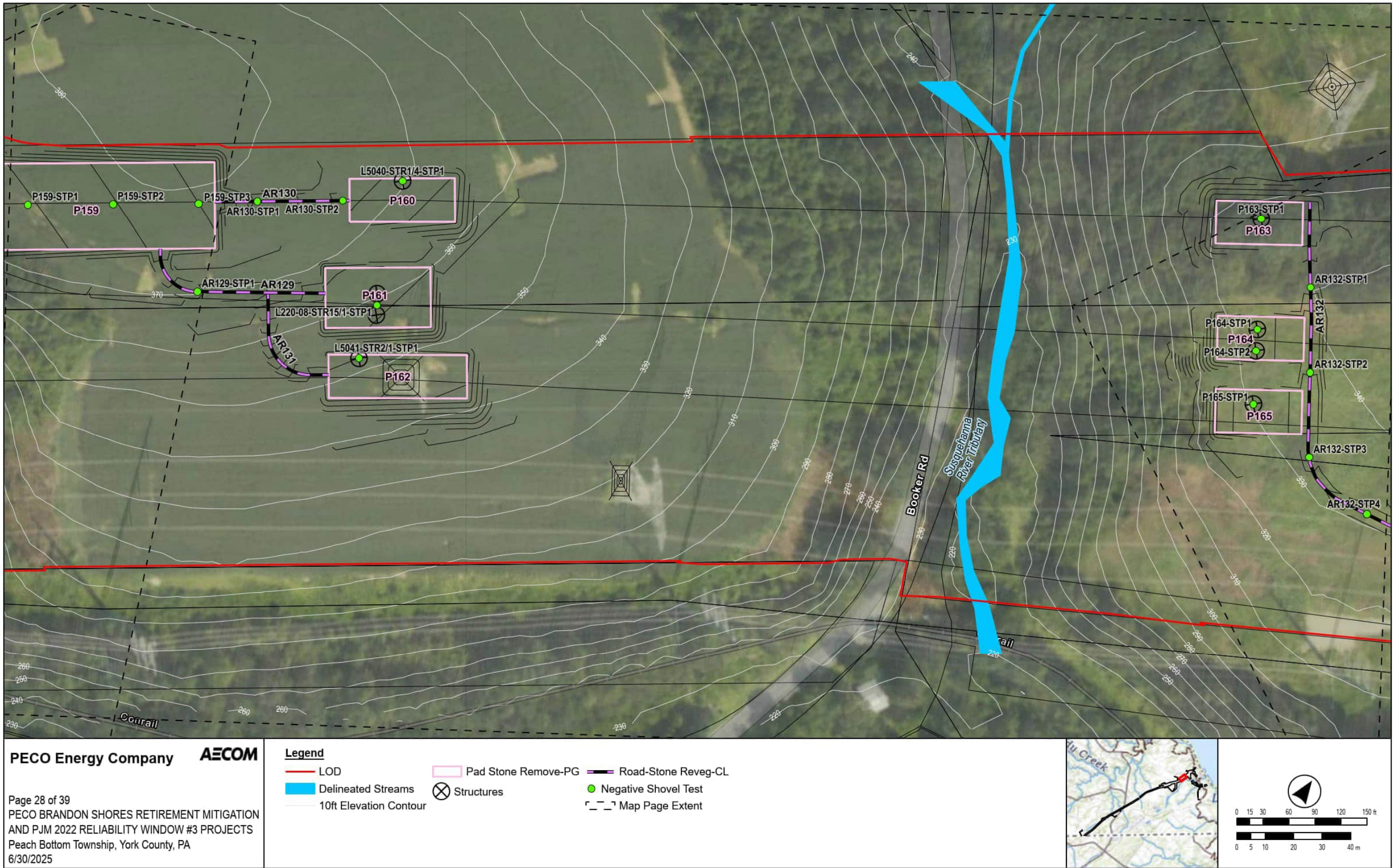
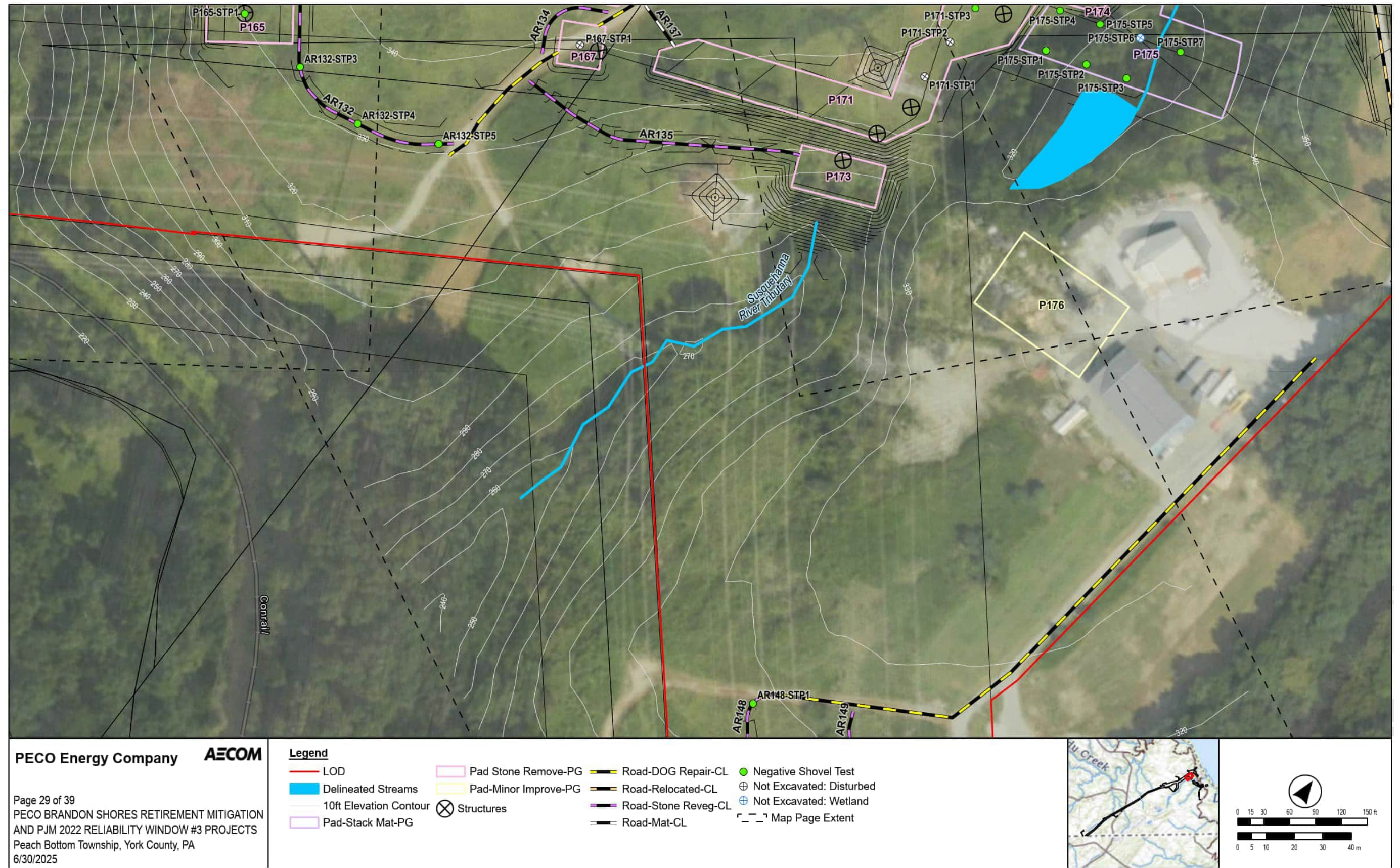


Figure 11ab. Survey results map.



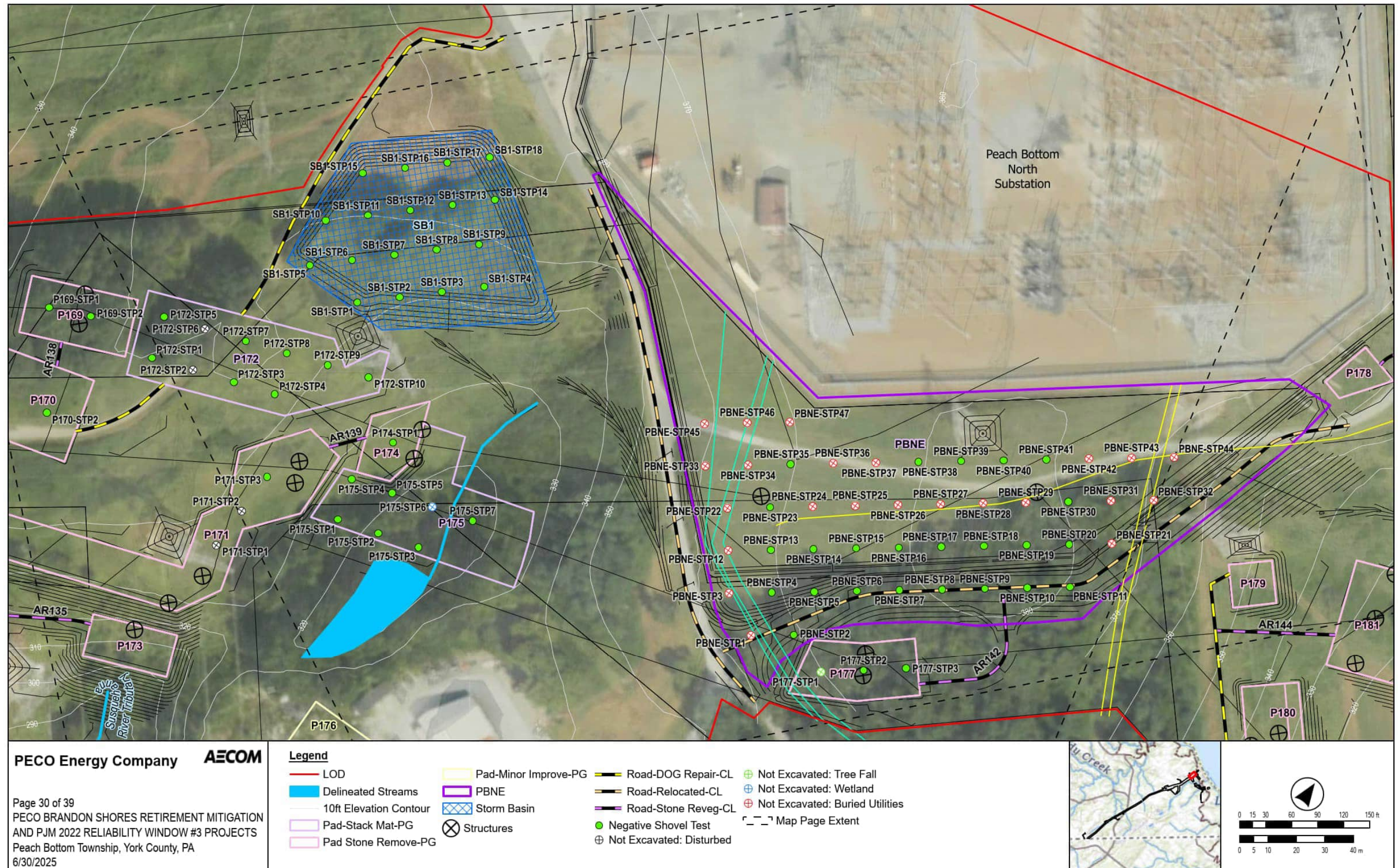
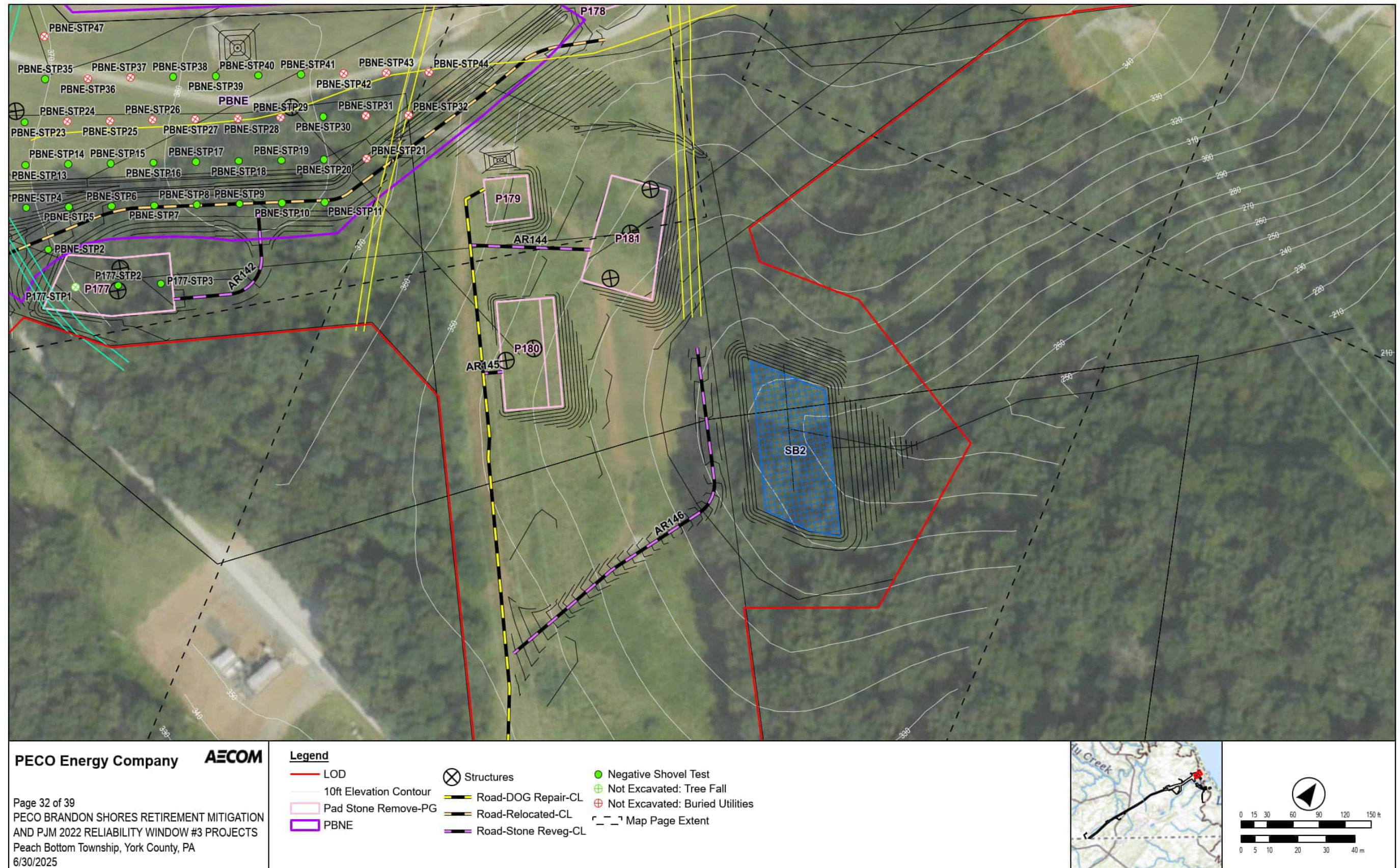




Figure 11ae. Survey results map.



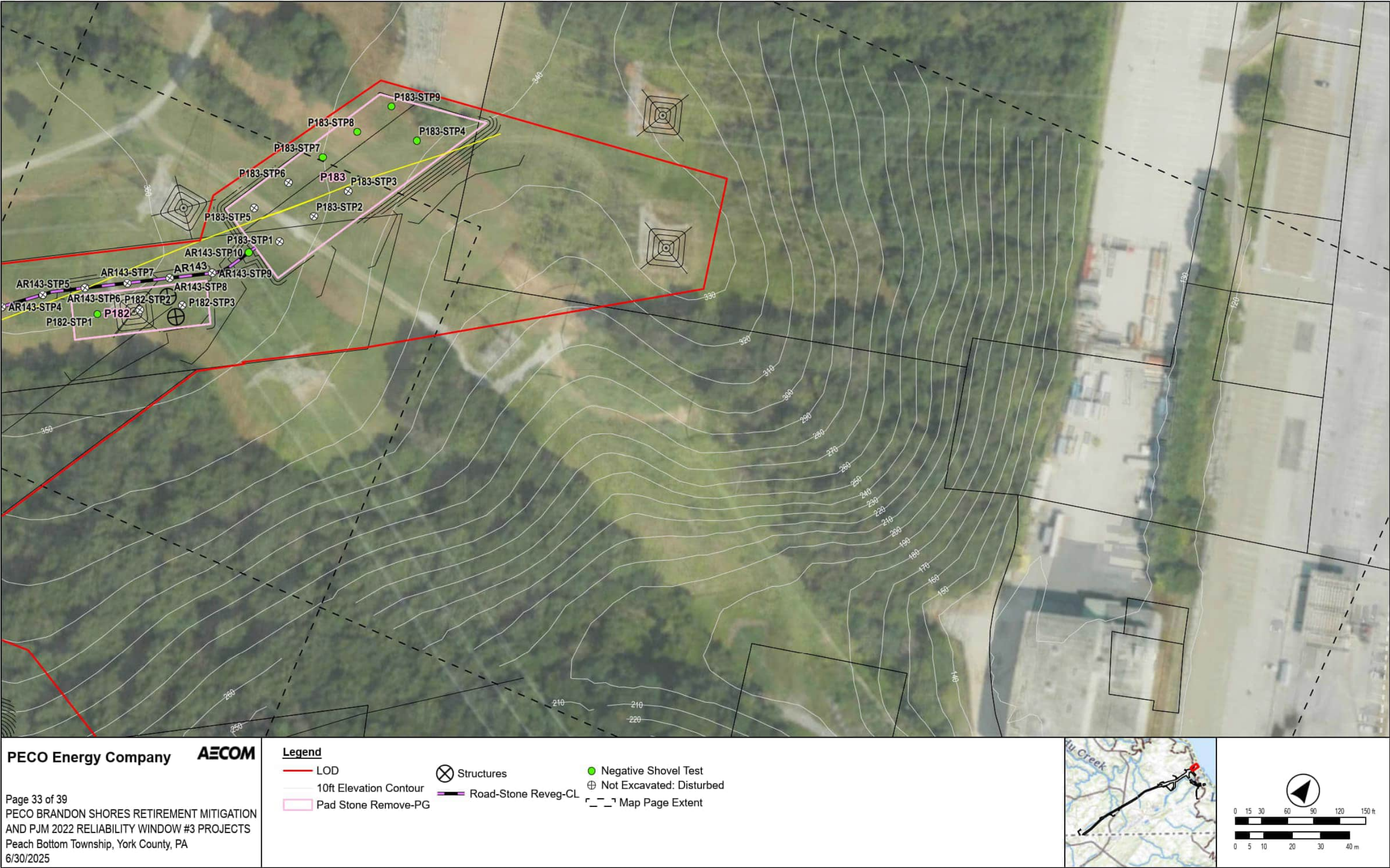


Figure 11ag. Survey results map.

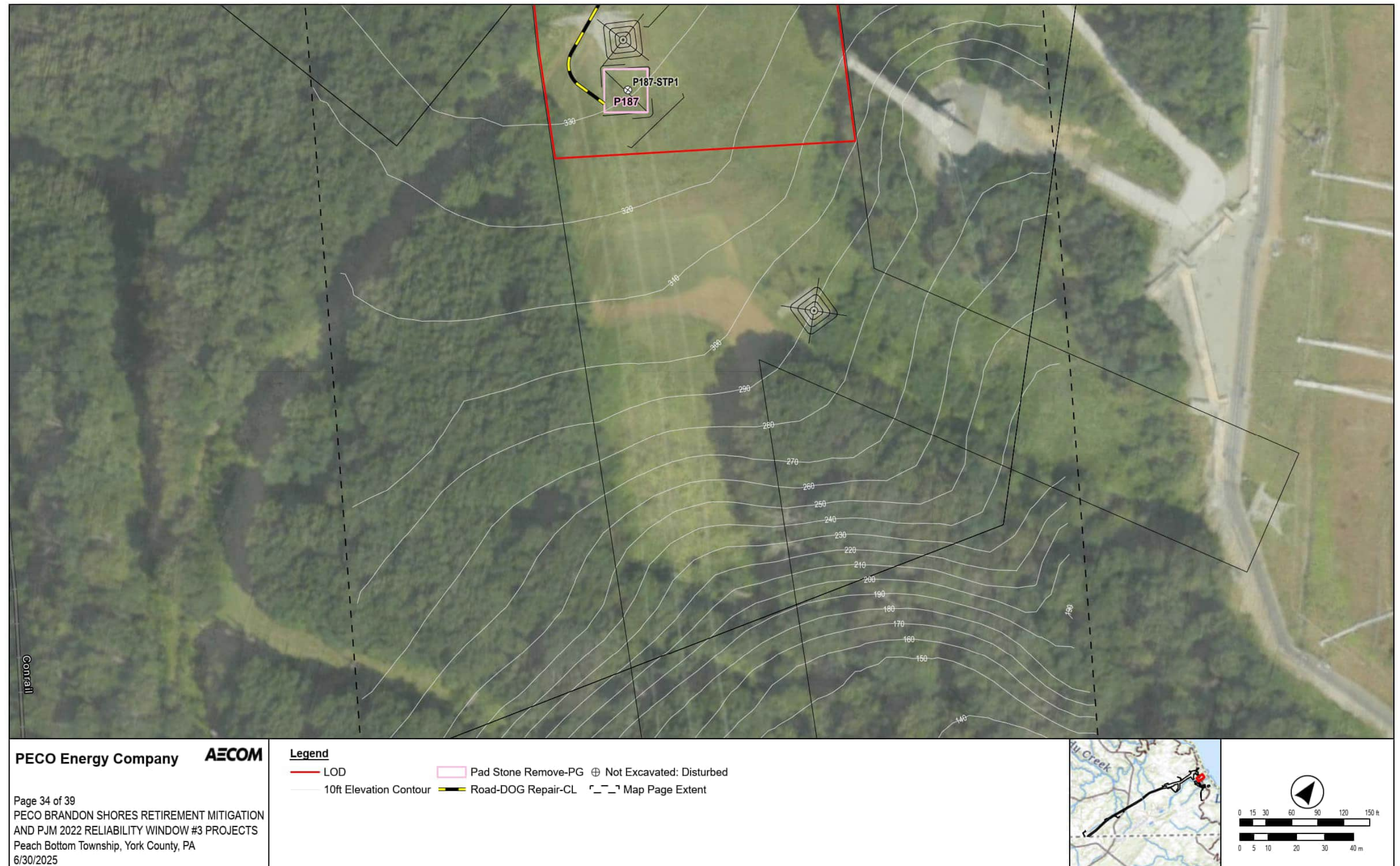


Figure 11ah. Survey results map.



Figure 11ai. Survey results map.

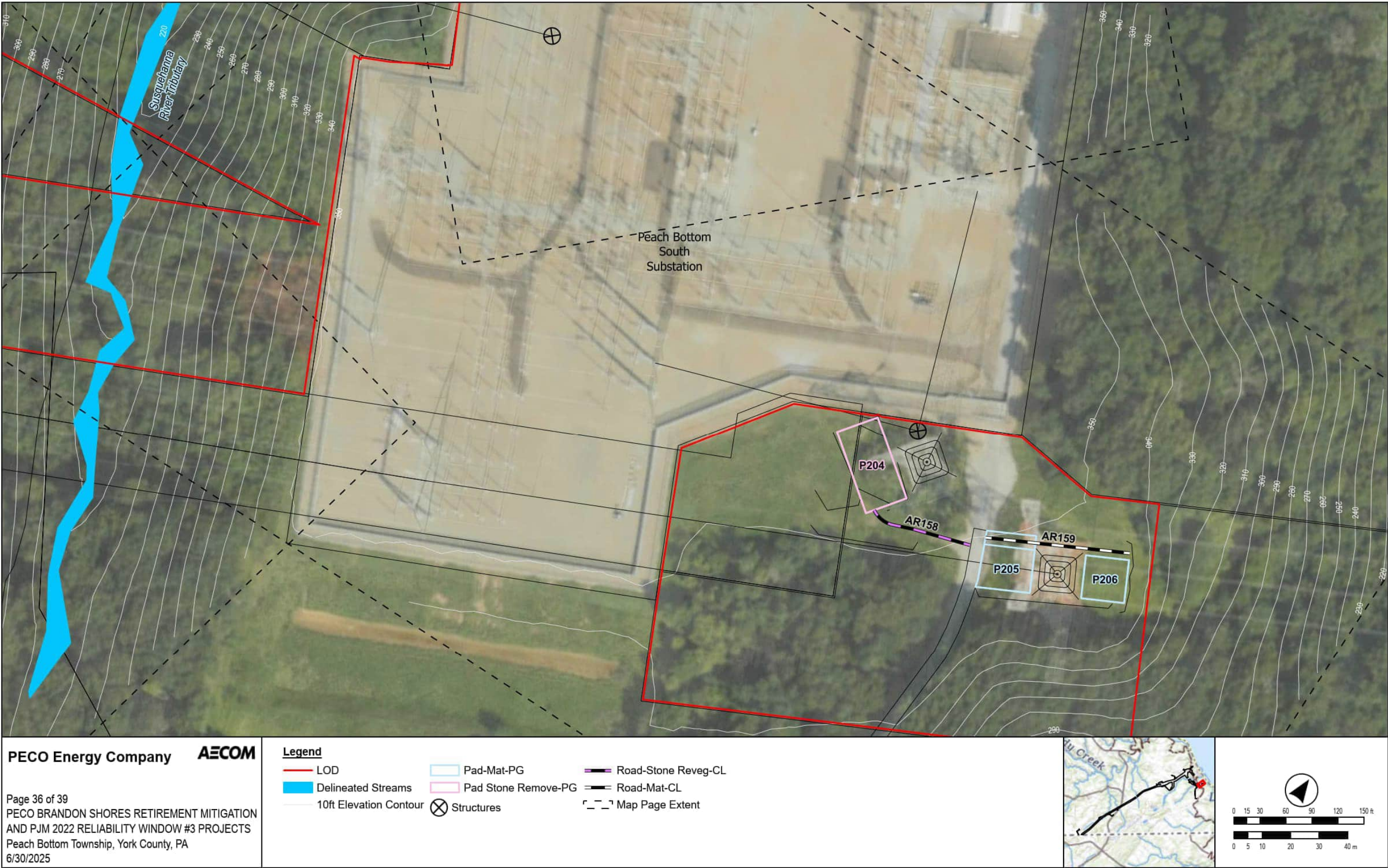


Figure 11aj. Survey results map.

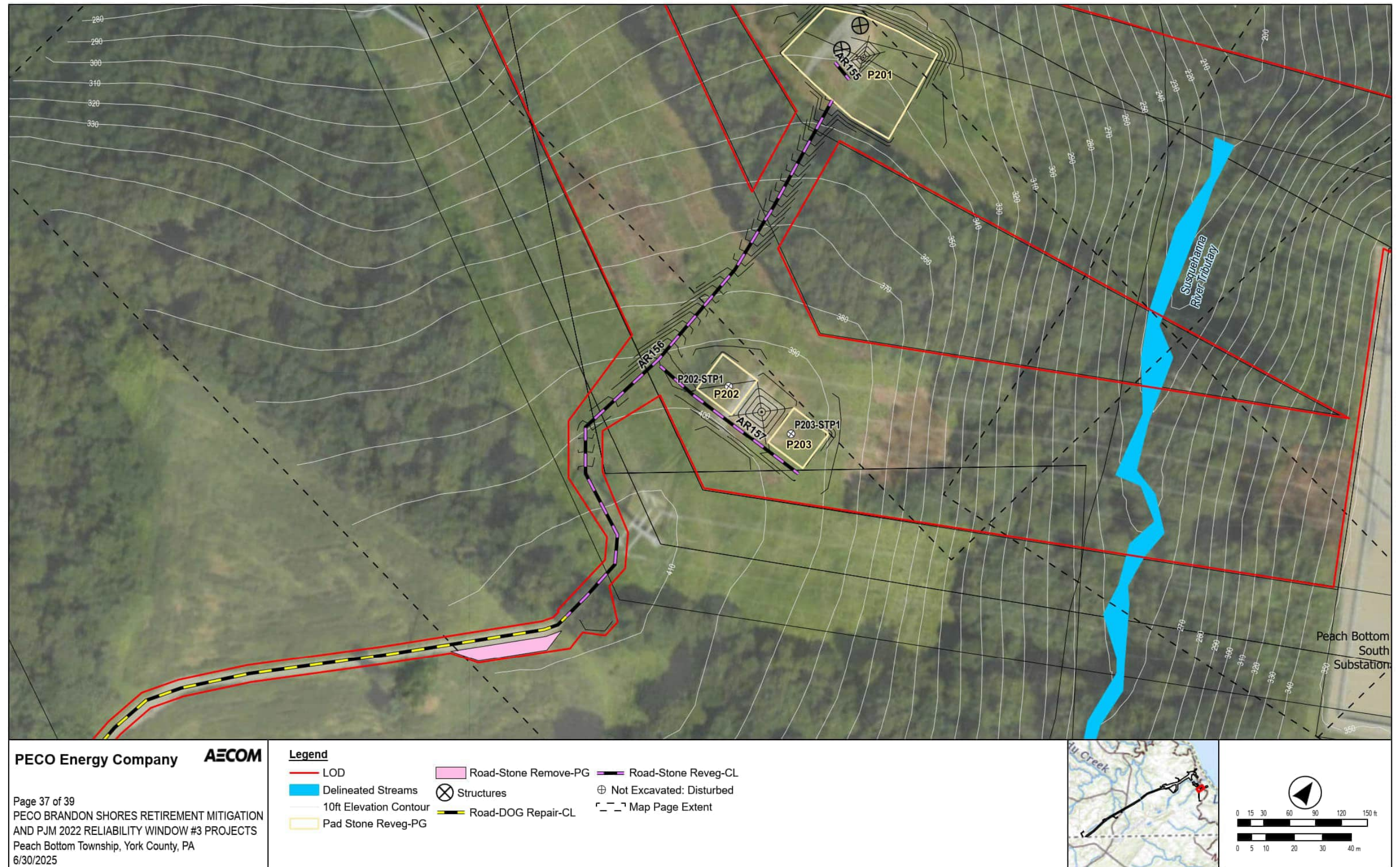


Figure 11ak. Survey results map.



Figure 11al. Survey results map.

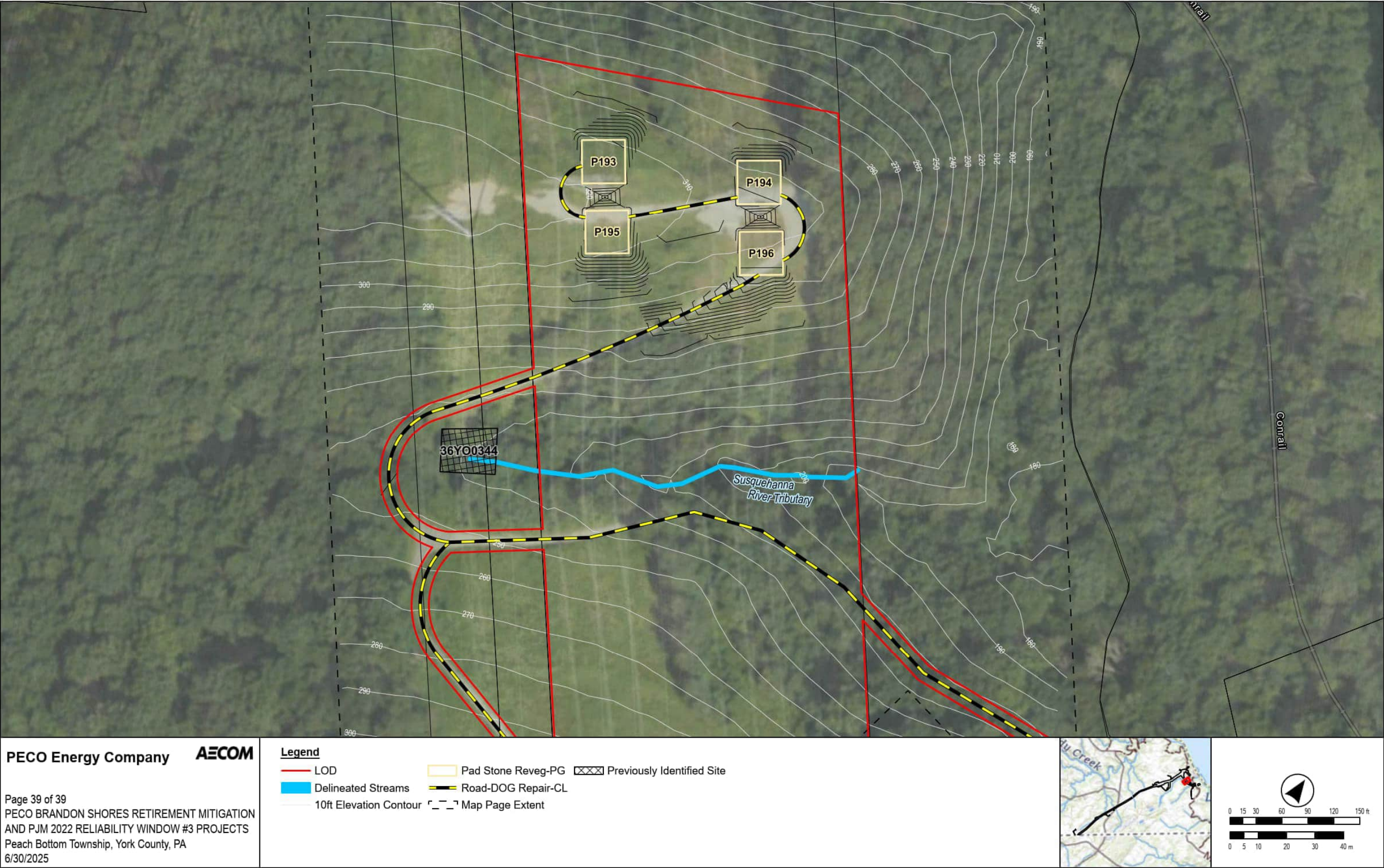


Figure 11am. Survey results map.



Photograph 1. View of P14, P14 from AR10 STP 1, facing northeast.



Photograph 2. Scott Creek tributary from P26STP 2, facing west.

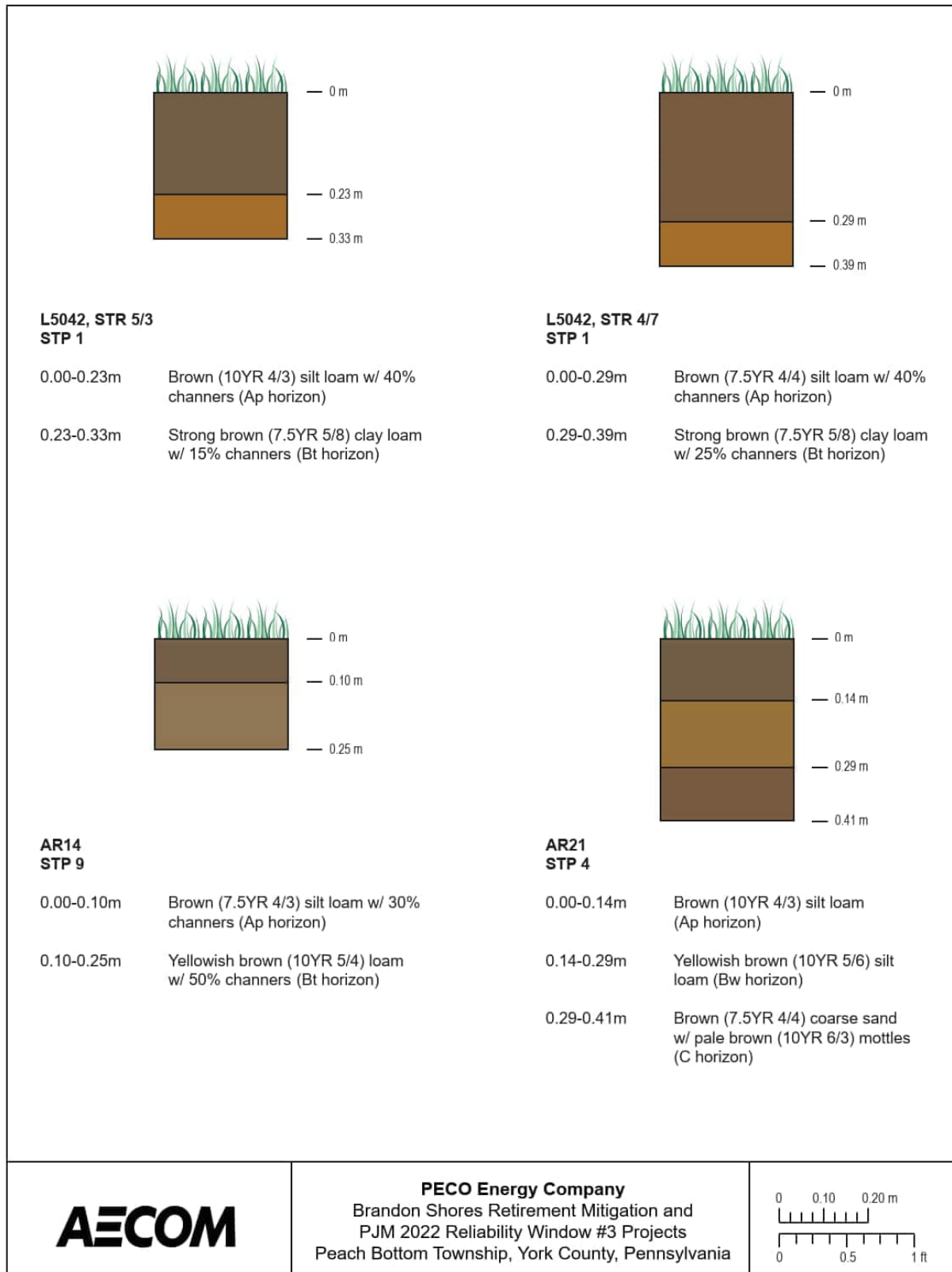


Figure 12. Representative STP profiles, Survey Segment 1.

SURVEY SEGMENT 2

Extent: Line Road to Delta Road

Project Facilities: Work pads P28 through P57, Access Roads AR21 through 50

Figures: 11f through 11k

STPs Excavated: 70

Sites Identified: None

Survey Segment 2 extended northeast from work pad P27 to P57 west of Delta Road (see Figures 11f through 11k). The segment is situated on gentle, moderate, and steep slopes, crossing the first-order tributary to Scott Creek as well as Scott Creek (Photographs 3, 4). The Model ranked the majority of the segment as low and moderate probability, with limited areas of high probability near Scott Creek. Two map-documented nineteenth-century structures (A.C. McCurdy, E. Bulett/A. Stubbs) were indicated adjacent to and within the APE. Most STPs were primarily excavated at 30-m (98.4-ft) intervals; however, STPs near the Scott Run tributary and the floodplain of Scott Run were excavated at 15-m (49.2-ft) intervals. STP profiles on the Scott Creek tributary consisted of a brown (10YR 4/3) silt loam A or Ap horizon overlying a dark yellowish brown (10YR 4/4) loam Bw1 horizon. The Bw 1 horizon contacted a brown (10YR 5/3) loam Bw2 horizon, which in turn overlaid a light brownish gray (10YR 6/2) clay loam Bwg horizon with iron oxide mottles at depths ranging from 0.63 m to 0.71 m (2.1 ft to 2.3 ft) bgs (Figure 13). STPs profiles on the Scott Run floodplain at work pads P54 and P55 exhibited similar fine-grained A-Bw1-Bw2-Bwg horizon sequences, some with appreciable percentages of rounded pebbles/gravel in all horizons, which is indicative of higher-energy deposition (see Figure 13).

A total of 70 STPs were excavated in Survey Segment 2. No indications of the two map-document structures were observed and no archaeological sites were identified.



Photograph 3. View of P51, facing northeast.



Photograph 4. Scott Run floodplain facing southwest from P55 STP 12.

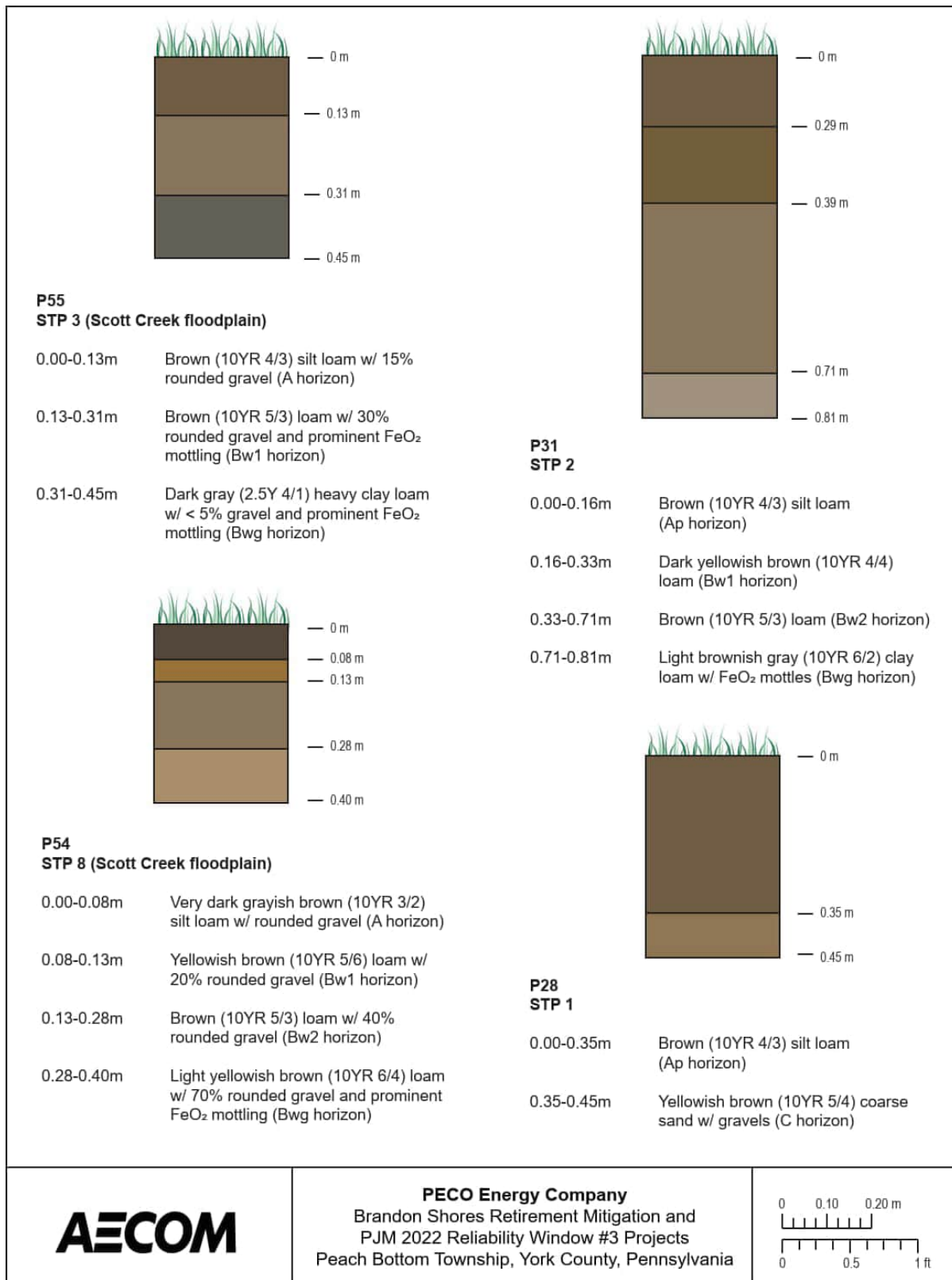


Figure 13. Representative STP profiles, Survey Segment 2.

SURVEY SEGMENT 3

Extent: Delta Road to Pikes Peak Road

Project Facilities: Work pads P58 through P88, Access Roads AR50 through 73

Figures: 11k through 11o

STPs Excavated: 72

Sites Identified: None

Survey Segment 3 continued northeast from Delta Road at P58 to the west side of Pikes Peak Road at P88 (see Figures 11k through 11o). The southwestern and northeast ends of the segment were located on moderate to steep slopes (Photograph 5) but the segment's central portion was relatively level. As was the case for Survey Segments 1 and 2, Model rankings of Survey Segment 3 were primarily low and moderate probability; however, there were more high probability areas, particularly on the southwest-facing end of a ridge overlooking a direct low-order tributary to Muddy Creek (see Figure 11o and Photograph 6). Work pads and access roads on this ridge end were tested at 15-m (49.2-ft) intervals. Other portions of the segment with no nearby water source were tested at 30-m (98.4-ft) intervals. No map-documented structures were indicated in this segment. STP profiles in this segment consisted of 0.18-m to 0.43-m (0.6-ft to 1.4-ft) very dark grayish brown (10YR 3/2) to brown (7.5YR 4/4) silt loam Ap horizon overlying yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) loam and clay loam. Channers were present in both horizons (Figure 14).

A total of 72 STPs were excavated in Survey Segment 3. No archaeological sites were identified.



Photograph 5. View from AR52, STP 1 facing northeast to P63-66.



Photograph 6. View from ridge end at P80 facing southwest to Muddy Run tributary.

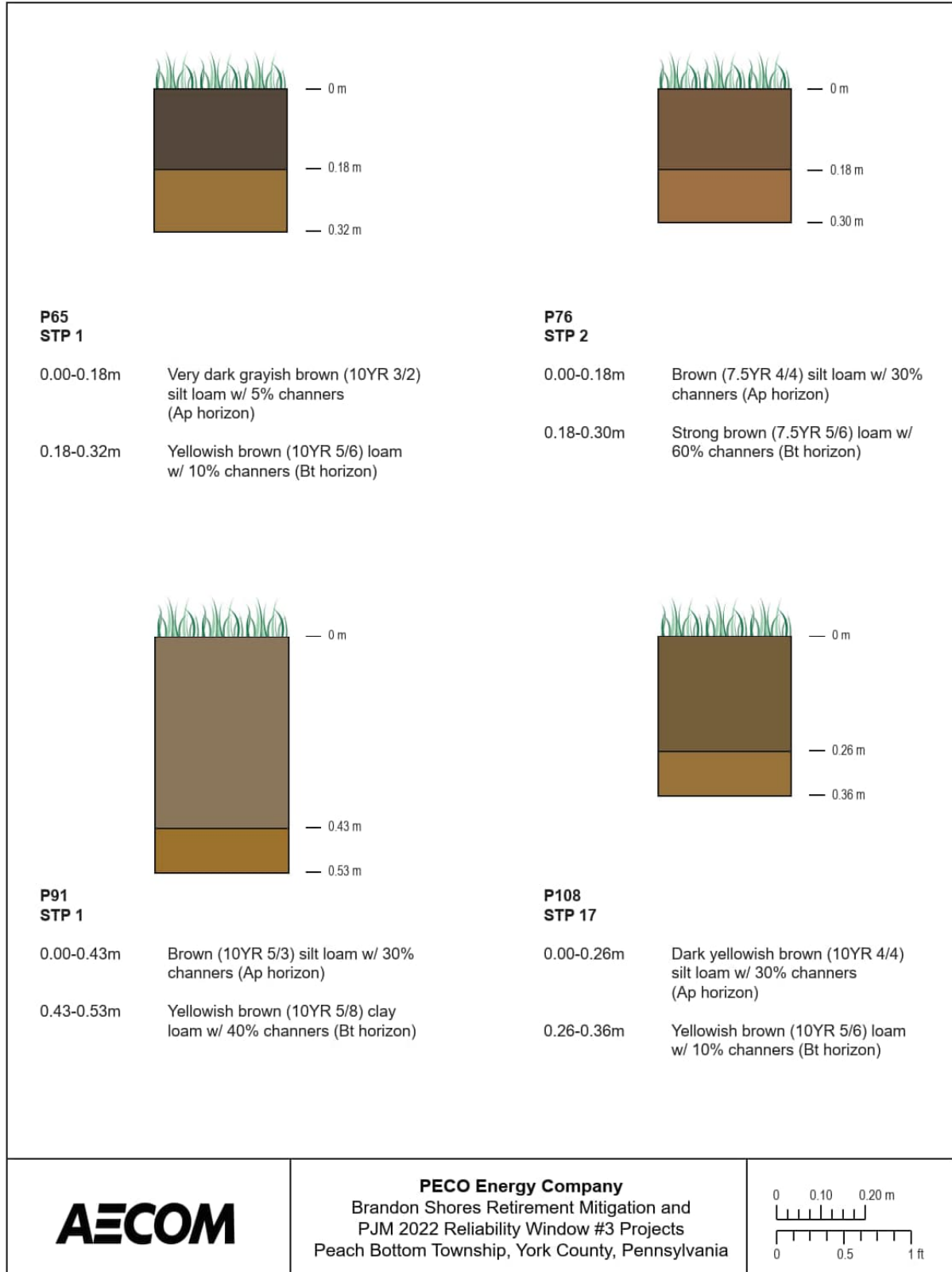


Figure 14. Representative STP profiles, Survey Segment 3.

SURVEY SEGMENT 4

Extent: Pikes Peak Road to Flintville Road

Project Facilities: Work pads P89 through P117, Laydown Area, Access Roads AR74 through 93

Figures: 11o through 11u

STPs Excavated: 160

Sites Identified: None

Survey Segment 4 extended northeast from Pikes Peak Road at P89 to the west side of Flintville Road at P117 (see Figures 11o through 11u). The segment is located on gentle slopes and extends across a direct first-order tributary to Muddy Creek on its southwestern end and two direct first-order tributaries to the Susquehanna River at its northeastern end (Photographs 7, 8). The laydown area was located immediately north of Wiley Road on a low ridge (see Figure 11s and Photograph 9). Model rankings of Survey Segment 4 were primarily low and moderate probability. Areas of high probability Model ranking are present near the tributaries. A map-documented structure (H. Dodson) was indicated in the central portion of the segment. Work pads and access roads near the tributaries were tested at 15-m (49.2-ft) intervals. Other portions of the segment with no nearby water source were tested at 30-m (98.4-ft) intervals. STP profiles were similar in the segment, consisting of 0.18-m to 0.31-m (0.6-ft to 1.0 ft) brown (10YR 4/3 to 7.5YR 4/4) silt loam overlying yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) clay loam subsoil. Both horizons contained channers (Figure 15).

A total of 160 STPs were excavated in Survey Segment 4. No indications of the map-documented structure were observed and no archaeological sites were identified.

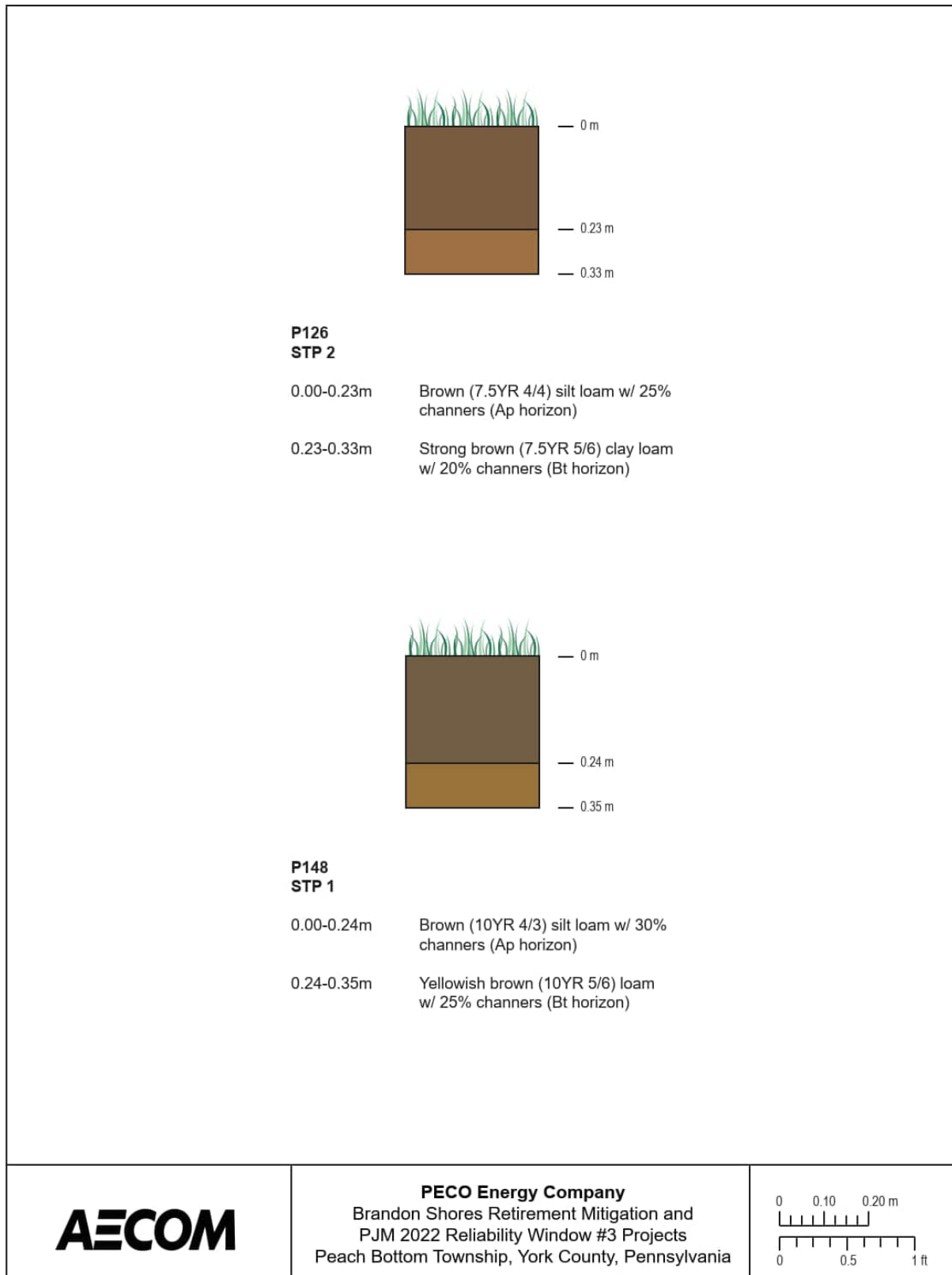


Figure 15. Representative STP profiles, Survey Segment 4.



Photograph 7. View of P98 facing southwest to Muddy Run tributary.



Photograph 8. View of P108 facing northeast to Susquehanna River tributary



Photograph 9. Laydown Area facing south from STP 47

SURVEY SEGMENT 5

Extent: Flintville Road to Booker Road

Project Facilities: Work pads P114, 119 through P162, Access Roads AR91 through AR161

Figures: 11t through 11ab

STPs Excavated: 222

Sites Identified: 36YO0499, 36YO0500

The main portion of Survey Segment 5 continued northeast from the east side of Flintville Road at P114 to the west side of Booker Road at P162 (see Figures 11t, 11u, 11y through 11ab). This portion of the segment extended across gentle to moderate slopes with the exception of a very narrow, incised ravine formed by a first-order tributary to the Susquehanna River between P 137 and P138 (see Figure 11y and Photograph 10). The Model ranks most of the main portion of Survey Segment 5 as low and moderate probability and was tested at 30-m (98.4-ft) intervals. Limited areas of high probability around P114 and P132 (see Figures 11t and 11y) were tested at 15-m (49.2-ft) intervals. This portion of the segment also potentially contained map-documented structures associated with the D.E. Wiley/Margarita Wiley tannery and mill complex north of Booker Road. STP profiles in this portion of the segment displayed little variation from those in Survey Segment 4, consisting of brown (10YR 4/3 to 7.5YR 4/4) silt loam overlying yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) clay loam subsoil. Both horizons contained channers.



Photograph 10. Ravine of Susquehanna River tributary facing northeast from P136.

A "U"-shaped portion of Survey Segment 5 included access road AR161, which extended northeast from Flintville Road, then southeast across a broad, east-facing slope to work pads P154, P155, and 207 (see Figures 11u through 11w). From P154, the segment portion extends north to P151 and rejoins the main portion of Survey Segment 5 at AR120 and P144 (see Figures 11w, 11x, and 11z). This portion of the segment is intended to supply electricity to the proposed Bramah Substation, to be constructed by Transource and permitted separately from the current Projects. A separate Phase I archaeological survey was conducted for the Bramah Substation that partially overlaps this portion of Survey Segment 5 (see Figure 3) but is not available in PA-SHARE. The substation Phase I survey identified two historic archaeological sites – 36YO0499 (Sample House Site) and 36YO0500 (Wiley Site) that are partially located in the current Projects' APE. 36YO0499 is the archaeological site associated with the structure labeled "Miss C.A. Sample/C. & R. Sample" and 36YO0500 is the archaeological site associated with the structures labeled "J.D. Wiley/R.Wiley" on the 1860 and 1876 maps (see Figures 6 and 7). AECOM relocated both sites in the current Projects' APE. Phase I survey results for both sites are summarized below under the heading "Site Summaries."

A total of 222 STPs were excavated in Survey Segment 5. Sites 36YO0499 and 36YO0500 were relocated. No evidence for the map-documented D.E. Wiley/Margarita Wiley tannery and mill complex was observed in the APE in Survey Segment 5. Foundations and artifacts from these structures may be located south of the Projects near the low-order tributary stream along Booker Road.

SURVEY SEGMENT 6

Extent: Booker Road to Peach Bottom North Substation

Project Facilities: Work pads P163 through P183, PBNE, and SB1, Access Roads AR132 through AR143

Figures: 11ab through 11ag

STPs Excavated: 76

Sites Identified: None

Survey Segment 6 continued northeast from Booker Road, crossing a deep, narrow ravine formed by a low-order direct Susquehanna River tributary to P163, P164, and P165 (see Figures 11ab and 11ac). From those work pads, the segment extended northeast and upslope onto a broad, gently sloping bluff overlooking the Susquehanna River where the Peach Bottom North Substation is located (Figures 11ad through 11ag, Photographs 11 and 12). Work pads on the bluff, the Peach Bottom North Expansion (PBNE) (Photograph 13), and sediment basin SB 1 were Model-designated as high probability areas and were tested at 15-m (49.2-ft) intervals. Map documented structures included the W. Wiley Grist Mill, J.F. Neeper, and J. McConkey.

Fifteen of the 18 STPs excavated in SB1 displayed intact STP profiles consisting of 0.2-m to 0.33-m (0.7-ft to 1.08-ft) dark brown (10YR 3/3) silt loam Ap horizon overlying yellowish brown (10YR 5/6) clay loam BT horizon. Channers were present in both horizons (Figure 16). The three disturbed profiles displayed fill over a truncated Bt horizon. A total of 47 STPs were pre-plotted in the PBNE and 24 STPs were excavated. Twenty-three of the pre-plotted STPs were in close proximity to buried electrical or communication lines and were not excavated due to safety concerns (see Figure 11ad). The PBNE proved to be extensively disturbed. Of the 24 excavated STPs only four exhibited intact soil profiles, which consisted of 0.22-m to 0.31-m (0.7-ft to 1.0-ft) brown (10YR 4/3) silt loam Ap horizon overlying strong brown (7.YR 5/6) clay loam Bt horizon. Channers were present in both horizons. The most common disturbed profile was marked by an upper layer of fill composed of brown (10YR 4/3) silt loam mixed with yellowish brown (10YR 5/6) clay loam (subsoil) masses, channers, and limestone gravel.

A total of 76 STPs were excavated in Survey Segment 6. No indications of map-documented structures were observed. The W. Wiley Grist Mill and structure labeled “J.F. Neeper” may be present outside of the APE; however, the structure labeled “J. McConkey” was likely destroyed prior to the construction of the Peach Bottom North Substation.



Photograph 11. P174 facing northeast to Peach Bottom North Substation.



Photograph 12: P183 facing north. Note Susquehanna River in background.



Photograph 13: PBNE facing northeast from PBNE STP 23.

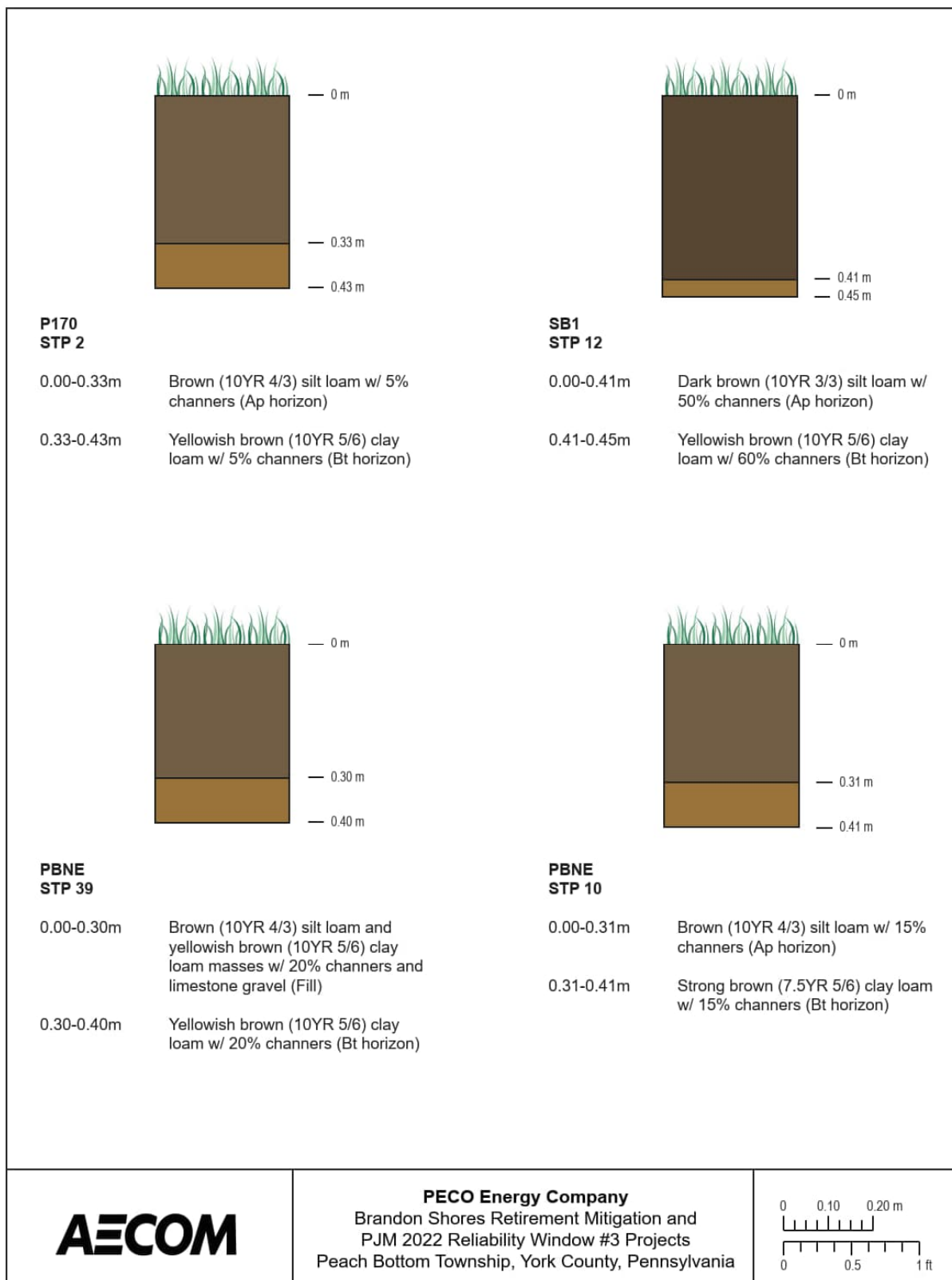


Figure 16. Representative STP profiles, Survey Segment 6.

SURVEY SEGMENT 7

Extent: Peach Bottom North Substation to Peach Bottom South Substation

Project Facilities: Work pads P179 through P206, SB2, Access Roads AR144 through AR158

Figures: 11ac, 11ad, 11af, 11ah through 11am

STPs Excavated: 12

Sites Identified: 36YO0344

Survey Segment 7 extended from the Peach Bottom North Substation and work pad P183 south to the southeastern corner of the Peach Bottom South Substation at Work Pad 206 (Figures 11ac, 11ad, 11af, 11ah through 11am). This segment crosses steeply sloped ridges and ravines with limited areas suitable for habitation. Nevertheless, the Model ranks much of it as high probability, likely due to its proximity to the Susquehanna River. No map documented structures were indicated on historic maps; however, the previously recorded archaeological site 36YO0344 is located near a bend in an access road that will not be improved (see Figure 11am).

A 1971 aerial photograph (see Figure 10) (Pennsylvania Imagery Navigator 2025) was georeferenced and reviewed to evaluate potential disturbances related to the construction of the Peach Bottom South Substation as well as the proposed transmission line structures and access roads extending between them. The existing and proposed structure locations and access roads between the two substations appear as areas of high reflectivity, indicative of grading, as do the proposed work pad/structure location southeast of the Peach Bottom South Substation. This image was reviewed with Justin McKeel, PA-SHPO Archaeological Reviewer, in a March 4, 2025, meeting. Mr. McKeel agreed that no archaeological testing was warranted in the APE south of the PBNE.

SITE SUMMARIES

A Phase I archaeological survey performed by TRC for Transource's proposed Bramah Substation (Survey Number 2025SR00149) identified two historic archaeological sites, the Sample House site (36YO0499) and the Wiley site (36YO0500), which extend into the current Projects' APE (see Figure 3d for boundaries of TRC's Phase I survey). Both sites are nineteenth-century farmsteads that were occupied into the twentieth century and were demolished. These sites were recorded in PA-SHARE in May 2025, and their NRHP eligibility is listed as undetermined. The accompanying Phase I survey report has not been submitted for PA SHPO review, and no detailed plans or recommendations were available in PA-SHARE. AECOM relocated these sites in Survey Segment 5. Archaeological investigations by TRC and AECOM at both sites are summarized in this section.

Site 36YO0499

Site 36YO0499 is associated with the former location of the NRHP-eligible Sample House (2001RE00562), a historic architectural resource that appears on historic maps from 1860 (Lake 1860) and 1876 (Nichols 1876). Based on a review of aerial images, the Sample House was

demolished between 2007 and 2008. The site boundary established by TRC was defined by four consecutive STPs that yielded 49 historic artifacts, which included vessel glass, serving/storage-related ceramics, and architectural artifacts from the Ap horizon. TRC's estimate of the site's size was approximately 0.1 ha (~0.24 acres)

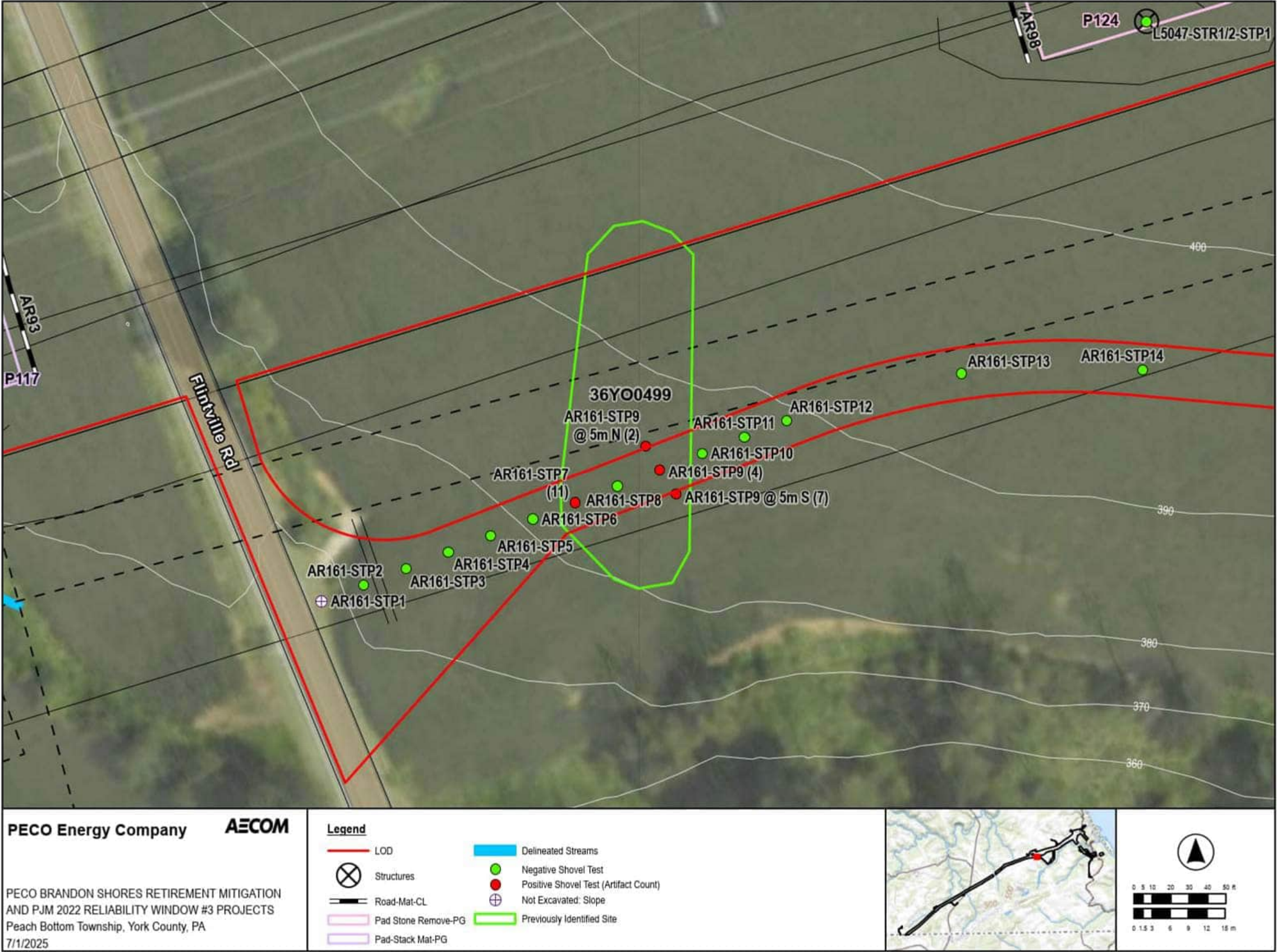
AECOM relocated site 36YO0499 in the LOD for access road AR 161, approximately 45 m (~148 ft) northeast of Flintville Road. Eleven STPs were excavated at 7.5-m (24.6-ft) intervals from Flintville Road east through and extending 30 m (98.4 ft) east of TRC's boundary for the site (Figure 17 and Photograph 14). Two 7.5-m STPs (AR161 STP 7, AR161 STP 9), yielded artifacts from the uppermost soil horizon. AR161 STP 7 yielded 11 historic artifacts and AR161 STP 9 yielded 3 historic artifacts and 1 quartz flake. Two additional STPs were excavated 5 m (16.4 ft) north and south of the initial positive STP. AR161+5mN and AR161+5mS produced 2 and 7 historic artifacts from the surface soil horizon, respectively, for a total of 23 historic and 1 Pre-Contact artifacts. All STP profiles show evidence of disturbance (Figure 18), consisting of a 0.21-m to 0.34-m (0.7-ft to 1.1-ft) dark yellowish brown (10YR 4/4) silt loam Ap horizon containing strong brown (7.5YR4/6) clay loam masses (i.e., displaced subsoil) overlying strong brown (7.5YR4/6) clay loam Bt horizon.

The recovered artifacts are primarily related to food storage/serving (n=15) and architectural items (n=8) (Table 3). Dates for the historic artifact assemblage cover a broad time range from the nineteenth to the twentieth centuries. The flake fragment appears to be an isolated find.

Table 3. 36YO0499 Artifact Inventory

Group	Object	Material	Ware/ Manufacture	Count
Household	Hollowware	Refined Earthenware	Whiteware	3
Household	Indeterminate	Refined Earthenware	White Granite	4
Household	Indeterminate	Refined Earthenware	Indeterminate	1
Household	Indeterminate	Coarse Earthenware	Redware	3
Household	Lid Liner	Common Glass		1
Household	Indeterminate	Common Glass		3
Architectural	Window Glass	Common Glass		4
Architectural	Nail	Iron		3
Indeterminate	Indeterminate	Plastic		1
Debitage	Flake Fragment	Quartz		1
TOTAL				24

The LOD for access road AR161 was overlaid on a georeferenced 1937 aerial photograph of the Sample House (Figure 19). The access road appears to fall between a possible barn and the residence. Based on the disturbed context of the recovered artifacts, it is unlikely that the portion of the site within the APE would contribute to the NRHP eligibility of the larger site.





Photograph 14. Site 36YO0499 facing southwest from AR161 STP 11.

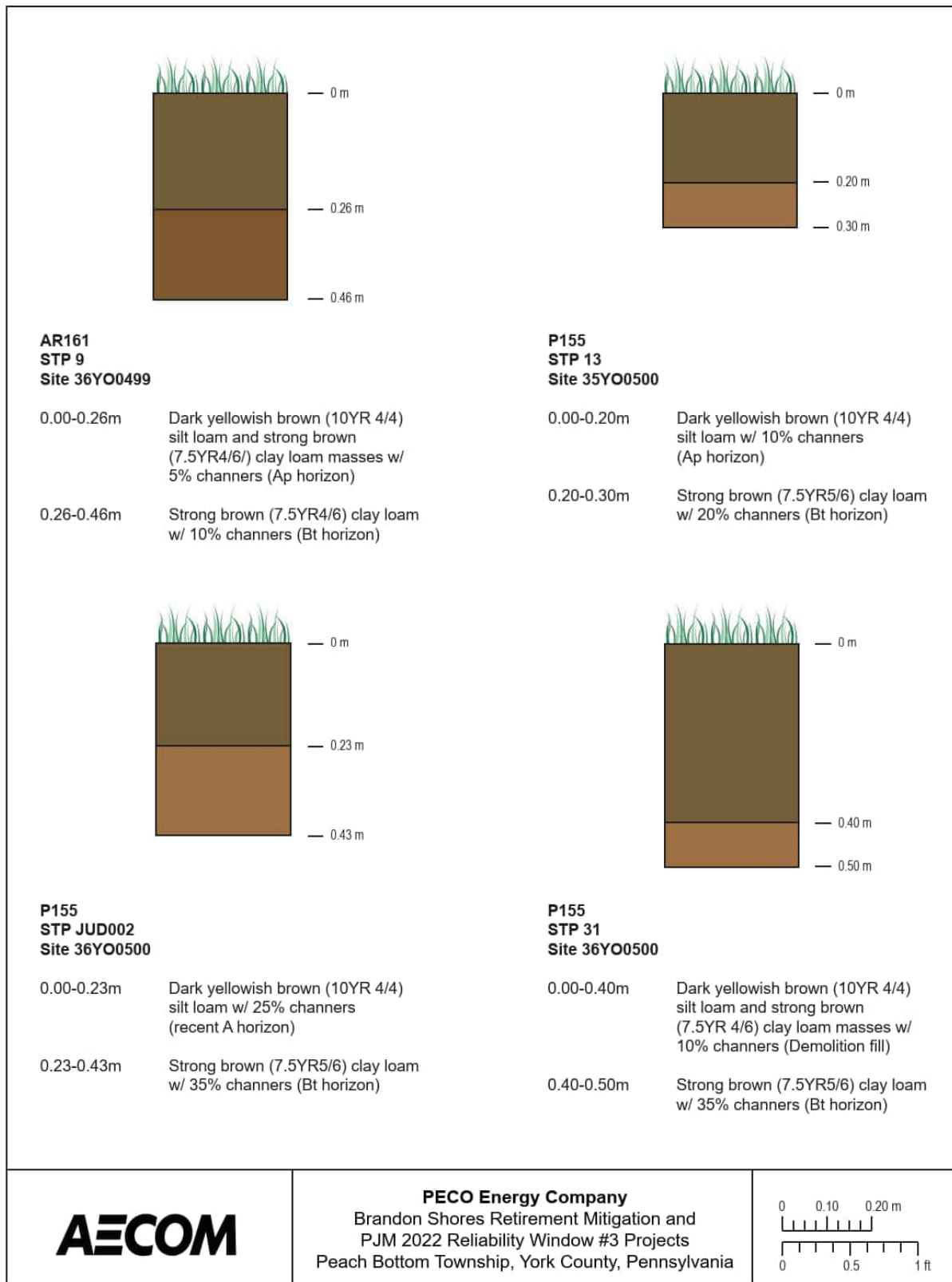


Figure 18. Representative STP profiles, Sites 36YO0499 and 36YO0500

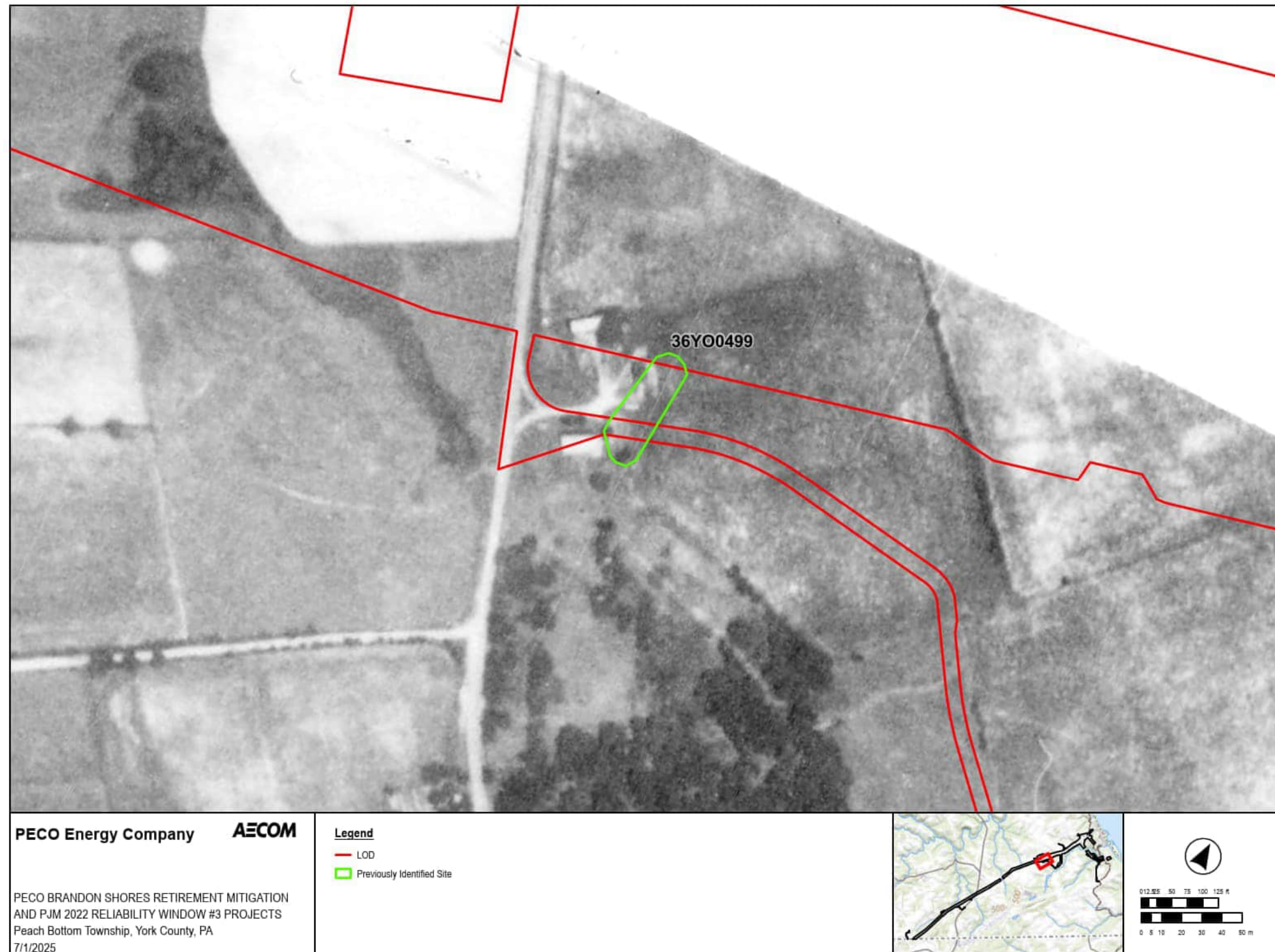


Figure 19. Site 36YO0499 and LOD overlaid on 1937 aerial photograph (Pennsylvania Imagery Navigator 2025).

Site 36YO0500

This site was the location of structures labeled “J.D. Wiley” on an 1860 map (Lake 1860) and “R. Wiley” on an 1876 map (Nichols 1876). TRC estimated the site’s size at approximately 0.47 ha (~1.17 ac). Review of aerial photographs indicates that these structures were demolished between 1958 and 1971. TRC’s testing at the site yielded 116 artifacts from the surface soil horizon in 31 STPs. General artifact categories appear similar to those found at 36YO0499. Site photographs in PA-SHARE indicate that a stone foundation and an open concrete cistern/well head were identified.

AECOM relocated site 36YO0500 in the LOD for work pad P155 (Figure 20), which includes placement of stone/gravel south of the work pad limits to create a level surface. The site is located entirely within a lightly wooded area that is gently sloped to the east (Photograph 15). The stone foundation identified by TRC was relocated within the LOD (Photograph 16). Three of the foundation’s walls were observed, indicating a rectangular structure with its long axis oriented southwest to northeast. The foundation is composed of two to three visible courses of minimally dressed, dry-laid limestone flags. Its southwest end was excavated into a slope. Walls of its long axis are approximately 8.5 m (~28 ft) long. The southwest wall is approximately 5.2 meters (~17 ft) long. Three judgmentally placed STPs were excavated at the foundation. STPs JUD001 and JUD 003 were excavated within 1 m (3.3 ft) of and outside of the foundation’s northwest and southeast walls. STP JUD002 was excavated within the foundation at the shorter southwest wall. No artifacts were recovered from these STPs. The profile of JUD002 exhibited a 0.23-m (0.8-ft) dark yellowish brown (10YR 4/4) silt loam A horizon overlying a strong brown (7.5YR5/6) clay loam Bt horizon (see Figure 18).

The concrete cistern/wellhead was also relocated approximately 13 m (~43 ft) southwest of the foundation outside of the LOD for P155 (Photograph 17). The cistern is rectangular, measuring approximately 0.9 m by 0.5 m (~3 ft by 1.5 ft). An iron pipe was left in place within one of TRC’s STPs observed approximately 40 m (~131 ft) downslope from the cistern/wellhead, possibly a water line extending from the cistern/wellhead. In addition to the foundation and cistern/wellhead, a depression with limestone flags on the surface was observed in dense brush near the southwestern site boundary that may be a foundation (see Figure 20).

In addition to the three judgmental STPs, AECOM excavated 39 STPs within the LOD for P155 (see Figure 20). These STPs were placed at 7.5-m (24.6-ft) intervals along five transects spaced 7.5-m (24.6-ft) apart. Only four of these STPs produced artifacts. P155 STPs 20, 22, 31, and 33 yielded 3, 31, and 3 artifacts, respectively, from the surface soil horizon. A typical profile of STPs throughout the southeastern portion of the site within the LOD consisted of a 0.2 to 0.4-m (0.7-ft to 1.3-ft) dark yellowish brown (10YR 4/4) silt loam mixed with strong brown (7.5YR4/6) clay loam masses overlying strong brown (7.5YR5/6) clay loam. Channers were present in both horizons. The surface horizon in this area may be a graded demolition fill. A typical profile for STPs in the northwestern portion of the site is a dark yellowish brown (10YR 4/4) silt loam Ap horizon overlying strong brown (7.5YR5/6) clay loam (see Figure 18).

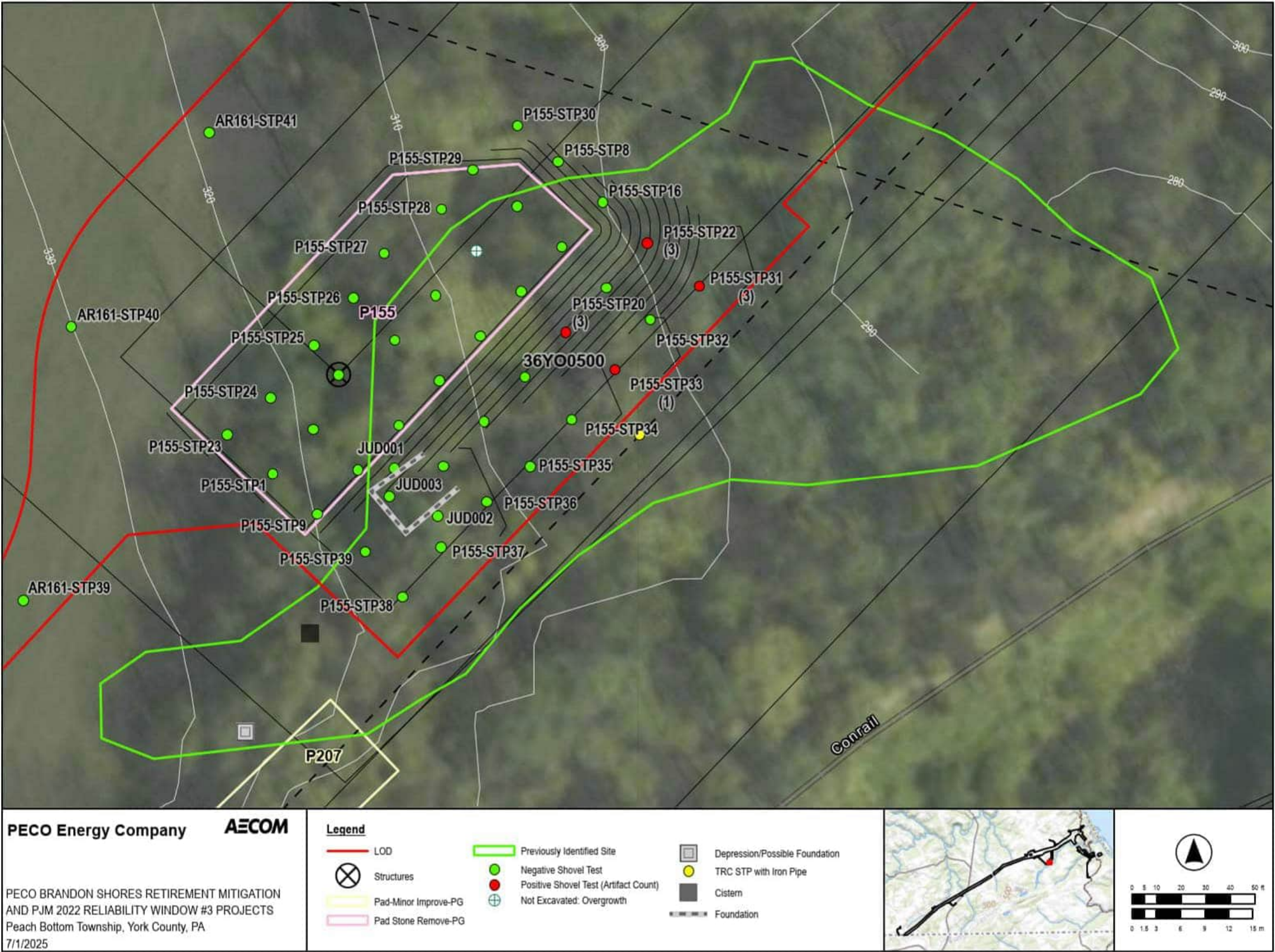


Figure 20. Site 36YO0500 site plan.



Photograph 15. Site 36YO0500 facing north from P155 STP22.



Photograph 16. Site 36YO0500 foundation facing southwest.



Photograph 17. Site 36YO0500 cistern/wellhead.

Ten artifacts were recovered from the surface soil horizon in four STPs at 36YO0500, none of which can be assigned to a specific time period (Table 4).

Table 4. 36YO0500 Artifact Inventory

Group	Object	Material	Ware/ Manufacture	Count
Household	Indeterminate	Non-Lead Glass		1
Architectural	Window Glass	Common Glass		1
Architectural	Brick, Fragment			1
Architectural	Nail	Iron	Indeterminate	2
Architectural	Spike	Iron	Indeterminate	2
Hardware	Bolt/Nut	Iron		1
Indeterminate	Bone	Bone		1
Indeterminate	Indeterminate	Iron		1
TOTAL				10

The LOD for P155 was overlaid on a georeferenced 1937 aerial photograph of the Wiley farmstead (Figure 21). Although the resolution is poor, a probable northwest- to southeast-oriented barn extends into the southeastern edge of P155. A building of this size; however, does not match the much smaller footprint of the identified foundation. The photograph does show a smaller building immediately southeast of the barn and northwest of a farm lane. The absence of



Figure 21. Site 36YO0500 and LOD overlaid on 1937 aerial photograph (Pennsylvania Imagery Navigator 2025).

artifacts around the identified foundation suggest an outbuilding type where artifact discard was not common. Based on the disturbed context of the recovered artifacts, it is unlikely that the portion of the site within the APE would contribute to the NRHP eligibility of the larger site.

Summary and Recommendations

AECOM conducted a Phase I archaeological survey for PECO Energy Company's (PECO) Brandon Shores Retirement Mitigation/ PJM 2022 Reliability Window #3 Projects (Projects), located in Peach Bottom Township, York County, Pennsylvania. PECO will be rebuilding a series of existing transmission lines supported by new steel monopoles. The Projects extend southwest from Peach Bottom North Substation to the Pennsylvania/Maryland border. Another reach of the Projects extends south-southeast from the Peach Bottom North Substation to the Peach Bottom South Substation. The Projects also includes new transmission lines and associated poles to serve the new Bramah Substation, which will be constructed by Transource and permitted separately from the Projects. Length of the Projects is approximately 12.13 kilometers (~7.54 miles). The Projects are in upland settings west of the Susquehanna River in the Piedmont Upland Section of the Piedmont Physiographic Province. The Project lies in Watershed 7I of the Lower Susquehanna River sub-basin.

The Phase I archaeological survey was conducted in areas of proposed ground disturbance for the Projects. The Projects' area of potential effects (APE) for archaeological resources is approximately 36.62 hectares (~90.49 acres). Two previously recorded nineteenth- through twentieth-century historic archaeological sites, 36YO0499 and 36YO0500, extend into the Project's APE. Field testing included the excavation of 673 shovel test pits (STPs), the majority of which were excavated at 15-meter (49.2-foot) and 30-meter (98.4-foot) intervals. A smaller number of STPs were excavated at 7.5-meter (24.6-foot) intervals around the two historic archaeological sites. A total of 673 STPs were excavated.

Portions of Sites 36YO0499 and 36YO0500 extended into the APE. Site 36Yo0499 consisted of architectural and domestic artifacts from the Sample Farm, which was razed between 2007 and 2008. A total of 24 artifacts were recovered from a 160 square-meter (0.04 acre) area within the limits of disturbance (LOD) for proposed access road AR161. The artifacts were recovered from a plowed horizon that displayed evidence for the farmstead's demolition. Site 36YO0500 yielded 10 architectural and indeterminate artifacts from disturbed contexts. These artifacts and a partially intact, dry-laid limestone foundation were located within the LOD for proposed work pad P155. A concrete cistern and a depression with displaced foundation stones were located outside of the LOD. The function of the former structure could not be determined as no artifacts were recovered from STPs excavated within and immediately adjacent to it; however, the absence of associated artifacts suggest it was an outbuilding rather than a house or house-associated structure. Based on the data collected during the Phase I archaeological survey, AECOM recommends that the portions of 36YO0499 and 36YO0500 within the APE are unlikely to contribute to the National Register of Historic Places eligibility of the two sites and that no further archaeological investigation is necessary prior to construction of the Projects. AECOM also recommends that the west, south, and east boundaries of P155 be fenced during construction to prevent inadvertent damage to portions of this site that extend outside of the APE.

8

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APPENDIX A

Artifact Inventory

Site	FS #	Provenience	Soil Horizon	Depth	Artifact Count	Group	Material	Object	Color	Ware/ Technology	Decoration	Comments	Date	Reference	Weight (grams)
36YO0500	1	P155-STP 22	Ap	0 - 27 cm	1	Historic, Architectural	Ceramic, Coarse Earthenware	Brick, Fragment,	Orange				-		0.60
36YO0500	1	P155-STP 22	Ap	0 - 27 cm	1	Historic, Architectural	Metal, Iron	Spike, Complete		Indeterminate		Complete spike, heavily rusted.	-		46.00
36YO0500	1	P155-STP 22	Ap	0 - 27 cm	1	Historic, Indeterminate	Metal, Iron	Indeterminate, Fragment				Indeterminate fragment of rusted iron.	-		6.70
36YO0500	2	P155-STP 20	Ap	0 - 25 cm	1	Historic, Architectural	Metal, Iron	Nail, Complete		Indeterminate		Complete nail, too rusted to determine manufacturing technique.	-		6.80
36YO0500	2	P155-STP 20	Ap	0 - 25 cm	1	Historic, Architectural	Metal, Iron	Nail, Fragment		Indeterminate		Rusted nail fragment, head missing.	-		3.40
36YO0500	2	P155-STP 20	Ap	0 - 25 cm	1	Historic, Architectural	Metal, Iron	Spike, Complete		Indeterminate		Large spike, complete.	-		1166.00
36YO0500	3	P155-STP 31	Distrubed Ap	0 - 40 cm	1	Historic, Architectural	Glass, Common Glass	Window Glass, Fragment	Aqua				-		3.80
36YO0500	3	P155-STP 31	Distrubed Ap	0 - 40 cm	1	Historic, Household	Glass, Non-Lead Glass	Indeterminate, Body Sherd	Colorless	Mold Blown, Machine	Molded Pattern- - - Stippled Surface	Small, curved, colorless body fragment with stippled surface and small molded diamonds.	-		1.90
36YO0500	3	P155-STP 31	Distrubed Ap	0 - 40 cm	1	Organic, Indeterminate	Fauna, Bone	Bone, Fragment				Indeterminate bone fragment.	-		10.40
36YO0500	4	P155-STP 33	Distrubed Ap	0 - 42 cm	1	Historic, Hardware	Metal, Iron	Bolt/Nut, Complete				Large threaded bolt with square nut attached.	-		82.60
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	4	Historic, Architectural	Glass, Common Glass	Window Glass, Fragment	Aqua				-		6.90
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	2	Historic, Architectural	Metal, Iron	Nail, Complete		Indeterminate		Complete nails, too rusted to determine manufacturing technique.	-		25.60
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	1	Historic, Household	Ceramic, Refined Earthenware	Indeterminate, Rim Sherd		White Granite	Indeterminate	Small rim sherd, no decoration present. Too small to determine rim diameter.	1840-1930	www.jefpat.org	3.30
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	1	Historic, Household	Ceramic, Refined Earthenware	Hollowware, Body Sherd		Whiteware	Dipt- - Brown- Indeterminate	Small body sherd with brown dipt decoration on exterior too small to determine motif.	1815-	Azizi et al 1996	0.70
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	1	Historic, Household	Glass, Common Glass	Lid Liner, Fragment	Aqua, Opalescent	Pressed		Opalescent aqua lid liner edge fragment.	1869-	Miller et al 2000	4.50
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	1	Historic, Indeterminate	Glass, Non-Lead Glass	Indeterminate, Fragment	Colorless		Applied Color Label- - Pink, White, Blue- Indeterminate	Very small, flat fragment of colorless glass with what looks like an applied color label on both sides, decoration on one side is applied so that it is visible from the other side. Possibly from some kind of sign.	-		0.10
36YO0499	5	AR161-STP 7	Ap	0 - 28 cm	1	Historic, Indeterminate	Synthetic, Plastic	Indeterminate, Fragment	White, Opaque			Small, curved opaque white fragment of plastic possibly polyvinyl chloride which was introduced in the 1926, popularized in the 1930s.	-		0.60

Site	FS #	Provenience	Soil Horizon	Depth	Artifact Count	Group	Material	Object	Color	Ware/ Technology	Decoration	Comments	Date	Reference	Weight (grams)
36YO0499	6	AR161-STP 9	Distrubed Ap	0 - 26 cm	1	Historic, Household	Ceramic, Coarse Earthenware	Indeterminate, Rim Sherd		Redware	Dark Patches in Glaze- Single Glazed- Brown-Speckled	Thick rim sherd with dark patches in brown single glaze, smear of glaze on exterior. Too small to determine rim diameter.	-		30.80
36YO0499	6	AR161-STP 9	Distrubed Ap	0 - 26 cm	1	Historic, Household	Ceramic, Refined Earthenware	Indeterminate, Base Sherd		Unidentified Refined Earthenware	Indeterminate	Body sherd, no decoration present. Too heavily burned to determine ware type.	-		10.90
36YO0499	6	AR161-STP 9	Distrubed Ap	0 - 26 cm	1	Historic, Household	Glass, Common Glass	Indeterminate, Body Sherd	Amber	Indeterminate		Small, curved amber body fragment.	-		1.80
36YO0499	6	AR161-STP 9	Distrubed Ap	0 - 26 cm	1	Prehistoric, Debitage	Lithic, Quartz	Flake Fragment,	White				-		5.70
36YO0499	7	AR161-STP 9 @5M N	Distrubed Ap	0 - 21 cm	2	Historic, Household	Ceramic, Coarse Earthenware	Indeterminate, Body Sherd		Redware	Dark Patches in Glaze- Single Glazed- Brown-Speckled	Small body sherds with dark patches in brown single glaze.	-		4.30
36YO0499	8	AR161-STP 9 @5M S	Distrubed Ap	0 - 25 cm	1	Historic, Architectural	Metal, Iron	Nail, Complete		Indeterminate		Complete nail, too rusted to determine manufacturing technique.	-		4.30
36YO0499	8	AR161-STP 9 @5M S	Distrubed Ap	0 - 25 cm	3	Historic, Household	Ceramic, Refined Earthenware	Indeterminate, Body Sherd		White Granite	Indeterminate	Small body sherds, no decoration present. All sherds mend.	1840-1930	www.jefpat.org	6.40
36YO0499	8	AR161-STP 9 @5M S	Distrubed Ap	0 - 25 cm	2	Historic, Household	Ceramic, Refined Earthenware	Indeterminate, Body Sherd		Whiteware	Indeterminate	Small body sherds, no decoration present.	1815-	Azizi et al 1996	2.50
36YO0499	8	AR161-STP 9 @5M S	Distrubed Ap	0 - 25 cm	1	Historic, Household	Glass, Common Glass	Indeterminate, Body Sherd	Green, Light	Mold Blown, Indeterminate	Molded Pattern-- - -Paneled	Light green body fragment with sunken panel, likely from a rectangular bottle.	-		12.20

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

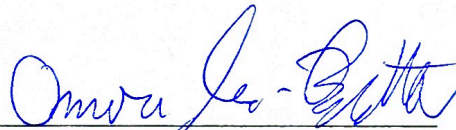
Application of PECO Energy Company Filed :	
Pursuant to 52 Pa. Code §§ 57.71 <i>et seq.</i> for :	
Approval of the Siting and Construction of :	Docket Nos. A-2024-3051467
the Brandon Shores Retirement Mitigation :	P-2025-3053944
Project Located in Peach Bottom Township, :	
York County, Pennsylvania and Petition for :	
Waiver of 52 Pa. Code § 57.72(c)(10) :	

VERIFICATION

I, Omoro Jean-Baptiste, hereby state the facts set forth are true and correct to the best of my knowledge, information and belief. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S § 4904 (relating to unsworn falsification to authorities).

DATE: _____

8/11/25



OMORO JEAN-BAPTISTE
Director of Project Management

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Application of PECO Energy Company Filed :
Pursuant to 52 Pa. Code §§ 57.71 *et seq.* for :
Approval of the Siting and Construction of : Docket Nos. A-2024-3051467
the Brandon Shores Retirement Mitigation : P-2025-3053944
Project Located in Peach Bottom Township, :
York County, Pennsylvania and Petition for :
Waiver of 52 Pa. Code § 57.72(c)(10) :**

CERTIFICATE OF SERVICE

I hereby certify and affirm that I have this day served a copy of the **Responses of PECO Energy Company to Data Requests of the Bureau of Technical Utility Services** on the following persons in the manner specified in accordance with the requirements of 52 Pa. Code § 1.54:

VIA ELECTRONIC MAIL

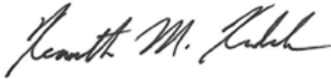
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