
Clay Creek Mitigation Bank

Final Prospectus

Private Commercial Mitigation Bank for Stream and Wetland
Compensatory Mitigation Credits

Chester County, Pennsylvania
PA Water Plan Subbasin 3S,
Lower Delaware River Subbasin
8-Digit HUC #02040205

June 2024



U.S. Army Corps of Engineers, Philadelphia District
And
Pennsylvania Department of Environmental Protection

Bank Sponsor:



PO Box 98116
Pittsburgh, PA 15227

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1 Introduction

1.1 Bank Site Overview

Water & Land Solutions, LLC (WLS or Sponsor) is submitting this Final Prospectus to the U.S. Army Corps of Engineers (USACE), Pennsylvania Department of Environmental Protection (PADEP), and members of the Pennsylvania Interagency Review Team (IRT) for review of WLS's proposed Clay Creek Mitigation Bank (Bank or Bank Site) in accordance with 33 CFR 332.8(d)(2). The Bank is in the Brandywine-Christina 8-digit HUC (#02040205) and the Pennsylvania State Water Plan Watershed – Lower Delaware Subbasin South – 3S (Appendix A: Figures, Figures 1 and 2). The purpose of the Bank is to provide stream and wetland mitigation credits to compensate for unavoidable impacts to Waters of the United States (WOTUS) and Waters of the Commonwealth authorized under Sections 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, Title 25, Chapter 105 of the Pennsylvania Code, and other applicable state statutes.

1.2 Bank Site Location

The Bank Site (39.811800, -75.793853) spans two (2) parcels owned by the London Grove Township in London Grove Township, Chester County, Pennsylvania (PA), (Appendix A: Figures, Figure 1). To access the Bank Site from Harrisburg, Pennsylvania (PA) get on I-83 North from North Front Street. Take exit 46A to merge onto PA-283 South toward I-76/Harrisburg International Airport/Lancaster/Pennsylvania Turnpike. Take exit 1A to merge onto PA-283 East toward Airport/Harrisburg International Airport/Lancaster. Merge onto US-30 East/Lincoln Highway East in East Lampeter Township. Follow US-30 East/Lincoln Highway East. In approximately 11.5 miles, turn right onto PA-41 South/Gap Newport Pike. In approximately 18 miles, turn right onto West State Street. Take a slight left onto Clay Creek Road, and in approximately 0.8 mile, turn left to stay on Clay Creek Road. Follow Clay Creek Road to the intersection at Indian Run Road; the Bank Site begins on the left.

1.3 Bank Sponsor & Qualifications

WLS will serve as the Sponsor for the Bank. The contact information for the Sponsor is listed below:

Water & Land Solutions, LLC
c/o Amber Snavley
PO Box 98116
Pittsburgh, PA 15227
amber@waterlandsolutions.com

Below is a detailed description of the Sponsor's qualifications and representative mitigation projects.

1.3.1 Bank Sponsor Qualifications

WLS is a mitigation provider founded in 2014 that produces and delivers quality restoration and mitigation credits and supporting services across multiple regions of the United States. WLS was founded with the purpose of combining the key components of high quality and successful mitigation sites, which include the technical expertise and an understanding of mitigation site selection and development, land management, and environmental economics and finance. Through its inception, WLS has identified, targeted, and employed well-respected practitioners in the mitigation industry who have specifically

focused their careers on the unique aspects of successful mitigation and restoration project implementation.

Since the 2008 inception of the Mitigation Rule, mitigation banking has become the preferred method of the USACE and the United States Environmental Protection Agency (EPA) for restoring our nation's natural resources and providing compensation for impacts. The Bank Sponsor thrilled to be one of the fastest-growing mitigation bank producers in the United States.

WLS has established compensatory mitigation banks throughout the United States to meet the needs of the nation's consumers by restoring watersheds where unavoidable impacts have occurred. The Sponsor's mitigation banks provide compensatory mitigation offsets through of mitigation bank credits (or ecological units of resource uplift). These are generally for those impacts associated with Sections 404, 401, and 402 of the Clean Water Act (CWA) and Sections 7 and 10 of the Endangered Species Act (ESA).

Beyond the focus to improve ecological function of impaired systems, WLS has a specific mission to positively impact people in the industry and the public through education, partnerships, and building meaningful relationships. In just over eight years since its establishment, WLS has grown to house a staff made up of project managers, surveyors, designers, engineers, environmental scientists, and ecologists of which are located across multiple states, including North Carolina, South Carolina, Tennessee, Ohio, West Virginia, PA, and Colorado. Industry colleagues have recognized WLS as leaders in the development, management, design, permitting, construction, and monitoring of successful mitigation projects. Resumes of the key WLS personnel who will be directly involved with the implementation and management of the Bank are provided in Appendix B: Resumes of Key Personnel.

WLS employs a dynamic and transparent approach with project stakeholders to create an open environment that allows for a mitigation project that benefits the environment, regulators, and the public. Because WLS has a strong and proven understanding of both the science and the business of mitigation, mitigation needs will be met with valuable ecological outcomes.

1.3.2 Representative Mitigation Projects

WLS has experience with stream, wetland, and riparian buffer restoration with involvement across the entire suite of services for many mitigation projects spanning over nearly two decades at WLS and other firms before WLS's establishment as a company. This experience equates to the successful restoration of many projects.

While there are currently no mitigation banks sponsored by the Sponsor in Pennsylvania that are beyond monitoring year 1, WLS is aware via publicly available information on the USACE's Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS) that other mitigation bank sponsors' mitigation banks in the southcentral and eastern regions of Pennsylvania have demonstrated notable success following the same establishment approach to stream and wetland mitigation and adhering to similar monitoring methods and performance standards as proposed within this draft MBI. The reference sites and reaches used to define baseline conditions and develop performance standards and success criteria against which the Bank Site will be evaluated are those understood and verified through academic and regulatory research to be the paleo-ecological environment (i.e., prior to European settlement and development).

Regional examples are highlighted below.

Tomlinson Run Mitigation Bank, Hancock County, WV

In 2022, WLS permitted and constructed the Tomlinson Run Mitigation Bank, a private commercial stream mitigation bank located in the Upper Ohio River North Watershed (8-Digit HUC #05030101). Stream credits generated at the bank resulted from the restoration of 7,891 linear feet of stream serve as compensatory mitigation for unavoidable impacts to waters of the United States authorized under Sections 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The 20-acre bank was a pioneering public-private partnership between the Sponsor and the West Virginia Division of Natural Resources that restored an ecosystem and provided far-reaching benefits to the public. These benefits include the planting of over 8,000 native trees, removal and management of invasive plant species, aquatic and wildlife habitat improvements, creation of forested wetlands adjacent to the stream to offset pollution and stream erosions, 2,000 feet of publicly accessible trails, five publicly accessible platforms from which to fish or view wildlife, and new publicly accessible pedestrian bridges to accommodate safe crossing of stream tributaries.

Rocky Run Mitigation Bank, Washington County, PA

WLS's Rocky Run Mitigation Bank is a private commercial stream and wetland mitigation bank located in the Upper Ohio-Wheeling Basin (HUC 05030106, Pennsylvania State Water Plan Watershed 20). It was established in early 2023, restoring over 9,000 linear feet of stream and 4 acres of wetland. The Bank was designed and constructed following the integrated valley and wetland restoration approach, which aims to put the stream channel and floodplain at or near historic elevations and locations. The Bank included a combination of stream reestablishment, restoration, and enhancement activities, and riparian wetland and non-riparian wetland establishment, restoration, and enhancement activities.

McCreary Run Mitigation Bank, Lancaster County, PA

The McCreary Run Mitigation Bank, a private commercial stream and wetland mitigation bank is in the Lower Susquehanna River Subbasin (HUC 02050306, Pennsylvania State Water Plan Watershed 7E). It will restore over 19,000 linear feet of stream and 21 acres of wetland. The bank was designed and will be constructed using a process-based approach using the floodplain restoration approach to restore the stream to, or very near, the historic floodplain elevation.

The bank will include a combination of stream reestablishment, restoration, and enhancement activities, as well as riparian wetland and non-riparian wetland establishment, restoration, and enhancement activities, which, depending on existing conditions, will be employed to remove or reduce stressors and maximize ecological lift.

1.4 Bank Site Selection

The following factors were considered in selecting the proposed Bank Site:

1. Ecologically suitable – the Bank Site contains streams and wetlands that have been degraded by historical land use associated with agriculture and current land uses associated with urbanization. Aquatic resources at the site have suffered from historic impacts of stream relocation, bank and soil erosion, sedimentation, stream channel aggradation and degradation, and hydrologic and topographic alteration of wetlands. As such, the Bank Site offers an opportunity for functional ecological uplift.

2. Economic viability – The Bank Sponsor thoroughly analyzed publicly available USACE other regulated material (ORM) data. The findings reveal a recurring pattern of impacts primarily attributed to the transportation and industrial sectors, highlighting the need for mitigation solutions. Examination of historical requirements and current developmental trends suggest an ongoing necessity for stream and wetland mitigation. The Bank Sponsor is anticipating that the project will generate credits to meet a portion of the mitigation need in the service area for years to come. The Bank Sponsor also understands that the credits can be used to offset impacts outside of the primary service area on a case-by-case basis by the regulatory permitting process.
3. Consistent with local, regional, and state goals – development of the Bank is consistent with the following larger goals:

- a. The vision of the Chester County Board of Commission regarding the future of freshwater resources in the County, as defined within *Watersheds 2045* – Chester County’s county-wide Act 167 Stormwater Plan, Comprehensive Water Resource Plan, and Rivers Conservation Plan, adopted January 24, 2024. The County’s vision for the future of water resources is as follows:

“In 2045, we envision sustainable Chester County water resources that provide clean water, support healthy aquatic and wildlife habitats, enable thriving communities, and offer abundant and accessible recreational opportunities for all.” (Chester County Board of Commissioners, 2024).

To achieve this vision, Chester County has developed seven goals for Chester County’s Watersheds:

1. Engage and educate individuals, communities, businesses, and governments to promote scientifically based watershed stewardship.
 2. Expand water-based recreational opportunities and access to local water features.
 3. Conserve and protect the County’s natural resources for clean water.
 4. Improve surface water and groundwater quality.
 5. Reduce stormwater runoff and mitigate the impacts of flooding.
 6. Promote the integration of water resources, natural resources protection, and land use planning.
 7. Ensure safe, sustainable water supply and wastewater disposal systems.
- b. The Pennsylvania Greenways Partnership Program (1998) envisions a statewide interconnected greenways network.
 1. The goal of the program is to promote the development of ‘greenway plans’ by county and local governments as an integral part of their comprehensive planning and implementation efforts, encouraging them to link greenway concerns with programs that address sound land use, community revitalization, recreation needs, and open space protection.
 2. The Bank meets the criteria for a ‘Conservation Greenway’ as defined in the Pennsylvania Greenways: An action plan for creating connections (2001) and will likely offer general benefits outlined in the plan such as:

- a. Accentuate scenic beauty,
- b. Protect water resources by buffering nonpoint sources of pollution, and
- c. Provide opportunities to protect and manage wildlife, forests, and ecological systems.

According to the 2022 PA Integrated Water Quality Report (PADEP, 2022), Chester County has the third most miles of impaired streams in Pennsylvania. Of the 1,416 miles assessed in Chester County, 1,020 miles – or 71.9% are considered impaired. There are a total of 1,418 total stream miles in the County. The County has categorized the White Clay Creek as “High Priority” for restoring water quality (conditions and sensitive resources), reducing stormwater runoff and flooding, and protecting stream resources in the White Clay Creek Subbasin following the White Clay Creek Watershed Action Plan. Since adopting the County’s Comprehensive Plan in 2002 and with the updated plan in 2024, efforts have been made in the County to protect existing wetlands, forests, and open space and reduce agricultural pollution within the White Clay Creek Watershed and larger Christina River Basin. Development of the Bank Site will address and support the goals to improve surface and groundwater quality in the County and watershed.

Chester County also recognizes the importance of protecting, mitigating, restoring, and creating wetlands due to the water quality benefits, the ecological functions, and the hydrologic functions they provide. The Sponsor’s Bank will support the restoration of wetlands, which will directly align with Chester County’s goals. The Bank Site is compatible with other local and/or regional plans concerning natural resource management.

1.5 Bank Site Protection

The Bank will be protected by the IRT-approved Conservation Easement (CE) document as provided in Appendix C: Site Protection Instrument. The CE will be placed on the property parcels before the restoration activities, thereby supporting the long-term protection of the site. The CE documents will be executed and recorded at the county courthouse after receipt of all required permits, clearances, approvals, and authorizations and prior to Bank Site establishment.

1.5.1 Title Review

The Sponsor has conducted a title search and identified title exceptions and/or existing encumbrances associated with the conservation area. Boundary survey efforts have been initiated to locate and plot the exceptions/encumbrances on the survey plats. Title exceptions that intersect the Bank Site and could affect the restored resources will be assessed for inclusion as ‘reserved rights areas’ within the Bank Site. WLS understands that mitigation credits may not be awarded for restored resources within a reserved rights area. Provided herein is a listing of the title exceptions and encumbrances for each property and Bank Sponsor commentary regarding the effect on the conservation area. Parcel survey plat maps (i.e. Exhibit) with mappable title exception will be provided in Appendix D: Title Documents as part of the Draft MBI. In a preliminary review of the title work, the Bank Sponsor does not anticipate existing encumbrances or exceptions to affect the Bank Site.

Premise B (100 Indian Run Road) Title Exceptions/Encumbrances

Item 1. Title to that part of the premises lying in the bed and right of way of all roads, driveways and alleyways is subject to public and private rights therein.

Public and private road rights-of-way (ROW) will be shown to the extent possible based on field and record evidence. Where the road ROWs intersect the proposed Conservation Area, the ROWs will be included as a Reserved Rights area.

- Item 2. *Rights of the interested parties to the free and unobstructed flow of waters of the unnamed tributaries to East Branch White Clay Creek which may flow on or through the land.*

Does not affect the proposed Conservation Easement. Note that PA Riparian law holds that the Commonwealth's ownership extends to the ordinary low water mark, and the adjacent riparian landowner owns above the ordinary low water mark. An easement exists in favor of the public to fish, boat, wade, float, swim, and otherwise recreate between the high and low water marks. East Branch White Clay Creek or UNTs thereof are not listed as a Commonwealth public water by the DCNR Public Streambeds Interactive Map.

- Item 3. *Rights granted to the Bell Telephone Company of Pennsylvania as set forth in Misc. Deed Book 152 Page 87, and Record Book 3869 Page 1991.*

Utility lines and ROWs will be shown to the extent possible based on field and record evidence. Where utility-related lines and ROWs intersect the proposed Conservation Area, the ROWs will be included as a Reserved Rights area unless otherwise specified (relocated to a location outside the proposed Conservation Area).

- Item 4. *Rights granted by Philadelphia Electric Company (PECO) Energy Company and Bell Atlantic-Pennsylvania, Inc. as set forth in Record Book 4694 Page 818.*

Utility lines and ROWs will be shown to the extent possible based on field and record evidence. Where utility-related lines and ROWs intersect the proposed Conservation Area, the ROWs will be included as a Reserved Rights area unless otherwise specified (relocated to a location outside the proposed Conservation Area).

- Item 5. *Rights Granted to Chester Municipal Authority as set forth in Misc. Deed Book 89 Page 248.*

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- Item 6. *Subject to all matters shown on the Plan as recorded in the Recorder's Office of Chester County, Pennsylvania in Plan No. 13027.*

Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 7. *Deed of Dedication from Judd Associates to London Grove Township as set forth in Record Book 5616 Page 1149.*

Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 8. *Deed of Dedication from Judd Associates to London Grove Township as set forth in Record Book 5620 Page 857.*

Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 9. *Deed of Dedication of Easements from Judd Associates to London Grove Township as set forth in Record Book 5620 Page 873.*

Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 10. *Summation of Memorandum of Agreement as set forth in Record Book 11051 Page 1030.*

WLS mitigation bank option agreement with landowner.

Premise C (1 Angelica Drive) Title Exceptions/Encumbrances

- Item 1. Title to that part of the premises lying in the bed and right of way of all roads, driveways and alleyways is subject to public and private rights therein.

Public and private road rights-of-way (ROW) will be shown to the extent possible based on field and record evidence. Where the road ROWs intersect the proposed Conservation Area, the ROWs will be included as a Reserved Rights area.

- Item 2. Rights of the interested parties to the free and unobstructed flow of waters of the unnamed tributaries to East Branch White Clay Creek which may flow on or through the land.

Does not affect the proposed Conservation Easement. Note that PA Riparian law holds that the Commonwealth's ownership extends to the ordinary low water mark, and the adjacent riparian landowner owns above the ordinary low water mark. An easement exists in favor of the public to fish, boat, wade, float, swim, and otherwise recreate between the high and low water marks. East Branch White Clay Creek or UNTs thereof are not listed as a Commonwealth public water by the DCNR Public Streambeds Interactive Map.

- Item 3. Rights granted by PECO Energy Company as set forth in Misc. Deed Book 2049 Page 5, and Mist. Deed Book 3654 Page 485.

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WLS mitigation bank option agreement with landowner.

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- Item 2. *Rights of the interested parties to the free and unobstructed flow of waters of the unnamed tributaries to East Branch White Clay Creek which may flow on or through the land.*

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Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 9. *Declaration of Covenants, Conditions and Restrictions (Development Grants) as set forth in Record Book 7936 Page 2142.*

Relevant matters for the Plan will be mapped during boundary survey. In a preliminary title review, the Sponsor does anticipate this listing to affect the Conservation Area.

- Item 10. *Summation of Memorandum of Agreement as set forth in Record Book 11051 Page 1030.*

WLS mitigation bank option agreement with landowner.

1.6 Mitigation Goals and Objectives

The Bank's mitigation goals and objectives will be based on the current resource conditions, sources of degradation, and functional capacity of the Bank's watershed to improve and protect diverse aquatic resources. This will be achieved by applying a floodplain restoration approach. More specifically, watershed goals and management strategies will be met by:

- **Goal 1** – Restore stream-floodplain processes.
 - Strategy 1A: Reestablish connectivity between streams and their historic floodplains,
 - Strategy 1B: Remove legacy sediments where present and reestablish/enhance hyporheic zone connectivity,
 - Strategy 1C: Create hyporheic zones where the stream has incised to bedrock,
 - Strategy 1D: Restore stream geomorphology to riverine resources that were previously ditched and channelized into more lentic habitats,
 - Strategy 1E: Remove/replace existing culverts and reestablish functional riverine and palustrine environments,
 - Strategy 1F: Improve stream geomorphology to reduce stream bank erosion and sources of impairment identified within the watershed, and
 - Strategy 1G: Restore and create new in-stream habitat and improve surface and groundwater connectivity.
- **Goal 2** – Restore wetlands.
 - Strategy 2A: Reestablish, rehabilitate, and enhance stream-wetland complexes through legacy sediment removal and floodplain restoration,
 - Strategy 2B: Reestablish, rehabilitate, and enhance existing headwater wetlands; including surface and groundwater exchange,
 - Strategy 2C: Increase attenuation and filtration of stormwater runoff and decrease sedimentation via created wetlands at the top of the watershed,
 - Strategy 2D: Remove existing tile drainage, and
 - Strategy 2E: Improve short and long-term surface water storage, decreasing the frequency and severity of stormwater-related impairments (e.g., sedimentation and nutrient run-off).
- **Goal 3** – Improve biological diversity and provide additional ecological function for receiving waters.
 - Strategy 3A: Floodplain restoration techniques will reduce suspended sediment and substrate embeddedness, improving substrate heterogeneity for benthic macroinvertebrate colonization;
 - Strategy 3B: Introduce additional large woody debris (LWD) and other instream habitat features to further increase available resources and potential diversity of aquatic fauna,
 - Strategy 3C: Plant native species to increase vegetation and habitat diversity in terrestrial, riparian, and aquatic ecosystems,
 - Strategy 3D: Introduce coarse and fine particulate organic matter (CPOM and FPOM) via riparian tree and shrub planting, and

- Strategy 3E: Control and manage invasive species.
- **Goal 4** – Provide long-term protection and management.
 - Strategy 4A: Protect the restored aquatic resources by establishing a CE that encompasses floodplain widths, generally more than 50 feet from the top of banks of streams, and a fifty-foot buffer around additional wetlands. Placing a CE on the Bank Site will provide long-term protection to streams, wetlands, and aquatic resources.
 - Strategy 4B: Designate and fund a third-party long-term steward to provide long-term management and protection of the restored aquatic resources.
 - Strategy 4C: Support the national goal of no-net-loss of wetland resources.

The Sponsor is evaluating different restoration strategies for the Bank. The intensity of restoration proposed in different areas of the Bank partially depends upon the existing degree of resource degradation in those areas. As such, the Bank Site may incorporate various active restoration and enhancement activities to maximize ecological uplift. The Bank Sponsor anticipates that restoration efforts will result in the establishment and preservation of long-term self-sustaining and functional streams, wetlands, and riparian corridors. The different restoration approaches are outlined below:

- **Reestablishment** - the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource.
- **Rehabilitation** - manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource.
- **Enhancement** - manipulation of the physical, chemical, or biological characteristics of aquatic resources to heighten, intensify, or improve a specific aquatic resource function.

These strategies will be used to accomplish stream reestablishment, wetland reestablishment, wetland rehabilitation, and wetland enhancement for the Bank Site. Table 1 details the amount and type of restoration proposed for each within the Bank following the approaches described above.

Table 1. Stream and Wetland Restoration Objectives

Aquatic Resource	Reestablishment	Rehabilitation	Enhancement	Preservation	Totals
Streams (Linear Feet, LF)	5,466	-	-	-	5,466
Wetlands (Acres, AC)	15.1	0.4	4.2	-	26.2

Baseline site assessments were conducted to determine if the goals and objectives listed within Section 1.6 will be achievable and which approaches will provide the best outcomes. The results of these assessments indicate that the proposed restoration approaches and management strategies will result in a higher-functioning aquatic ecosystem. Due to this, the Bank Sponsor anticipates that most of the streams and wetlands within the Bank Site will be restored following a reestablishment approach. The stream reestablishment approach will address ecosystem stressors by reducing nutrient and sediment inputs through stream and floodplain reestablishment and restoration, riparian buffer restoration, and wetland reestablishment, rehabilitation, and enhancement.

Wetland reestablishment will be accomplished by reconnecting streams to floodplains. These reformed connections should create a succession of hydrophytic and wetland fringe plant communities, resulting in a mosaic of wetland classification types (i.e., PEM, PSS, and PFO) throughout the Bank Site. In addition,

meanders will be created throughout reestablished stream reaches where they flow through the restored wetland and floodplain areas. This will provide a consistent exchange of surface water and groundwater to further drive wetland hydrology, ensure supplemental planting success, and support wetland vegetative succession. Wetlands to be rehabilitated and enhanced will also benefit from the improved hydrologic and hydraulic connections and enriched seed banks.

In addition to addressing the topographic and geomorphologic conditions affecting streams within the Bank, efforts to preserve mature growth and enhance the native seed bank via plantings are proposed throughout all restoration types. These efforts will improve biologic and habitat functions by reestablishing floodplain and riparian corridors throughout the Bank Site, creating additional wetland habitat, diversifying native plant communities, and extending and attenuating the storm hydrograph, which will increase the stability of the aquatic ecosystem. While avoiding any removal of mature vegetation and trees is impractical, tree removal necessary for stream and wetland restoration activities will be minimized to the greatest extent practicable by avoiding the removal of intermediate and late successional to mature native shrub and tree species to preserve existing canopy cover.

While these efforts will encourage the establishment of native herbaceous and woody species, it is important to note that these systems are dynamic, and inherent environmental constraints will influence which plant communities become established and what wetland classification becomes dominant.

1.7 Watershed Need and Technical Feasibility

The Bank is in the White Clay Creek watershed and will support the restoration initiatives detailed in the White Clay Creek Watershed Action Plan (WCCWAP) (Chester County Water Resources Authority et al., 2002). The White Clay Creek Watershed has several primary characteristics that lay the foundation for demonstrating the need for, and importance of, watershed restoration and protection. These watershed characteristics align with the high- and medium-priority needs outlined in the WCCWAP, which include improving water quality, reducing stormwater runoff, and protecting stream resources. Restoration within this watershed will help to address these needs as they arise due to population growth, increased land use, increased water withdrawal, and increased stream impairment within the watershed (Chester County Water Resources Authority et al., 2002).

Approximately 98% of the PADEP-assessed streams (106.2 miles out of 108.1 total assessed) within the White Clay Creek watershed within Chester County, and 136 miles or 77% of the total stream miles within the entire White Clay Creek watershed (PA and Delaware [DE]) are listed as “impaired” for aquatic life, recreation, and/or fish consumption. Primary pollutants within the White Clay Creek include nutrients, siltation, organic enrichment, total suspended solids, and habitat alterations from agricultural sources, siltation, point source discharges, and nutrients from construction, and habitat alterations and pesticides from golf courses.

Despite these set-backs, the White Clay Creek watershed is the first watershed to receive protection through Federal Wild and Scenic River designation for the main stem and its tributaries, is a source of drinking water for much of northern New Castle County, DE, and is categorized as Exceptional Value within the East Branch above Avondale, a Cold Water/Migratory Fishery in the East Branch to the PA/DE line, and a Trout Stocking/Migratory Fishery in the West Branch.

Development of the Bank Site will support the restoration initiatives detailed in the WCCWAP, the goals and strategies detailed within *Watersheds 2045*, and help sustain the categorical fisheries and “wild and

scenic” properties of the watershed. These will be achieved by reestablishing, restoring, enhancing, and protecting the degraded stream and wetland resources detailed in 0. Stream and Wetland Restoration Objectives. Approximately 49% of all stream miles within the White Clay Creek watershed are 1st order, headwater streams. Coupled with the fact that 98% of the watershed within Chester County is categorized as “impaired”, it is likely many of the headwater streams within the watershed are also “impaired”. Therefore, these systems should be targeted for future conservation and restoration efforts.

Streams within the Bank Site are listed on the 303d list as non-attaining for aquatic life use by the PADEP due to siltation from agricultural sources. The Sponsor intends to reduce sediment and organics/nutrient inputs to the receiving waters by increasing water retention and reducing erosive forces through floodplain restoration. Floodplain wetlands will be reestablished to support sediment filtering, promote nutrient and organic uptake by wetland vegetation, and provide key wetland services to protect flowing waters within the headwater system.

The technical feasibility of the Bank and likelihood for long-term success is grounded in the Bank Sponsor’s extensive experience with stream and wetland restoration and enhancement in the Northern Piedmont and throughout the country. The absence of fatal flaws, such as hydrologic trespass, and the absence of threatened and endangered species and their habitats means that the Bank is unlikely to be impeded by resource issues, or by objections from landowners. Compensatory mitigation for unavoidable impacts to existing streams, floodways, and wetlands on-site is included as part of the Bank.

No physical, chemical, or biological aspects of the Bank Site have been identified that would result in a limiting factor with the proposed restoration activities. The Bank Sponsor is not aware of regulatory-related limited factors that might adversely affect the proposed stream and wetland restoration activities.

The Bank Sponsor has technical experience in the development of stream and wetland mitigation in Pennsylvania. The Sponsor has successfully restored and protected over 10 miles of streams and riparian wetlands in Pennsylvania and nearly 100 miles nationwide. The Sponsor’s portfolio of projects includes a combination of mitigation banking, permittee responsible mitigation, and in-lieu fee projects in Pennsylvania and the greater Appalachian region, the Mid-Atlantic region, the Mid-west region, and the Southeastern United States.

2 Bank Establishment and Operation

The Bank will be established as a private commercial mitigation bank with compensatory mitigation credits available to public, private, and non-profit customers. The Bank will include a combination of stream and wetland restoration approaches depending on existing conditions, and will incorporate methods to remove or reduce stressors, and maximize potential ecological uplift. The restoration types, credit ratios, and performance monitoring are discussed further in various sections of this instrument.

2.1 Site Ownership

The Sponsor has secured mitigation option agreements to place CE on the areas proposed for development of the Bank for the property parcels involved. The Sponsor will record the CE(s) in the appropriate county recorder of deed offices for the Bank upon receipt of necessary regulatory authorizations. Arrangements should be made with the Sponsor prior to visiting the Bank as landowner coordination is necessary. Parcel data including parcel identification pins and mailing address are provided in the table below.

CLAY CREEK MITIGATION BANK

Table 2. Parcel Ownership Information

Owners of Record	Parcel ID Number	Property Address	Owner Mailing Address & Contact Information	Municipality, County
London Grove Township (c/o Ken Battin)	59-8-191.16-E	East of Clay Creek Road Avondale, PA 19311	372 Rose Hill Road Suite 100 West Grove, PA 19390 Phone: 610-345-0100 Email: admin@londongrove.org	London Grove Township, Chester County
London Grove Township (c/o Ken Battin)	59-9-72-E			

2.2 Service Area

The Bank will provide compensatory mitigation credits for unavoidable, permitted impacts to WOTUS and Waters of the Commonwealth in the primary service area detailed in Table 3. The primary service area (PSA) for the Bank Site is also illustrated in Appendix A: Figures, Figure 2: Service Area Map. Use of mitigation credits from the Bank to compensate for impacts outside the PSA may be considered by the USACE, in consultation with the IRT and the PADEP, on a case-by-case basis, as determined through the permitting process. Currently, no secondary service area is proposed for the Bank.

Table 3. Service Area

Primary Service Area (PA State Water Plan Subbasin)	U.S. Geological Survey 8-Digit HUC Watershed
Lower Delaware River Subbasin South (3S)	Brandywine-Christina 02040205

3 Ecological Suitability

3.1 Existing Conditions

3.1.1 Watershed Characterization, Land Use, and Stressors

The Bank Site falls within the Brandywine-Christina 8-Digit HUC #02040205, and the White Clay Creek watershed (Appendix A: Figures, Figure 2: Service Area Map). The White Clay Creek watershed includes 13 municipalities in Chester County, PA, and extends into New Castle, DE. The watershed sits relatively central to major populations centers including Philadelphia, Baltimore, and Lancaster. White Clay Creek is part of the Christina River Basin and joins the Christina River 8.5 miles above its mouth at the Delaware River Bay. It has three branches (East, West, and Middle) that flow together in Landenberg, PA. The watershed encompasses approximately 108 square miles.

The Bank Site consists of an Unnamed Tributary (UNT) of East Branch White Clay Creek, which is a tributary to White Clay Creek of the Christina River watershed. The White Clay Creek watershed encompasses 107.8 square miles and 295.5 miles of stream. Land use within the White Clay Creek watershed is approximately 31% wooded/undeveloped, 30% residential, 25% agriculture, 11% developed (non-residential), and 3% water/wetlands (Chester County Board of Commissioners, 2024).

Threats to the watershed include suburban sprawl, stormwater management, and non-point source pollution. Farmland preservation is one of the primary concerns of Chester County due to its tremendous economic importance. Recent years have documented a growing pressure from building development and continued habitat fragmentation and non-point source pollution. As indicated in the WCCWAP,

“Agricultural operation have been a major historical and current land use, resulting in nonpoint source pollutant runoff in several areas of the watershed. Ongoing efforts by numerous agencies and agricultural operators have made significant progress in reducing agricultural runoff in the watershed, but much more reduction is needed.”

In addition to the problems identified, the White Clay Creek watershed has many significant resources that provide benefits to the community and environment that must be protected and preserved. The watershed serves as a major source of drinking water supply. An instream intake for public water near the confluence of Red Clay Creek supplies water to much of New Castle County, DE.

White Clay Creek is designated as a PA Scenic River with 24 miles as scenic and 167 miles as recreational. Several historic and recreational resources are scattered throughout the watershed.

3.1.2 Physiography, Geology, and Soils

As shown in Appendix B: Figures, Figure 3: Physiographic Map, the Bank Site is in the Piedmont Upland Section of the Piedmont Physiographic Province (PA DCNR, 2018), which spans several southeastern PA counties, including York, southern Lancaster, Chester, Delaware, and Montgomery. The Piedmont Upland Section is characterized by gently rolling hills and valleys over a predominantly schist bedrock. Smaller farms interspersed with woodlots and stream valleys characterize this landscape. Local relief is classified as low to moderate, which ranges from 301 to 1,000 feet. The lower gorges of the Susquehanna River are part of this section.

The predominant geologic rock types found in the watershed include crystalline geology and carbonate geology. Additionally, the watershed is comprised of Coastal Plain formations where the substrate consists of unconsolidated gravel, sand, silt, and clay deposits, overlie the crystalline bedrock which ranges from 0 feet at the fall line to several hundred feet at the Atlantic Ocean shoreline.

The typical drainage networks within the region are dendritic, allowing for the development of headwater (low order) and wadeable or semi-wadeable (high order) riverine/stream habitats. While soil characteristics are favorable for farming, an important industry for the county’s economy. Soil characteristics within the area are favorable for agriculture, an important industry for the county’s economy, and providing pasture for livestock; however, they are also prone to erosion due to poor farming practices and overgrazing. Soil series in the watershed are predominantly Manor and Glenelg; and are formed from mica, schist, granitized schist, quartzite, and gneiss. They are typically well-drained deep soils, and acidic by nature.

Existing soils identified within the conservation area are shown on the NRCS Soils Map (Appendix B: Figures, Figure 9: Soils Classification Map) and are further summarized below in Table 4: Soils within the Conservation Area. Glenelg silt loam is typically associated with historic floodplains, is partially hydric, indicating ideal conditions for wetland reestablishment.

Table 4. Soils within the Conservation Area¹

Soil Series Symbol	Soil Series Description	Soil Series Setting (Landform)	Farmland Classification	Soil Limitations					Hydrologic Soil Group ²
				Depth to Restrictive Features		Natural Drainage Class	Hydric Rating ²	Hydric Rating as Percent Presence in Conservation Area (%) ²	
GIB	Glenville silt loam, 3 to 8 percent slopes	Swales, drainageways	All areas are prime farmland	29 to 31 inches to fragipan	About 18 to 22 inches	Moderately well drained	No	15	C/D
Ha	Hatboro silt loam	Floodplains	Not prime farmland	60 to 99 inches to lithic bedrock	About 0 to 6 inches	Poorly drained	No	5	B/D
MaB	Manor loam, 3 to 8 percent slopes	Hillslopes	All areas are prime farmland	60 to 100 inches to paralithic bedrock; 100 to 128 inches to lithic bedrock	More than 80 inches	Well drained	No	10	B
MaC	Manor loam, 8 to 15 percent slopes	Hills	Farmland of statewide importance	59 to 100 inches to paralithic bedrock; 100 to 128 inches to lithic bedrock	More than 80 inches	Well drained	No	5	B
MaD	Manor loam, 15 to 25 percent slopes	Hillslopes	Not prime farmland	59 to 100 inches to paralithic bedrock; 100 to 128 inches to lithic bedrock	More than 80 inches	Well drained	No	5	B
MaE	Manor loam, 25 to 35 percent slopes	Hillslopes	Not prime farmland	60 to 100 inches to paralithic bedrock; 100 to 128 inches to lithic bedrock	More than 80 inches	Well drained	No	2	B
UrB	Urban land, 0 to 8 percent slopes	Artificially covered areas	Not prime farmland	10 to 99 inches to lithic bedrock	More than 80 inches	Well drained	No	5	B
UrmB	Urban land-Glenelg complex, 0 to 8 percent slopes	Hills	Not prime farmland	10 to 99 inches to lithic bedrock	More than 80 inches	Well drained	No	5	B
UrsB	Urban land-Manor complex, 0 to 8 percent slopes	Hills	Not prime farmland	10 to 99 inches to lithic bedrock	More than 80 inches	Well drained	No	0	B
UugB	Urban land-Udorthents, schist and gneiss complex, 8 to 8 percent slopes	Hills	Not prime farmland	10 to 99 inches to lithic bedrock	About 60 inches	Well drained	No	1	C

Notes:

1. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> accessed [8/2/2023]; (NRCS, 2023)
2. This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.
3. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

a. Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

b. Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained, or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

c. Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

d. Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission

3.1.3 Vegetation

Chester County lies within the Oak-Chestnut Forest Region, which following the chestnut blight in the early 1900s, was depleted of much of the living American chestnut trees. What remains now are primarily species of oak and hickory, especially in the drier upland areas. In the downslope areas soil conditions within shaded valleys support forest communities that are dominated by tulip popular (*Liriodendron tulipifera*), red (*Acer rubrum*) and sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), basswood (*Tilia americana*), eastern hemlock (*Tsuga canadensis*), and ash (*Fraxinus americana*). These forests typically have diverse shrub and herbaceous layers.

Because of the dominance of residential activity and historical agricultural activity, the Bank Site exhibits limited forest cover and riparian zone buffering. The historic approach to maximizing agricultural productivity, by clearing vegetation and straightening stream channels, which is seen commonly across PA, has resulted in native vegetative communities that lack the density and diversity that would likely otherwise be present. The presence of noxious and invasive plants is also a problem the watershed and the Bank Site share with the rest of PA. An invasive vegetation survey was completed by TES&P in June 2023. Several invasive species were identified during the survey, however the most common species identified throughout the Bank Site include Japanese stiltgrass and reed canary grass. A report detailing the findings of the invasive survey as well as mapping documenting the location and approximate extents of the invasive species is provided in Appendix E: Existing Conditions Data – Part 1 – Invasive Vegetation Survey Report.

3.1.4 Existing Stream and Wetland Resources

Wetland and stream delineations following the 1987 *Army Corps Wetland Delineation Manual* (USACE, 1987) and the *Eastern Mountains and Piedmont Regional Supplement Version 2* (USACE, 2012) were completed at the Bank in June 2023 by TES&P. Results from the environmental surveys are described briefly below. Detailed descriptions, data forms, photographs, and additional mapping are included in the Aquatic Resource Delineation Report provided in Appendix E: Existing Conditions Data – Part 2 – Aquatic Resource Delineation Report (Delineation Report). Delineated resources are shown in Appendix B: Figures, Figure 3: Existing Conditions Map.

Table 5: Summary of Delineated Stream & Wetland Resources provides an overview of the delineated streams and wetlands, including those outside the proposed conservation area. Only those resources identified within the final conservation area will be restored and credit recognized. The final MBI will represent the existing resources within the final conservation easement boundary (Bank Site).

3.1.5 Existing Stream Conditions

Based on preliminary site investigations, the current floodplains and streams exhibit a combination of legacy sediment accumulation, over-meandering and widening, and lateral and horizontal bank and bed erosion. Due to the erosive forces evident within the channels, excessive amounts of sediments continue to make their way downstream to receiving waters. The catchment area starting from the furthest downstream point of the Bank Site is shown on Appendix B: Figures, Figure 11: Drainage Area and Federal Emergency Management Agency (FEMA) Map. Chester County's floodplains have been altered historically due to agriculture, and in the past few decades, more and more residential development. Floodplain alterations due to the establishment of mill dams are adversely dramatic as they have resulted in legacy sediment accumulations that have ultimately disconnected streams from their floodplains and thereby

minimizing natural floodplain functions. While many of the historic mills and associated dams have disappeared, the sediment that built up behind the dams remains. In Appendix B: Figures, Figure 13 there is historic evidence of at least two mill dams within or near the Bank Site that could have directly or indirectly influenced the current degraded condition of the stream. (Painter & Bowen, 1847).

As shown in Appendix B: Figures, Figure 4: Existing Conditions Map, several watercourses were delineated throughout the Bank Site. A summary of the delineated water resources is provided in Table 3 of the Delineation Report (Appendix E: Existing Conditions Data – Part 2 – Aquatic Resource Delineation Report). Photographs of the stream and wetlands delineated within the Bank Site can be found in Appendix C of the Delineation Report. The watercourses within the Bank Site convey groundwater hydrology or surface runoff originating from the surrounding landscape and upstream tributaries.

The UNT to East Branch White Clay Creek (26108942) which flows north to south throughout the entire Bank Site is classified by the PADEP as a Cold Water Fishery (CWF). In fact, the entire East Branch White Clay Creek basin from the northern extent of Avondale, PA to the mainstem's confluence with the Middle Branch White Clay Creek has a PA Code, Title 25, Chapter 93 designated protected aquatic life use of Cold Water Fishes, Migratory Fishes (CWF, MF) (Commonwealth of PA, 2022a). The PADEP does not list East Branch White Clay Creek as having an Existing Use Classification (PADEP, 2022). The Pennsylvania Fish and Boat Commission (PFBC) does not list East White Clay Creek as a stream that supports Natural Trout Reproduction (Wild Trout Waters); however, East Branch White Clay Creek is listed by the PFBC as a Stocked Trout Stream (PFBC, 2022a and 2022b). According to the 2024 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report, UNT to East Branch White Clay Creek (26108942) is listed as an aquatic life use impaired waterbody due to siltation from agricultural sources (PADEP, 2024).

3.1.6 Existing Wetland Conditions

Historically, wetlands in Chester County likely existed at most locations where water exits the ground at a spring or seep, or where the floodplain widened considerably. Most of these wetlands were drained or dammed to create fields or farm ponds for agricultural production, or for residential/commercial development. The landscape within the Bank Site exhibits this same trend that is seen throughout the County.

Wetlands were identified and delineated within the Bank Site. While most wetlands were classified as palustrine emergent (PEM), some wetlands onsite exhibited palustrine scrub-shrub (PSS) and palustrine forested (PFO) components as well. Most of the wetlands were in the floodplain/riparian landform, and a few wetlands were delineated between Clay Creek Road and the UNT to East Branch White Clay Creek that were depressional areas fueled primarily by surface water collection. Wetlands identified exhibit extreme stressors from invasive vegetation and polluted runoff from upslope land uses. Based on visual observations, existing wetlands demonstrated various levels of saturation and inundation early in the growing season. The wetlands appear to receive enough hydrologic interaction from precipitation events, and overbank events, that for remainder of the growing season the wetland remain saturated enough to support wetland conditions.

Table 2 in the Aquatic Resources Delineation Report (Appendix E: Existing Conditions Data Part 1) details the classifications and area of the field-identified and delineated wetlands. The Delineation Report also includes the USACE wetland data forms detailing additional information about each wetland and photographs. Wetland data forms are included in Appendix B of the Delineation Report while photographs of the wetlands can be found in Appendix C. Typical wetland vegetation, soil characteristics, and hydrology identified within delineated wetlands are discussed below. Wetlands in the Bank Site displayed relatively

limited vegetative diversity which is typical for wetlands within the more developed areas of southeastern Pennsylvania. The most common herbaceous plant species observed included reed canary grass (*Phalaris arundinacea*), Japanese stiltgrass (*Microstegium vimineum*), skunk cabbage (*Symplocarpus foetidus*), and sensitive fern (*Onoclea sensibilis*). A few wetlands were also dominated by the invasive common reed (*Phragmites australis*). The most common shrub species observed in wetlands were spicebush (*Lindera benzoin*), buttonbush (*Cephalanthus occidentalis*); and wetland adapted tree species observed within the Bank Site include swamp white oak (*Quercus bicolor*) and black willow (*Salix nigra*).

Table 5. Summary of Delineated Stream & Wetland Resources

Resource Type		Pre-Restoration (AC/LF)
Wetlands (AC +/-)	PEM	5.95
	PSS	0.85
	PFO	0.48
Wetland AC Total		7.28
Streams (LF +/-)	Ephemeral	63.78
	Intermittent	918.01
	Perennial	10,597.23
Stream LF Total		11,579.02

Note(s):

1. The delineated resources listed in Table 5 represent all resources delineated, including those outside the proposed conservation area. A larger study area was used to delineated stream and wetland resources and therefore, those resource acreages and footages extend beyond the conservation area. Once conservation area footprint is finalized, existing resource numbers will be updated accordingly.

3.1.7 Aquatic Communities

In May of 2023, TES&P also completed a baseline aquatic biological assessment at the Bank Site. Specifically, fish and benthic macroinvertebrate community surveys were completed for the purpose of comparing baseline data to post-restoration conditions at the Bank Site. Since the mainstem tributary was confirmed to exhibit relatively homogenous physical habitat, one 100-meter reach was sampled for benthic community composition. Similarly, a one 100-meter reach was also assessed for fish community composition. Methods followed for sample collections and data processing are described in the Baseline Aquatic Biological Assessment report prepared by TES&P and is included in Appendix E: Existing Conditions Data – Part 3 – Baseline Aquatic Biological Assessment.

The results of the aquatic biological assessment indicate that the benthic and fish communities are non-attaining and therefore impaired. A summary of benthic macroinvertebrate sample results and fish community survey results is provided in Appendix E: Existing Conditions Data – Part 3 – Baseline Aquatic Biological Assessment.

3.1.8 Large Woody Debris

Large-woody debris (LWD) may be collected throughout the Bank to understand the current state of organic matter retainage, fish habitat presence, and channel and substrate stability. The U.S. Forest Service (USFS) LWD Index assessment method (Harman et al. 2017), will likely be the data collection

approach used. This approach involves assessing and scoring multiple characteristics for each piece of large wood and debris dams within the to-be-identified degradation sampling locations or cross-sections to determine how well the LWD functions within the channel. The ability of LWD to retain organic matter, provide fish habitat, and affect channel/substratum stability depends on the size of the wood (relative to stream size), where the wood is within the channel, and how secure it is. The presence and parameters assessed indicate overall functionality related to vertical and horizontal stability, bed stability, habitat availability, and carbon retention for fish and macroinvertebrate habitat within the stream system. The results of the potential LWD survey will be summarized following data compilation and review and will be provided as part of the Draft MBI submittal.

Stream restoration practices that mimic natural conditions can include incorporating LWD as well as other materials on site for in-stream structures. Using LWD in stream restoration projects can provide substantial functional ecological uplift along degraded streams that are devoid of wood.

3.1.9 Bank Erosion Hazard Index

As part of the bank stability analysis, a Bank Assessment for Non-Point source Consequences of Sediment (BANCS) was performed. This involves assessing the Bank Erosion Hazard Index (BEHI) and the Near Bank Stress (NBS). The analysis was performed along the entire length of the Bank Site. The BEHI computations consider the bank height, root depth, root density, bank angle, surface protection, bank material, and bank stratification to predict erosion rates. The NBS categories were determined using Watershed Assessment of River Stability and Sediment Supply (WARSSS) Method 1 (Rosgen, 2006), which looks at the channel pattern features and how the shear stress is distributed in near bank regions. Table 6 shows the BEHI and NBS Categories assigned to each bank segment ID as well as the correlating Bank Erosion Mass in pounds per year. More detailed information including a graphical representation and the location of each bank segment can be found in Appendix E: Existing Conditions Data – Part 4 – Baseline Data.

Table 6. BEHI & NBS Results

Bank Segment ID	BEHI Category	NBS Category	Bank Erosion Mass (lb/yr)
A	Very High	Moderate	716,403
B	High	Low	106,207
C	Moderate	Low	64,201
D	Very High	Moderate	408,174
E	Moderate	Low	37,132
Total			1,332,117

3.1.10 Pebble Counts

In total, there were six pebble counts collected at riffles within the Bank Site, at each of the surveyed cross section locations. Table 7. Pebble Count Results summarizes the D₅₀ and D₈₄ particle sizes at each cross section as well as the distribution of particle size classes at each cross section. Appendix E: Existing Conditions Data – Part 4 – Baseline Data provides further details regarding the particle distributions of these pebble counts.

Table 7. Pebble Count Results

Data Type	Particle Size	Sample Site			
		XS-3		XS-4	XS-5 XS-6
Particle Size (mm)	D ₅₀	26.7	52.0	30.7	86.5
	D ₈₄	51.5	78.2	64.4	81.2
Distribution (%)	Silt/clay	0	0	0	0
	Sand	8	13	7	16
	Gravel	79	59	77	51
	Cobble	13	28	16	32
	Boulder	0	0	0	1

The D₅₀ particle size was within the gravel size class for all pebble counts, regardless of location. In all but one of the pebble counts, the D₈₄ was within the small cobble size class. Generally, distributions were consistent throughout the streambank Site. These findings demonstrate consistency of bed materials throughout the assessment reaches and are consistent with observational dominant substrate values associate with stream classification of the surveyed riffle cross sections. Where applicable, riffle salvage material will be incorporated into the proposed design.

3.1.11 Existing Resource Functions

Hydrologic

Legacy sediment limits the stream's access to its floodplain throughout the Bank Site, which has greatly reduced the prevalence of floodplain wetlands. Lack of stream-wetland connectivity impedes groundwater recharge and reduces stream flow during dry periods. If tile drains are identified within the Bank Site, they will likely be removed to improve hydrologic connection of streams and restored wetlands.

Upslope stormwater runoff created during storm events contributes to instream horizontal incision and lateral instability within the channels. This stormwater exacerbates bank erosion and carries additional upland fine sediment and attached nutrients. As described above, these incised streams are isolated from their historic floodplains and wetland, further allowing excessive stormwater to flow directly into streams onsite.

Biogeochemical

During large rainfall events and storm surges, onsite streams likely undergo erosion. Down-cutting of the streambed has exposed underlying bedrock in some locations, limiting biogeochemical activity that normally occurs within stream substrates. Limited biogeochemical functions in above ground and culverted streams provide very little ecological value and function on a small and large scale. Due to their relatively small size and their disconnection from the floodplain, existing wetlands also provide limited biogeochemical functions.

Habitat

The stream is extensively channelized, highly sinuous, and with unstable banks. In some areas, there is extensive sediment deposition and in other areas the streambed consists primarily of bedrock. Further, much of the stream has limited, if any, riparian zone buffers. These factors have resulted in reduced habitat quality and availability. Intermittent streams within the Bank Site were not assessed for instream and riparian habitats.

Wetlands within the Bank Site provide very limited habitat value due to dense populations of invasive species and their limited size. Some seed-producing species, such as *Bidens* sp., provide food sources for wildlife.

Upstream and Downstream Properties

The Bank Site captures a large portion of the UNT to East Branch White Clay Creek and its tributaries in a largely residential setting. As such, the Bank Site is expected to positively influence downstream properties through enhanced water quality, reduced active bank erosion and sedimentation, and increased flood attenuation.

3.1.12 Evaluation of Existing Condition/Resource Function

WLS will use qualitative and semi-quantitative aquatic community and population data (i.e., benthic macroinvertebrates and fishes) and the quantitative baseline data, including the BEHI and Wolman Pebble Counts, to evaluate existing ecological conditions at the Bank Site. These resources and assessment methods will further be used to evaluate progress in meeting performance standards and bank objectives during the monitoring phase of the Bank Site.

3.2 Regulatory Considerations

3.2.1 Permits, PA Code Title 25 Chapter 93 Use, Chapter 105 Wetland Category, and Trout Restrictions

The Bank Site, by necessity, involves impacts to existing streams and wetlands. The USACE has the authority to permit the discharge of dredged fill material into WOTUS under Section 404 of the federal Clean Water Act. The PADEP has coinciding jurisdiction over “Waters of the Commonwealth” as established by the Dam Safety and Encroachments Act and Clean Streams Law. The Sponsor understands that authorization by the PADEP under Title 25, Chapter 105 Water Obstruction and Encroachment Permit and by the USACE under a Section 404 Nationwide Permit 27 for Aquatic Habitat Restoration, Enhancement, and Establishment Activities will be required to construct and operate the Bank.

In addition, an erosion and sediment control plan for discharges to waters, including construction stormwater runoff or erosion, is required by PA Code Title 25, Chapter 102. The stream restoration plan with plan views, cross-sections, and profiles of all the proposed restoration work, including the planting plan, will be included as Appendix F: Design Plans. The design plans are being developed and will be included in the Final MBI.

Permanent beneficial wetland and stream impacts are anticipated to result from Bank development. Permanent beneficial impacts are impacts that 1) result from the relocation of a watercourse in which the relocation efforts result in the conversion of a stream to a wetland or vice versa, or 2) are disturbed by grading and/or excavation activities whereby the hydrologic component of the resource is improved, typically through elevation change. These impacts are not debited from the credit calculations because these resources are not lost but rather experience a shift spatially (horizontally and/or laterally) within the floodplain because of restoration activities and ultimately contribute to functional uplift within the system through the floodplain restoration approach. Proposed permanent beneficial and temporary beneficial impacts to affect aquatic resources within the Bank Site are summarized in Table 8: Impact Summary Table. The resources, although temporarily disturbed, will be permanently changed for improved ecological benefit, and are therefore considered “Permanent Beneficial” impacts.

Table 8. Impacts Summary Table

Impact Type	Wetland Impact	Stream Impact
Permanent Beneficial	TBD (AC)	TBD (LF)
Temporary Beneficial	TBD (AC)	TBD (LF)

Notes:

1. Impact calculations will include stream lengths and wetland acreages that traverse the Reserved Rights areas.
2. Permanent Beneficial Impacts are impacts that 1) result from the relocation of a watercourse in which the relocation efforts result in the conversion of a stream to a wetland or vice versa, or 2) are disturbed from grading and/or excavation activities whereby the hydrologic component of the resource is improved, typically through elevation change. These impacts are not removed from the credit calculations because these resources are not lost but rather experience a shift spatially (horizontally and/or laterally) within the floodplain as a result of restoration activities and ultimately contribute to functional uplift within the system through the floodplain restoration approach. The resource, although temporarily impacted, will be permanently changed, and therefore is considered a 'Permanent Beneficial' impact.

3.2.2 Hydrologic Trespass

As shown in Appendix A: Figures, Figure 11, a portion of the Bank Site is within a FEMA Flood Zone A (100 Year Floodplain). The Bank Site will be designed so that flood events will be contained within the Bank Site and adjacent landowners will not be adversely affected; therefore, hydrologic trespass will be avoided. The Sponsor understands that coordination with FEMA may be required.

3.2.3 Threatened and Endangered Species

A draft PA Natural Diversity Index Environmental Review (PNDI) was completed on May 16, 2023. PNDI records indicate that there are no known impacts to threatened and endangered and/or special concern species and/or resources under the jurisdiction of the PA Game Commission (PGC) or the PA Department of Conservation and Natural Resources (DCNR) within the Bank Site. Therefore, no further coordination is required with those jurisdictional agencies is required.

PNDI records did indicate potential impacts to threatened and endangered (T&E) and/or special concern species and resources under the jurisdiction of the PA Fish and Boat Commission (PFBC) and the U.S. Fish and Wildlife Service (USFWS). WLS has initiated consultation with both agencies, requesting further review.

Informal coordination has transpired between the Sponsor and the USFWS regarding the special concern species listed that may be affected by the Bank. During the consultation, the USFWS confirmed that Phase I Bog Turtle (*Glyptemys muhlenbergii*) Surveys would be required. In May and October 2023, Phase I surveys were completed by qualified surveyors with Thompson Environmental Surveys and Permitting, LLC (TESP). Habitat was identified, and upon further coordination, Phase II presence/absence surveys were also determined necessary. The Phase II survey was completed in May and early June 2024. No bog turtles were found. A report detailing the findings will be submitted to the USFWS for review. Communication with the USFWS that has transpired is included in Appendix G: Additional Permitting and Agency Consultations – Part 1 – PNDI Receipt and Consultations.

The PFBC responded in a letter requesting a habitat assessment for the Broad-headed Skink (*Plestiodon latipes*). As such, WLS contracted a qualified biologist with Ecological Associates, LLC to conduct the habitat assessment. The survey will commence during late Spring early Summer 2024. Results of the survey will be shared with PFBC for review.

WLS will continue to coordinate with both agencies to ensure that the Bank does not adversely affect T&E species, their habitats, and other special concern species and resources under their jurisdiction. Coordination updates with the PFBC and USFWS will be provided as part of the draft and final MBI submittal phases. Final clearance letters will be provided in Appendix G: Additional Permitting and Agency Consultations – Part 1 – PNDI Receipt and Consultations upon receipt.

3.2.4 Cultural Resources

WLS initiated consultation with the Pennsylvania Historical Museum Commission (PHMC) State Historic Preservation Office (SHPO) in early May 2024. The PHMC responded in a letter dated May 17, 2024 indicating that while the Project will have No Effect on above ground historic properties, including historic buildings, districts, structures, and/or objects, there could be archaeological resources within the Bank site area and therefore, a Phase I archaeological survey was requested. WLS has contracted a qualified surveyor (Circa~ Cultural Resource Management, LLC (Circa~) to complete the Phase I survey at the Bank site. Results of the survey will be submitted to the PHMC for review. Coordination updates with the PHMC will be provided as part of the draft and final MBI submittal phases. Final concurrence will be provided to the reviewing agencies upon receipt and will be included in Appendix G: Additional Permitting and Agency Consultation – Part 2 – PHMC Consultation.

3.2.5 National Wild & Scenic Rivers NPS Coordination

WLS understands that White Clay Creek Watershed including all its tributaries are designated as National Wild and Scenic Rivers and thus require additional coordination with the National Park Service (NPS) to confirm that the proposed Bank will not adversely affect the designation status. During a phone conversation with the NPS, WLS was instructed to submit correspondence and design plans once the design has reached approximately 60% complete. WLS will submit 60% design plans to the NPS for review and comment. WLS will coordinate with the NPS to ensure that no adverse impacts to the waters within the Bank or within the White Clay Creek watershed that might affect the designation status occur.

3.2.6 Historic Land Use

While the extent of historic land use is limited to the site information available, evidence points to the historic presence of mill dams (Appendix A: Figures, Figure 13) within or near the Bank Site in the late 1800s, followed by agricultural land use (Appendix A: Figures, Figure 8.1) in the early 1900s, and widespread watershed development (Appendix A: Figures, Figure 8.2) around the turn of the century.

3.2.7 Adjacent Land Use

Land use within and immediately surrounding the Bank Site is zoned as Rural Residential. Most of the surrounding properties are vacant residential lots or developed residential properties. The Bank Sponsor does not anticipate the Bank Site to have negative land use impacts to current or future adjacent land uses.

3.2.8 Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was completed at the Bank Site in May 2024. The results of the ESA are provided in the report included in Appendix E: Existing Conditions Data, Part 5 – Phase I ESA.

3.2.9 Dispute Resolution

Resolution of disputes regarding the future potential application of an instrument will be conducted in accordance with the Department of the Army and EPA regulations entitled “Compensatory Mitigation for Aquatic Resources” (33 CFR Parts 325 and 332 and 40 CFR Part 230), as well as any other federal or state regulations governing Mitigation Bank operation, as applicable.

4 Mitigation Work Plan

4.1 Site Design Approach

The Bank Site will employ a process-based approach (Powers et al., 2018) to address underlying stressors and processes that drive the currently degraded condition of UNT to East Branch White Clay Creek and its tributaries. Land use and land cover modifications are the primary factors that historically led to altered hydrologic and sediment processes in the watershed. These processes contributed to legacy sediment buildup, disconnected streams from their floodplains, and confined streams inside incised channels, leading to further incision, down cutting to bedrock, and lateral instability.

The Bank Sponsor will use the floodplain restoration approach to restore the Bank Site (Gutshall and Oberholtzer, 2011; Parola and Hansen, 2011). The reestablishment of floodplain wetlands will manage erosion-derived sediment. Site investigations will identify historical floodplains using bank profile indicators, test pits, soil probes, and other techniques. Floodplain connectivity will be restored by excavating legacy sediments and reestablishing groundwater and surface water interaction. Legacy sediment will be removed from the floodplain, where present, and in areas where the channel is incised down to bedrock, the channel will be raised; both approaches may occur in the same location. Channel sinuosity will be restored, floodplain depressions will be added to create additional wetlands, and deep instream pools may be provided to increase exchange of groundwater and surface water, as well as provide refugia for aquatic life during dry periods. Riparian buffers will be reestablished and revegetated to control and filter stormwater runoff, further reducing erosion and sedimentation. Two-dimensional hydraulic and hydrologic modeling will be used to verify that the proposed design will achieve floodplain access as desired.

Bank Site stream reaches are degraded as they exhibit active horizontal and lateral migration and associated localized channel widening and down cutting. Most of the watershed was deforested prior to 1938 for agricultural purposes (Appendix A: Figures, Figure 8.1). This trend has continued throughout the Bank Site and region to present day (Appendix A: Figures, Figures 8.2 & 8.3). Currently, stream reaches within the Bank Site act as sources of excess sediment and nutrients to downstream receiving waters as well as the Bank’s encompassing watershed, ultimately contributing to their degraded/aquatic life use impaired status as listed by the PADEP.

The proposed Bank Site will provide increased floodplain access throughout the conservation area and will be monitored to demonstrate successful floodplain function. The stream channel and floodplain design will include analysis of the hydrology, hydraulics, shear stress, sediment transport, channel dimensions, and floodplain elevations. The Bank Sponsor will consider three methods (field indicators if present, published regional curve information, and two-dimensional hydraulic modeling) for estimating a bankfull discharge. The hydrology and hydraulics analysis will evaluate a range of lower flow discharges and flood frequency curves to help determine an appropriate design discharge. The design discharge will

be used to select an appropriate channel geometry, model, and design floodplain access, and help monitor long-term project performance.

Primary water sources are the upstream catchment or drainage area, several stormwater outfalls from the adjacent residential development to the east that drain to the floodplain, and roadway drainage/cross culverts from the west along Clay Creek Road. There are no known water losses other than evapotranspiration. Given the restoration approach (legacy sediment removal), it is anticipated that the site will have some minor increases in flood retention and residence time, but no net increase or decrease.

Wetlands will be reestablished by removing legacy sediment, lowering floodplain elevations, creating topographic depressions, and raising the groundwater table. The wetland reestablishment approach is supported by onsite soil investigations, groundwater and surface flow observations, and topography. Site soils (Appendix A: Figure 9, Appendix D: Delineation Report, Table 2, and Table 4: Soils within the Conservation Area) confirm the presence of partially hydric soils throughout the mainstem drainage, indicating opportunity to reestablish wetland conditions.

The Bank Site will be long-term self-sustaining. As described above, establishment of the Bank will restore the stream-floodplain connection by removing legacy sediments and raising the channel above the bedrock to provide a hyporheic zone. The Bank Site will increase the streams' floodplain access by lowering bank height. This will provide a regular hydrologic connection between the stream and its floodplain wetlands. This approach also eliminates the current erosive forces in the incised channel and disconnected floodplain. A two-dimensional hydraulic model will verify that the proposed design will remain stable during peak flow events. Additionally, the proposed design calls for permanently protected and vegetated riparian buffers planted with native species. These buffers will assist in the reduction of non-point source pollution by filtering contaminants, reducing the quantity and velocity of stormwater runoff, and further reducing the potential for onsite bank erosion and sedimentation downstream.

4.1.1 Design Criteria Selection

Overall, the floodplain restoration approach will inform a design where the stream frequently accesses the floodplain during storm events (Gutshall and Oberholtzer, 2011; Parola and Hansen, 2011). Final selection of design criteria will be based on a combination of approaches, including a review of site-specific data, reference data, flow regime equations and onsite flow duration, hydrologic and hydraulic modeling, evaluation of monitoring results from successful past projects, and best professional judgment. The design parameters for the stream reaches will also consider current USACE and PADEP guidance and mitigation credit compensation methods.

The Design Plan for the Bank Site is being developed and will be attached in Appendix F: Design Plans. The design plans are anticipated to include:

- Hydrology and Channel Design Parameters,
- Grading Plan and Profile,
- Planting Specifications,
- Planting Details,
- Planting and Seeding Schedules, and
- 2D Shear Stress Modeling.

4.1.2 Floodplain Restoration

Floodplains will be regraded to remove legacy sediments and reestablish a functional floodplain while maintaining the existing flat valley slope, which will encourage hyporheic exchange. To ensure the stability of the floodplain, it will be extensively planted with native vegetation and sized to maintain a reduced

shear stress of 2.0 pounds per square foot or less during a 100-year storm event. It has been documented that the vegetated floodplain will be protected from degradation with the minimal shear stresses (Schiechl and Stern, 1994). Groundwater dams will be strategically placed to raise the groundwater table, and these dams, in conjunction with log and boulder sills, will be used to maintain grade control and stop head cuts from forming and making their way up the system. Tile drains, if present, are anticipated to be removed or plugged to restore groundwater hydrology. In addition, existing springs if/where present within the Bank Site will be captured to provide stream and wetland hydrology.

The Bank's design will create conditions favorable for reestablishing additional riparian wetlands and maximizing functional uplift potential. By implementing floodplain restoration, including removing legacy sediments, restoring historic flow patterns, creating groundwater dams (if applicable), surface roughening, and reestablishing native riparian vegetation and wetland hydrology, floodplains will regain their natural/historic ecological functions.

4.1.3 Sediment Transport Analysis

Floodplain restoration projects can be subject to aggradation if the sediment supply exceeds the capacity of the stream and floodplain to transport sediment. The stream channel and floodplain must be designed in concert to provide frequent hydrologic exchanges, while also transporting bedload through the system, depositing fine sediments on the floodplain, and maintaining stable geomorphology. Because the Bank Site is located close to the headwaters of the watershed, sediment supply from channel migration and erosion can be controlled and will be greatly reduced by restoring the streams and floodplains.

Sediment transport calculations and stream power analyses will be performed for both the existing degraded channels and the proposed design channels and floodplains. The Bank Sponsor will assess the stream's transport competency and capacity to quantify its ability to move its sediment load. This assessment will help determine if additional sediment transport calculations or models will be necessary. However, it is still critically important to perform watershed reconnaissance and estimate how much sediment is being supplied to the reaches within the Bank Site by determining load rates from both within the channel (bed/banks) and upland sources. The Sponsor will perform quantitative channel assessments that include predicting streambank erosion rates and comparing model results to evaluate bed and bank material characteristics and estimate sediment yields. The results of the substrate analyses will be used to classify the streams, and complete critical shear stress calculations required for designing slopes/depths and predicting channel stability. Other observation methods, such as dendro-geomorphic studies (bank root mass), bank pins/profiles, cross-section surveys, and time-series aerial photography, may also be used as a comparative analysis.

4.1.4 Stream and Floodplain Improvement Features

Materials naturally found within the Bank Site such as hardwood trees, trunks/logs, brush/branches, gravel, and cobble stone materials will be used for hydrologic and hydraulic control, streambank protection, and improving bedform diversity and habitat. Floodplain improvement features will include establishing woody debris and depressions to provide hydrologic diversity for different plant and animal communities, as well as subsurface features like clay groundwater dams and log sills that maintain wetland hydrology. To ensure the sustainability of those elements, the Sponsor will use methods of design and construction that have proven successful on numerous past projects. When appropriate, the Sponsor will also incorporate bioengineering practices that use biodegradable materials and fabrics, uncompacted soils, live plant cuttings, and native vegetation to stabilize streambanks and re-establish wooded

floodplains. Bioengineering treatments will provide initial bank stability that allows for the quick establishment of deep-rooted vegetation along the eroding streambanks. Once established, these live plants will provide long-term stability to the treated areas.

4.1.5 Proposed Stream Conditions

The Bank Site will incorporate a variety of active restoration and enhancement activities which will maximize ecological uplift, while minimizing disturbance and construction impacts to existing resources. Restoration efforts will result in the establishment and preservation of a long-term, self-sustaining, functional stream, wetland, and riparian corridor.

Best professional judgment, experience, and data driven decision-making is used for determining which restoration designation is appropriate for every reach within the Bank Site. The stream reach within the Bank may be assigned one of or a mixture of three restoration designations: re-establishment, rehabilitation, or enhancement. The reach is assigned its designation predominantly based on the degree of impairment as well as site constraints (e.g., conservation area extents, accessibility and constructability, and existing/surrounding infrastructure). Baseline data collected across the Bank Site will be analyzed and used to support the restoration approach designation decisions and to ensure that the appropriate and successful restoration approach is assigned for all reaches within the Bank Site.

The restored channel will exhibit channel stability and increase floodplain connection and continuity. The design will promote the stabilization of bed sediment and provide improved habitat for aquatic communities. In addition, restoration efforts will enhance LWD and fine carbon retention, providing additional food sources and unique niches that will promote the further enhancement of aquatic biological communities. The reestablishment of stream habitat and floodplain diversity will also provide new habitats for amphibians and terrestrial organisms and aid in the reestablishment of historic wetland plant communities. Furthermore, floodplain restoration efforts will improve hydrologic connectivity, water storage capacity, and biogeochemical cycling through the reestablishment of the hyporheic zone.

4.1.6 Proposed Revegetation Plan

A variety of native species will be planted to ensure an appropriate diverse riparian plant community. Floodplains will be planted with vegetation native to the region and appropriate for the reestablished soil and hydrologic conditions.

During Bank implementation, non-native, invasive and exotic vegetation will be treated with herbicides and/or mechanically removed during construction activities to control their presence and reduce spread within the Bank. These efforts will aid in the establishment of a native vegetative community within the restored riparian buffers and wetland areas. Follow-up control activities will be performed during the monitoring period following the adaptive management plan.

4.1.7 Proposed Wetland Conditions

The Bank's design will create conditions favorable for reestablishing additional riparian wetlands and maximizing functional ecological uplift potential. It is anticipated that as a direct result of implementing floodplain restoration, restoring historic flow patterns, legacy sediment removal, creation of groundwater dams, surface roughening, and revegetation, wetland hydrology will be restored and allow the floodplains to regain their natural/historic wetland functions. The area proposed for wetland reestablishment consists of most of the length of the riparian areas adjacent to stream(s) within the Bank. These areas will

experience seasonal wetness for prolonged periods, and conditions are favorable to support appropriate wetland hydrology. A natural overbank flooding regime will be restored throughout the area by restoring the appropriate channel geometry, lowering the floodplain elevation by removing legacy sediment, and in certain areas, by raising the stream bed elevation to reconnect the channel to its historic floodplain. It is anticipated that as a direct result of implementing floodplain restoration and other hydrologic modifications, historic wetlands will regain their lost functions. Primary wetland reestablishment will be accomplished through the reestablishment of the stream and floodplain connection and sub-surface grade controls. The intent of restoration efforts is to restore a functional and holistic system that will self-sort or filter into a mosaic of vegetative classifications with diverse heterogeneous habitat suitable for the colonization of many aquatic and terrestrial organisms. Planting efforts are proposed in all the restoration areas. While the precise environmental conditions at a given location will influence what combination of plant species establish, the mix of species planted will ensure that plant communities are diverse and resilient.

4.2 Functional Uplift and Ecological Benefits

The extent of channel and floodplain alterations presents an ideal opportunity for water quality and ecosystem improvements on a watershed scale through Bank Site establishment. The natural flow regime will be improved and/or restored with riparian wetlands and floodplain areas by implementing a process-based (Powers et al., 2018) floodplain restoration approach (Gutshall and Oberholtzer, 2011; Parola and Hansen, 2011). The Bank Site will restore the stream-floodplain connection by removing legacy sediments and raising the channel above the bedrock to provide a hyporheic zone. The Bank Site will increase floodplain access by the stream by lowering bank height, and providing a regular hydrologic connection between the streams and their floodplain wetlands. Shallow cross-valley groundwater dams will maintain wetland hydrology and improve the duration and quantity of stream base flow. Aquatic and wildlife habitat functions will be improved and protected with a permanent conservation easement encompassing the entire buffered ecosystem. The Bank Site will filter and attenuate offsite runoff through stream-wetland complexes, reducing the negative impacts of pre-existing runoff sources and improving water quality. The restored watershed will reduce and attenuate storm pulses and thus reduce erosion, directly addressing the primary impairment factors of siltation within UNT to East Branch White Clay Creek.

4.2.1 Benefits Related to Hydrology

Functional Stressors

As noted above, the stream is actively eroding, and their receiving waters are impaired due to sediment and excessive runoff. Peak flow alterations and purposeful relocation of the channel have resulted in channel incision and disconnection of the streams from their relic floodplains. In addition, there is active down cutting associated with head cut migration.

Functional Uplift Potential

- **Floodplain Connectivity** – The floodplain restoration approach will reconnect incised channels with their active and/or relic floodplains and improve stream and wetland hydrology to areas that have been degraded and/or been historically manipulated. Legacy sediments will be removed and returned to upland areas where they originated. Where streams are down cut to bedrock and where the regulated floodplain elevation will not be impacted, the bed will be raised with cobble and gravel substrates to provide a hyporheic zone.

- **Surface Storage and Retention** – Lowering the floodplain elevation through removal of legacy sediments will reconnect streams to their floodplains, restore wetland hydrology, and spread higher flow energies onto the floodplain thereby increasing retention time, storage, and roughness. Wetland restoration and incorporation of vernal pools, depressional areas, and other floodplain features will provide additional retention, storage and habitat diversity and uplift.
- **Groundwater Recharge and Hyporheic Exchange** – The restored wetland hydrology and microtopography will increase infiltration, reduce runoff and erosional force, and improve overall hydrogeologic function. Associated benefits will be achieved through increased groundwater infiltration, surface water interaction, and recharge rates.
- **Proper Channel Form** – Restoring an appropriate dimension, pattern, and profile will efficiently transport and limit sediment supply from banks and upland sources and deposit sediment on point bars and floodplains. Stream channels that are appropriately sized to convey a smaller storm flow will improve channel stability by reducing active bank erosion (lateral stability) and bed degradation (vertical stability, *i.e.*, head cuts, down cutting, incision).
- **Sediment Transport** – Boundary conditions, land use, climate, and geologic controls influence stream channel formation, migration, and how sediment is transported through its watershed. Appropriate transport capacity, flow competency, and bed material size will ensure sediment is more evenly distributed, such that excessive degradation and aggradation do not occur. Adequately transporting or entraining fine-grain sediment (*i.e.*, clay, mud, silt, unconsolidated sand) into the floodplain will prevent embeddedness and create interstitial habitat and in-stream cover within riffle areas for increased epifaunal colonization potential.

4.2.2 *Benefits Related to Habitat*

Functional Stressors

Habitat stressors in streams include poor epifaunal substrate and cover habitat, uniform water depths and velocity/depth flow regimes, lack of tree canopy cover, and flashy hydrology that limits diverse populations of aquatic life. All these stressors can be attributed to the removal of functional riparian features and the subsequent increased erosion and sedimentation. Habitat stressors in wetlands consist of primarily of invasive species and anthropogenic drainage of current and former wetlands.

Functional Uplift Potential

- **Revegetation** – providing a vegetated buffer along currently deforested reaches will provide shade, thereby reducing water temperature, attenuating peak runoff, and improving channel stability. These uplift potentials are beneficial to aquatic life in the immediate area and along the river continuum.
- **Floodplain Connectivity** – Restoring connectivity to the floodplain will increase wetland habitat, attenuate flashy hydrology, reduce intermittency where present, and improve nutrient processing. Stream channels that are appropriately sized to convey smaller storm flows will greatly improve channel stability by reducing active bank erosion (lateral stability) and bed degradation (vertical stability, *i.e.*, head cuts, down cutting, incision).
- **Terrestrial and Aquatic Habitat** – Benefits will be achieved through the incorporation of LWD, removal of invasive species, and re-establishing and enhancing native vegetation within the riparian buffer areas. Adequately transporting and depositing fine-grain sediment (including potential contaminants attached to fine sediments) onto the floodplain will prevent embeddedness, create interstitial habitat,

improve water quality, and provide organic food resources and in-stream cover. In-stream habitat will be improved by diversifying available habitat types, creating deeper pools and shallow riffles for re-aeration, and colonization by streamlined organisms and shallow-fast flow regime specialists. These lotic systems can provide sources of organic matter that ultimately improve the biodiversity of downstream river systems.

- **Landscape Connectivity** – Benefits to landscape connectivity will be achieved by restoring a healthy stream corridor, promoting aquatic and terrestrial species migration, and protecting these shared resources in perpetuity.

4.2.3 Benefits Related to Water Quality

Functional Stressors

UNTs to East Branch White Clay Creek are listed by PADEP as impaired due to siltation and organic enrichment from agricultural sources as well as from unknown sources of mercury and pathogenic contaminants.

Functional Uplift Potential

- **Nutrient Reduction/Native Buffer Vegetation** – Currently, excess nutrients and pollutants such as nitrogen and phosphorus from adjacent upstream residential sources may be entering stream reaches within the Bank Site that lack adequate native riparian buffers. High-functioning riparian wetlands and buffer vegetation will be established or enhanced and permanently protected to remove direct pollutant sources and filter runoff prior to entering the Bank Site reaches.
- **Sediment Reduction** – Stream and wetland complexes in the Bank Site will attenuate runoff from upstream and offsite sources, by trapping sediment and potentially attached pollutant, and protecting stream banks from further erosion and mobilization of fine sediments. This strategy will be employed throughout the Bank Site and will improve floodplain connectivity and surface and subsurface water storage. Benefits will be achieved through the stabilization of eroding banks, establishing vegetated buffers, dissipating excess flow energy, and reducing shear stress within the channel by enabling increased overbank flows during storm events. Appropriate transport capacity, flow competency, and bed material size will ensure sediment is more evenly distributed, such that excessive degradation and aggradation do not occur. Adequately transporting or entraining fine-grain sediment will prevent embeddedness.
- **DO, NO₃, DOC Concentration** – Benefits will be achieved through the restoration of more natural stream bed forms, including riffle and pool sequences, which will increase dissolved oxygen (DO) concentrations. In addition, as planted riparian buffers mature, increased shade and wider vegetation density/structure will reduce water temperatures and groundwater nitrates (NO₃-) as well as increase dissolved organic carbon (DOC) (King et al, 2016). Improved riparian vegetative cover will also further increase potential DO concentrations through overall reduction in stream water temperature.
- **Bioengineering Treatments** – Bioengineering practices such as live staking, brush layering, and vegetated soil lifts will provide lateral bank stability, rapid woody vegetative growth and bank shading to reduce water temperatures, bank erosion and increase DO levels.

5 Performance Standards

Development of the performance standards for stream stability, hydrology, wetland hydrology, and vegetation establishment are based on site specific restoration goals of the Bank and have taken into consideration the design approaches proposed and level of work, type of resource, and key indicators of functions or features desired at the Bank. Commentary and guidance from the USACE, IRT, and PADEP have also been considered during performance standard development. The performance standards are detailed in Appendix H: Performance Standards.

6 Monitoring

The Bank will be monitored to demonstrate compliance with the performance standards as detailed in Appendix H: Performance Standards. Stream stability, hydrology, wetland hydrology, and vegetation establishment will be monitored across the Bank Site to determine resource restoration success. In addition, supplemental biological data, including benthic macroinvertebrate assemblages and stream fish communities, will be evaluated to further assess stream restoration success.

The following sections generally describe the type of monitoring that will be performed to evaluate the performance of the restored resources. Monitoring will be conducted annually for a minimum of five years, or until performance standards are met. Monitoring reports will be submitted to the USACE by December 31st of each monitoring year and IRT site visits will be scheduled as requested in advance of each credit release event.

6.1 As-Built Survey

An as-built survey will be conducted following construction to document channel and floodplain size, condition, and location on constructed or modified channels and valley grading. The survey will include a complete profile of the restored floodplain, thalweg, water surface, bankfull, and top of bank to compare with future geomorphic data.

6.2 Visual Monitoring

Visual monitoring of all restoration areas will be conducted a minimum of once per monitoring year. The visual assessments will include observations of vegetation density, vigor, composition (*i.e.*, the extent of native, non-native, and invasive species), and conservation area encroachments. Visual assessments of stream stability will include a stream walk and inspection. Photographs will be taken at fixed representative locations to record each monitoring event, as well as any noted problem areas or areas of concern. The results of visual monitoring will be discussed in the annual monitoring report. Photographs will also be used to document observations of hydrology, channel and floodplain stability, general wetland development and condition, establishment of riparian vegetation, effectiveness of erosion control measures, and any observed areas of concern (*e.g.*, channel aggradation or degradation, bank or floodplain erosion, and unvegetated areas). A series of photos over time should indicate site stability, resource development, and successional maturation of the Bank Site.

6.3 Channel and Floodplain Geomorphology

Permanent cross-sections will be installed throughout the Bank Site to assess channel and floodplain geomorphology. Locations of permanent cross-sections will be determined following the completion of

construction of the Bank Site. Cross-section measurements will include the bank height ratio and entrenchment ratio. Cross-sections will be monitored annually. Longitudinal profiles will also be established on representative stream reaches and monitored annually.

6.4 Stream, Floodplain, and Wetland Hydrology

Stream and wetland hydrology will be monitored annually. The Sponsor will monitor streams and wetlands for evidence of overbank flooding (*e.g.*, observations of flow and inundation, sediment deposits, wrack lines). Water level loggers may be used to document hydrology across the restored stream and wetland complex.

6.5 Vegetation

Monitoring plots will be established in the restored wetlands to assess the development of hydrophytic vegetation. The following data may be recorded within the plots: species, height (trees and shrubs), planted versus volunteer, density, and overall condition. Monitoring will occur each year during the active monitoring period. Herbaceous vegetation and shrubs will be assessed for coverage, species composition, and invasive presence. The richness and abundance of upland and hydrophytic invasive species will be evaluated during each monitoring year and compared to baseline invasive species present within the Bank Site.

6.6 Wetland Determination

Reestablished and restored wetlands will be evaluated annually to determine if they meet wetland criteria for hydrology, hydrophytic vegetation, and hydric soils. Soils and hydrology will also be further evaluated during monitoring years 1, 3, and 5 via soil test pits to confirm hydric soil formation and wetland hydrology. One wetland delineation per the USACE Eastern Mountains and Piedmont Region (EMP) v2 Regional Supplement will be completed prior to Bank Site close-out.

6.7 Monitoring Schedule

A preliminary monitoring schedule that presents the monitoring parameters for the Bank is provided in Appendix I: Monitoring Schedule. WLS will maintain and monitor the Bank Site for a minimum of five years or until performance standards are achieved. Once the site has met all performance standards, upon approval by the USACE and PADEP, the site will be closed-out and transitioned to a long-term steward for long-term site monitoring. The long-term steward will be responsible for annual reporting at that time.

7 Credit Determination

7.1 Stream and Wetland Mitigation Credits

The preliminary crediting totals based on the USACE-sponsored Ratio Model, recognized in Pennsylvania as the standard credit methodology, are provided in the table below. The corresponding credit ledger is provided in Appendix J. Credit Ledgers.

Figure 12: Proposed Conditions Map shows the stream and wetland restoration compensation strategy anticipated to generate mitigation credits as detailed in the table below. The proposed work includes 5,466 linear feet of stream reestablishment which will generate 5,466 credits at a 1:1 ratio, 15.1 acres of wetland reestablishment for 15.1 mitigation credits at a 1:1 ratio, 0.4 acres of wetland rehabilitation for

0.27 mitigation credits at a 1.5:1 ratio, and 4.2 acres of wetland enhancement for 1.68 wetland enhancement mitigation credits at a 2.5:1 ratio. Sections 4.1 and 4.2 provide a description of the proposed restoration efforts to deliver ecological uplift. Design plans will be provided as Appendix F: Design Plans as part of the Final Draft MBI submittal.

Table 9. Ratio Based Credit Generation Summary Table

Resource	Restoration Approach	Restored Amounts	Mitigation Ratio	Credit Generation
Streams (LF)	Reestablishment	5,466	1	5,466
	Rehabilitation	-	1.5	-
	Enhancement	-	2.5	-
	Totals	5,466	-	5,466
Wetlands (AC)	Reestablishment	15.1	1	15.1
	Rehabilitation	0.4	1.5	0.27
	Enhancement	4.2	2.5	1.68
	Totals	19.3	-	17.05

Notes:

1. Numbers do not account for potential reserved rights area (existing title encumbrances) that may cross the conservation area.

8 Credit Release Schedule

8.1 Credit Release Schedule

The preliminary five-milestone credit release schedule is shown below in Table 10. The corresponding credit ledgers are provided in Appendix J: Credit Ledgers. Credit releases beyond the initial release will be based on the total number of mitigation credits generated as reported in the approved final mitigation plan and verified by the as-built survey. The initial credit release will be based on the proposed restoration credits for streams and wetlands as approved in the final mitigation plan. The credit ledger will be managed by WLS and approved by the USACE in consultation with the IRT.

Table 10. Credit Release Schedule

Resource	Milestone					
	Milestone 1	Milestone 2	Performance Based Milestones			Total
			Milestone 3	Milestone 4	Milestone 5	
	Administrative Release 15%	Construction Release 15%	Stage 1 35%	Stage 2 25 %	Stage 3 10 %	Credits Released
Streams (LF)	819.9000	819.9000	1,913.1000	1,366.5000	546.6000	5,466.0000
Wetlands (AC)	2.5575	2.5575	5.9675	4.2625	1.7052	17.0500

8.2 Administrative Credit Release

The initial administrative credit release (Milestone 1) will occur upon completion of the following activities:

- 1) Approval of the final MBI
- 2) Implementation of the financial assurances,
- 3) Issuance of the USACE and State DEP permit, and
- 4) Recordation of the Site Protection Instrument(s).

8.3 Construction Credit Release

The construction credit release (Milestone 2) will occur upon completion of the construction and approval of the as-built plans by the USACE, in consultation with the IRT. This stage includes the initial physical and biological improvements to the Bank Site pursuant to the MBI, and approval of the as-built plans that reflect the final grading and planting of the Bank Site.

8.4 Subsequent Credit Releases.

The subsequent credit releases (Milestones 3-5) must be approved by the USACE, in consultation with the IRT, once performance standards have been met in a given monitoring year/event. For subsequent credit releases, the Sponsor will submit release requests annually concurrent with submission of the annual monitoring reports.

8.5 Financial Assurances

The Sponsor will provide financial assurances in the form of a performance bond (PB) (Appendix K – Part 1 – Performance Bond). The PB will be submitted for review and approval prior to the completion of the final MBI. Upon Bank establishment, the USACE will hold the original policy document to ensure Bank compliance and successful Bank Site completion. Financial assurances will be payable at the direction of the USACE to their designee or to a standby trust. Financial assurances structured to provide funds to the USACE in the event of default by the Bank Sponsor are not acceptable. The Sponsor understands that the financial assurance must be in the form that ensures that the USACE receives notification at least 120 days in advance of any termination or revocation.

The PB that is established for the Bank will ensure that construction of the Bank Site is completed and that all performance standards are met during the maintenance and monitoring phase of the Bank. Bond terms are annual and are renewed on an annual basis. The construction bond will be in place for the duration of construction. If construction exceeds 12 months, the bond will be renewed to cover the

remaining duration of construction. Following construction, the Bank Sponsor will request a bond reduction to correlate to the maintenance and monitoring costs. If the request is approved by the USACE in consultation with the IRT, the construction bond will be reduced and be replaced as a maintenance and monitoring bond to cover the initial and interim maintenance and monitoring costs. During the maintenance and monitoring phase of the Bank, the bond may request to have the bond reduced proportionately each year the Bank Site meets or shows progress towards meeting and achieving performance standards. If the Bank Site is meeting performance standards, the Sponsor will request approval for bond reduction as part of the annual monitoring report submittal/credit release request letter. If not all performance standards are attained, but the Bank shows progress towards meeting performance standards, the Bank Sponsor may still request a bond reduction, understanding that the reduction must be approved by the USACE, in consultation with the IRT.

The bond will be closed once all performance standards are met and released credits are sold (or otherwise forfeited), and final sign-off on the Bank Site has been provided by the USACE in consultation with the IRT.

9 Maintenance, Adaptive Management, and Long-Term Management

9.1 Maintenance

The Bank Site will be protected by a CE. The CE will allow for annual site inspections and maintenance during the post-construction maintenance and monitoring period. Bank Site inspections may identify components and features that require routine maintenance. The Bank Site will be monitored on a regular basis and a physical inspection will take place at least once a year throughout the post-construction monitoring period until performance standards are met. Routine post-construction maintenance may include the components as described in Table 11 below.

Table 11. Routine Maintenance Components

Future Maintenance Activity Through Close-out	
Stream	Routine channel maintenance and repair activities may include modifying in-stream elements to prevent piping, securing loose coir matting, and supplemental installation of live stakes and other target vegetation along the Bank reaches. Areas of concentrated stormwater and floodplain flows that intercept the channel may also require maintenance.
Wetland	Routine wetland maintenance and repair activities may include securing loose coir matting and supplemental installations of target vegetation within the wetland. Areas of concentrated storm flows that intercept wetlands may also require maintenance to prevent excess scour.
Vegetation	Vegetation will be maintained to ensure the health and vigor of the targeted plant community. Routine vegetation maintenance and repair activities may include supplemental planting, pruning, and fertilizing. Mechanical and/or chemical methods will be implemented to control exotic invasive plant species. The application of chemical control methods (i.e., herbicides) will be performed in accordance with PA Department of Agriculture rules and regulations.
Bank Site Boundary	Bank boundaries will be demarcated in the field to ensure clear distinction between the Project site and adjacent properties. Boundaries may be identified by fence, marker, bollard, post, or other means as allowed by site conditions and/or CE. Disturbed, damaged, or destroyed boundary markers will be repaired and/or replaced on an as needed basis.
Stream Crossing	Stream crossing(s) that may be constructed within the Bank Site may only be maintained as allowed by the recorded CE, deed restrictions, rights of way, or corridor agreements.

9.2 Adaptive Management Plan

Unanticipated events that require adaptive management may arise. Adaptive management will be used to address uncertainties that may potentially affect compensatory mitigation activities. Adaptive management actions will be implemented on an “as needed” basis and are informed by maintenance and monitoring of the Bank Site. Maintenance and monitoring will occur yearly to confirm a positive trajectory toward long-term self-sustaining success, and assess restoration conditions and progress towards meeting performance standards. These yearly visits will determine the degree to which factors adversely affect proposed compensatory mitigation activities and the extent to which adaptive management may be necessitated. It is anticipated that the range of uncertainties is anticipated to narrow as monitoring of the Bank Site progresses throughout the monitoring phase.

Adaptive management needs and their suggested remedial or corrective actions will be recorded in annual monitoring reports.

Some situations that would necessitate an Adaptive Management Plan (AMP) are described below.

9.2.1 Stream Stability

The restoration approach at the Bank Site is designed to reduce shear stresses within the channel and distribute those stresses more evenly across the floodplain thereby reducing the changes in vertical and horizontal stream instabilities.

In areas where more stability will be needed, grade control structures, such as log and rock, will reduce the risk of instability as these design features inhibit the channel’s ability to cut below or shift beyond the extent of the structures themselves. The design and placement of the structures will be strategic to inhibit

lateral or horizontal incision and movement. Improper installation could lead to significant instability in which, if identified, the failure would be identified, and remedial construction work would be initiated to correct the problem.

After construction and during the monitoring period, if the designed channel exhibits horizontal instability, although unlikely due to reduced shear stresses, increased native vegetation, and the increased roughness and microtopographic variability, the areas of concern would be surveyed and evaluated to determine adverse impacts on overall restoration performance and mitigation objective success. If no adverse impacts are identified, no remedial actions would be necessary. However, if adverse impacts were observed, the Sponsor would conduct corrective construction to address the deficiency(ies).

9.2.2 Vegetation Establishment and Growth

Vegetation will be monitored as part of the annual monitoring activities for the Bank Site. Some mortality among planted trees and shrubs is expected; however, if there were a massive mortality in any given year, it would most likely be driven by either herbivory or severe drought.

The risk of catastrophic mortality due to herbivory is reduced by selecting browse-tolerant species as well as through tree-tubing, as necessary. Nevertheless, if excessive browsing is observed, supplemental deer protection such as additional tree tubes or fencing, may be added. Additional plantings will occur on an as-needed basis to ensure the site sees ecological uplift, meets performance standards, and achieves long-term self-sustaining status.

9.2.3 Invasive Species and Native Dominance

The first two years of Bank establishment are the most crucial in terms of controlling invasive plant species colonization. During this time frame, soils disturbed during construction area readily available for the existing seed bank to germinate and colonize. Site management is especially important during this period if the area was previously dominated by invasive species. As such, maintenance activities and monitoring site visits are most frequent during the first two to three years post-construction to control any invasive species, before they can establish and become problematic.

If the presence of invasive species is considerably above the allowable amounts identified in the performance standards, remedial action would be necessary. Adaptive management strategies would be coordinated with the USACE/IRT to bring the Bank Site back into compliance with performance standards.

Adaptive management for invasive vegetation is determined predominantly by its type. For example, additional maintenance mowing and mechanical weed control methods can alleviate the concern for annual plants by removing re-seeding opportunities and eliminating those seeds/species from the vegetative community. Chemical herbicides may be needed to address invasions of species that regrow every growing season. In conjunction, mechanical weed control would also still be used to inhibit seed spread.

If the Bank Site does not meet performance standards related to native herbaceous cover, additional seeding will be conducted. Again, the most important factor for establishing a healthy, native vegetative community is diligent maintenance during the first two to three years of Bank establishment. Mowing in upland areas may be necessary to support plant access to natural sunlight while also eliminating competition from invasive or non-native weedy species that may be trying to colonize the site. In the wetland areas, mowing cannot be conducted, but mechanical weed control may be employed. Based on the anticipated hydrology in the wetland areas at the Bank Site, the floodplains will have water within 12

inches of the surface for most of the growing season. These conditions will discourage the growth of most invasive species and specifically annual weedy species otherwise usually observed at restoration sites.

9.2.4 Force Majeure and Catastrophic Events

The Sponsor will maintain the Bank Site and will perform necessary repair and corrective actions, as determined by the IRT, to meet Performance Standards, with exception to damage or non-compliance caused by Force Majeure, as described below:

Force majeure is defined as an irreparable material and/or detrimental impact on the Bank Site over which the Sponsor could not have anticipated or controlled (excepting those events specifically identified as “catastrophic events”), any natural catastrophe, such as fires, floods, droughts, diseases, earthquakes, tornados, hurricanes, regional pest infestations, acts of war, or drastic changes in climate from the current hydrologic conditions averaged over the past 50 years.

If force majeure adversely affects the Bank Site, the Sponsor will provide notice to the USACE detailing the circumstance(s). The USACE, in consultation with the IRT, will determine 1) whether an event is a force majeure event, 2) work with the Sponsor to identify a course of action to correct the deficiency(ies) (assuming the Bank Site is deemed repairable), 3) decide what extent changes to the Bank Site or its management will be permitted, and 4) will notify the Sponsor to engage in corrective actions pursuant to an approved corrective plan or other action as the circumstance may warrant.

Should substantial damage to the Bank caused by force majeure or a deliberate and unlawful act by a third party that is not the Sponsor occur, and the USACE, in consultation with the Sponsor and IRT, determines that the disaster was beyond the control of the Sponsor, its agents, contractors, or consultants to prevent or mitigate, the Sponsor may request, and the USACE in consultation with the IRT may approve, changes to the construction, operation, milestones, or performance standards. The Sponsor will not be liable for deficit of mitigation credits resulting from force majeure.

The Sponsor will demonstrate to the IRT that:

1. Damage or non-compliance was caused by circumstances beyond the control or anticipation of the Sponsor, property owner, or any person or entity under the direction or control of the Sponsor or property owner, including its employees, agents, contractors, or consultants.
2. Neither the Sponsor, property owner, nor any person or entity under the direction or control of the Sponsor or property owner, including its employees, agents, contractors, and consultants, could have reasonably foreseen and prevented such damage or non-compliance.
3. The period of damage or non-compliance was a direct result of such circumstances.
4. Damage is irreparable by practicable and/or reasonable means.

Should an event of force majeure occur that affects the long-term viability of the Bank Site during the monitoring phase, which is defined as the period between construction completion and as-built approval and to the time the Bank Site is transferred to the Long-Term Steward (LTS), or before all credits from the Bank Site have been debited, the Sponsor will notify the IRT of the Sponsor becoming aware of the issue. As promptly and reasonably possible thereafter, the Sponsor and the IRT will meet to consult on the course of action for each occurrence. As a result of this consultation, the Sponsor may be required to prepare an adaptive management plan (AMP) to address the extent of changes to the Bank Site, and/or

its management, as a result of the force majeure event. The Sponsor will continue to manage and maintain the Bank Site to the fullest extent practicable in accordance with the approved MBI.

The Sponsor may be responsible for repair and remediation from “catastrophic events” described below by using Financial Assurances. Examples of catastrophic events may include the following:

1. Floods greater than a presently projected 100-year flood, where “flood” refers to a runoff event.
2. Tornado of F-2 or greater magnitude on the Fujitsu scale.
3. Hurricane of a Category 2 or greater magnitude on the Saffir-Simpson scale.
4. Earthquakes of a magnitude greater than 6.5 on the Richter scale.
5. Extreme drought (Drought Monitor classification of D3 or greater or Palmer Drought Index of -4.0 or less) if such event has a broad regional impact and is not endemic to the Bank Site and its immediate locale.
6. Insect or animal damage to planted vegetation that occurs across a majority of the Bank Site, at a magnitude such that vegetation fails to achieve Performance Standards approved within the Mitigation Site Plan. Herbivory may be a detriment to plant survival and growth. Deer browse, beavers cut trees, and rodent damage is often expected, and precautions should be documented in the MBI. In some cases, these occurrences do not qualify as a catastrophic event.
7. Breach of berms, embankments, or spillway and/or damage to outlet structures, washout of stream stabilization structures (including cross vanes, J-hooks, rock weirs, imbricated riprap, vegetated stream banks, coir logs, fascines, and riparian plantings) from a storm event great than the 100-year magnitude storm event.

If a catastrophic event affects the long-term viability of the Bank Site during the active monitoring phase or before all credits have been debited, the Sponsor will submit to the IRT a written description of the proposed corrective actions, implementation schedule, and required Financial Assurances associated with any proposed corrective action. The Sponsor is responsible for demonstrating damage and the Sponsor or any entity controlled by the Sponsor could not have anticipated or controlled the damage and that the proposed corrective actions and schedule are appropriate to repair the damage. If the IRT determines that a site visit is necessary, a site visit will be scheduled as soon as is practicable, to assess site damage and proposed corrective actions. The IRT will have 60 days of receiving this documentation, or the site visit, whichever is later, to review, comment, and approve/deny the Sponsor’s proposal.

Reasonably foreseeable technical problems, unanticipated or increased costs, expenses associated with the implementation of actions called for by this MBI, or a change in financial or business circumstances in and of themselves will not serve as the basis for modifications of the draft MBI or excusing the performance of the requirements of this document.

9.3 Long-Term Management Plan

The Sponsor will establish a general Long-Term Management Plan (LTMP) to provide guidance and structure for long-term monitoring, maintenance, and overall management following achievement of performance standards and Bank closure from the USACE. The LTMP structures the objectives, priorities, and tasks that may be necessary to monitor, manage, maintain, and report on the Bank Site.

Before transfer of the easement to the long-term steward (LTS), the Sponsor must first meet all requirements for Bank Closure before the Sponsor is relieved of all further long-term management and maintenance responsibilities. The LTMP will be effective upon closure of the Bank.

9.3.1 Long Term Management Funding

The Sponsor will establish a Long-Term Management Fund (LTMF) to finance the maintenance, monitoring, and overall management of the Bank Site. The LTMF may also be used to fund corrective measures pertaining to natural disasters, invasive species outbreaks, or other unforeseen events (see Section 9.2.4 above regarding Force Majeure and Catastrophic Events). One example in which funding from the LTMF may be used might be replacement by an off-site mitigation site in the event of surface impacts to the Bank Site from potential existing utility-related encumbrances.

The LTMF will be established in the form of an endowment and may be managed by the third-party endowment fund manager. The fund is anticipated to be fully funded by Year 5 of Bank establishment (Table 12: LTMF Deposit Schedule). A preliminary funding schedule is provided in the table below. The Sponsor will provide evidence, such as a statement of deposit, to the USACE to confirm that monetary distributions have been and are being deposited into the LTMF endowment account until which point the endowment is fully funded. The Sponsor will have a fully funded endowment prior to Bank closure.

Table 12. LTMF Deposit Schedule

Contribution Year	LTMF Deposits by Sponsor
Year 1	20%
Year 2	20% (40% funded)
Year 3	20% (60% funded)
Year 4	20% (80% funded)
Year 5	20% (100% funded)

9.3.2 Long Term Management Reporting and Record

An annual report will be submitted to the IRT by December 31, containing photographs and a brief discussion of any maintenance needed to keep the property in a mature, non-threatened state.

The LTS will be responsible for financial assurances reporting, including beginning, and ending balances and deposits into and debits from the LTMF during the Long-Term Management phase of the Bank Site. The LTS will be responsible for coordinating with the IRT/USACE to ensure adequate financial assurance reporting is completed. Expenditures and/or proposed remedial actions exceeding the annual allocated amount are to be reviewed and approved by the Corps/IRT prior to implementation.

9.3.3 General Long Term Management Activities

The goal of the Bank Site is to improve and protect diverse aquatic resources by applying a floodplain restoration approach. Specific mitigation goals and objectives include restoring stream-floodplain processes, restoring wetlands, and improving biological diversity in aquatic and terrestrial habitats. The design of the Bank lends itself to a minimal need for long-term management or maintenance of plants or structures, following successful implementation and Bank Site close-out. Prior to close-out the Sponsor will have documented stable stream and wetland conditions, native vegetation establishment, and a positive trajectory toward the desired aquatic and terrestrial communities.

General long-term management and stewardship will include a minimum of one site visit per year to assess Bank Site integrity, signage, and evidence of trespass. Bank Site conditions, including general topographic conditions, hydrology, vegetation cover and composition, invasive species presence, bank stability, erosion/incision observations, and any additional observations should be assessed during the annual assessment visit.

Below is a discussion of observations, potential actions, and reporting activities the LTS will be responsible for as part of the annual site visits. This list is not exhaustive and additional observations, actions, and reporting may be required.

Annual Walk-Through

At least one annual walk-through survey will be conducted to qualitatively monitor the general conditions, including topographic conditions, wetland and stream extents, water quality, hydrology, general vegetation cover and composition, invasive and non-native species presence, erosion, and structure failure at the Bank. These conditions should be evaluated and mapped for reporting and ongoing management. The report will also provide a discussion of any recent changes in the watershed.

Signage, Trespass, and Trash

During each site walk-through, the condition of signage, crossings, and protected area boundaries will be assessed. Recommendations to implement repair or replace signage, crossings, or property boundary markers will be made, if applicable.

At least once yearly, trash will be removed and any necessary measures to prevent or repair damage from vandalism and trespass impacts will be taken.

Invasive & Non-Native Species Monitoring

The annual site assessment will include a qualitative assessment of the presence of invasive and/or non-native species. Additionally, the responsible party assessing the Bank will actively evaluate the condition of the Bank and will note any maintenance activities that may be needed related to the presence of invasive and non-native vegetation. At the end of the year, the observations made during the year will be used to establish the maintenance schedule of activities for the following year, should the maintenance activities not have already occurred to control or manage the invasive and/or non-native vegetation.

In-Stream Structures

Observable in-stream structures will be visually monitored during the annual monitoring event. Any active erosion around in-stream structures will be noted, and remedial actions will be recommended as needed.

Forestry Management Practices

Vegetation may be reduced in areas recommended by authorities for fire control, and as approved by the USACE/IRT. Practices to reduce diseased or dead vegetation will be allowed if the vegetation compromises the long-term viability of the Bank or installed structures within the Bank Site.

9.3.4 Force Majeure

The LTS will not be responsible for correcting damage to the Bank due to events of force majeure. Force majeure is defined as an irreparable material and/or detrimental impact on the Bank Site over which the LTS could not have anticipated or controlled. Irreparable or detrimental impact is the type of damage that cannot be corrected because a restored resource can no longer be practicably restored or maintained as intended. This may include drastic climate change that alters the function of the stream or wetland over the long term. The LTS will submit, in writing to the USACE, a request for force majeure evaluation. The USACE will determine whether a force majeure event has occurred. The LTS will be responsible for demonstrating to the satisfaction of the USACE, that the damage was caused by the force majeure event.

9.3.5 Right to Inspection

The IRT and its authorized agents will have the right to inspect the Bank Site and take the actions necessary to verify compliance with the LTMP. The LTMP herein will be enforceable by any proceedings at law, or in equity or administrative proceeding by the IRT, including the USACE or PADEP. Failure by any agency (or owner) to enforce the LTMP contained herein will in no event be deemed a waiver of the right to do so thereafter. If the LTS fails to adhere to the requirements of the LTMP, the IRT Chairs may identify a new LTS or request that the Sponsor assist in the process after Bank Closure.

9.3.6 Assignment

The responsibilities of the LTS and subsequent LTMF may be assigned or otherwise transferred, in whole or in part, to any third party acceptable to the USACE and PADEP.

9.3.7 Long Term Management Dispute Resolution

In the event of a dispute between the USACE and LTS regarding the application of the LTMP, the USACE will consider comments from other members of the IRT, the Sponsor, and/or information provided by an independent review. If the dispute is a result of the LTS failing to implement the LTMP objectives and is notified in writing by the USACE, the LTS will have 90 days to develop a remedial action plan. Otherwise, the USACE may designate a replacement LTS.

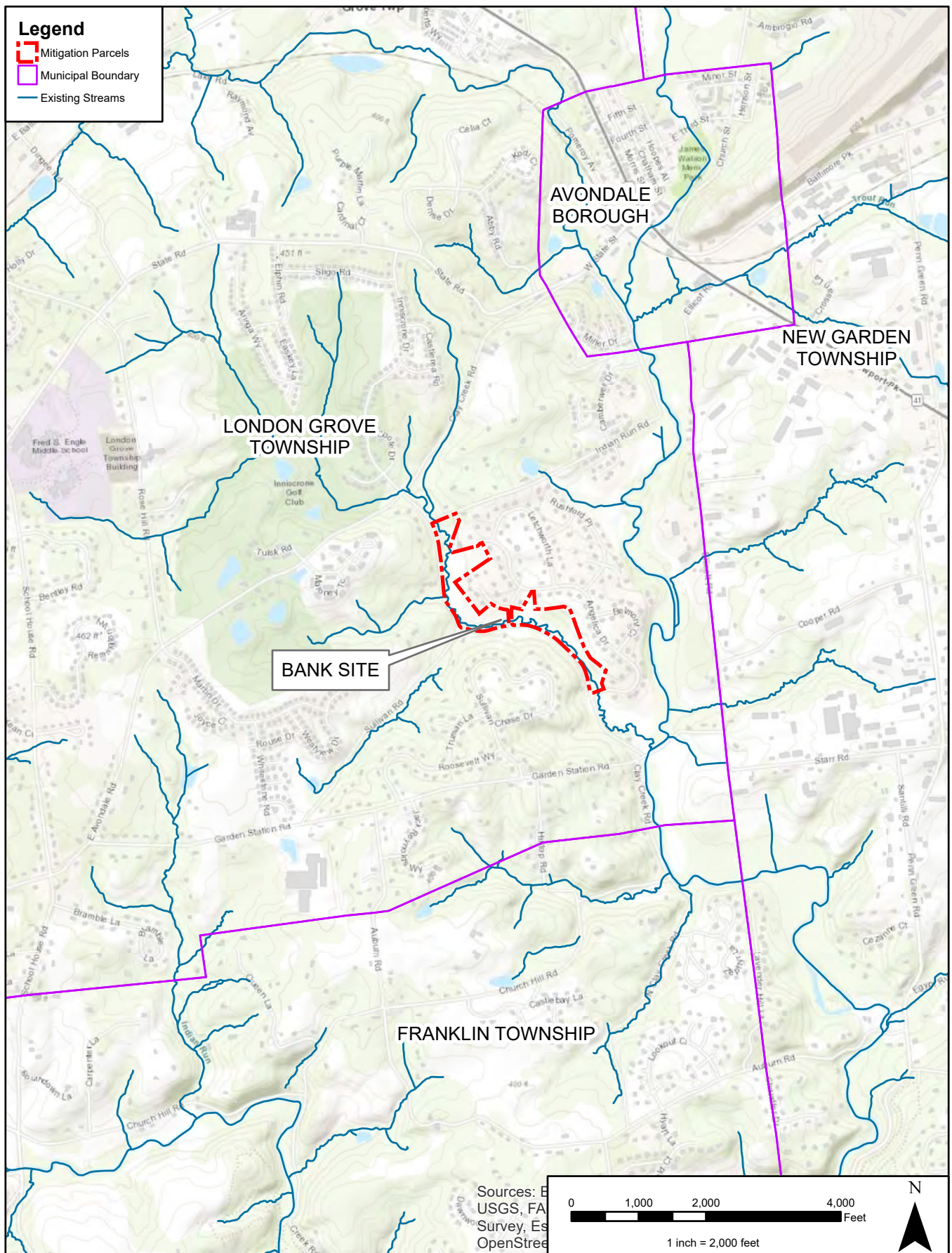
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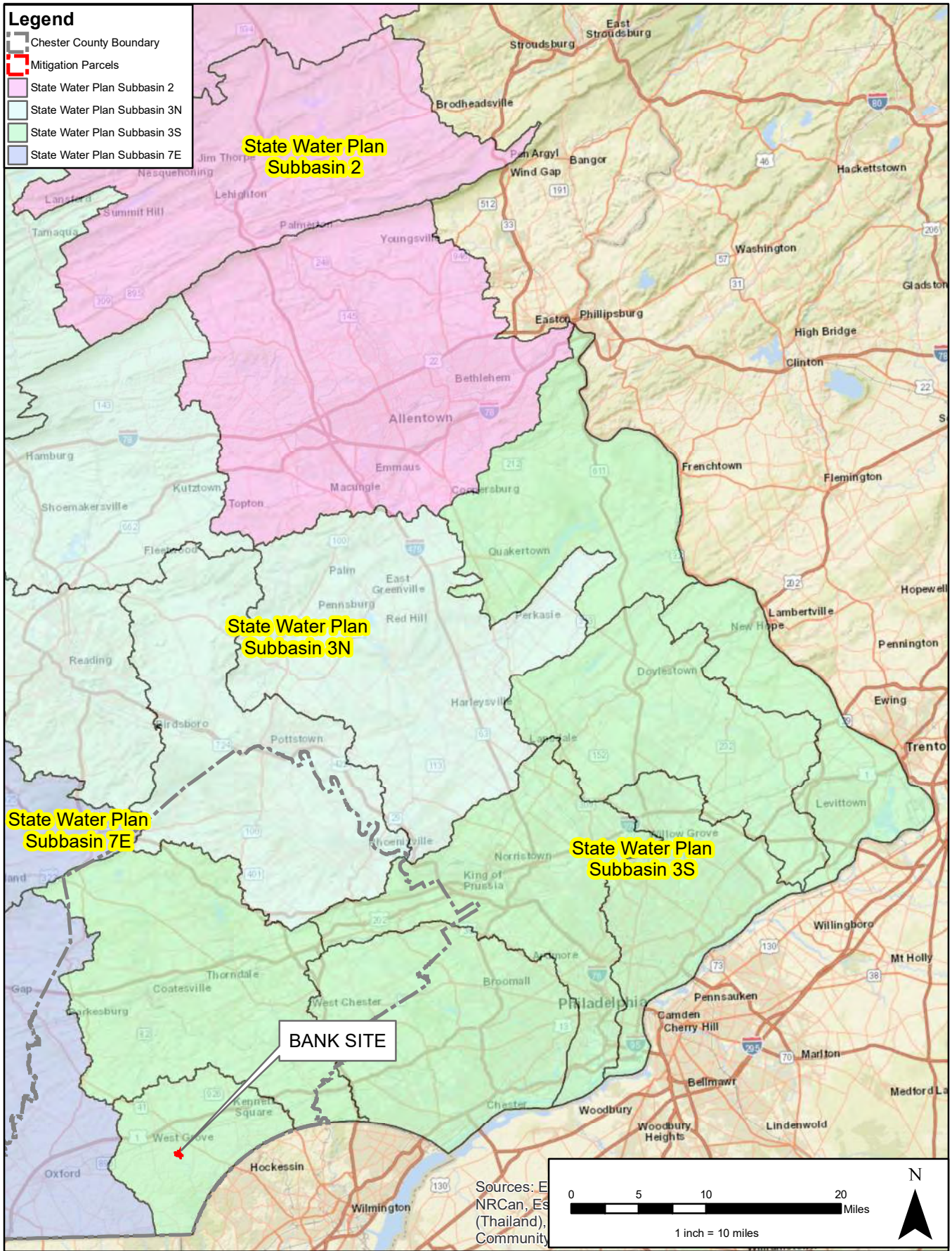
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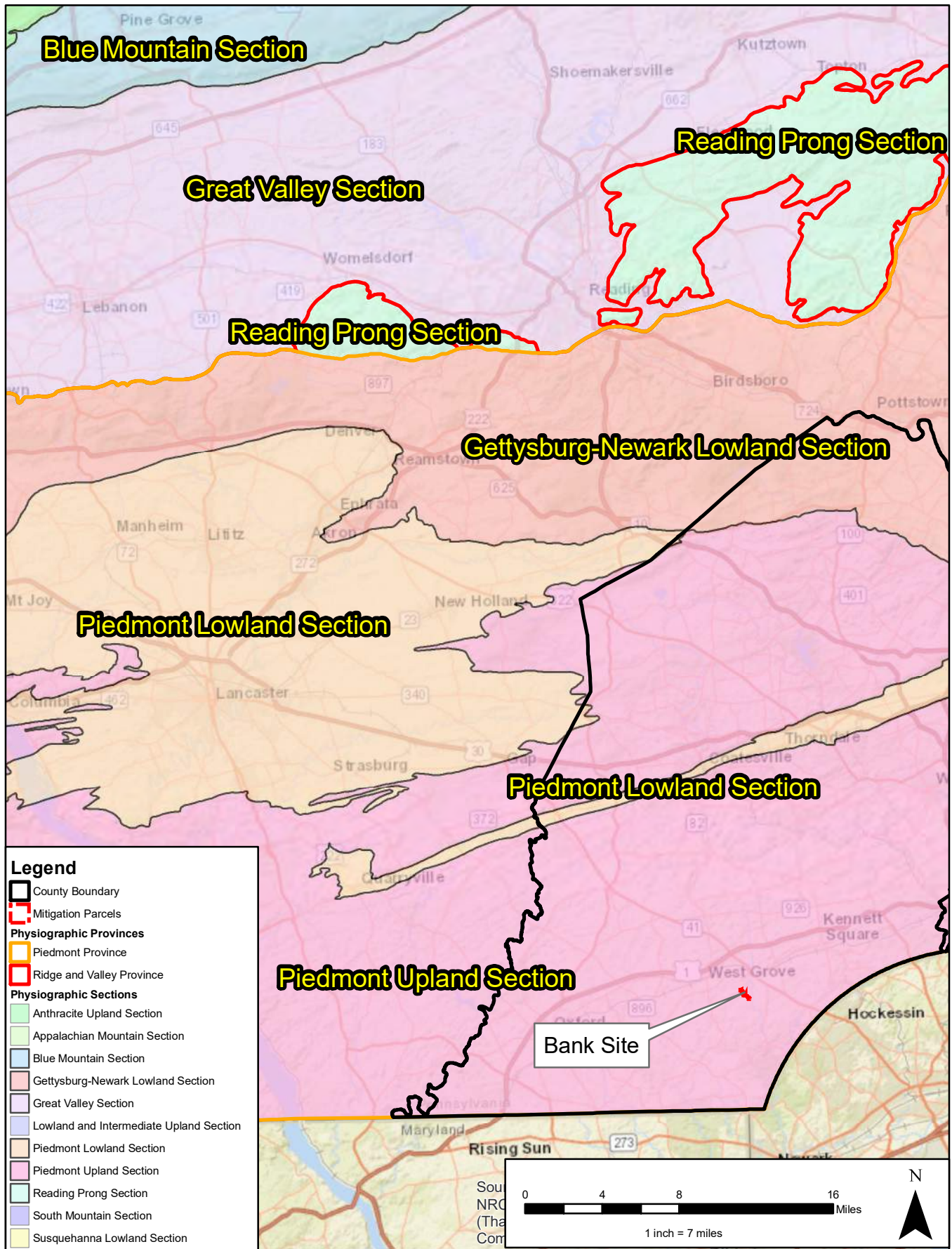
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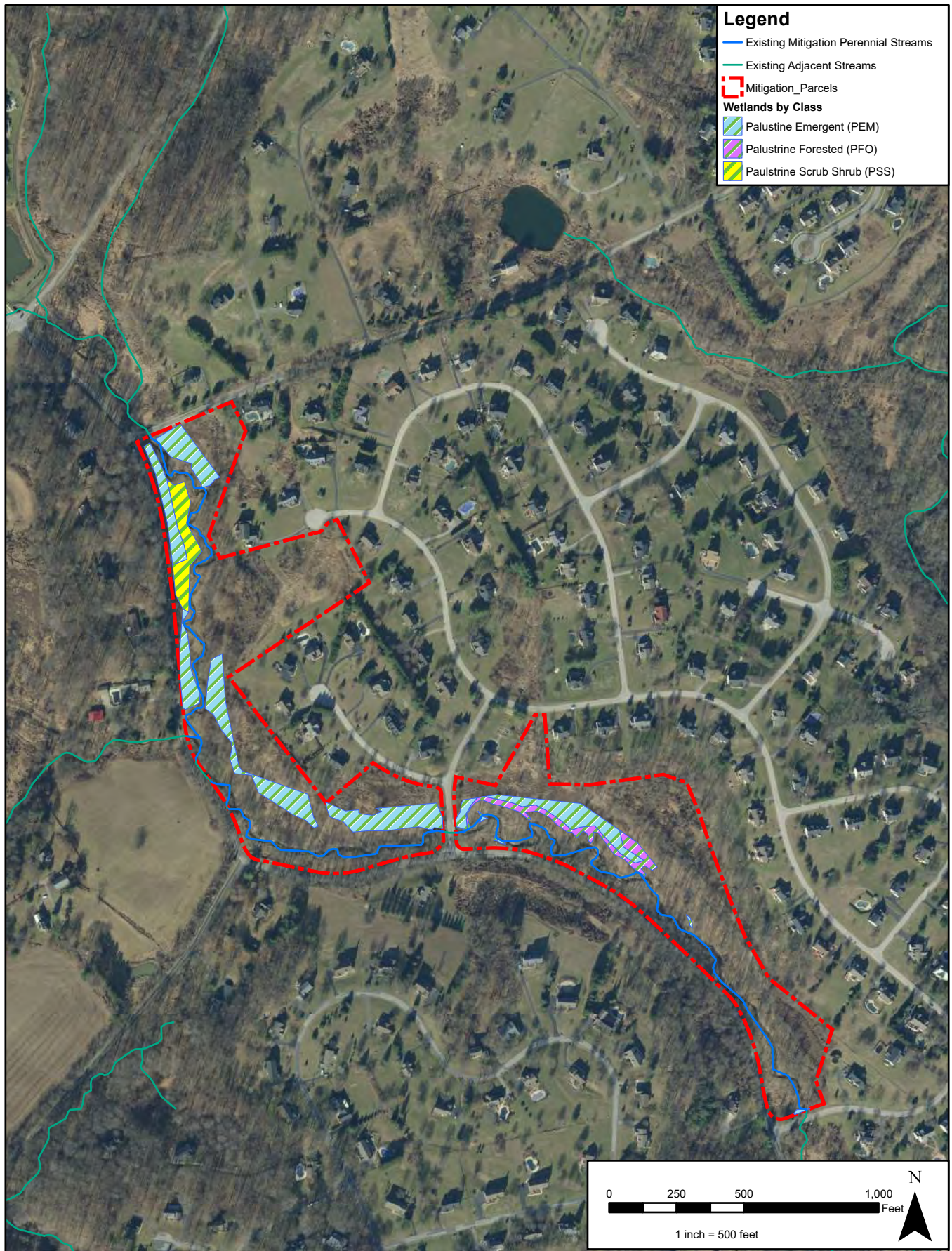
Appendix A: Figures

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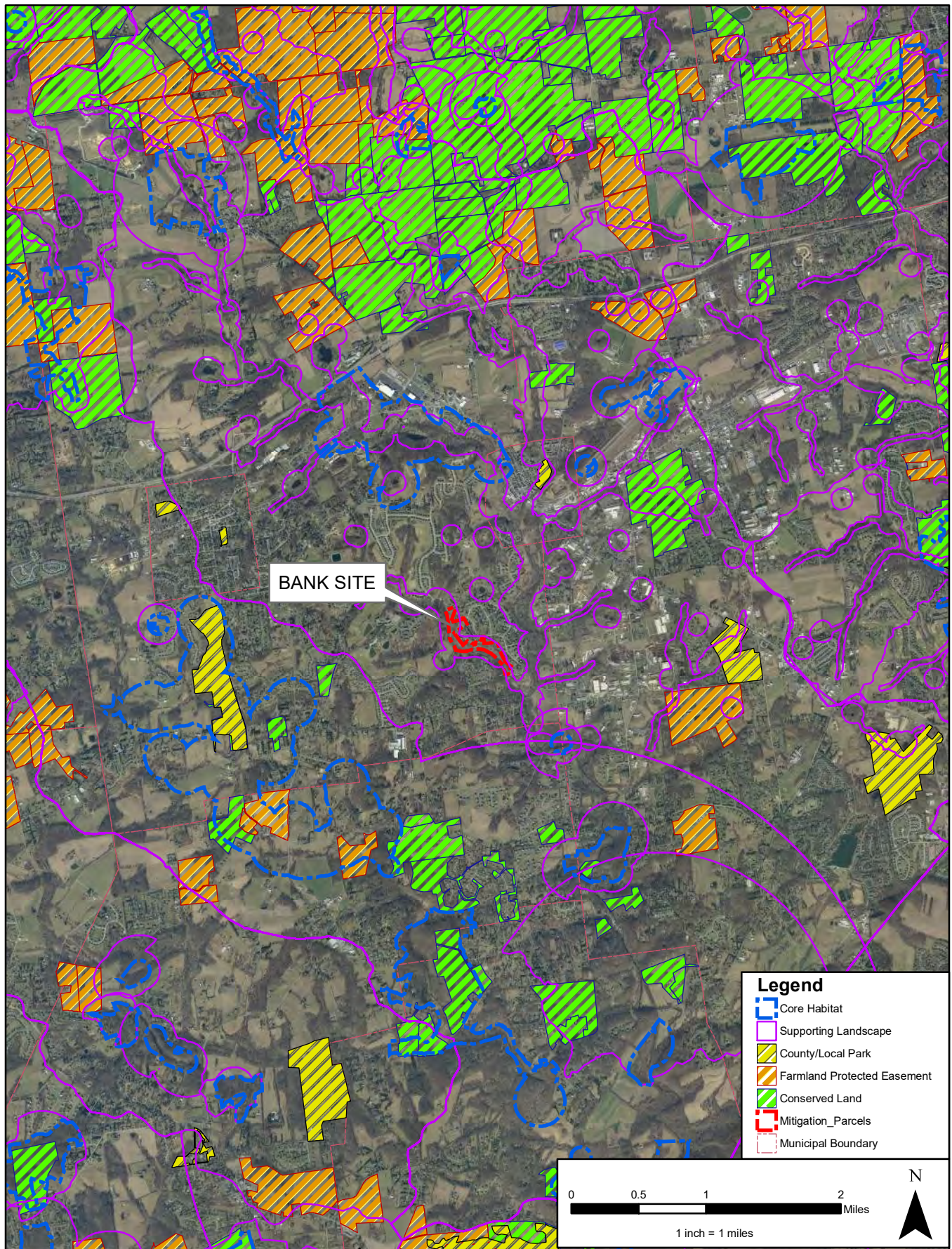




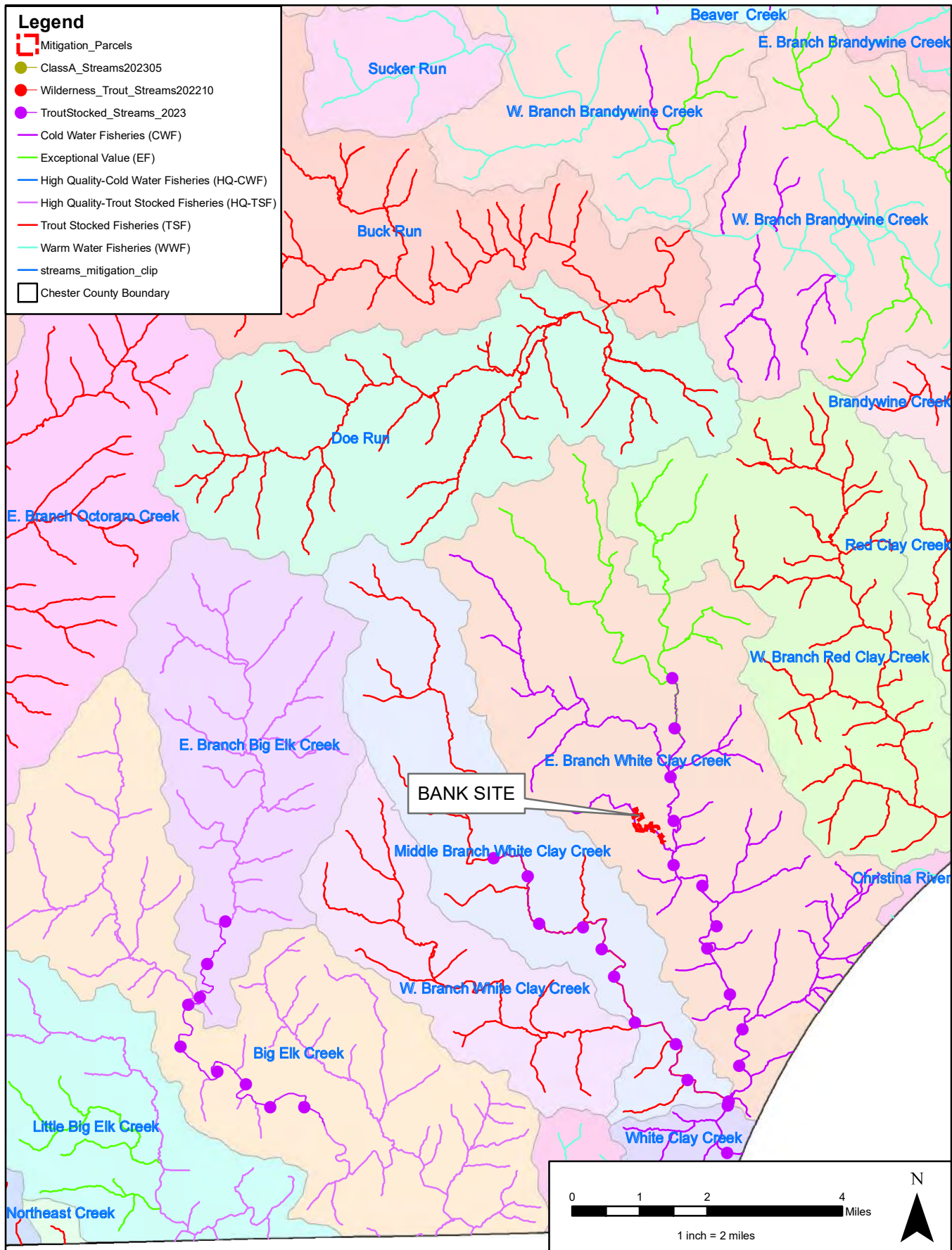


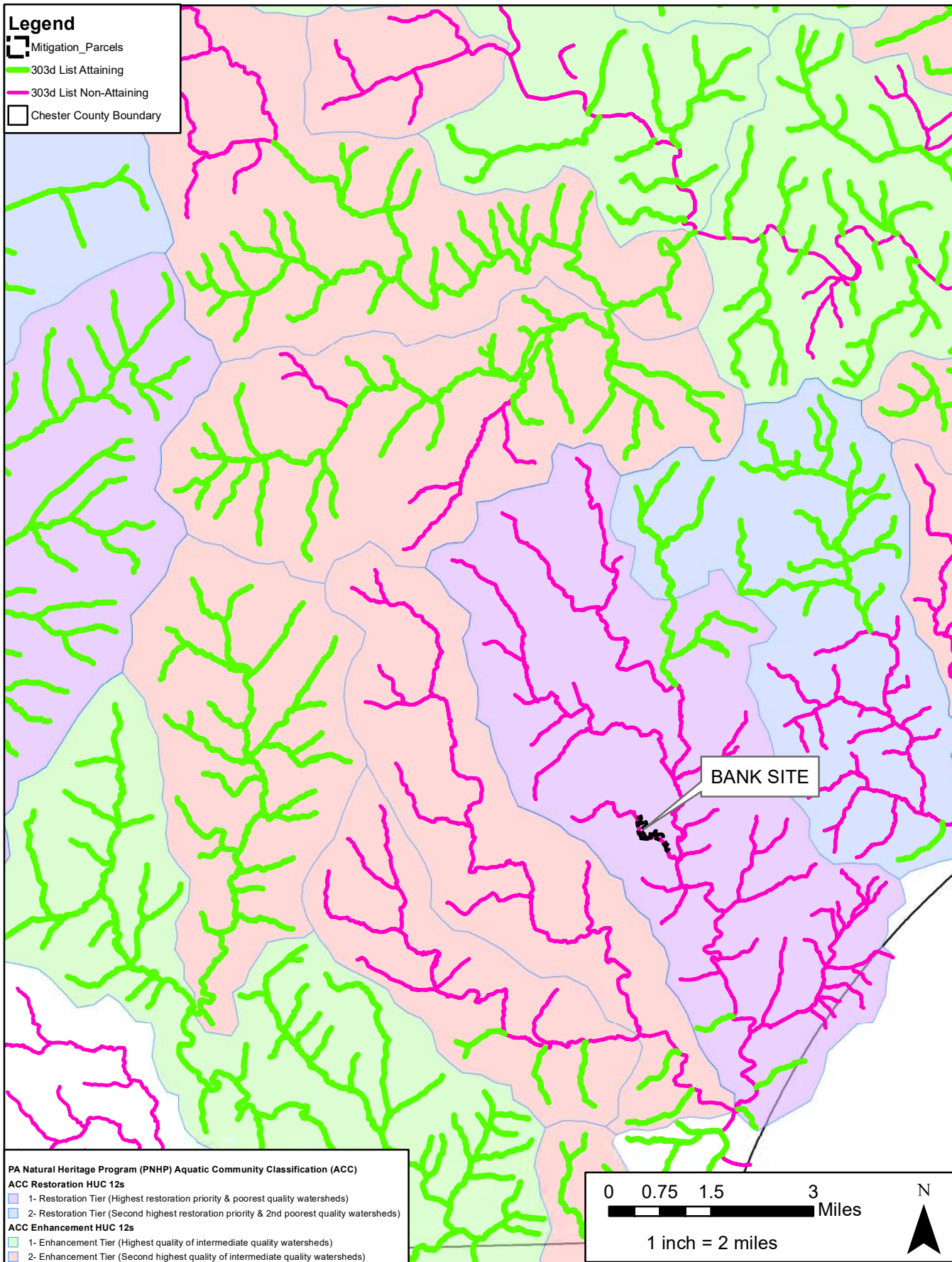


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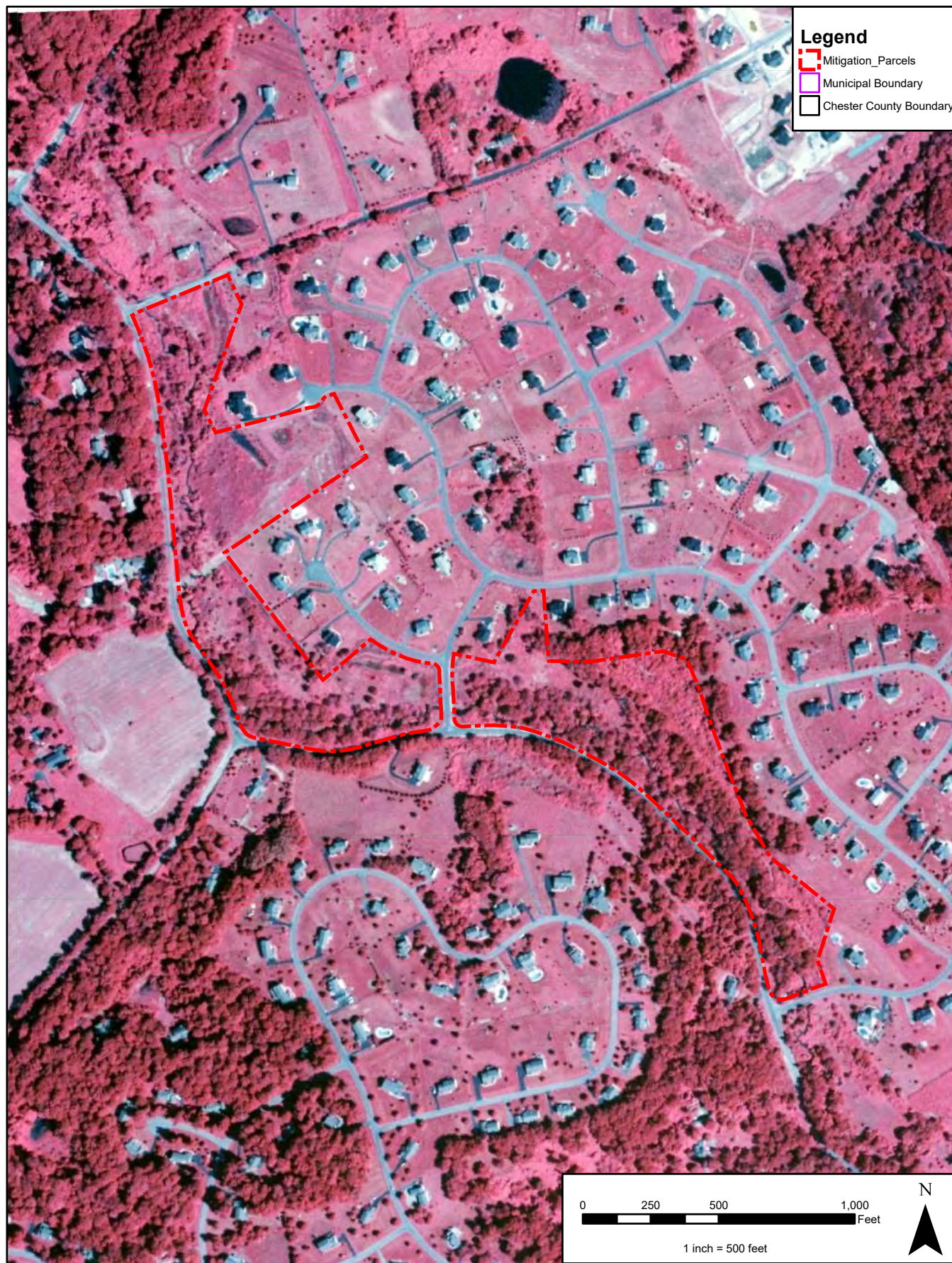
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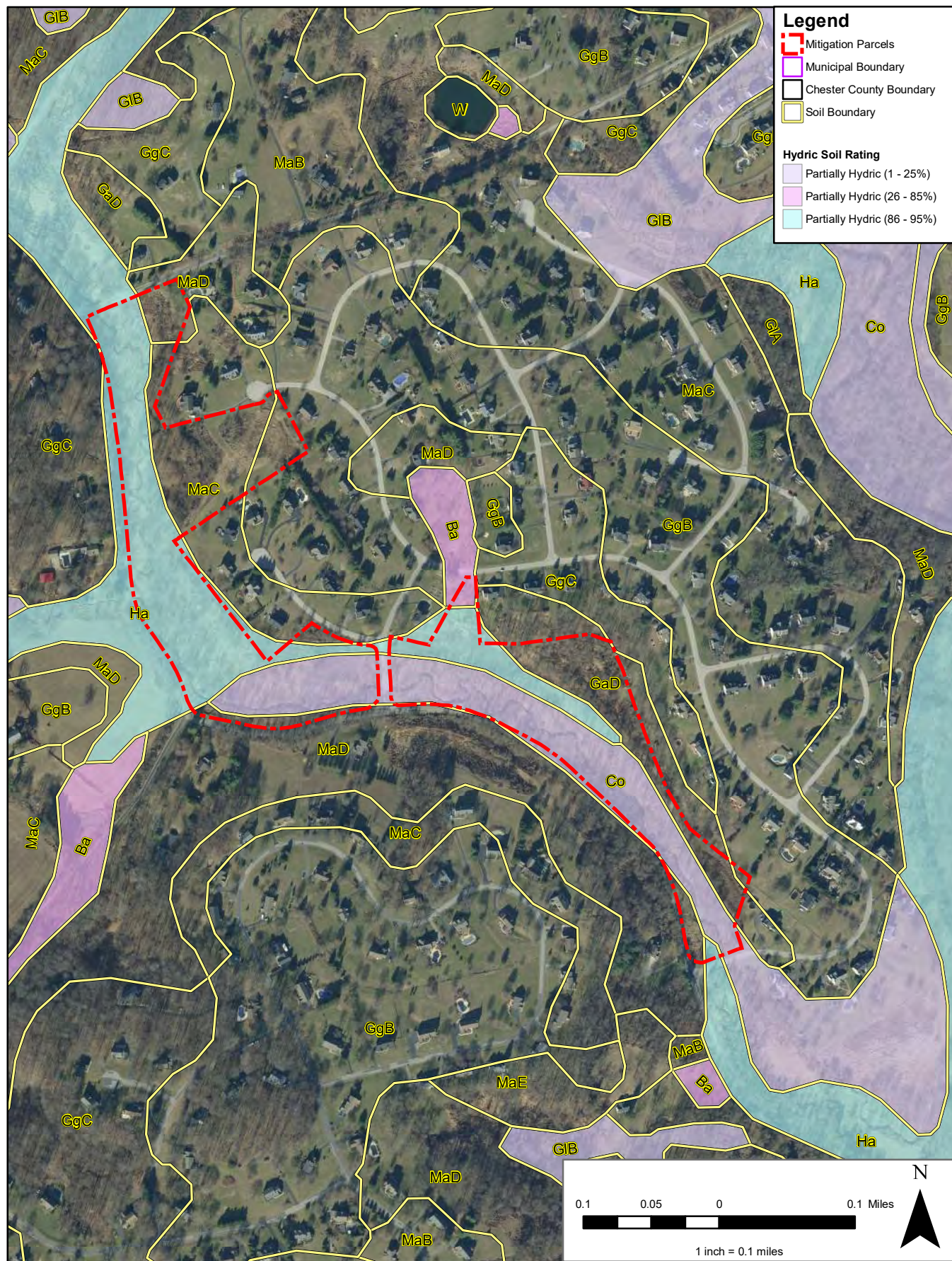


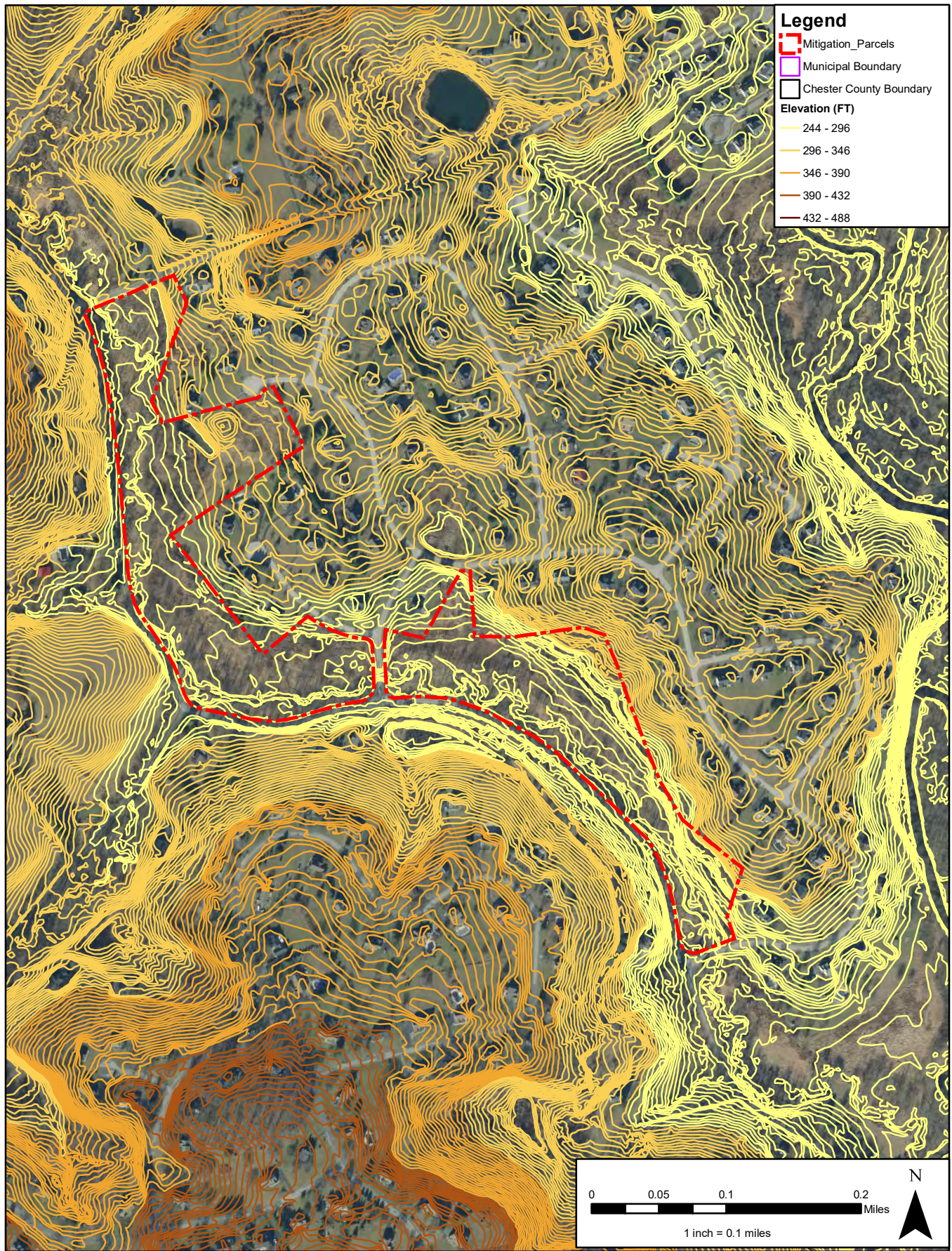
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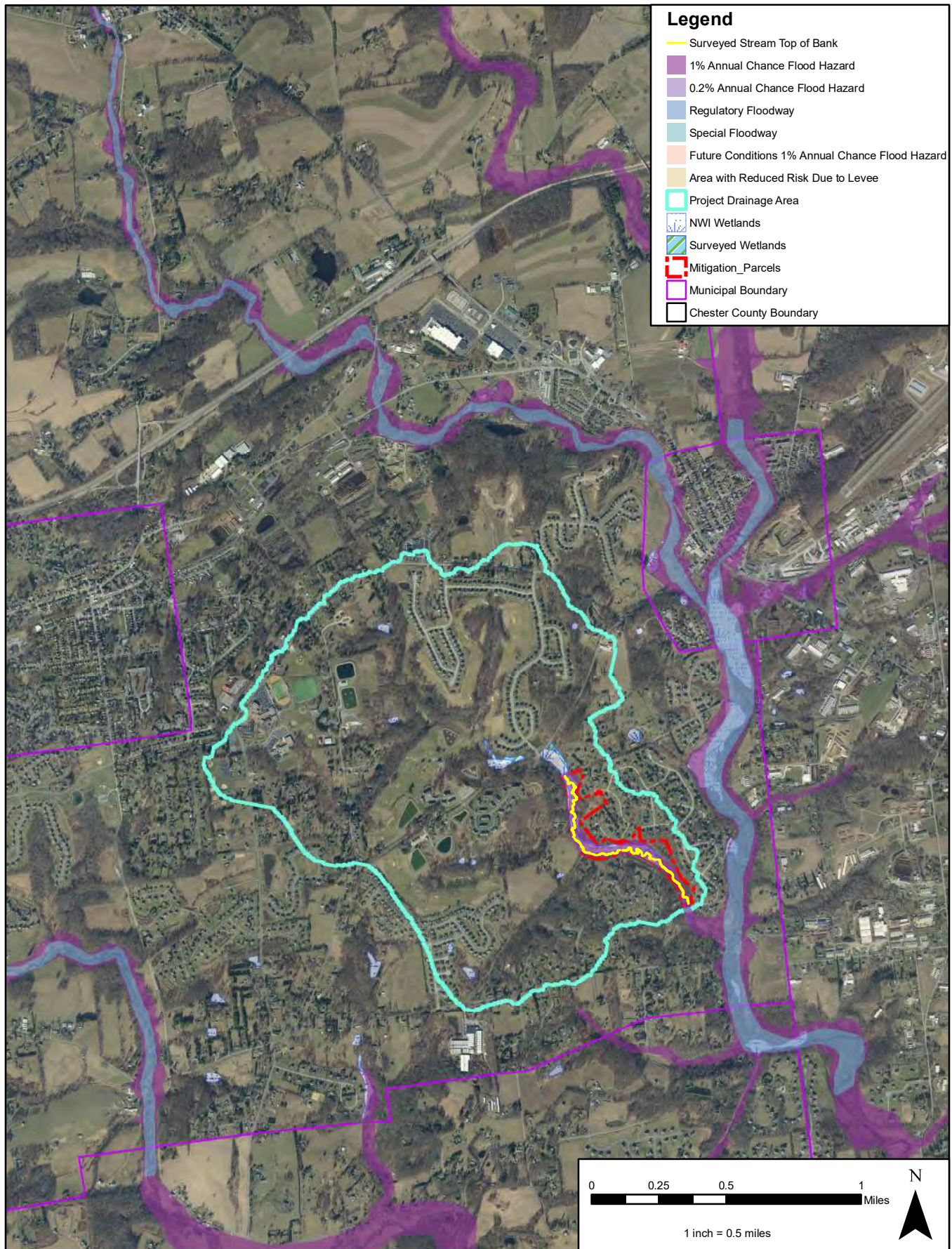


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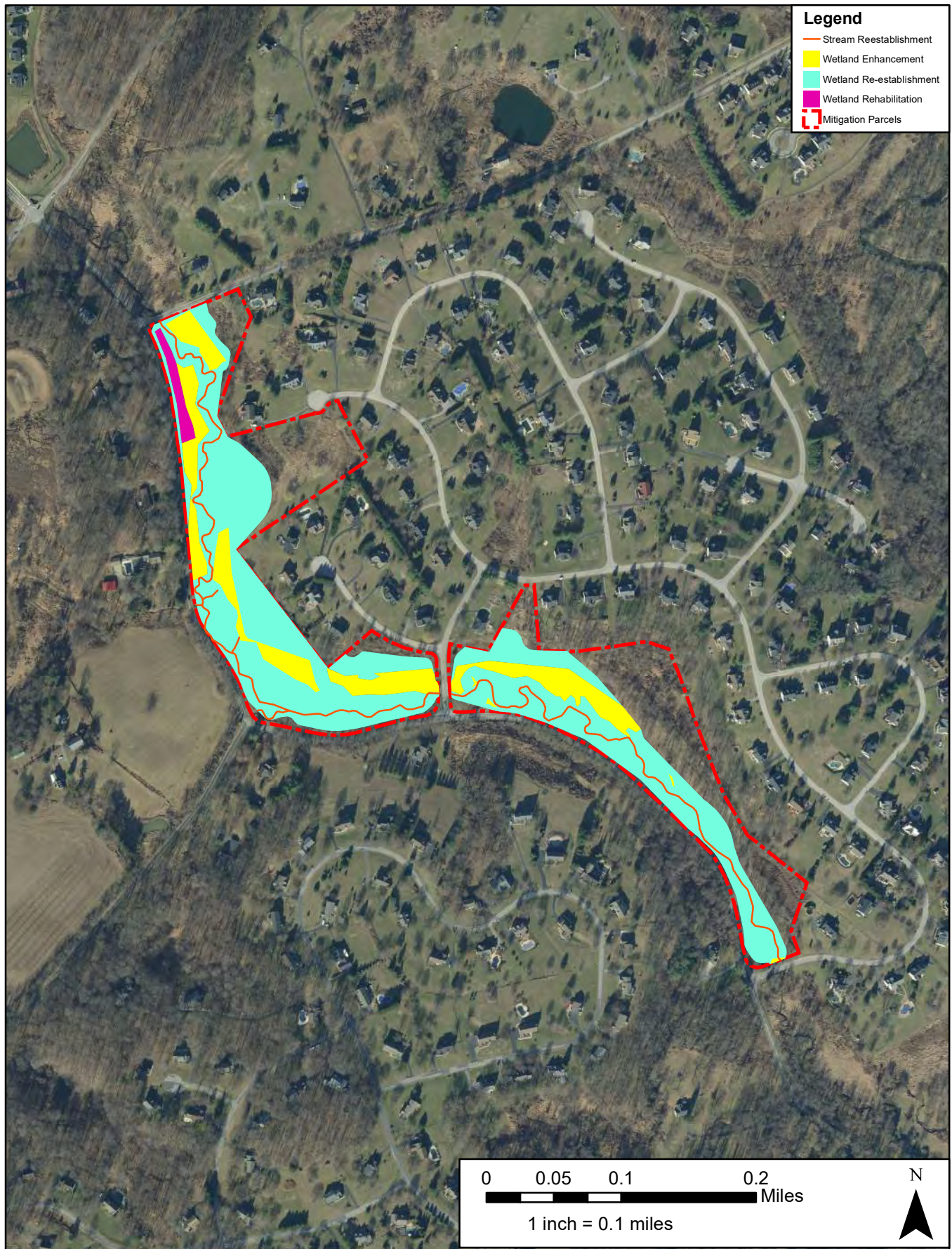


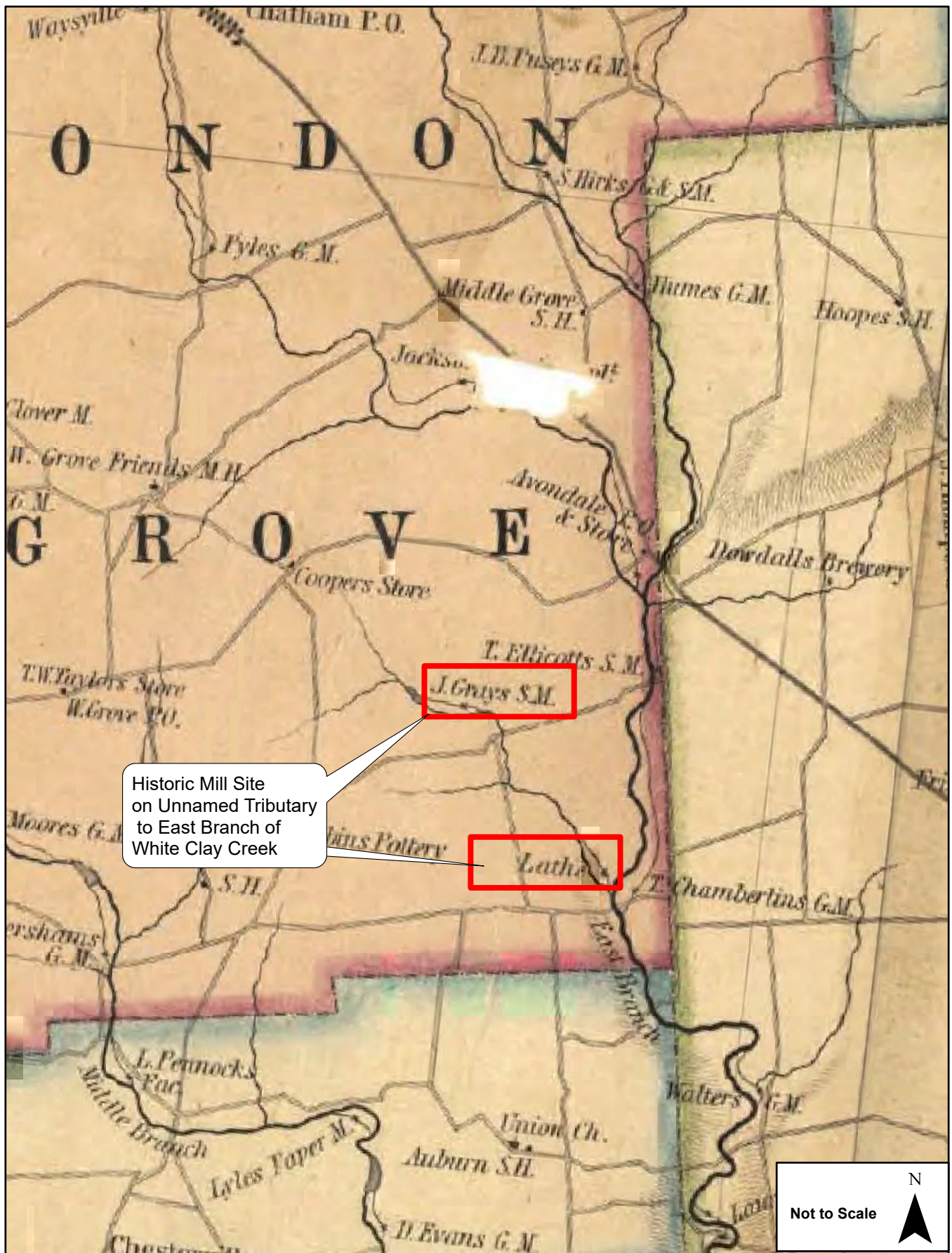






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Appendix B: Resumes of Key Personnel



**WATER & LAND
SOLUTIONS**

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Amber Snavley, MS

Senior Project Manager

Areas of Expertise

- Mitigation Banking
- Permittee Responsible Mitigation
- 401/404 Federal & State Regulatory Permitting
- Stream and Wetland Restoration

Education

- M.S., Environmental Planning and Geographic Information Systems, Indiana University of Pennsylvania, 2011
- B.A., Environmental Geography, Indiana University of Pennsylvania, 2009
- Rosgen Level 1 – Applied Fluvial Geomorphology – Wildland Hydrology, Inc

Training/Certifications

- USACE 1987 Manual & Regional Supplement Wetland Delineation Training
- Wetland Training Institute Inc., Field Indicators of Hydric Soils Course Certification

SUMMARY OF QUALIFICATIONS

As a Senior Project Manager for Water & Land Solutions, LLC (WLS), Ms. Snavley brings a strong background in mitigation banking and environmental permitting to the Northeast Region. Prior to joining WLS, Ms. Snavley was a Project Manager at a mitigation banking firm where she was responsible for environmental permitting coordination, conducting and oversight of wetland delineations and comprehensive environmental functional assessments, report writing, federal and state agency coordination, data analysis, GIS data development and management, and client solutions support. Ms. Snavley permitted and managed over 51,000 linear feet of stream restoration and 30 acres of wetland restoration.

Coming on board as a Senior Project Manager for WLS, Ms. Snavley manages multiple stream and wetland compensatory mitigation projects and is responsible for directing oversight through all phases of project development including preliminary site investigations and data collection, wetland delineations, habitat assessments, permit preparation and submittal, agency review and meetings, project construction maintenance, and monitoring field work and reporting. Ms. Snavley is also responsible for design oversight and subcontractor and construction management. Ms. Snavley coordinates the mitigation components for permitting requirements and supports aspects of client sales support.

PROJECT EXPERIENCE

Churchill Valley Mitigation Bank, Allegheny County, PA

Senior Project Manager for the 54.5-acre urban stream and wetland mitigation bank. The project will result in over 11,000 linear feet of stream and 11 acres of wetland restoration, prioritizing the watershed restoration approach on a publicly owned historic golf course surrounded by residential neighborhoods. The restoration efforts within the project area will focus on the creation of an integrated and dynamic stream and floodplain system, restoring localized groundwater aquifers, reconnecting floodplains to the water table and streams, optimizing and diversifying habitat, and creating a hydrologic system that allows for the retention of nutrients, stream bed material and organic carbon, such as leaves and twigs. This design approach will provide the basis for the continued evolution of ecological complexity and long-term stability. The project will include a public trail network, pedestrian bridges, and wildlife viewing platforms.

Concurrent with the mitigation bank establishment, an AMD treatment facility will be constructed to filter AMD waters before entering the mitigation bank. Responsibilities include all aspects of budget and schedule tracking, permitting and state and federal agency coordination, landowner and public interest coordination, and third-party consultant direction.

Rocky Run Mitigation Bank, Washington County, PA

Senior Project Manager for this private commercial stream and wetland mitigation bank located in the Upper Ohio-Wheeling Basin (HUC 05030106, Pennsylvania State Water Plan Watershed 20). It was established in early 2023, restoring over 9,000 linear feet of stream and five acres of wetland. The Bank was designed and constructed following the integrated valley and wetland restoration approach, which aims to put the stream channel and floodplain at or near historic elevations and locations. The Bank included a combination of stream reestablishment, restoration, and enhancement activities, and riparian wetland and non-riparian wetland establishment, restoration, and enhancement activities. Responsibilities include budget and schedule tracking, client sales support, and maintenance and monitoring direction and oversight.

McCreary Run Mitigation Bank, Lancaster County, PA

Senior Project Manager for this private commercial stream and wetland mitigation bank situated in the Lower Susquehanna River Subbasin (HUC 02050306, PA State Water Plan Watershed 7E). The bank is designed to restore over 20,000 linear feet of stream and 20 acres of wetland. The bank will be constructed using a process-based approach using the floodplain restoration approach to restore the stream at, or very near, the historic floodplain elevation. Responsibilities included scope, schedule, and budget development and tracking, directing oversight through all phases of project development including preliminary site investigations and data collection, landowner communications, wetland delineations, management of technical field teams including biologists, jurisdictional agency consultations, site assessment analysis, third party environmental consultant oversight, local, state and federal permit coordination and preparation, agency review and meetings, report writing, restoration design oversight and GIS data analysis and mapping.

Private Commercial Stream & Wetland Mitigation Bank, Berks County, PA

Project Manager for a 113-acre stream and wetland mitigation bank that resulted in over 30,000 linear feet of stream and 30 acres of wetland restoration and preservation. Prior to restoration, the site was subject to livestock grazing and crop cultivation. The streams onsite were overwidened, unstable, and highly erosive. Following restoration, wetlands were

reestablished as new stream planforms and appropriate sinuosity was constructed and the floodplain was reconnected to the groundwater table. Responsibilities included all aspects of scope, schedule, and budget development and tracking, client sales support, landowner negotiation and rapport, environmental permitting coordination and oversight, construction contracting and oversight, and maintenance and monitoring oversight.

Private Commercial Stream & Wetland Mitigation Bank, York County, PA

Project Manager for a 43-acre stream and wetland mitigation bank that resulted in over 10,000 linear feet and more than 8 acres of stream and wetland restoration, respectively, prioritizing implementation of a watershed scale restoration approach, purposefully considering the importance of headwater control as well as main stem restoration. The restoration efforts within the project area focused on the creation of an integrated and dynamic stream and floodplain system, restoring localized groundwater aquifers, reconnecting floodplains to the water table and streams, optimizing and diversifying habitat, and creating a hydrologic system that allows for the retention of nutrients, stream bed material and organic carbon, such as leaves and twigs. This design approach provided the basis for the continued evolution of ecological complexity and long-term stability. Responsibilities included scope, schedule, and budget development and tracking, directing oversight through all phases of project development including preliminary site investigations and data collection, landowner communications, wetland delineations, management of technical field teams including biologists, jurisdictional agency consultations, site assessment analysis, third party environmental consultant oversight, local, state and federal permit coordination and preparation, agency review and meetings, report writing, restoration design oversight and GIS data analysis and mapping.

Stream & Wetland PRM Site, Washington County, PA

Lead Permitting Analyst for the mitigation associated with Shell Petrochemical Complex in Beaver County, PA. The restoration site restored 17,673 linear feet of stream and 6.37 acres of wetlands on-site in an integrated stream and floodplain complex. Prior to the completion of construction, a stream that had gone dry every year had perennial flow throughout its first summer post-construction. The same reach, which had never contained fish, had fin-fish species throughout the length of the restored reach. Responsibilities included wetland delineations, management of technical field teams including biologists, site assessment analysts and third-party environmental consultants, PNDI and PHMC consultations, local, state and federal permit coordination, report writing,

GIS data analysis and mapping. and project maintenance and monitoring and reporting.

Stream & Wetland PRM Site, Washington County, PA

Lead Permitting Analyst for a 21,000-linear foot stream restoration project in Washington County, PA. The site was used to provide mitigation for multiple stages of a Pennsylvania Turnpike Commission highway expansion project. The restoration site provided functional benefits such as improvements to stream and floodplain connectivity, fish and macroinvertebrate habitat, flood flow conveyance and alteration, nutrient removal/retention, invasive species removal, and long-term land protection. The site also supported the development of a healthy ecosystem, while also replacing functions and values lost as a result of the PTC highway expansion. Responsibilities included wetland delineations, management of technical field teams including biologists, site assessment analysts and third-party environmental consultants, PNDI and PHMC consultations, local, state and federal permit coordination, report writing and GIS data analysis and mapping. and project maintenance and monitoring and reporting.



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SOLUTIONS**

EMPOWERING PEOPLE.
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Nate Ober, PG

Vice President of Mitigation Services

Areas of Expertise

- Stream and Wetland Restoration
- Mitigation Banking
- In-Lieu Fee Mitigation
- Permittee Responsible Mitigation

Education

- B.S., Geology, West Virginia University, 2002

Licenses/Certifications

- Professional Geologist, PA PG005101
- Remote Pilot Certification, U.S. Department of Transportation Federal Aviation Administration, #4134212
- Rosgen Level I-IV Hydrology Courses

SUMMARY OF QUALIFICATIONS

I've managed and designed over 100 miles of stream and wetland restoration projects, drawing from more than 20 years of experience in fluvial geomorphology, ecosystem restoration design, construction management, and post-restoration monitoring.

Cost effective solutions for stream and wetland mitigation projects are a passion of mine. These have guided me towards the development of innovative technologies and executing projects with higher quality and lower costs. I bring unique experience in three-dimensional design, machine control construction, LiDAR acquisition and aerial mapping, two-dimensional hydraulic modeling, and Clean Water Act permitting.

As a kayaker from Appalachia, I followed my love of rivers by studying geology at West Virginia University. After receiving a bachelor's degree in 2002, I quickly became an expert on the impacts of mining to surface and subsurface hydrology, and the restoration of active and abandoned mine lands. I moved to Tennessee in 2008 to practice ecosystem restoration with the Tennessee Stream Mitigation Program and the Department of Transportation. After five years I moved back to West Virginia as a Practice Lead of an ecosystem restoration team, implementing a 10,000-acre mitigation bank, a 17-mile large river restoration project, and many other restoration and mitigation projects.

I now reside in Colorado working nationwide to create mitigation projects for private and public development.

PROJECT EXPERIENCE

Tomlinson Run Mitigation Bank, Hancock County, West Virginia:

Nestled in the northern panhandle of West Virginia, Tomlinson Run is located within the West Virginia Department of Natural Resources Tomlinson Run State Park in the Upper Ohio River North HUC 8 Watershed (05030101). Credits generated from this bank provide compensatory stream mitigation credits for unavoidable impacts to waters of the United States authorized under Sections 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

A pioneering public-private partnership between WLS and the WV DNR, this project has not only restored an ecosystem, but also has provided far-reaching benefits to the public.

Some of the benefits include:

- 7,891 linear feet of restored stream
- 8,906 indigenous trees planted
- Eradication of invasive species
- Aquatic and wildlife habitat improvements
- Creation of forested wetlands adjacent to the stream to offset pollution and stream erosion
- 2,000 feet of accessible trails
- 5 accessible platforms from which to fish or view wildlife
- New, accessible pedestrian bridges over stream tributaries

The credits generated from this project are available to projects required to offset environmental impacts within the same watershed. In this way, economic development and environmental restoration work together to improve ecological functioning and compensate for environmental impacts.

Duck Creek Mitigation Bank, Harrison County, West Virginia:

Duck creek is a mitigation bank under development in Watters Smith Memorial State Park within the West Fork HUC 8 River Watershed (05020002). The bank will provide stream and wetland mitigation credits to compensate for unavoidable impacts to waters of the United States authorized under Section 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

Our proposal includes stabilizing the stream bank, with the installation of natural reinforcements and forested riparian buffers, restore the floodplain by lowering stream bank heights and promoting natural overbank flood flows, and increase aquatic habitat and fish species diversity and migration through the addition of instream cover and native woody debris.

Project Goals

- Promote nutrient and sediment reduction by restoring and preserving wetlands, streams, and riparian buffers.

- Improve flood attenuation by restoring stream channel hydrology and floodplain connectivity.
- Enhance terrestrial habitats to support wildlife diversity throughout the park.
- Enhance aquatic habitat for recruitment of macro invertebrate and vertebrate populations.

Rocky Run Mitigation Bank, Greene County, Pennsylvania:

Located in southwestern Pennsylvania, Rocky Run is a fully authorized stream and wetland mitigation bank in the Upper Ohio-Wheeling River Basin, PA State Watershed 20. The bank provides stream and wetland mitigation credits to compensate for unavoidable impacts to waters of the United States and waters of the Commonwealth authorized under Sections 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Title 25, Chapter 105 of the Pennsylvania Code.

Rocky Run's mitigation goals and objectives are based on the current resource condition and functional capacity to improve and protect diverse aquatic resources by utilizing a floodplain and legacy sediment removal restoration approach. WLS's restoration efforts will expand and establish stream-wetland complexes, restore, and enhance stream and groundwater exchange, improve stream geomorphology to reduce erosion and sedimentation, and increase density and diversity of native riparian buffer species through planting and invasive species management.

Project Goals:

- Restoration of stream and floodplain processes.
- Wetland establishment and enhancement through legacy sediment removal.
- Improvement of biological diversity and resource support.
- Increased attenuation and filtration of stormwater runoff.

Appendix C: Site Protection Instrument

CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT made this [Click here to enter text.](#) day of [Click here to enter text.](#), 20[Click here to enter text.](#), by **[NAME OF GRANTING LANDOWNER]** (hereinafter "Grantor");

WITNESSETH:

WHEREAS, Grantor is the fee simple owner of certain tracts of land located in [Click here to enter text.](#),

and being **[USE IF APPLICABLE: a portion of]** the property conveyed to the Grantor by deed recorded in deed book **[insert LIBER FOLIO reference here]** in the land records of [Click here to enter text.](#) County, Pennsylvania, more particularly described in Exhibit(s) attached hereto and incorporated by reference, hereinafter referred to as the "Property"; and

*[**NOTE TO GRANTOR: The Grantor shall prepare and attach a legal description (i.e. metes and bounds) of the Property, and if less than the whole property, also include a separate, clearly identifiable, legal description of the Conservation Area(s), all in an exhibit identified as an Exhibit A and entitled "Conservation Area(s) Boundaries" to the Declaration. In addition, the Grantor will include an Exhibit B that shall be a scaled drawing of the Area(s) subject to the Declaration, and entitled "Conservation Area(s) Boundary Map". The restricted Area(s) shall be clearly labeled on the plan(s) as "Conservation Area(s)" and be clearly identified by cross-hatching and/or shading/coloring. The Grantor shall also include, on the drawing, the location and extent of all known, pre-existing easements, rights of ways, utilities, drainage ditches, stormwater facilities, cattle crossings, and structures. For each such item that involves on-going or periodic operation and maintenance, a description of all anticipated and authorized maintenance work and the work boundaries for each item shall also be included on the exhibits and attachments, if necessary, and in Section 9. RESERVED RIGHTS. If legible and clearly depicted, the legal description(s) and drawing(s) can be included on one exhibit. A copy of the PASPGP-5 authorization must be attached to the document for recordation.]*

WHEREAS, the United States Army Corps of Engineers, through either its Baltimore, Philadelphia, or Pittsburgh District, Regulatory Branch, (hereinafter "Corps"), and the Grantor have agreed that the Grantor would make the portion of the Property hereinafter referred to as the "Conservation Area(s)" subject to the conservation-based covenants described in this Conservation Easement as a condition of the attached Department of the Army Permit or verification letter issued for the **[INSERT PROJECT NAME USED FOR PERMIT APPLICATION HERE AND CORPS PERMIT NUMBER IF AVAILABLE]** : _____ project; and

WHEREAS, the Grantor and the Holder agrees to the creation of these conservation-based covenants and intends the Conservation Area(s) shall be preserved and maintained in a natural condition in perpetuity;

NOW, THEREFORE, in consideration of the mutually-held interests in preservation of the environment, as well as the terms, conditions, and restrictions contained herein, and pursuant to the laws of the Commonwealth of Pennsylvania, Grantor does agree to the following terms and conditions:

1. PURPOSE

The purpose of this Conservation Easement is:

To preserve and protect the native flora, fauna, soils, water table and drainage patterns, and other conservation values of the Conservation Area(s);

To view the Conservation Area(s) in its scenic and open condition; and in general,

To assure that the Conservation Area(s), including its air space and subsurface, will be retained in perpetuity in its natural condition as provided herein and to prevent any use of the Conservation Area(s) that will impair or interfere with its natural resource functions and values. Grantor intends that this Conservation Easement will confine the use of the Conservation Area(s) to such activities as are consistent with the purpose of this Conservation Easement.

To accomplish the purpose of this Conservation Easement, the following rights are created in accordance with **[FOR GOVERNMENT ENTITIES, USE: Pennsylvania Statutes, Title 32, §§ 5051-5059] [FOR ALL OTHER, USE: Pennsylvania common law]**:

A. To allow the Grantor, the Holder, the Corps or the Pennsylvania Department of Environmental Protection (hereinafter "PADEP") the right to enter upon the Property to inspect the Conservation Area(s) at reasonable times to monitor compliance with and otherwise enforce the terms of this Conservation Easement; provided that, except in cases where Grantor determines that immediate entry is necessary to prevent, terminate, or mitigate a violation of this Conservation Easement; such entry shall, when practicable, be upon reasonable prior notice to any successor or assign, and Grantor shall not unreasonably interfere with the successor's or assign's use and quiet enjoyment of the Property in accordance with the terms of this Conservation Easement;

B. To allow the Grantor, the Holder, the Corps or the PADEP to enforce the terms of this Conservation Easement by appropriate legal proceedings in accordance with **[FOR GOVERNMENT ENTITIES, USE: Pennsylvania Statutes, Title 32 §§ 5051-5059] [FOR ALL OTHERS, USE: Pennsylvania common law]** so as to prevent any activity on or use of the Property that is inconsistent with the purpose of this Conservation Easement and to require the restoration of such Area(s)s or features of the Conservation Area(s) that may be damaged by any inconsistent activity or use; and

C. To allow the Grantor, the Holder, or their authorized representatives, to enter upon the Property and its Conservation Area(s) at reasonable times, upon prior notice to the property owner; and upon prior notice and written approval by the Corps to take any appropriate environmental or conservation management measures consistent with the terms and purposes of this Conservation Easement, including:

- 1) Planting of regionally native vegetation (i.e. trees, shrubs, grasses and forbs); or
- 2) Restoring, altering or maintaining: the topography; hydrology; drainage; structural integrity; streambed; water quantity; water quality; any relevant feature of any stream, wetland, water body, or vegetative buffer within the Conservation Area(s).

2. DURATION

This Conservation Easement shall remain in effect in perpetuity, shall run with the land regardless of ownership or use, and is binding upon all subsequent declarants, their heirs,

executors, administrators, successors, representatives, devisees, and assigns, as the case may be, as long as said party shall have any interest in any part of the Conservation Area(s).

3. PERMITTED USES

This Conservation Easement will not prevent the Grantor; subsequent property owner(s); and the personal representatives, heirs, successors, and assigns of either the Grantor or subsequent property owner from making use of the Area(s) that are not expressly prohibited herein and are not inconsistent with the purpose of this Conservation Easement.

4. RESTRICTIONS

Any activity in or use of the Conservation Area(s) inconsistent with the purpose of the Conservation Easement by the Grantor; subsequent property owner(s); and the personal representatives, heirs, successors, and assigns of either the Grantor or subsequent property owner, is prohibited. Without limiting the generality of the foregoing, and except when an approved purpose under 1.C above, or as necessary to accomplish mitigation approved under the aforementioned permit, the following activities and uses are expressly prohibited in, on, over, or under the Conservation Area(s), subject to all of the express terms and conditions below:

- A. **Structures.** The construction of man-made structures including but not limited to the construction, removal, placement, preservation, maintenance, alteration, or decoration of any buildings, roads, utility lines, billboards, or other advertising. This restriction does not include deer stands, bat boxes, bird nesting boxes, bird feeders, duck blinds, and the placement of signs for safety purposes or boundary demarcation;
- B. **Demolition.** The demolition of fencing structures constructed for the purpose of demarcation of the Conservation Area(s) or for public safety;
- C. **Soils.** The removal, excavation, disturbance, or dredging of soil, sand, peat, gravel, or aggregate material of any kind; or any change in the topography of the land, including any discharges of dredged or fill material, ditching, extraction, drilling, driving of piles, mining, or excavation of any kind;
- D. **Drainage.** The drainage or disturbance of the water level or the water table, except for pre-existing or approved project-related stormwater discharges and any maintenance associated with those stormwater discharges. All pre-existing or approved project-related drainage/stormwater discharge features should be shown on the accompanying plat map or approved plan and attached to this Conservation Easement;
- E. **Waste or Debris.** The storage, dumping, depositing, abandoning, discharging, or releasing of any gaseous, liquid, solid, or hazardous waste substance, yard waste, materials or debris of whatever nature on, in, over, or underground or into surface or ground water, except for pre-existing or approved project-related stormwater discharges and any maintenance associated with those stormwater discharges;
- F. **Non-Native Species.** The planting or introduction of non-native species;

G. **Herbicides, Insecticides and Pesticides.** The use of herbicides, insecticides, or pesticides, or other chemicals, except for as may be necessary to control invasive species that threaten the natural character of the Conservation Area(s). State-approved municipal application programs necessary to protect the public health and welfare are not included in this prohibition;

H. **Removal of Vegetation.** The mowing, cutting, pruning, or removal of any kind; disturbance, destruction, or the collection of any trees, shrubs, or other vegetation, except for pruning, cutting or removal for:

- 1) safety purposes; or
- 2) control in accordance with accepted scientific forestry management practices for diseased or dead vegetation; or
- 3) control of non-native species and noxious weeds; or
- 4) scientific or nature study;

I. **Agricultural Activities.** Unless currently used for agricultural or similarly related purposes, conversion of, or expansion into, any portion of the Conservation Area(s) for use of agricultural, horticultural, aquaculture, silviculture, livestock production or grazing activities. This prohibition also includes conversion from one type of these activities to another (e.g., from agriculture to silviculture). ***[NOTE: THE FOLLOWING LANGUAGE SHOULD BE ADDED, AS APPROPRIATE FOR PROJECTS IN DESIGNATED BOG TURTLE COUNTIES: Corps approved management practices, including the introduction of livestock, for the purpose of maintaining bog turtle habitat, are not included in this prohibition.];***

J. **Other:** Other acts, uses, excavation, or discharges which adversely affect fish or wildlife habitat or the preservation of lands, waterways, or other aquatic resources within the Conservation Area(s);

K. Recreational use of ATVs, dirt bikes, motorcycles, off-road vehicles, or motor vehicle of any kind is prohibited in the "Conservation Area(s)".

5. INSPECTION, ENFORCEMENT AND ACCESS RIGHTS

The Corps, and/or the PADEP, and its/their authorized representatives shall have the right to enter and go upon the Property, to inspect the Conservation Area(s) and take actions necessary to verify compliance with this Conservation Easement. When practicable, such entry shall be upon prior reasonable notice to the property owner. The grantor grants to the Corps, the U.S. Department of Justice, and/or the PADEP, a discretionary right to enforce this Conservation Easement in a judicial action against any person(s) or other entity(ies) violating or attempting to violate these restrictive covenants: provided, however, that no violation of these restrictive covenants shall result in a forfeiture or reversion of title. In any enforcement action, an enforcing agency shall be entitled to a complete restoration for any violation, as well as any other judicial remedy such as civil penalties. Nothing herein shall limit the right of the Corps to modify, suspend, or revoke the permit.

6. RECORDING AND EXECUTION BY PARTIES

The Grantor agrees to record this Conservation Easement in the Land Records of the county or counties where the Property is located and provide the Corps with proof of recordation prior to the start of the work authorized by the attached permit. Further, if anticipated activities in the Conservation Area(s) are agreed upon for future phases of the site, as spelled out in the "Reserved Rights", the Grantor must submit plans to the Corps and PADEP for review and approval prior to any work in the Conservation Area(s).

7. NOTICE OF TRANSFER OF PROPERTY INTERESTS

No transfer of the rights of this Conservation Easement, or of any other property interests pertaining to the Conservation Area(s) or the underlying property it occupies shall occur without thirty (30) calendar days prior written notice to the PADEP and the Corps.

8. MODIFICATIONS

The restrictions contained in this Conservation Easement are required by the attached Department of the Army Permit or verification letter for authorized use of said permit. There shall be no changes or alterations to the provisions in this Conservation Easement without prior written approval from the appropriate District Commander of the Corps.

9. RESERVED RIGHTS

A. The Grantor and any holders of easements or other property rights for the operation and maintenance of pre-existing or project-related structures or infrastructure such as roads, utilities, drainage ditches, or stormwater facilities that are present on, over or under the Conservation Area(s) reserve the right, within the terms and conditions of their permits, their agreements, and the law, to continue with such operation and maintenance. All pre-existing or approved project-related structures or infrastructure shall be shown on the accompanying plat map or approved plan and attached to this instrument.

B. If the authorized project requires any related or unanticipated infrastructure modifications, utility relocation, drainage ditches, or stormwater controls within the identified Conservation Area(s), or if situations require measures to remove threats to life or property within the identified Conservation Area(s), said activities must be approved in writing by the Corps subject to terms and conditions set forth in the written approval. Approval is subject to the Corps' sole discretion. If approved, said activities must be identified on amended Exhibits A and B and must be recorded and specifically noted as an "amendment" and copies of the recorded amended Exhibits must be provided to the Corps and PADEP within 60 days of Corps approval. Approval of said activity by the Corps is in addition to any Clean Water Act, Section 404 permit, or other authorization, which may be required in order to legally implement said activity. The Grantor accepts the obligation to place any other responsible party on reasonable prior notice of their need to request such Corps approval

10. SEVERABILITY

If any portion of this Conservation Easement, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this instrument, or

application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

[THE FOLLOWING TWO SECTIONS (11. MITIGATION AND 12. CONSENT OF LENDER AND TRUSTEE) SHOULD BE INCLUDED ONLY WHEN APPLICABLE.]

11. MITIGATION

If the work required by a mitigation plan including maintenance or remedial work, under the Department of Army permit for the authorized project occurs within the Conservation Area(s), then the Grantor is allowed to construct the mitigation work in accordance with the authorized mitigation plan, a copy of which is incorporated by reference.]

[IF GRANTOR HAS A MORTGAGE OR OTHER LEGAL ENCUMBRANCE ON THE PROPERTY, THE CONSERVATION EASEMENT MUST INCLUDE A COMPLETED VERSION OF THE FOLLOWING:]

12. CONSENT OF LENDER AND TRUSTEE

Grantor is the maker of a note dated _____ secured by a deed of trust dated _____ from the Grantor to _____ as trustees and either of whom may act, recorded in the Clerk's office in Deed Book _____ at page _____, for the benefit of _____ Bank (The "Deed of Trust."). _____, as trustees, join herein for the sole purpose of subordinating the lien, dignity and priority of the Deed of Trust to this Conservation Easement. _____ Bank joins herein for the sole purpose of consenting to the trustee's actions.]

IN WITNESS WHEREOF said GRANTOR has executed this Conservation Easement the day and year first above written.

**[COMPANY OR GOVERNMENT ENTITY
NAME OF GRANTOR, IF APPLICABLE]
(Please print)**

BY: _____
**[TITLE OF OFFICER OF GRANTOR
ENTITY, OR GRANTOR'S NAME, IF AN
INDIVIDUAL] (Please print)**

COMMONWEALTH OF PENNSYLVANIA:
: SS
COUNTY OF [Click here to enter text.](#):
:

On [Click here to enter text.](#), before me, a Notary Public for the Commonwealth aforesaid, personally appeared [Click here to enter text.](#), who acknowledged himself/herself to be **[TITLE**

OF OFFICER OF GRANTOR ENTITY, OR GRANTOR'S NAME, IF AN INDIVIDUAL], and that s/he, as **[USE IF APPLICABLE: an officer of]** the Grantor, being authorized to do so, executed, in my presence, the foregoing Conservation Easement for the purposes herein contained

IN WITNESS WHEREOF, I have set my hand and official seal.

Notary Public

Print name

My commission expires: _____

[SEAL]

APPROVED AS TO LEGALITY AND FORM

[ONE OR MORE SIGNATURE BLOCKS HERE FOR THE ATTORNEY FOR THE GRANTOR, AND IF A COMPANY OR GOVERNMENT ENTITY, ANY OTHER NECESSARY OFFICIALS.]
(Please legibly print names below signatures)

ACCEPTANCE BY HOLDER

I accept the rights and responsibilities of the Holder conferred by this Conservation Easement.

[NAME OF HOLDER OR HOLDER'S REPRESENTATIVE] (Please print)
[TITLE OF REPRESENTATIVE, IF APPLICABLE] (Please print)

COMMONWEALTH OF PENNSYLVANIA:

: SS

COUNTY OF [Click here to enter text.](#)

:

On [Click here to enter text.](#), before me, a Notary Public for the Commonwealth aforesaid, personally appeared [Click here to enter text.](#), who acknowledged himself/herself to be [Click here to enter text.](#), and that s/he, as **[USE IF APPLICABLE: an officer of]** the Grantor, being authorized to do so, executed, in my presence, the foregoing Conservation Easement for the purposes herein contained

IN WITNESS WHEREOF, I have set my hand and official seal.

Notary Public

Print name

My commission expires: _____

[SEAL]

NOTE: Some version of the following notarization will accompany the complete, executed, and recorded instrument. The version below is simply one example. Other versions may be used to follow local legal recordation practice, including, for example, but not limited to, those referring only to a Deedbook Volume and Page, or only to a Liber and Folio.]

COMMONWEALTH OF PENNSYLVANIA:

: SS

COUNTY OF [Click here to enter text.](#)

:

Recorded in the Office for Recording of Deeds

in and for aforesaid County, in

Deedbook [Click here to enter text.](#), Vol. [Click here to enter text.](#),

Page [Click here to enter text.](#)

Witness my hand and seal of Office

On [Click here to enter text.](#)

RECORDER OF DEEDS

GRANTOR

Print name

Print name

Revised 10 June 2016

Appendix D. Title Documents



First American Title Insurance Company
National Commercial Services
25 West Main Street, Suite 400
Madison, WI 53703
Phn - (608)204-7409
Fax - (608)204-7414

File No. NCS-1186748-MAD

Customer: MIH Management Services LLC

Records of Chester County, Pennsylvania

Title vested in: London Grove Township, a political subdivision of the Commonwealth of Pennsylvania, organized and existing under the Pennsylvania Second Class Township Code

Property Address:

An approximately 193.49 acre parcel, 1 Clubhouse Road (Premises A)
An approximately 16.9 acre parcel, 100 Indian Run Road (Premises B)
An approximately 21.86 acre parcel, 1 Angelica Drive (Premises C)
An approximately 12.66 acre parcel, 100 Indian Run Road (Premises D),
Avondale, Pennsylvania 19311

Tax Identification No.:

59-8-170.1-E (Premises A)

59-8-191.16-E (Premises B)

59-9-50-E (Premises C)

59-9-72-E (Premises D)

Golf Course Property, not part of Clay Creek MB

First Main Segment --> Is part of MB

Small segment below Angelica Drive and entire lower property, partially proposed w/in Bank Site

Second Main Segment --> Is part of MB

FILED GRANTOR GRANTEE INSTRUMENT INST. NO. REMARKS

04/29/2009	Inniscrone Property Limited Partnership, a Pennsylvania limited partnership	London Grove Township, a political subdivision of the Commonwealth of Pennsylvania, organized and existing under the Pennsylvania Second Class Township Code	Deed	Record Book 7651 Page 738	Conveys Premises A
01/26/2006	Realty Disposition Co., L.P., a Pennsylvania limited partnership	Inniscrone Property Limited Partnership, a Pennsylvania general partnership	Deed	Record Book 6749 Page 2367	Conveys Premises A
03/17/2004	Carolyn B. Welsh, Sheriff of the County of Chester, in the Commonwealth of Pennsylvania	Realty Disposition Co, LP	Sheriff's Deed	Record Book 6092 Page 2072	Conveys Premises A
02/09/1999	Aaron J. Martin and Jean T. Martin, his wife	Inniscrone Golf Club, L.L.C., a Pennsylvania limited liability company	Deed	Record Book 4505 Page 973	Conveys Premises A
08/31/1999	Aaron J. Martin and Jean T. Martin, his wife	Inniscrone Golf Club, L.L.C., a Pennsylvania limited liability company	Deed	Record Book 4627 Page 105	Conveys Premises A

08/13/1973	Barnett R. Freedman	Aaron J. Martin	Deed	Deed Book S-41 Page 90	Conveys Premises A
04/04/1967	Fred Shoun a/k/a Fred W. Shoun and Agnes Shoun a/k/a Agnes L. Shoun, his wife	Aaron J. Martin and Jean T. Martin, his wife	Deed	Deed Book M-37 Page 288	Conveys Premises A
03/09/1951	John W. O'Brien, singleman, Margaret O'Brien, singlewoman, William L. O'Brien, singleman, John J. O'Brien and Emma O'Brien, his wife, William F. O'Brien, singleman, Charles H. O'Brien and Mary O'Brien, his wife, Mary Bohn and John Bohn, her husband, Joanna M. Quinn and James P. Quinn, her husband, Beatrice R. O'Brien, widow, by their Attorney in Fact, Norman S. Pusey (See Letter of Attorney Book O-2, Vol. 41, Page 143) and The First National Bank of West Chester, Guardian of the Estate of Elizabeth C O'Brien, a minor	Fred Shoun and Agnes Shoun, his wife	Deed	Deed Book X-22 Page 508	Conveys Premises A
03/12/1935	Helen F. Buckalow and Everett Buckalow, her husband	Fred W. Shoun and Agnes Shoun, his wife	Deed	Deed Book C-19 Page 337	Conveys Premises A
07/01/1957	Norace W. Patterson and Alice C. Patterson, his wife	Fred W. Shoun and Agnes L. Shoun, his wife	Deed	Deed Book K-29 Page 302	Conveys Premises A
12/27/1957	Milton S. Heyburn and Beatrice S. Heyburn, his wife	Barnett R. Freedman, singleman	Deed	Deed Book V-29 Page 229	Conveys Premises A
07/09/1949	John W. Patton and Edith M. Patton, his wife	Milton S. Heyburn and Barnett R. Freedman	Deed	Deed Book W-22 Page 470	Conveys Premises A
03/24/2003	Judd Associates, a Pennsylvania limited partnership	London Grove Township	Deed of Dedication	Record Book 5620 Page 857	Conveys Premises B, C, and D
07/26/1995	Charles L. Wilkinson and Ellen E. Wilkinson, husband and wife	Judd Associates, limited partnership	Deed	Record Book 3918 Page 62	Conveys Premises B
09/20/1985	Charles L. Wilkinson and Thomas W. Wilkinson	Charles L. Wilkinson and Ellen E. Wilkinson, husband and wife	Deed	Record Book 79 Page 40	Conveys Premises B
04/21/1978	George A. Brutscher and	Charles L. Wilkinson and	Deed	Deed Book	Conveys

	Georgia F. Brutscher, his wife	Thomas W. Wilkinson, as tenants in common		T-52 Page 38	Premises B
04/17/1978	George A. Brutscher and Charles Hall, Executors of the Will of Benjamin J. Reynolds, Deceased	George A. Brutscher	Deed	Deed Book S-52 Page 180	Conveys Premises B
12/04/1964	National Bank of Chester County and Trust Company, West Chester, and D. G. Kennedy, Guardians of the Estate of Maurice V. Witt, a/k/a M. V. Hitt, an Incompetent, and Hazel M. Hitt, wife of Maurice V. Hitt	Benjamin J. Reynolds	Deed	Deed Book C-36 Page 891	Conveys Premises B
04/16/1955	Tradesmens Bank and Trust Company, formerly Tradesmens Land Title Bank and Trust Company, George V. Strong, and William C. Ferguson, Jr., Executors under the will of E. Hibbard Lawrence, deceased	Maurice V. Hitt	Deed	Deed Book X-26 Page 120	Conveys Premises B
07/26/1995	Hankin-London Grove, Inc., a PA. Corp.	Judd Associates, limited partnership	Deed	Record Book 3918 Page 67	Conveys Premises C and D
02/28/1990	Larry Shontz and James S. Tupitza	Hankin-London Grove, Inc.	Deed	Record Book 1900 Page 526	Conveys Premises C and D

02/28/1990	Joseph Giantonio, by his Attorney-in-fact James S. Tupitza, Esquire, and Larry Shontz	Larry Shontz and James S. Tupitza	Deed	Record Book 1900 Page 521	Conveys Premises C and D
02/28/1990	Palecko, Inc.	Joseph Giantonio and Larry Shontz	Deed	Record Book 1900 Page 518	Conveys Premises C and D
02/12/1990	Frank A. Palecko and Grace A. Palecko, his wife	Palecko, Inc.	Deed	Record Book 1882 Page 229	Conveys Premises C and D
05/18/1973	Elizabeth G. Baker and William H. Baker, her husband, Mary Lou McKinley and George A. McKinley, her husband, Barbara G. App and Alva A. App, her husband, and Sally Speelmon and Richard Speelmon, her husband	Frank A. Palecko and Grace A. Palecko, his wife	Deed	Deed Book K-41 Page 159	Conveys Premises C and D
12/29/1967	W. Howard Green, Co-	Elizabeth G. Baker,	Deed	Deed Book	Conveys

This title search is furnished to the agent or approved attorney identified above ("Customer") by First American Title Insurance Company ("First American") for the sole purpose of examining title to the real property described herein in order to determine the insurability hereof. The Customer is hereby authorized to rely upon this title search for the issuance of a First American policy or policies pursuant to the terms of the Agency Agreement or Approved Attorney between First American and the Customer ("Agreement"). This search hereby incorporates by reference herein the terms and provisions of the Agreement.

In examining title, the Customer must follow the underwriting policies of First American and the examination standards of the real estate title industry. The Customer must also comply with all requirements of the Real Estate Settlement Procedures Act ("RESPA") and all regulations promulgated thereunder, if applicable. In the event a document is referenced but not included in this search, it is the responsibility of the Customer to request and examine such documents. Furthermore, the examination process may require the review of documents and/or court files which have not been included in this title search, and it is also the responsibility of the Customer to request and obtain such additional documents and/or files.

Prior to issuing a title insurance commitment, policy or endorsement which will have an effective date subsequent to the effective date of this title search, the Customer must obtain and examine a title update covering the period between the effective date of this title search and the effective date of the title insurance instrument to be issued.

This title search does not insure or warrant the validity or enforceability of any document included in the search nor is it intended to be a policy of title insurance, an opinion of title or any type of guaranty or warranty of title. The title information contained herein is limited to information recorded in the Register of Deeds office for the county in which the subject property is located or the applicable trustee or property assessor office. Bankruptcy, probate or other court records have not been examined unless a document recorded in the Register of Deeds office provides notice for the searcher to examine court documents.

THIS TITLE SEARCH IS FURNISHED BY FIRST AMERICAN SOLELY FOR USE BY THE CUSTOMER IN CONNECTION WITH THE ISSUANCE OF A POLICY OR POLICIES OF TITLE INSURANCE OF FIRST AMERICAN. ALL OTHER USES AND PURPOSES ARE EXPRESSLY PROHIBITED AND LIABILITY HEREUNDER IS LIMITED TO LIABILITY ARISING UNDER SUCH FIRST AMERICAN TITLE INSURANCE POLICY ISSUED IN RELIANCE UPON THIS TITLE SEARCH.

Note: All of the recording information contained herein refers to the Public Records of Chester County, Pennsylvania, unless otherwise indicated. Any reference herein to a Book and Page or Instrument Number is a reference to the Official Records of said county, unless indicated to the contrary.



Record Owner and Lien Certificate

File No.: NCS-1186748-MAD

Effective Date: July 17, 2023

This Certificate is issued for the benefit of: MIH Management Services LLC (the "Applicant")

We have searched and examined those records maintained in the County Seat of Chester County, Pennsylvania that, under state law existing at the Effective Date, impart constructive notice of matters relating to real property to a purchaser for value ("Public Records"). For the premises listed below, we have searched and examined the Public Records from March 27, 2001 to the above Effective Date.

Premises: An approximately 193.49 acre parcel,
1 Clubhouse Road (Premises A)

Golf Course Property, not part of Clay Creek MB (is part of MS4)

An approximately 16.9 acre parcel,
100 Indian Run Road (Premises B)

First Main Segment --> Is part of MB

An approximately 21.86 acre parcel,
1 Angelica Drive (Premises C)

Small segment below Angelica Drive and entire lower property, partially proposed w/in Bank Site

An approximately 12.66 acre parcel,
100 Indian Run Road (Premises D)

Second Main Segment --> Is part of MB

Tax Parcel: 59-8-170.1-E (Premises A)
59-8-191.16-E (Premises B)
59-9-50-E (Premises C)
59-9-72-E (Premises D)

Real Estate Tax	\$552,750.00
Assessment:	\$21,570.00 (Land Only)
	\$33,510.00 (Land Only)
	\$19,410.00 (Land Only)

Legal Recording Reference:

Premises A as set forth in Record [Book 7651 Page 738](#); Premises B, C, and D as set forth in Record [Book 5620 Page 857](#)

Based upon a search and examination of the Public Records for the time period set forth above, the Company certifies that title to the premises is vested in London Grove Township, a political subdivision of the Commonwealth of Pennsylvania, organized and existing under the Pennsylvania Second Class Township Code and is subject to the liens, encumbrances and exceptions to title as hereinafter set forth.

AS TO PREMISES A BEING PART OF the same premises which Inniscrone Property Limited Partnership, a Pennsylvania limited partnership, by Deed dated April 20, 2009 and recorded April 29, 2009 in Chester County at Record [Book 7651 Page 738](#), granted and conveyed unto London Grove Township, a political subdivision of the Commonwealth of Pennsylvania, organized and existing under the Pennsylvania Second Class Township Code, in fee.

AS TO PREMISES B, C, AND D BEING PART OF the same premises which Judd Associates, a Pennsylvania limited partnership, by Deed of Dedication dated November 27, 2002 and recorded March 24, 2003 in Chester County at Record [Book 5620 Page 857](#), granted and conveyed unto London Grove Township, in fee.

Mechanics Liens and Municipal Claims: None

Federal Tax Liens: None

Judgments: None

Bankruptcies: Not Searched

Mortgages: None

UCCs: None

Real Estate Taxes, Water, Sewer, Gas and other Municipal Charges:

The Company does not certify herein for any real estate taxes, water, sewer, gas and other municipal charges that may be delinquent or currently due.

Exceptions:

1. Title to that part of the premises lying in the bed and right of way of all roads, driveways and alleyways is subject to public and private rights therein.
2. Rights of the interested parties to the free and unobstructed flow of the waters of the unnamed tributaries to East Branch White Clay Creek which may flow on or through the land.

The Following Exceptions Affect Premises A:

3. Rights granted to Chester County Light and Power Company as set forth in Misc. Deed [Book 98 Page 22](#).
4. Rights granted to London Grove Township Municipal Authority as set forth in [Record Book 3174 Page 223](#).
5. Rights granted to Philadelphia Electric Company as set forth in Misc. Deed [Book 483 Page 308](#), and Misc. Deed [Book 706 Page 120](#).
6. Rights granted to Chester Water Authority as set forth in Record [Book 2427 Page 227](#).
7. Rights granted to London Grove Township as set forth in Record [Book 3108 Page 131](#).

Assignment of General Easement Agreement from London Grove Township to London Grove Township Municipal Authority as set forth in Record [Book 5509 Page 1455](#).

8. Possible rollback taxes and other damages in event of a breach of conditions of preferential assessment (Declaration of General Conditions for Covenants Under Act 515 Adopted by the County of Chester as set forth in Misc. [Book 240 Page 335](#); Contract and Covenant (Under "Act 515") as set forth in Record [Book 7313 Page 1019](#)).
9. Water rights as set forth in Deed [Book Q-9 Page 349](#), and Deed [Book K-29 Page 302](#).
10. Reservation as set forth in Deed [Book M-37 Page 288](#).

11. Inniscrone Golf Club Declaration of Restrictions, Covenants and Easements as set forth in Record [Book 4505 Page 926](#).

Inniscrone Golf Club Amendment to Declaration of Restrictions, Covenants and Easements as set forth in Record [Book 4627 Page 112](#).
12. Restrictions as set forth in Deed [Book M-33 Page 76](#).
13. Memorandum of Sewer Operating and Maintenance Agreement as set forth in Record [Book 5509 Page 1458](#).

Inniscrone Golf Course Agreement to Treated Effluence Spray Capacity as set forth in [Record Book 9480 Page 190](#).
14. Sidewalk and Retaining Wall Easement Agreement by and between Inniscrone Golf Club, L.L.C. and Aaron J. Martin and Jean T. Martin as set forth in Record [Book 4775 Page 934](#).
15. Stormwater and Grading Easement Agreement by and among Realty Disposition Co., L.P., SPE Lisacul Construction Co., L.P., and Aaron J. Martin as set forth in Record [Book 6447 Page 1023](#).
16. Easement Agreement by and between Conard-Pyle Co. and Aaron J. Martin as set forth in Record [Book 4210 Page 1886](#).
17. Assignment from Castlerea Investment Partners, L.P. to Inniscrone Golf Club, LLC as set forth in Record [Book 4546 Page 2023](#).
18. Infiltration Berm Easement Agreement by and between Inniscrone Golf Club, L.L.C. and Aaron J. Martin and Jean T. Martin as set forth in Record [Book 4775 Page 940](#).
19. Subject to all matters shown on the Plan as recorded in the Recorder's Office of Chester County, Pennsylvania in Plan No. [15015](#).
20. Subject to all matters shown on the Plan as recorded in the Recorder's Office of Chester County, Pennsylvania in Plan No. [14623](#), and Plan No. [14624](#).
21. Covenants and conditions as set forth in Record [Book 7049 Page 732](#).
22. Any claim that the Title is subject to a trust or lien created under The Perishable Agricultural Commodities Act, 1930 (7 U.S.C. §§499a, et seq.) or the Packers and Stockyards Act (7 U.S.C. §§181 et seq.) or under similar state laws.

The Following Exceptions Affect Premises B, C, and D:

23. Rights granted to The Bell Telephone Company of Pennsylvania as set forth in Misc. Deed Book 152 Page 87, and Record [Book 3869 Page 1991](#) (affects Premises B).
24. Rights granted to PECO Energy Company and Bell Atlantic-Pennsylvania, Inc. as set forth in Record [Book 4694 Page 818](#) (affects Premises B).
25. Rights granted to Philadelphia Electric Company as set forth in Misc. Deed [Book 2049 Page 5](#), and Misc. Deed [Book 3654 Page 485](#) (affects Premises C and D).
26. Rights granted to Chester Municipal Authority as set forth in Misc. Deed [Book 89 Page 248](#).

27. Subject to all matters shown on the Plan as recorded in the Recorder's Office of Chester County, Pennsylvania in Plan No. [13027](#).
28. Deed of Dedication from Judd Associates to London Grove Township as set forth in [Record Book 5616 Page 1149](#).
29. Deed of Dedication from Judd Associates to London Grove Township as set forth in Record Book 5620 Page 857.
30. Deed of Dedication of Easements from Judd Associates to London Grove Township as set forth in Record [Book 5620 Page 873](#).
31. Declaration of Covenants, Conditions and Restrictions (Development Grants) as set forth in Record [Book 7936 Page 2142](#) (affects Premises D).
32. Summation of Memorandum of Agreement as set forth in Record [Book 11051 Page 1030](#).

IMPORTANT — READ CAREFULLY

The Applicant, by acceptance of delivery of this Certificate with the following limitations agrees to the limitations, and acknowledges that First American would not have issued this Certificate but for Applicant's acceptance of and agreement to the limitations.

This Certificate does not constitute title insurance. It is issued exclusively for the benefit of the Applicant named above, and no other person may rely upon it. This Certificate is not a commitment to insure and therefore does not contain the matters that would appear as requirements and exceptions in a commitment to insure. It also may not contain all the exceptions that would appear in a title policy. The status or validity of title to the subject premises may also be affected by matters disclosed by survey, rights of parties in possession and other items not found of record and not certified hereon. Therefore, do not use this Certificate as a basis for consummating a real estate transaction. This Certificate may, upon request, be converted into a Title Report, Binder or Commitment, at which time additional exceptions and requirements may be added. If conversion is made within six (6) months from the Effective Date hereof, the charge for this Certificate will be credited against the charge for the insurance.

Unless otherwise endorsed hereon, liability hereunder for errors or omissions is limited to a sum not exceeding Twenty-Five Hundred Dollars (\$2,500.00), when issued for 1-4 family residential property, and to a sum not exceeding Five Thousand Dollars (\$5,000.00) when issued for all other types of property.

FIRST AMERICAN TITLE INSURANCE COMPANY

By: 
Kenneth D. DeGiorgio, President

By: 
Lisa W. Cornehl, Secretary



First American Title Insurance Company
National Commercial Services
25 West Main Street, Suite 400
Madison, WI 53703

Illegal Restrictive Covenants

Please be advised that any provision contained in this document, or in a document that is attached, linked, or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.

RIGHT OF WAY GRANT

ERACE PATTERSON, F. UX
TO
CHES. CO. LIGHT & POWER CO.

RIGHT OF WAY GRANT

BE IT KNOWN that for and in consideration of the payment by Chester County Light and Power Company of the sum of One Dollar (\$1.00) the receipt whereof is hereby acknowledged, the undersigned hereby grant(s) to Chester County Light and Power Company its successors and assigns the right to erect, install, operate, maintain, renew, add to, relocate and remove such facilities including poles, or cross arms, wires, cables, conduits, manholes, gas mains, gas service pipes, and appurtenances as shall be necessary for the transmission and distribution of electricity and gas within the legal right of way limits of a public highway known as New London-Wickertown (Rte) Road on the north side thereof, as now existing or as may be hereafter established, premises of the undersigned (part of the aforesaid facilities) located at a point 60 feet East of New London-West Grove Road and extending therefor a distance 3520 feet bounded on the West by New London-West Grove Road and on the East by a public road, in the Township of London Grove County of Chester Commonwealth of Pennsylvania, with right of ingress and egress to and from said facilities and right to trim and keep trimmed in a workmanlike manner, all trees and branches of trees, to the extent deemed necessary by the Company to provide sufficient clearance for the protection of the aforesaid facilities.

The Company is further granted the right to locate said poles inside the limits of said highway/such anchors and guys as may be necessary to stabilize said poles.

EXECUTED this 5th day of December A.D. 1952.

In the presence of: \$.01 value of this transaction is \$1.00
Fred Breuninger : PEHA: A. E. McLaughlin, Agent
: STAMP :
Erace Patterson (SEAL)
Alice Patterson (SEAL)

Commonwealth of Pennsylvania
County of Chester

On this, the 5th day of December 1952, before me, Notary Public the undersigned officer, personally appeared Erace W. Patterson & Alice C. Patterson, his wife known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Fred Breuninger, Notary Public
My Commission Expires Jan. 29, 1955
NOTARIAL :
SEAL :

Transcribed by: Ford

Compared by: KRAUSER Recorded January 8, 1953 at 9:54 A.M.

RIGHT OF WAY GRANT

JOHN CAMDRANT, et ux

TO

CHES. CO. LIGHT AND
POWER COMPANY

RIGHT OF WAY GRANT

BE IT KNOWN that for and in consideration of the payment by Chester County Light and Power Company of the sum of One Dollar (\$1.00) the receipt whereof is hereby acknowledged the undersigned hereby grant(s) to Chester County Light and Power Company its successors and assigns, the right to erect, install, operate, maintain, renew, add to, relocate, and remove such facilities, including poles or cross arms, wires, cables, conduits, manholes, gas mains, gas service pipes, and appurtenances as shall be necessary for the transmission and distribution of electricity and gas within the legal right of way limits of a public highway known as Pine Street on the South and West side thereof, as now existing or as may be hereafter established abutting premises of the undersigned (part of the aforesaid facilities) located at a point 304 feet East of Sawack Road and extending East and North for a distance of 500 feet, bounded on the North West by lands now of Vincent V. Caputo, in the Township of New Garden County of Chester Commonwealth of Pennsylvania with right of ingress and egress to and from the said facilities and to trim and keep trimmed in a workmanlike manner, all trees and branches of trees, to the extent deemed necessary by the Company to provide sufficient clearance for the protection of the aforesaid facilities.

The Company is further granted the right to locate said poles inside the limits of said Highway out adjacent thereto; also the further right to install outside the limits of said highway such anchors and guys as may be necessary to stabilize said poles.

EXECUTED this 17th day of December A.D. 1952

Witnesses: \$.01 and complete value of this transaction is
Fred Breuninger : PEHA: A. E. McLaughlin, Agent
: STAMP: \$1.00
John Camdrant (SEAL)
Secolina Camdrant (SEAL)

Commonwealth of Pennsylvania
County of Chester

On this, the 17th day of December A.D. 1952, before me, a Notary Public, the undersigned officer, personally appeared John Camdrant & Secolina Camdrant, his wife known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal

Fred Breuninger, Notary Public
My Commission Expires Jan. 29, 1955
NOTARIAL :
SEAL :

Transcribed by: Ford

Compared by: KRAUSER
Recorded January 8, 1953 at 9:54 A.M.

W 18005

65/48 1A*

The undersigned, owner(s) of premises situate on the north side of
New Garden Station Road (T 321), in the Township of LONDON GROVE, County of CHESTER,
Commonwealth of PENNSYLVANIA, as more particularly described in a Deed dated
March 31, 1967 and recorded in the aforesaid County in Deed Book M-37, page 288 do.

for and in consideration of the sum of One Dollar (\$1.00), the receipt
whereof is hereby acknowledged, hereby grant(s) to PHILADELPHIA ELECTRIC
COMPANY, (hereinafter called Company), its successors and assigns, the
perpetual right, liberty, privilege and authority to locate, relocate,
construct, erect, install, renew, replace, add to, operate and maintain
on, over, under, along, across and within said premises such electric
transmission and distribution facilities as from time to time the Company,
its successors and assigns, shall determine are necessary or proper to
supply said premises and those adjacent thereto with electricity, for the
service of light, heat and power (hereinafter referred to as facilities),
together with the right of ingress and egress and the right to trim and
keep trimmed, in a workmanlike manner, all trees, roots and branches of
trees to the extent determined necessary by said Company, its successors
and assigns, to provide sufficient clearance for the protection of the
aforesaid facilities.

The aforesaid rights are granted under and subject to the following
conditions:

- (1) The location of said facilities to be installed and constructed
hereunder shall be shown and delineated on plans prepared by the Company,
copies of which will be in the possession of the undersigned and Company
having first been approved by them;
- (2) The undersigned agree(s) to keep the area where said facilities
are located clear of buildings or any other permanent structure which
could, in the opinion of the Company interfere with the construction,
maintenance or use of the said facilities as provided hereunder;
- (3) The undersigned agree(s) that the initial exercise of any of
the rights herein granted shall not be construed as limiting Company's
rights and privileges hereunder.

The conditions herein contained shall enure to and bind the
respective heirs, executors, administrators, successors and assigns of
the undersigned and Company.

EXECUTED THIS 30 TH

DAY OF

April

A.D. 1980

In the presence of:

[Signature] [Signature] (SEAL)
Baron J. Martin
[Signature] [Signature] (SEAL)
John T. Martin



My commission expires on the 30th
day of October 1980
and concludes with a
fee of \$1.00
[Signature]

483

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COMMONWEALTH OF PENNSYLVANIA }
COUNTY OF } SS.

On this, the _____ day of _____, 19____, before me,
the undersigned officer, personally appeared _____,
who acknowledged himself to be the _____
President of _____ a corporation,
and that he as such President, being authorized to do so, executed the
foregoing instrument for the purposes therein contained by signing the name of
the corporation by himself as President.
In witness whereof, I hereunto set my hand and official seal.

Notary Public
My Commission Expires: _____

TO		FROM	
Philadelphia Electric Company		ARON J. MARTIN AND JEAN T. MARTIN	
President: London George Townshend Chester County Pennsylvania		J. J. Camp	

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF CHESTER

On this, the _____ day of April, 1980, before
me, A Notary Public, the undersigned officer, personally appeared
ARON J. MARTIN AND JEAN T. MARTIN
known to me (or satisfactorily
subscribed to the within instru-
ment, and acknowledged that THEY executed the same for the
purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.
RECORDED OF DEEDS

Rec'd in Chester Co. Pa. in

Maple St 483 Page 308

483 309

WILLIAM P. BROWN, Notary Public
Chester County
My Commission Expires _____

J-19955

The undersigned, owner(s) of premises situate on the northwest side of Avondale - New London Road (L.R. 15207) in the Township of LONDON GROVE, County of CHESTER, Commonwealth of PENNSYLVANIA, as more particularly described in a Deed dated August 9, 1973 and recorded in the Office for the Recording of Deeds in the aforesaid County in Deed Book 541, page 90 &c.,:

for and in consideration of the sum of One dollar (\$1.00), the receipt whereof is hereby acknowledged, hereby grant(s) to PHILADELPHIA ELECTRIC COMPANY, (hereinafter called Company), its successors and assigns, the perpetual right, liberty, privilege and authority to locate, relocate, install, renew, replace, add to, operate and maintain on, under, along, across and within said premises such electric transmission and distribution facilities as from time to time the Company, its successors and assigns, shall determine are necessary or proper to supply said premises and those adjacent thereto with electricity, for the service of light, heat and power (hereinafter referred to as facilities), together with the right of ingress and egress and the right to trim and keep trimmed, in a workmanlike manner, all trees, roots and branches of trees to the extent determined necessary by said Company, its successors and assigns, to provide sufficient clearance for the protection of the aforesaid facilities.

The aforesaid rights are granted under and subject to the following conditions:

- (1) The location of said facilities to be installed and constructed hereunder shall be shown and delineated on plans prepared by the Company, copies of which will be in the possession of the undersigned and Company having first been approved by them;
- (2) The undersigned agree(s) to keep the area where said facilities are located clear of buildings or any other permanent structure which could, in the opinion of the Company interfere with the construction, maintenance or use of the said facilities as provided hereunder;
- (3) The undersigned agree(s) that the initial exercise of any of the rights herein granted shall not be construed as limiting Company's rights and privileges hereunder.

The conditions herein contained shall enure to and bind the respective heirs, executors, administrators, successors and assigns of the undersigned and Company.

EXECUTED THIS 15TH DAY OF DECEMBER A.D. 1986

In the presence of:

L. L. O'Brien

Aaron J. Martin (SEAL)
AARON J. MARTIN

(SEAL)

BK 706 - 120

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF CHESTER

On this, the 15th day of December, A.D., 1986,
before me, David J. Martin, the undersigned officer, personally
appeared Harold J. Martin to be the person(s) whose name(s) is hereto
known to me (or satisfactorily proven) and acknowledged that he executed the same for
the purpose therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

David J. Martin
NOTARY PUBLIC

My Comm. Expires 12/31/87
APR 16 1987

PHILADELPHIA ELECTRIC COMPANY
TO
FROM
RIGHT OF WAY INSTRUMENT
W-19955
1987 APR 22 P 12:05
029716
BK 706 121

Elaine L. Weil
Recorder of Deeds



OF DEEDS
COUNTY, PA

C-281-3157-42

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d. BK
17 P 85
4-4-67

17613-14
17611-547

0566-2074C

PA572

1/2

1/2

BOOK K 29 PAGE 302

This Deed,

made this First day of July

in the year one thousand nine hundred and fifty-seven.

Between, MORACE W. PATTERSON and ALICE C. PATTERSON, his wife, of London Grove
Chester County, Pennsylvania,

(hereinafter called the "Grantors"),

of the one part, and FRED W. SHOUN and AONES L. SHOUN, his wife, of the same place,

(hereinafter called the "Grantee"),

of the other part, as tenants by the entireties,

Witnesseth, That in consideration of Forty-five thousand Dollars (\$45,000.00) Dollars,

in hand paid, the receipt whereof is hereby acknowledged, the said Grantors do hereby grant and convey unto the said
Grantee, their heirs

ALL THAT CERTAIN tract of land situate in London Grove Township, Chester
County, Pa., adjoining Tracts Nos. 1, 2, 3, 6, 7, 8 and 9 as described in a mort-
gage bearing even date herewith and recorded immediately after the recording of
this deed, and described as follows:

BEGINNING at a stone set for a corner of this and land formerly of the
Dingee and Conner Company, thence North $\frac{1}{4}$ of a degree West 57.3 perches to a
hickory tree another corner of said land, thence by the same land South 89 $\frac{1}{2}$ deg.
West 61 perches passing through a chestnut tree to a stone a corner of land now
or late of Howard Preston, thence by the said land North 88 $\frac{1}{2}$ deg. West 79.7 per-
ches to a stone set for a corner in the road leading to West Grove, thence by
said road South $\frac{1}{2}$ deg. East 52.1 perches to a stone in the easterly side of said
road, thence crossing said road South 85 deg. West 2 perches to a stone on the
westerly side of said road, ~~thence by the same land North 88 $\frac{1}{2}$ deg. West 79.7 perches~~ thence
along the westerly side of said road and by land now or late of Esther Cook, being the
 $\frac{1}{2}$ deg. East 1.8 perches to a stone, thence by land late of Esther Cook, being the
tract of land next hereinafter described the following three courses and distances
to wit: North 83 $\frac{1}{2}$ deg. East 34.1 perches to a stone, South 16 deg. East 80 perches
to a stone in the road leading to Avondale, and South 26- $\frac{3}{4}$ deg. East 52.8 per-
ches to a stone, thence by land now or late of Enoch Moore the three following
courses and distances, to wit: South $\frac{3}{4}$ of a deg. West 5.85 perches to a stone,
North 89- $\frac{3}{4}$ deg. East 6 perches to a stone, and South 1- $\frac{3}{4}$ deg. West 2 perches
to a stone, thence still by the same and land now or late of John O'Brien North
89- $\frac{3}{4}$ deg. East 87.8 perches, passing through a stone a corner of land now
late of the said Enoch Moore and John O'Brien, to a stone a corner of land now
or late of Cornelius O'Sullivan, thence by the last mentioned land the four fol-
lowing courses and distances, to wit: North $\frac{1}{4}$ of a deg. West 33.20 perches to
a stone, North 89 deg. East 44.5 perches to a stone, North $\frac{1}{2}$ deg. West 2.5 per-
ches to a stone, North 88 $\frac{1}{2}$ deg. East 16 perches to a stone, and thence still by
the same and land now or late of Joseph Lawrence crossing the said road leading
to Avondale, North $\frac{1}{4}$ of a deg. West 89.5 perches to a stone, and thence by the
same land formerly of the Dingee and Conner Company, being the tract of land
hereinafter described South 86- $\frac{3}{4}$ deg. West 91.75 perches to the place of be-
ginning. CONTAINING 171 acres, more or less.

EXCEPTING and reserving therefrom a parcel of land heretofore conveyed by
Henry Palmer and wife to Cornelius O. Sullivan, by deed dated April 3, 1891, and
of record in said Recorder's Office in Deed Book 3-15, Vol. 365, page 60, and
described as follows: BEGINNING at a point in a line of other lands of the said
Henry Palmer of which this was a part; thence by said land North 62 deg. and $\frac{3}{4}$
East 6.7 perches to a line of Cornelius O. Sullivan's land; thence by the last
mentioned land South $\frac{1}{4}$ of a deg. East 3.8 perches and South 88 $\frac{1}{2}$ deg. West 7.75
perches to the place of beginning. CONTAINING 14.6 square perches of land, more
or less.

ALSO EXCEPTING and reserving therefrom a parcel of land described as
follows: BEGINNING at a point in the center line of road leading from New London
to Avondale, Twp. Road T-333, said point of beginning being North 68 deg. 30 min.
East 1341 feet measured along the center line of said road to the intersection
of the center line of said road with County Road 384; thence leaving said road and
passing over an iron pin set in the northerly side thereof, North 25 deg. West
200 feet to an iron pin; thence North 68 deg. 30 min. East 290 feet to an iron
pin set in the westerly side of a 20 feet wide right of way; thence along the
center line of the westerly side of said right of way South 24 deg. 50 min. East
200 feet to a point in the first mentioned road; thence along said road South 7-
deg. West 381 feet to the first mentioned point and place of beginning.
CONTAINING 1.4 acres, more or less.

ALSO EXCEPTING and reserving therefrom a parcel of land described as follows:
BEGINNING at a point in Twp. Road T-333, on the east side of a 20-foot wide right
of way, said point of beginning being North 68 deg. 30 min. East 1681 feet from
the intersection of the center lines of Twp. roads 384 and 333; thence leaving
said road and along the easterly side of said right of way North 24 deg. 50 min.
West 230 feet to an iron pin; thence North 71 deg. 41 min. East 291 feet to an
iron pin; thence South 17 deg. East 230 feet to an iron pin on the north side
of the first mentioned road; thence in and along said road South 72 deg. 30 min.
West 257 feet to the first mentioned point and place of beginning.
CONTAINING 1.44 acres, more or less.

AND ALSO ALL THAT CERTAIN tract of land situate in London Grove Township, County and state aforesaid, adjoining Tracts Nos. 1 and 5 as described in said mortgage above referred to, and described as follows: BEGINNING at a stone in the public road leading from Prestonville to the Elk Road in a line of Caleb Hood's land, now or late, thence by the above described tract of land the three following courses and distances, to wit: North 83 $\frac{1}{2}$ deg. East 34.1 perches to a stone, South 16 deg. East 80 perches to the middle of the Elk Road, South 26-3/4 deg. East 52.8 perches to a stone, thence by land, now or late of Enoch Moore, South 78-3/4 deg. West 80.4 perches to a stone, thence by land now or late of William H. Lyons, North 16 perches to a stone, North 74 $\frac{1}{2}$ deg. West 16.75 perches to a stone in the aforesaid Elk Road, thence along said road by Charles Pennett's land, now or late, North 27 $\frac{1}{2}$ deg. East 3 $\frac{1}{2}$ perches to a stone, thence along the said road by land now or late of the said Esther Cook North 51 $\frac{1}{2}$ deg. East 19.35 perches to a stone, thence along the first above-mentioned road by said Cook's land and land, now or late, of the said Caleb Hood, North 1-3/4 deg. West 47 perches to a stone, thence by the said Hood's land and along the said road North 1/4 of a deg. West 52.8 perches to the place of beginning. CONTAINING 45 acres and 100 perches, be the same more or less.

EXCEPTING and reserving however to the owners and occupiers of the adjoining premises on the west the right at any and all times hereafter to use the water from the springs on said premises for the purpose of forcing the same to the buildings now or lately occupied by Marcellious S. Cook and Esther, his wife, by means of a hydraulic ram and pipes under ground as now or lately used for supplying the said buildings and the occupiers thereof with water with the privilege of entering upon said premises for the purpose of renewing and repairing the same from time to time as often as may be necessary to keep the same in good repair doing as little damage as possible to said premises.

EXCEPTING and reserving therefrom a parcel of land heretofore conveyed by James D. Conner and wife and others, to Amos H. Nevill by deed dated May 1, 1922, and of record in said Recorder's Office in Deed Book D-16, Vol. 376, page 347, and therein described as follows: BEGINNING at a post in line of other land of the parties of the first part, at a corner of land of Willis Lee; thence by the last named land, North 73 deg. West 176.21 feet to a point in the Elk or Kemblesville public road, in line of Lorimer's land; thence up the west side of the last named public road by said Lorimer; North 22 $\frac{1}{2}$ deg. East 57.75 feet to an iron pin on the bank west of the west gutter line of the said Elk or Kemblesville public road; thence up said public road by land of Daniel McKelvey, North 53 $\frac{1}{2}$ deg. East 306.02 feet to an iron pin near the south gutter line of the last named Elk or Kemblesville road; thence by said Grantor's other land South 20 deg. West 318 feet to the place of beginning. CONTAINING 32,776.09 square feet of land, more or less.

ALSO EXCEPTING and reserving from Tracts Nos. 5 and 6 as described in said mortgage, a parcel of land heretofore conveyed by Laura A. Conner, widow, and others, to John P. Connell, by deed dated June 1, 1925, and of record in said Recorder's Office in Deed Book V-16, Vol. 393, page 8, and therein described as follows: BEGINNING at an iron pin set in the public road leading from the Dingee and Conard Company's Nurseries, Kemblesville, Pa., running along the middle of the said road South 1 deg. and 45 min. East 64 perches to an iron pin; set in the middle of the same road; thence by land now of the J. D. Conner Est. North 88 deg. and 15 min. East 25.28 perches to an iron pin; thence by the same North 36 deg. and 45 min. East about 79 perches to a stone; thence by land of the aforesaid Dingee and Conard Company, North 89 deg. and 15 min. West 74.28 perches to the place of beginning. CONTAINING 20 acres of land, more or less.

ALSO EXCEPTING and reserving from said Tract No. 6 as described in said mortgage, a parcel of land designated as Lot No. 10 on plat of survey made by Arthur Orwell, surveyor, dated October 1956, heretofore conveyed by Horace W. Patterson and wife, to Arthur L. Rowland, Jr., and Thelma D. Rowland, his wife, by deed dated Nov. 19, 1956, and of record in said Recorder's Office in Deed Book V-28, Vol. 693, page 341, and therein described as follows:

(2) BEGINNING in the middle of the West Grove-Wickertown Road in line of John P. Connell at the northwest corner of Lot No. 9; thence along the road by line of said Connell, North 3 deg. East 115 feet to the southwest corner of Lot No. 11; thence leaving the road by line of Lot No. 11, South 87 deg. East 225 feet crossing small run from a spring nearby; thence by land of said Patterson, South 3 deg. West 115 feet thence by same and line of Lot No. 9 North 87 deg. West 225 feet to the place of beginning. CONTAINING 25,875 sq. ft. of land, be the same more or less, and including a spring near the east end of said lot.

ALSO EXCEPTING and reserving from said Tract No. 6, a parcel of land designated as Lot No. 2 on the aforesaid plat by Arthur Crowell, Surveyor, dated October 1956, heretofore conveyed by Horace W. Patterson and wife to Robert D. Garzia and Dorothy Mae Garzia, his wife, by deed dated January 12, 1957, and of record in said Recorder's Office in Deed Book Y-28, Vol. 696, page 215, and therein described as follows: BEGINNING in the line of John P. Connell, Jr., on the west side of the West Grove-Wickertown Road at about 180 feet from its junction with the road to Avondale and at the northwest corner of Lot No. 1; thence along the west side of said road by line of Connell, North 3 deg. East 125 feet to the southwest corner of Lot No. 3; thence leaving said road by line of said Lot No. 3, South 87 deg. East 200 feet; thence by land of said Horace W. Patterson, South 3 deg. West 125 feet to the northeast corner of Lot No. 1; thence by line of Lot No. 1, North 87 deg. West 200 feet to the place of beginning. CONTAINING 25,000 sq. ft. of land, more or less.

ALSO EXCEPTING and reserving from Tract No. 6, Lot No. 11 on the aforesaid plat of survey by Arthur Crowell, Surveyor, dated October 1956 plus a strip of land lying on the east side of said Lot 25 feet wide, heretofore conveyed by the said Horace W. Patterson and wife to William Cassidy, Jr. and Opal I. Cassidy, his wife, by deed dated January 12, 1957, and of record in said Recorder's Office in Deed Book Y-28, Vol. 696, page 217, and therein described as follows: BEGINNING at a point near the middle of the West Grove-Wickertown Road, in line of land of John P. Connell at the northwest corner of Lot No. 10; recently conveyed to Arthur L. Roland; thence along said road by line of land of John P. Connell, North 3 deg. East 122 feet to the southwest corner of Lot No. 12, thence leaving said road by the line of Lot No. 12, and passing over an iron pin set near the east line of said road, South 87 deg. East 225 feet to an iron pin; thence by remaining land of the said Horace W. Patterson, et ux, South 3 deg. West 122 feet to an iron pin in line of said Lot No. 10; thence by the line of Lot No. 10 and passing over an iron pin set near the east line of said road, North 87 deg. West 225 feet to the place of beginning. CONTAINING 24,400 sq. ft. of land, more or less. (The area thereof having been recomputed to be 27,450 square feet, more or less.)

ALSO EXCEPTING and reserving from Tract No. 6, Lot No. 5 on the aforesaid plat of survey by Arthur Crowell, Surveyor, dated October 1956, which includes the tract of 16,000 sq. ft. of land conveyed by the said Horace W. Patterson and wife to James C. Patterson and L. Ruth Patterson, his wife, by deed dated March 28, 1956, and of record in said Recorder's Office in Deed Book P-28, Vol. 687, page 356, plus additional land lying east of said 16,000 sq. ft., and which said Lot No. 5 is described as follows: BEGINNING at a spike set in the center line of Twp. Road T-384; thence leaving said road and by Lot #4, South 87 deg. East 200 feet to a point; thence North 3 deg. West 100 feet to a corner of Lot #6; thence by Lot #6, North 87 deg. West 200 feet to a point in the center line of said road; thence along the center line of said road, South 3 deg. West 100 feet to the first mentioned point and place of beginning. CONTAINING 20,000 sq. ft., more or less.

ALSO EXCEPTING and reserving from Tract No. 6, a parcel of land described as follows: BEGINNING at a point in the center line of public road leading from New London to Avondale, Twp. Road T-333, said point of beginning being North 68 deg. 30 min. East 560 feet measured along the center of said road from the intersection of the center lines of Twp.

Roads Nos. 384 and 333; thence leaving said road and passing over a post set in the northerly side thereof, North 21 deg. 30 min. West 150 feet to a post; thence North 68 deg. 30 min. East 100 feet to a post; thence South 21 deg. 30 min. East 150 feet to a point in the center line of said road; thence along the center line of said road, South 68 deg. 30 min. West 100 feet to the first mentioned point and place of beginning. CONTAINING 15,000 sq. ft., more or less.

ALSO EXCEPTING and reserving from Tracts Nos. 5 and 6 as described in said mortgage, a parcel of land described as follows: BEGINNING at a point in the road leading from Avondale to New London, Twp. Road T-333, said point of beginning being North 68 deg. 30 min. East measured along the center line of said road 972 feet from the intersection of the center line of Twp. Road T-384; thence continuing along the center line of Twp. Road T-333, North 68 deg. 30 min. East 100 feet to a point; thence leaving said road, South 21 deg. 30 min. East 200 feet to a post; thence South 68 deg. 30 min. West 100 feet to a post; thence North 21 deg. 30 min. West 200 feet to the first mentioned point and place of beginning. CONTAINING 20,000 sq. ft., more or less.

AND ALSO ALL THAT CERTAIN tract of land situate in London Grove Township, in the County and State aforesaid, adjoining Tracts Nos. 5 and 9 herein, and described as follows: BEGINNING at a stone in a line of Joseph Lawrence's land now or late; thence by the above described Tract No. 5, South 86-3/4 deg. West 91.75 perches to a stone, North 1/2 of a deg. West 11 perches to a stake; thence by lands now or late of the Dingee and Conard Company, North 86-3/4 deg. East 91.6 perches to a stake in the line of said Lawrence's land and thence by the same South 1/4 deg. East 11 perches to the place of beginning. CONTAINING six acres and 47 perches, be the same more or less.

AND ALSO ALL THAT CERTAIN tract of land situate in London Grove Township, in the County and State aforesaid, adjoining Tract No. 5 and described as follows: BEGINNING at a point a corner of land, now or late of Henry Palmer and Cornelius O'Sullivan thence by the former North 1/4 deg. West 2.5 perches and North 88 deg. East 8 perches and one quarter to a line now or late of Cornelius O'Sullivan's land, thence by said O'Sullivan's land South 62-3/4 deg. West 5.7 perches and South 89 deg. West 3.05 perches to the place of beginning. CONTAINING 14 sq. perches of land, more or less.

AND ALSO ALL THAT CERTAIN tract of land situate in London Grove Township, County and State aforesaid, adjoining Tracts Nos. 5 and 7 as described in said mortgage, as follows: BEGINNING at a marked hickory tree and a corner of lands now or late of the said Mark Hughes and Henry Palmer, thence by land of the former North 75-3/4 deg. East 96 perches and a quarter to a stone in a public road a corner now or late of Joseph T. Lawrence's land, thence along the middle of said road by said Lawrence's land South 1 deg. West 65.4 perches to a stone a corner of other lands of the said Henry Palmer; thence by said Palmer's land, South 87 deg. 22 min. West 92.1 perches to a stone and North 1/4 of a degree West 45.95 perches to the place of beginning. CONTAINING 32 acres and 30 perches of land, be the same more or less.

BEING the same premises which Laura A. Conner, widow, and L. Monroe Kullbacker, single man, by deed dated March 30, 1946 and recorded in the Office of the Recorder of Deeds for Chester County, Pa., in Deed Book P-22, Vol. 837, Page 23, granted and conveyed unto Horace W. Patterson and Alice O. Patterson, his wife, grantors herein, in fee.

THIS CONVEYANCE is subject to all rights of way and easements of record affecting the above premises and subject to easements of roads and highways as same now exist.

TOGETHER with the right, liberty and privilege to the grantees, their heirs and assigns, to use for the conduit of water from the well on the property hereby conveyed through pipes existing on other property retained by the grantors, being the third exception heretofore referred to, containing 1.44 acres of land, in, over, under and along said property through said pipes to the barn and adjoining buildings on other parts of the property herein conveyed, with the right of ingress and egress to the grantees, their heirs and assigns, for the purpose of repairing and maintaining the same.

BOOK K 29 PAGE 306

And the said Grantor do hereby covenant to and with the said Grantee & that they, the said Grantor & the said Grantee, their heirs, assigns and forever defend the herein above described premises, with the hereditaments and appurtenances, unto the said Grantee & their heirs and assigns, against the said Grantor & against every other person lawfully claiming or who shall hereafter claim the same or any part thereof, by, from or under him, her, them or any of them.

IN WITNESS WHEREOF, the said Grantor has caused these presents to be duly executed, the day and year first above written.

SIGNED AND DELIVERED
In the Presence of:

H. M. Patterson
Alice C. Patterson

Horace W. Patterson (SEAL)
Alice C. Patterson (SEAL)

State of Pennsylvania

County of Chester

On this first day of July 1957, before me, the undersigned officer, personally appeared HORACE W. PATTERSON and ALICE C. PATTERSON, his wife, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.



REAL ESTATE TRANSFER TAX
PAID ON \$ 15,000.00
NOTARY PUBLIC
Rose Bauer
Notary Public
Chester County, Pa.
MY COMMISSION EXPIRES FEBRUARY 1, 1961

12804
JUL 1 2 42 PM '57

Deed

HORACE W. PATTERSON,
et ux

TO

FRED W. SHOWN, et ux

The address of the said Grantee is
Averdale, Penna.

On behalf of Grantee

450 -
49.50

1080

GRIFFITH, KURTZ & HARVEY

STATE OF PENNSYLVANIA,

COUNTY OF Chester,

RECORDED on this first day of July, A.D. 1957
in the Office of the Recorder of Deeds
Volume 707, Page 302, at 2:42 P.M.

GIVEN under my hand and the seal of the said office, the date above written.



This Deed, made this 18th day of September 1961.

Between, FRED W. SHOUN and AGNES L. SHOUN, his wife, of London Grove Township, Chester County, Pennsylvania

(hereinafter called the "Grantors"),

of the one part, and GABRIELE MATTIONI and DOMINIC MATTIONI of Avondale, Chester County, Pennsylvania (hereinafter called the "Grantees"), of the other part.

Witnesseth, That in consideration of One thousand Eight hundred (\$1,800.00)

Dollars, in hand paid, the receipt whereof is hereby acknowledged, the said Grantors do hereby grant and convey unto the said Grantees, their heirs and assigns,

ALL THAT CERTAIN lot of land situate in London Grove Township, Chester County, Pennsylvania, being lots No. 3 and 4 on a plan dated October 1956 made by Arthur Crowell, Registered Surveyor, and more particularly bounded and described as follows:

BEGINNING at a point in the West Grove - Wickerton Road, a corner of the land herein described and of land of Robert D. Garzia and Dorothy Mae Garzia, his wife; thence along the said road and by lands of John P. Connell, Jr. North 3 degrees East 200 feet to a point in the aforesaid road; thence leaving the said road and by lands of James Chase Patterson and L. Ruth Patterson, his wife South 87 degrees East 200 feet to an iron pin in line of lands of Fred W. Shoun and Agnes L. Shoun, Grantors herein; thence by lands of the said Grantors South 3 degrees West 200 feet to an iron pin passing over a second iron pin at a distance of 100 feet from the first mentioned iron pin; thence by lands of the aforesaid Robert D. Garzia and wife North 87 degrees West 200 feet to the first mentioned point and place of beginning.

CONTAINING 40,000 square feet of land be the same more or less.

UNDER AND SUBJECT nevertheless, to the following conditions and restrictions to which the hereby granted lot or piece of ground and any building which may be erected thereon hereafter shall be and remain subject:

1. No building on said lot and no building hereafter erected thereon shall be erected as or used or occupied as or for a mushroom house;
2. No dwelling house or other principal building shall be erected thereon unless the total cost of construction of the same shall exceed the sum of Twelve thousand (\$12,000.00) Dollars;
3. No house trailer or mobile home shall be parked or otherwise installed thereon for any use or purpose.

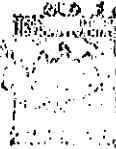
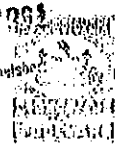
BEING a part of the same premises which Horace W. Patterson and Alice C. Patterson, his wife, by their Deed dated and recorded July 1st, 1957 in the Office of the Recorder of Deeds of Chester County in Deed Book K-29, volume 707, page 302 granted and conveyed unto Fred W. Shoun and Agnes L. Shoun, parties hereto, in fee.

REAL ESTATE TRANSFER TAX
PAID ON \$ 1800.00

Jose B. Gruff

DR. C. C.

BOOK M 33 PAGE 76



And the said Grantor 8 do hereby covenant to and with the said Grantee 8 that they, the said Grantor 8, their heirs, executors and administrators SHALL and WILL Warrant and forever Defend the herein above described premises, with the hereditaments and appurtenances, unto the said Grantee 8, their heirs and assigns, against the said Grantor and against every other person lawfully claiming or who shall hereafter claim the same or any part thereof, by, from or under him, her them or any of them.

IN WITNESS WHEREOF, the said Grantor 8 has caused these presents to be duly executed, the day and year first above written.

SEALED AND DELIVERED In the Presence of:

Ralph M. Hunt

Fred W. Shoun
Agnes L. Shoun



State of Pennsylvania County of Chester
On this 18th day of September 1961, before me, the undersigned officer, personally appeared Fred W. Shoun and Agnes L. Shoun, his wife known to me (or satisfactorily proven) to be the person whose name 8 are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

Catherine M. Hunt
My Commission Expires 8-1-62



SEP 18 2 23 PM '61
RECORDER OF DEEDS
CHESTER CO. PA.

1400
Bead

FRED W. SHOUN
and AGNES L. SHOUN
his wife

TO

GABRIELE MATTIONI
and DOMINIC MATTIONI

The address of the Grantee is
Avondale, Pa.

Ralph M. Hunt

Law Offices

Perna and Delduco

31 South High Street

West Chester, Pa.

RECORDED in Deed Book M-3 Page 76

GIVEN under my hand and the seal of the said office, the date above written.

Recorder of Deeds

BOOK M33 PAGE 77

This Indenture Made the 31st

day of March in the year of our Lord one thousand nine hundred and sixty seven.

Between FRED SHOUN a/k/a FRED W. SHOUN and AGNES SHOUN a/k/a AGNES L. SHOUN, his wife, of London Grove Township, Chester County, Pennsylvania, parties of the first part;

A N D

AARON J. MARTIN and JEAN T. MARTIN, his wife, of Kennett Township Chester County, Pennsylvania, parties of the second part,

Witnesseth, That the said parties of the first part

for and in consideration

of the sum of ONE DOLLAR (\$1.00)

lawful money of the United States of America, unto

them

well and truly paid by the said

parties of the second part

at and before the sealing and delivery of

these presents, the receipt whereof is hereby acknowledged,

have

granted, bargained, sold, aliened, enfeoffed,

released and confirmed, and by these presents

do

grant, bargain, sell, alien, enfeoff, release and confirm unto the said

parties of the second part, their heirs

and Assigns,

ALL THOSE TWO CERTAIN parcels or pieces of ground situate in the Township of London Grove, County of Chester, and State of Pennsylvania and described according to a plan of property to be conveyed to Aaron J. Martin by F. W. Shoun said plan made by G. E. Register, Jr., and Sons, Surveyors dated January 20, 1967 and revised February 22, 1967 as follows, to wit:

TRACT #1 - BEGINNING at a spike set at a point of intersection formed by the title line in the bed of Public Road T-333, said Road extends in a general Northeasterly direction from Wickertown to Avondale, with the title line in the bed of Public Road T-384, said Road extends in a general

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RECORDED
CHESTER CO.

Northerly direction from Public Road T-353 to West Grove; thence extending from said point of beginning along the title line through the bed of Public Road T-354, North 02 degrees 21 minutes 44 seconds East two hundred three and eleven hundredths (203.11) feet to a spike a corner of land now or late of R. H. Garcia; thence extending along the last mentioned land, North 88 degrees 49 minutes 10 seconds East, crossing the Easterly side of Public Road T-384 two hundred (200.00) feet to an iron pin; thence extending partly along the last mentioned land and partly along the lands of Gabriel Mattioni, F. P. Davillen and Late Roark, North 03 degrees 24 minutes 44 seconds West six hundred nine and seventeen hundredths (609.17) feet to an old iron pin a corner of land now or late of L. H. Knotts; thence extending along the last mentioned land, North 01 degree 45 minutes West, one hundred fifty (150.00) feet to an old iron pin in line of land now or late of T. D. Menaldi; thence extending along the last mentioned land, North 88 degrees 49 minutes 10 seconds East, twenty five (25.00) feet to an iron pin; thence extending partly along the last mentioned land and partly along the land now or late of William Cassidy, Jr., North 01 degree 45 minutes West two hundred thirty seven and two tenths (237.20) feet to an iron pin in line of land now or late of Walter Bosson; thence extending along the last mentioned land the five following courses and distances: (1) North 88 degrees 49 minutes 10 seconds East, one hundred six and fifty four hundredths (106.54) feet to an old iron pin; (2) North 88 degrees 52 minutes East, one hundred seventy three and fifty nine hundredths (173.59) feet to an old iron pin; (3) North 45 degrees 57 minutes 59 seconds East, one hundred sixty four and eighteen hundredths (164.18) feet to an old iron pin; (4) North 21 degrees 55 minutes 50 seconds West, forty five and thirty three hundredths (45.33) feet to an old iron pin and (5) North 31 degrees 59 minutes 26 seconds West, one hundred thirty six and twenty two hundredths (136.22) feet to an iron pin in line of land now or late of J. S. Connally; thence extending along the last mentioned land, North 56 degrees 50 minutes 40 seconds East, eleven hundred sixty five and four tenths (1165.40) feet to an iron pin in line of land now or late of Concord-Vale Company; thence extending along the last mentioned land South 89 degrees 15 minutes East, eighty eight and seventy three hundredths (88.73) feet to a stone, a corner of land now or late of J. E. Freidman; thence extending along the last mentioned land the two following courses and distances: (1) North 57 degrees 58 minutes 26 seconds East nine hundred eighty nine and thirty three hundredths (989.33) feet to a Hickory Tree and (2) North 75 degrees 15 minutes 55 seconds East, fifteen hundred eighty six and fifty nine hundredths (1586.59) feet to an old iron pin a corner of other land of J. E. Freidman; thence extending along the last mentioned land the two following courses and distances: (1) South 01 degree 47 minutes 59 seconds East nine hundred thirty two and three tenths (932.3) feet to an iron pin and (2) South 63 degrees 43 minutes 39 seconds East crossing the Northwesterly side of Public Road T-353, one hundred four and three tenths (104.3) feet to a spike on the title line in the bed of Public Road T-353 aforesaid; thence extending along the title line through the bed of Public Road T-353 the thirteen following courses and distances: (1) South 43 degrees 52 minutes 42 seconds West one hundred nineteen and fifty three hundredths (119.53) feet to a spike; (2) South 49 degrees 01 minute West, two hundred ninety one and ninety two hundredths (291.92) feet to a spike; (3) South 67 degrees 52 minutes West, sixty nine and seventy nine hundredths (69.79) feet to a spike; (4) South 69 degrees 16 minutes West, two hundred thirty two and eighty one hundredths (232.81) feet to a spike; (5) South 65 degrees 50 minutes West two hundred forty one and seven tenths (241.70) feet to a spike; (6) South 69 degrees 38 minutes West, one hundred fifteen and ninety six hundredths (115.96) feet to a spike; (7) South 73 degrees 10 minutes West, two hundred thirty and four hundredths (230.40) feet to a spike; (8) South 65 degrees 12 minutes West, one hundred twenty two and seventy one hundredths (122.71) feet to a spike; (9) South 48 degrees 52 minutes West two hundred thirty nine and nine tenths (239.90) feet to a spike; (10) South 52 degrees 58 minutes West two hundred twenty six and fifty one hundredths (226.51) feet to a spike; (11) South 58 degrees 20 minutes West two hundred thirty and five hundredths (230.05) feet to a spike; (12) South 72 degrees 36 minutes West one hundred twenty and sixty five hundredths (120.65) feet to a spike and (13) South 80 degrees 45 minutes West one hundred thirty six and forty seven hundredths (136.47) feet to a spike a corner of land now or late of H. W. Patterson; thence extending along the last mentioned land the three following courses and distances: (1) North 21 degrees 50 minutes West recrossing the Northwesterly side of Public Road T-353, two hundred forty nine (249.00) feet to an iron pin; (2) South 44 degrees 57 minutes 25 seconds East, two hundred ninety one (291.00) feet to a post and (3) South 30 degrees 50 minutes East again crossing the Northwesterly side of Public Road T-353, two hundred twenty nine and thirty three hundredths (229.33) feet to a spike on the title line in the bed of Public Road T-353 aforesaid; thence extending along the title line through the bed of Public Road T-353, South 62 degrees 55 minutes West twenty one and eighty five hundredths (21.85) feet to a spike a corner of land now or formerly of P. E. Bazzano; thence extending along the last mentioned land the three following courses

and distances (1) North 30 degrees 50 minutes West again recrossing the Northwesterly side of Public Road T-333, two hundred one and eighty eight (201.83) feet to an old iron pin (2) South 62 degrees 28 minutes 55 seconds West, two hundred ninety and thirty seven hundredths (200.37) feet to an iron pin and (3) South 22 degrees 05 minutes East again crossing the Northwesterly side of Public Road T-333, two hundred (200.00) feet to a spike on the title line in the bed of Public Road T-333 aforesaid; thence extending along the title line through the bed of Public Road T-333 South 62 degrees 55 minutes West crossing two spikes seven hundred sixty and sixty eight hundredths (760.68) feet to a spike, a corner of land now or late of H. W. Patterson; thence extending along the last mentioned land the three following courses and distances (1) North 28 degrees 15 minutes West once again crossing the Northwesterly side of Public Road T-333, one hundred forty eight and eighty four hundredths (148.84) feet to a post (2) South 60 degrees 42 minutes 19 seconds West ninety nine and two tenths (99.20) feet to a post and (3) South 27 degrees 56 minutes 22 seconds East once again recrossing the Northwesterly side of Public Road T-333, one hundred forty seven and eleven hundredths (147.11) feet to a spike on the title line in the bed of Public Road T-333 aforesaid; thence extending along the title line through the bed of Public Road T-333, South 61 degrees 40 minutes West five hundred seventy seven and fourteen hundredths (577.14) feet to the first mentioned spike and point of intersection, the point and place of beginning.

BEING PARCEL "A" as shown on the above mentioned plan.

CONTAINING in area 116.004 acres.

TRACT #2 - BEGINNING at a spike set at a point of intersection formed by the title line in the bed of Public Road T-384, said Road extends in a general Northerly direction from Public Road T-333 to West Grove, with the title line in the bed of Public Road T-333, said Road extends in a general Northeasterly direction from Wickerton to Avondale; thence extending from said point of beginning along the title line through the bed of Public Road T-333 the two following courses and distances: (1) North 61 degrees 40 minutes East six hundred seventy seven and fourteen hundredths (677.14) feet to a spike and (2) North 62 degrees 55 minutes East three hundred eleven and eighty six hundredths (311.86) feet to a spike a corner of land now or late of H. W. Patterson; thence extending along the last mentioned land the three following courses and distances: (1) South 26 degrees 12 minutes East crossing the Southeasterly side of Public Road T-333, two hundred three and fifty two hundredths (203.52) feet to a post (2) North 59 degrees 29 minutes 24 seconds East, one hundred three and eighty six hundredths (103.86) feet to a post and (3) North 27 degrees 16 minutes 03 seconds West recrossing the Southeasterly side of Public Road T-333, one hundred ninety seven and twenty five hundredths (197.25) feet to a spike on the title line in the bed of Public Road T-333 aforesaid; thence extending along the title line through the bed of Public Road T-333, North 62 degrees 55 minutes East crossing a spike, five hundred nineteen and twenty five hundredths (519.25) feet to a spike a corner of remaining land of H. W. Shoup; thence extending along the last mentioned land the three following courses and distances: (1) South 27 degrees 05 minutes East again crossing the Southeasterly side of Public Road T-333, three hundred (300.00) feet to an iron pin (2) North 62 degrees 55 minutes East three hundred (300.00) feet to an iron pin and (3) North 27 degrees 03 minutes 58 seconds West again recrossing the Southeasterly side of Public Road T-333, two hundred eighty five and seventy seven hundredths (285.77) feet to a spike on the title line in the bed of Public Road T-333 aforesaid; thence extending along the title line through the bed of Public Road T-333 the eleven following courses and distances (1) North 69 degrees 24 minutes East one hundred twenty two (122.00) feet to a spike (2) North 30 degrees 45 minutes East one hundred forty one and forty eight hundredths (141.48) feet to a spike (3) North 72 degrees 56 minutes East one hundred twenty and sixty five hundredths (120.65) feet to a spike (4) North 35 degrees 20 minutes East two hundred thirty and five hundredths (230.05) feet to a spike (5) North 52 degrees 58 minutes East two hundred twenty six and fifty one hundredths (226.51) feet to a spike (6) North 48 degrees 52 minutes East two hundred thirty nine and nine tenths (239.90) feet to a spike (7) North 63 degrees 42 minutes East one hundred twenty two and seventy one hundredths (122.71) feet to a spike (8) North 73 degrees 10 minutes East, two hundred thirty and four hundredths (230.04) feet to a spike (9) North 69 degrees 38 minutes East one hundred fifteen and ninety six hundredths (115.96) feet to a spike (10) North 65 degrees 30 minutes East two hundred forty one and seven tenths (241.70) feet to a spike and (11) North 69 degrees 16 minutes East two hundred thirty two and eighty one hundredths (232.81) feet to a spike a corner of land now or late of H. E. Davidson; thence extending along the last mentioned land the three following courses and distances (1) South 04 degrees 15 minutes 44 seconds East once again crossing the Southeasterly side of Public Road T-333

one hundred eighty three and four hundredths (183.04) feet to a post (2) North 82 degrees 22 minutes 52 seconds East twenty nine and fifty six hundredths (29.56) feet to an old iron pin and (3) North 85 degrees 17 minutes 35 seconds East two hundred fifty three and sixty nine hundredths (253.69) feet to an iron pin in line of land now or late of A. E. Row; thence extending along the last mentioned land, South 01 degrees 39 minutes 25 seconds East, four hundred seventy five and seventy eight hundredths (475.78) feet to an old iron pin; thence extending partly along the last mentioned land and partly along the land now or late of H. H. Croves, South 02 degrees 00 minutes East four hundred ninety six and eighty three hundredths (496.83) feet to an old iron pin in line of land now or late of F. H. Hunger; thence extending along the last mentioned land the two following courses and distances (1) South 85 degrees 35 minutes 41 seconds West two hundred sixty two and fifty six hundredths (262.56) feet to an old iron pin and (2) South 02 degrees 00 minutes 43 seconds East three hundred sixty nine and fifty eight hundredths (369.58) feet to an old iron pin in line of land now or late of F. H. Hunger; thence extending along the last mentioned land the three following courses and distances (1) South 30 degrees 55 minutes 40 seconds West seven hundred thirty one and eighty nine hundredths (731.18) feet to an iron post (2) South 41 degrees 04 minutes 45 seconds East crossing a twenty (20) foot wide Chester Water Authority easement five hundred forty six and six hundredths (546.06) feet to a post, the distance between the Southerly line of the said easement and the last mentioned post being ninety six and thirty three hundredths (96.33) feet and (3) South 01 degree 52 minutes 11 seconds East six hundred seventy eight and forty eight hundredths (678.48) feet to an iron pin, a corner of remaining land of F. H. Shoun; thence extending along the last mentioned land the three following courses and distances (1) South 85 degrees 27 minutes 49 seconds East two hundred fifty five and forty one hundredths (255.41) feet to an iron pin (2) South 38 degrees 21 minutes West one hundred ninety and sixty three hundredths (190.63) feet to an iron pin and (3) South 33 degrees 58 minutes 17 seconds East crossing the Northwesterly side of Public Road (T-527), said road extends in a general Northwesterly direction from Public Road T-521 to Wendale, five hundred twenty four and seventy eight hundredths (524.78) feet to a spike on the title line in the bed of Public Road T-527; thence extending along the title line through the bed of Public Road T-527, the four following courses and distances (1) South 38 degrees 21 minutes West four hundred seventy five and fifty one hundredths (475.51) feet to a spike (2) South 25 degrees 31 minutes West two hundred four and twenty five hundredths (204.25) feet to a spike (3) South 37 degrees 45 minutes West one hundred three and fifty six hundredths (103.56) feet to a spike and (4) South 45 degrees 50 minutes West, seven hundred forty eight and fifty three hundredths (748.53) feet to a spike on the title line in the bed of Public Road T-521 aforesaid; thence extending along the title line through the bed of Public Road T-521, South 85 degrees 15 minutes West two hundred sixty four and ninety two hundredths (264.92) feet to a spike, a corner of remaining land of F. H. Shoun; thence extending along the last mentioned land the seven following courses and distances (1) North 02 degrees 02 minutes 22 seconds West crossing the Northwesterly side of Public Road T-521 nine hundred fifty and ninety five hundredths (950.95) feet to an iron pin (2) North 85 degrees 16 minutes East two hundred one and eighty nine hundredths (201.89) feet to an iron pin (3) North 36 degrees 44 minutes West four hundred six and thirty one hundredths (406.31) feet to an iron pin (4) South 85 degrees 26 minutes West four hundred fifty and one hundredths (450.01) feet to an iron pin (5) South 06 degrees 44 minutes East four hundred seven and sixty two hundredths (407.62) feet to an iron pin (6) North 85 degrees 16 minutes East one hundred ninety seven and ninety five hundredths (197.95) feet to an iron pin and (7) South 02 degrees 02 minutes 22 seconds East recrossing the Northwesterly side of Public Road T-521, nine hundred forty nine and twenty four (949.24) feet to a spike on the title line in the bed of Public Road T-521 aforesaid; thence extending along the title line through the bed of Public Road T-521 the two following courses and distances (1) South 85 degrees 15 minutes West six hundred fifty seven and twenty hundredths (657.20) feet to a spike and South 81 degrees 41 minutes West five hundred forty eight and twenty three (548.23) feet to a spike a corner of land to be conveyed by F. H. Shoun to Charles Shoun; thence extending along the last mentioned land the two following courses and distances (1) North 01 degree 51 minutes 19 seconds West again crossing the Northwesterly side of Public Road T-521, two hundred seventeen (217.00) feet to a point and (2) South 84 degrees 41 minutes West, two hundred (200.00) feet to a point in line of land now or late of F. H. Brown; thence extending partly along the last mentioned land and partly along the lands now or late of F. L. Miller and A. F. Sazzoli, North 01 degree 51 minutes 19 seconds East nine hundred fifty five and ninety one hundredths (955.91) feet to an old iron pin; thence extending partly along the said land of A. F. Sazzoli

and partly along the lands now or late of J. P. Connell and R. E. Flahart, North 02 degrees 04 minutes 19 seconds West recrossing the aforesaid twenty (20) foot wide Chester Water Authority Easement, fourteen hundred forty five and forty eight hundredths (1445.48) feet to a post, a corner of land now or late of J. P. Connell, Jr., the distance between the last mentioned old iron pin and the Southerly line of the said easement being two hundred thirty eight and three hundredths (238.03) feet; thence extending along the last mentioned land, North 01 degree 59 minutes 13 seconds West crossing the Southeasterly side of Public Road T-333, three hundred twenty eight and eight hundredths (328.08) feet to the first mentioned spike and point of intersection, the point and place of beginning.

BEING PARCEL "B" as shown on the above mentioned plan.

CONTAINING in area 234.044 acres.

BEING PART OF THE SAME PREMISES which Helen E. Buckalew and Everett A. Buckalew, her husband by Deed dated March 12, 1935 and recorded in the office for the Recording of Deeds in and for Chester County in Deed Book C-19, Vol. 450, page 337 granted and conveyed unto Fred W. Shoun and Agnes Shoun, his wife, in fee.

ALSO BEING PART OF THE SAME PREMISES which John W. O'Brien et al by their Attorney-in-Fact, Norman S. Pusy and The First National Bank of West Chester, Guardian of the Estate of Elizabeth C. O'Brien a minor by Deed dated March 6, 1951 and recorded as aforesaid in Deed Book X-22, Vol. 545, page 508 granted and conveyed unto Fred Shoun and Agnes Shoun, his wife, in fee.

ALSO BEING PART OF THE SAME PREMISES which Horace W. Patterson and Alice C. Patterson, his wife, by Deed dated July 1, 1957 and recorded as aforesaid in Deed Book K-29, Vol. 708 page 302 granted and conveyed unto Fred W. Shoun and Agnes L. Shoun, his wife, in fee.

See also Deed of Correction from Alice C. Patterson, widow, to Fred W. Shoun and Agnes L. Shoun, dated March 31, 1967 and intended to be recorded immediately prior hereto.

SUBJECT to the right to the owners of a tract designated as 2.046 acres, their heirs and assigns, to the exclusive use of water from a well situate on the North side of Township Road T-333 and North of premises shown as Horace W. Patterson, (1.465 acres) all as shown on plan of George E. Paepster, Jr. & Sons dated January 20, 1967 and of record, together with the right to go upon said land along the line of said pipe for the purpose of removal and repair and the maintenance of said well.

Together with all and singular the Streets, Alleys, Passages,
Ways, Waters, Water-Courses, Rights, Liberties, Privileges, Hereditaments and Appurtenances, whatsoever
thereunto belonging, or in any wise appertaining, and the Reversions and Remainders, Rents, Issues and
Profits thereof; and all the estate, right, title interest, property, claim and demand whatsoever, with
kitchen plant and residence,

of the parties of the first part, their heirs and assigns in law, equity,
or otherwise howsoever, of, in, and to the same and every part thereof,

To have and to hold the said

Hereditaments and Premises hereby granted, or mentioned
and intended so to be, with the Appurtenances,
unto the said

Parties of the second part, their heirs and Assigns, to and for the only proper use
and behoof of the said

Parties of the second part, their heirs and Assigns forever,
as tenants by the entireties.

And the said Parties of the first part

for themselves, their heirs and assigns Do by
these presents, covenant, grant and agree, to and with the said
Parties of the second part, their heirs
and Assigns, that they the said
Parties of the first part, their heirs and assigns, all and singular the
Herediments and Premises herein above described and granted, or mentioned and intended so to be, with
the Appurtenances, unto the said
Parties of the second part, their heirs
and Assigns, against them the said
Parties of the first part, their heirs and assigns
and against all and every other Person or Persons whomsoever lawfully claiming or to claim the
same or any part thereof, by, from, or under him, her, them, or any of them,

shall and will By These Presents

WARRANT and forever DEFEND.

In Witness Whereof, the parties of the first part have hereunto set their
hands and seals the day and year first above written.

182, 683.60
Sealed and Delivered
IN THE PRESENCE OF US:

W. J. H. H. H.
George S. Houghton

Fred. Shoun (Seal)
Fred. Shoun

a/k/a Fred. Shoun (Seal)
Fred. Shoun

Agnes Shoun (Seal)
Agnes Shoun

a/k/a Agnes S. Shoun (Seal)
Agnes S. Shoun



M 37 PAGE 294

Recorded, the day of the date of the above Indenture, of the above-named



On the 31st day of March Anno Domini 19 67, before me,
the subscriber, a Notary Public in and for County and State aforesaid

personally appeared the above-named Fred Shoun a/k/a Fred T. Shoun and Agnes Shoun
a/k/a Agnes L. Shoun

and in due form of law acknowledged the above Indenture to be their act and deed, and
declared the same might be recorded as such.

Witness my hand and Notarial seal the day and year aforesaid.

George S. Houghton

NOTARY PUBLIC
My Commission Expires Oct. 2, 1968
Brockhaver, Boro., Delaware Co., Pa.

My Commission expires

I certify the precise consideration for
the within conveyance is \$ 182,650.00

W. J. Strain, Atty. Atty

The address of the within Grantees is
Roundhill Road, Kennett Square, Pa.

W. J. Strain, Atty

Recorded in the Office for Recording of Deeds in and for Ches. Co. Pa.

in Deed Book M 31 No. page 288 &c.

Witness my hand and seal of Office this

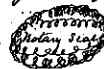
day of March Anno Domini 19 67

M 37 MAR 295

On the Seventeenth day of March, A.D. 1883, before me a Notary Public for the Commonwealth of Pennsylvania residing in the City of Philadelphia personally appeared the above named Charles C. Korman and Anna M. his wife, and in due form of law acknowledged the above Indenture to be their and each of their act and deed, and desired that the same might be recorded as such.

And the said Anna H. being of full age, and separate and apart from her said husband, by me
thereon privately examined, and the full contents of the above deed being by me first made known unto
her, did thereupon declare and say, that she did voluntarily and of her own free will and record, sign
seal, and as her act and deed deliver the above written indenture, Deed, or Conveyance without any coercion
or Compulsion, of her said husband. Witness my hand and Official Seal, the day and year
last aforesaid.

Saml H. Buck
Notary Public



Recorded March 22nd 1883

Speed

George D. Ashbridge
59 to
Henry Palmer

This Indenture made the seventeenth day of March in the year of our
 George D Ashbridge } Lord one thousand eight hundred and Eighty three. Between George D.
 6 } Ashbridge of the Borough of West Chester in the County of Chester and State of
 Henry Palmer } Pennsylvania of the one part, And Henry Palmer of the City of Chester and State
 of said of the other part, Witnesseth, that the said George D Ashbridge for
 and in Consideration of the sum of Twenty thousand dollars, lawful Money of the United States of
 America, unto him well and truly paid by the said Henry Palmer for and before the sealing
 and delivery of these presents, the receipt whereof is hereby acknowledged, has granted, conveyed, sold, alien, conveyed, release
 and confirmed unto the said Henry Palmer, his heirs and assigns, All that certain tract or parcel
 of land with the buildings and improvements, thereon erected, situate in London Grove Township
 in the County of Chester aforesaid and described according to a survey made June 11th and 14th 1877 by
 B. S. Waller Surveyor as follows to wit: Beginning at a Stone set for a corner of this and land
 formerly of the Singer and Conrad Companies, thence North one half of a degree West fifty seven
 perches and three tenths to a Hickory tree at the corner of said land, thence by the said land South
 eighty nine degrees and a half West sixty one perches passing through a beech tree to a Stone
 a corner of land of Howard Preston, thence by the said Preston's land North eighty eight degrees and
 a half West, seventy nine perches and seven tenths to a Stone set for a corner in the road leading to
 West Grove, thence by said road South one degree and a half East fifty two perches and one tenth to
 a Stone in the Easterly side of said road thence crossing said road South eighty five degrees West two
 perches to a Stone on the Westerly side of said road, thence along the Westerly side of said road and
 by land of Caleb Wood, South one degree and a half East one perch and eight tenths to a Stone
 thence by land late of Esther Cook being the tract of land next hereinafter described the then following
 courses and distances to wit: North eighty three degrees and a half East thirty four perches and one
 tenth to a Stone, South sixteen degrees East eighty perches to a Stone in the road leading to Somersdale
 and South twenty six degrees and three quarters East fifty two perches and eight tenths to a Stone,
 thence by land of Onoch Moore the three following courses and distances to wit: South three quarters of a
 degree West five perches and eighty five hundredths to a Stone, North eighty nine degrees and
 three quarters East, six perches to a Stone and South one degree and three quarters East two perches
 to a Stone thence still by the same and land of John O'Brien North eighty nine degrees and three quarters
 East eighty seven perches and eight tenths passing through a Stone a corner of land of the said
 Onoch Moore and John O'Brien to a Stone a corner of land of Cornelius O'Sullivan thence by the last
 mentioned land the four following courses and distances to wit: North one quarter of a degree West
 thirty three perches and twenty hundredths to a Stone, North eighty nine degrees East forty four perches

and five tenths to a stone, North one degree and a half West two perches and five tenths to a stone North Eighty Eight degrees and a quarter East, sixteen perches to a stone and thence by the same angled land of Joseph Lawrence crossing the said road leading to Providence North by the quarter of a degree West Eighty nine perches and five tenths to a stone and thence by the said land formerly of the Singer and Conrad Company being the head of land last hereinbefore described, South Eighty Six degrees and three quarters West Ninety one perches and seventy five hundredths to the place of beginning, Containing One hundred and seventy one acres more or less.

Also a certain Measured or Tract or Piece of land situate in the Township of London Grove aforesaid, Bounded and described as follows Beginning at a stone in the public road leading from Bostonville to the Elk Road in a line of Calist Wood's land thence by the above described tract of land the three following courses, and distances to wit: North Eighty three degrees and a half East, thirty four perches, and one tenth to a stone South Sixteen degrees East Eighty perches to the middle of the Elk Road and South twenty six degrees and three quarters East fifty two perches and eight tenths to a stone thence by land of Charles Moore South Seventy eight degrees and three quarters West Eighty perches and four tenths to a stone, thence by land of William H. Lyons, North sixteen perches to a stone, and North seventy four degrees and a half West, sixteen perches and seventy five hundredths to a stone in the aforesaid Elk Road, thence along said road by Charles Bennett's land North twenty seven degrees and a half East, three perches and a half to a stone, and thence along the said road by land of the said Esther Cook North fifty one degrees and a half East, nineteen perches and thirty five hundredths to a stone thence along the first above mentioned road by said Cook's land and land of the said Calist Wood North one degree and three quarters West forty seven perches to a stone, thence by the said Wood's land and along the said road North one quarter of a degree West fifty two perches and eight tenths to the place of beginning, Containing forty five acres and one hundred perches to the same more or less, Excepting and reserving however to the Owners and Occupiers of the adjoining premises on the West the right at any and all times hereafter of using the water from the Springs on said premises for the purpose of forcing the same to the buildings then occupied by Macellions & Cook and Esther his wife by means of an hydraulic ram and pump underground as then used for supplying the said buildings and the Occupiers thereof with water with the privilege of extending upon said premises for the purpose of repairing and repairing the same from time to time as often as may be necessary to keep the same in good repair doing as little damage as possible to said premises.

And also All that certain Piece or parcel of land situate in the Township of London Grove aforesaid and bounded and described as follows to wit: Beginning at a stone in a line of Joseph Lawrence's land, thence by the first above described tract, South Eighty six degrees and three quarters West Ninety one perches and seventy five hundredths to a stone and North one half of a degree West Eleven perches to a stake, thence by land of the Singer and Conrad Company, North Eighty six degrees and three quarters East Ninety one perches and six tenths to a stake in the line of said Lawrence's land and thence by the same North one degree and a quarter East Eleven perches to the place of beginning, Containing Six Acres and forty seven perches, be the same more or less, (Being the same premises which George R. Hopkins High Sheriff of Chester County by his Deed Poll bearing date the first day of February 1883 Entered in Sheriff's Deed Book No 9 page 52 and Recorded in the Office of the Recorder of Deeds of Chester County in Deed Book 29 Vol 213 page 3451e granted and conveyed to the said George D. Ashbridge in fee.

Together with all and singular the Improvements, Ways, Waters, Water Courses, Rights, Liberties, Privileges, Hereditaments and Appurtenances thereto belonging, or in anywise appertaining, and

the Rivers
property de
scribing of w.

To R
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interest
rate. &
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paid in

the Reversions and Remainders, Rents, Issues and Profits thereof; and all the Estate, right, title, interest, property, claim and demand whatsoever of him the said George D. Ashbridge in law, equity or otherwise done or to be done by or to the same and every part thereof.

To Have and to hold the said Messuage or Tenement and Tracts or Parcels of Land, hereditaments and premises hereby granted or mentioned admitted to be with the appurtenances, unto the said Henry Palmer his heirs and assigns, to and for the only proper use and behoof of the said Henry Palmer his heirs and assigns forever.

And the said George D. Ashbridge for himself his heirs, executors and Administrators, does by these presents covenant grant and agree, to and with the said Henry Palmer his heirs and assigns that he the said George D. Ashbridge and his heirs all and singular the hereditaments and premises herein above described and granted, or mentioned and intended to be, with the appurtenances, unto the said Henry Palmer his heirs and assigns, against the said George D. Ashbridge and his heirs, and against all and every other person or persons whomsoever claiming or to claim the same, or any part thereof, by force, through, or under him them or any of them shall and will warrant and firm defend.

In witness whereof the said Party of the first part has hereunto set his hand and seal Dated the day and year first above written.

Sealed and delivered
in the presence of us

St. Rupert
John Court

Geo. D. Ashbridge



On the seventeenth day of March A.D. 1863 before me a Notary Public in and for the County of Chester, State of Pennsylvania residing at West Chester, personally appeared the above named George D. Ashbridge and in due form of law acknowledged the above Indenture to be his act and deed, and desired the same might be recorded as such.

Witness my hand and Official seal the day and year above written.

St. Rupert
Notary Public



Recorded March 25th 1863

DEED

Enoch Davis of the
County of Chester
State of Pennsylvania

Do hereby certify that

This Indenture made the sixth day of April in the year of our Lord one thousand eight hundred and eighty between Enoch J. Davis and Mary Elizabeth his wife of the Township of Radnor in the County of Delaware and Dr. William A. Pennypacker and Eliza D. his wife of the Township in the County of Chester all of the State of Pennsylvania of the first part and Davis Miller of the Township of Charlestown County of Chester and State of Pennsylvania of the second part. Whereas Samuel Davis by virtue of divers good conveyances and assurances in law duly had and executed became in his lifetime seized in his demesne as of fee amongst other lands of and in a certain tract of land, formerly by lawfully devised, and intestate having issued the aforesaid Enoch J. Davis and Eliza Davis now Pennypacker by matrimony with Dr. William A. Pennypacker also issue James Davis, who died since the decease of his father the aforesaid Samuel Davis, intestate, and without issue her interest in the said forty three acres of land descended to the aforesaid Enoch J. Davis and Eliza Davis to whom the entire interest in the same did descend and come, in accordance with the laws of Pennsylvania to intestate. Now this Indenture witnesseth, that the said party of the first part for and in consideration of the sum of Five Hundred and Sixty dollars lawful money of the United States, to them in hand paid by the said Davis Miller at and before the sealing and delivery hereof, the receipt whereof is hereby

DECLARATION OF GENERAL CONDITIONS
FOR COVENANTS UNDER ACT 515
ADOPTED BY THE COUNTY OF CHESTER

INTENDING TO BE LEGALLY BOUND, the COUNTY OF CHESTER (hereinafter called "COUNTY"), and any and all persons, firms, corporations, or other entities owning real estate in Chester County, Pennsylvania, who are or become bound by these conditions (whether singular or plural hereinafter called "OWNER"), agree as follows:

1. COUNTY has enacted a plan for implementation of Act 515, P.L. 1292 (1965), January 13, 1966, (16 P.S. 11941, et seq) (hereinafter called "ACT 515"). The General Conditions set forth in this Agreement are intended to be incorporated by reference into written Agreements constituting covenants running with the land between the COUNTY and one or more OWNERS desiring to employ the benefits of ACT 515. The Agreement and Covenant between the COUNTY and OWNER shall designate the specific tract or tracts of land owned by OWNER and is hereinafter referred to as "covenanted land" or "land to be covenanted."

2. OWNER warrants that he is the owner of the land to be covenanted as is more particularly described in a written application made by OWNER to the COUNTY, which application is incorporated herein by reference in its entirety. All references in this Agreement to "OWNER" and all of the rights, privileges, duties and liabilities of OWNER shall include and inure to the benefit of and be binding upon OWNER'S heirs, personal representatives, successors and assigns.

3. COUNTY acknowledges that OWNER'S land to be covenanted is subject to the provisions of Act 515 and is designated as farm, forest, water supply or open-space land in the plan duly adopted by the County's Planning Commission.

4. OWNER agrees that from January 1 following the execution of the Contract and Covenant between OWNER and COUNTY and its approval by the Court, and upon recording in the office of the Recorder of Deeds, (hereinafter called the Effective Date), the OWNER will preserve the covenanted land in one or more of the designated uses as set forth in ACT 515, as is more particularly set forth in the specific Agreement between COUNTY and OWNER; which covenant shall be binding upon and run with the covenanted land, that the covenanted land will remain in the use as is more particularly described in the Contract and Covenant between OWNER and COUNTY for a period of ten (10) years commencing with the effective date of the Contract and Covenant.

5. COUNTY hereby covenants and agrees with OWNER that the real property tax assessment for the covenanted land for a period of ten (10) years commencing with the effective date of covenant will reflect fair market value of the land as restricted by the covenant.

6. From time to time, as required by law, County shall review the value of all real estate in the County. In the event any change or changes in circumstances alters the fair market value of the covenanted land, either COUNTY or OWNER may apply to reassess or contest the assessment or reassessment or the covenanted land to revise "the covenant-free assessment and the covenanted assessment". Any such revision shall be governed by the appeal procedure for real estate tax assessments generally, as it applies to the County of Chester.

7. Each year on the anniversary date of effective date (January 1) of the covenant, it shall be extended for one (1) year, unless:

240 335

ST. 26571M

TA 207,688
431,635
1-5486132

CS-3936
CS-3507

205-700-5

FAP 2129

PA4348

DOV 146001

JUN 17 11 55 AM '70

242 916-M

242 916-M

TA 216,570

2050 1394

25-2274

290674

2357-G
4763-G

1009-P49

(a) At least thirty (30) days prior to any anniversary date of the effective date of the covenant OWNER notifies COUNTY that OWNER wishes to terminate the Contract and Covenant at the expiration of ten (10) years from the anniversary date, or

(b) At least thirty (30) days prior to an anniversary date of effective date of covenant, which date shall be considered the first effective date for the covenant and assessments subject to the covenant, COUNTY notifies OWNER it wishes to terminate the covenant at the expiration of ten (10) years from the anniversary date, on the sole ground that the plan designating the covenanted land as farm, forest, water supply or open-space land has been amended officially so that the designation of the covenanted land is no longer in accord with the plan.

8. Notification of the desire by either COUNTY or OWNER to terminate the covenant shall be given by Certified Mail to the other party.

9. If OWNER, while the covenant is in effect, subdivides, conveys in part or alters the use of the land or any portion thereof to any use other than that specified in the Contract and Covenant between OWNER and COUNTY, such subdivision, conveyance in part and/or alteration shall constitute a breach of the covenant.

10. In the event of a breach of the covenant by OWNER, OWNER shall pay to COUNTY at the time of the breach, as liquidated damages:

The difference between the real property taxes paid and the taxes which would have been payable absent the covenant, plus compound interest at the rate of five percent (5%) per year from the date of entering the covenant to the date of its breach or from a date five (5) years prior to the date of its breach, whichever period is shorter. Should ACT 515 be amended to change the period for which liquidated damages are payable, OWNER and COUNTY agree that this Covenant be amended accordingly.

11. Any person or municipal body may notify COUNTY of an alleged breach of the Covenant by OWNER, and if COUNTY determines prima facie that a breach has occurred, it shall give written notice to OWNER of the date or dates and nature of the alleged breach and the OWNER shall have the right to a hearing before the Board of Assessment Appeals. Any person aggrieved by the decision of the Board of Assessment Appeals as to whether a breach has occurred or not, shall have the right of appeal in the same manner and within the same limitations as applied with regards to the appeals from tax assessments, as it applies to the County of Chester.

12. OWNER hereby authorizes the COUNTY, or its agents, or its employees to enter upon and inspect the covenanted land, from time to time, to determine if OWNER is complying with his covenant.

13. The COUNTY appoints and designates the County Solicitor as its authorized representative to "Approve" the Covenant on behalf of the COUNTY.

14. The acquisition by lease, purchase, or eminent domain, and use of rights-of-way or underground storage rights in the covenanted land by a public utility or other body entitled to exercise the power of eminent domain shall not constitute a subdivision, conveyance in part, or an alteration of use or a breach of covenant.

15. If any provision of these General Conditions or Contract and Covenant be declared invalid, or inapplicable, to any person or circumstances, the remaining terms and conditions shall

remain in full force and effect. However, if the covenanted assessment be declared invalid, unconstitutional, illegal, or inapplicable and taxes are imposed based upon the covenant-free assessment, then these General Conditions shall be null and void and of no effect.

These General Conditions are declared and adopted the 14th day of MAY, 1974.

COUNTY OF CHESTER

BY:

Theodore S. A. Rubino (SEAL)
Monroe L. Nute (SEAL)
Leo D. McDermott (SEAL)

COMMONWEALTH OF PENNSYLVANIA :

COUNTY OF CHESTER :

: ss.

On this 14th day of May, A. D., 1974, before me, the subscriber, personally appeared Theodore S. A. Rubino, Monroe L. Nute and Leo D. McDermott, known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

my hand and official seal.

In Witness Whereof, I hereunto set

Hanna Stranger
HANNA STRANGER, Notary Public
COATESVILLE, CHESTER CO. PA.
My Commission Expires March 2, 1977

Gene K. Citel
RECORDER OF DEEDS

Rec. in Chester Co. Pa. in
Mus. No. 240, 335

240 337

GENERAL EASEMENT AGREEMENT

IT IS HEREBY AGREED that AARON J. MARTIN and JEAN T. MARTIN, his wife, and JOHN M. ROUSE, equitable owner (hereinafter called "Grantors"), for the sum of ONE DOLLAR (\$1.00) and other valuable consideration paid by LONDON GROVE TOWNSHIP, a Township of the Second Class, located in Chester County, Pennsylvania (hereinafter called "Grantee") do grant, sell and convey unto Grantee an easement and right-of-way upon and across the property of the Grantors described in two certain deeds recorded in the office of the Recorder of Deeds in and for Chester County, Pennsylvania, in Deed Book M-37, page 288, and Deed Book S-211, page 90, and more particularly described by metes and bounds in Exhibit "A" attached hereto, and depicted on the plan entitled Inniscrone, Tentative Open Space Easement Plan for the Treatment, Storage and Disposal of Sewage by Spray Irrigation, prepared by James C. Kelly and Associates, Consulting Engineers and Surveyors, dated 5/21/92, attached hereto and marked Exhibit "B".

The easement, rights and privileges herein granted shall be used only for the purpose of allowing the Grantee to install, construct, reconstruct, replace, remove, enlarge, inspect, operate, repair, make connections with and maintain perpetually a municipal sanitary sewer system which shall include, but shall not be limited to: sanitary sewer pipe, conduit, manholes, drains, markers, service connections, spray irrigation fields,

spray irrigation pipes and spray heads, pumping stations, treatment facilities, ponds, lagoons, maintenance structures and other appurtenances; and to collect, treat and dispose of sewage within the easement areas hereby granted as identified in Exhibit "B", regardless of the source of such sewage.

The easement, rights and privileges herein granted shall be perpetual or for so long as Grantee or its assigns shall operate the said municipal sanitary sewer system within said easement areas. Grantors hereby bind themselves, their heirs and legal representatives, to warrant and forever defend the above-described easement and rights unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

The easement, rights and privileges granted herein are exclusive to the Grantee, as to the limited sanitary sewer system use for which they are granted, and Grantors covenant that they will not convey any other easement or conflicting rights within the areas covered by this grant. Grantors reserve and retain the right to convey nonconflicting easements, rights and privileges to such other persons as Grantors may deem proper in connection with the open space uses for which the easement areas are intended to be used, including the golf course, recreational and passive open space uses to which the land subject to the easement is devoted and for which it has been approved by London Grove Township.

On the completion of any construction and installation, repair and maintenance of the sanitary sewer system by the Grantee, Grantee shall replace and restore all fences, walls or other structures which may have been relocated or removed during the performance of such work and otherwise restore all disturbed areas to the condition in which the same were found before such work was undertaken, including replacement and/or repair of damaged property, turf, greens, bushes, traps, tees, trees and other natural features, and other golf course and recreational facilities; and Grantee shall pay Grantors reasonable compensation for such fences, walls or other structures which may not be replaceable, and for such property, turf, greens, bushes, traps, tees, trees and other natural features and other golf course and recreational facilities as may have been damaged or destroyed during such construction and installation, repair and maintenance.

The easement, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, are abandoned by Grantee or become impossible of performance.

Should Grantee fail to perform any covenant, undertaking or obligation arising hereunder, all rights and privileges granted hereby shall terminate, and this agreement shall be of no further force or effect.

Grantors also retain, reserve and shall continue to enjoy the use of the surface of such property for any and all purposes which do not interfere with and prevent the use by Grantee of the within easement, including, but not limited to, the aforesaid open space uses.

This instrument shall be binding on the heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have executed this easement agreement this 22nd day of April, 1992.

WITNESS:

Robert H. Hume

Robert Hume

Chuck J. Duffy

GRANTORS:

Aaron J. Martin
Aaron J. Martin

Jean T. Martin
Jean T. Martin

John M. Rouse
John M. Rouse

GRANTEE:

LONDON GROVE TOWNSHIP

ATTEST:

Walter S. Solowick
Secretary

BY *Lewis C. Ross*
Chairman, Board of Supervisors

COMMONWEALTH OF PENNSYLVANIA:

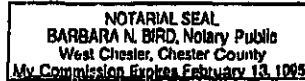
SS.

COUNTY OF CHESTER

ON THIS 22nd day of April, 1992, before me, a notary public, duly commissioned in and for the aforesaid County and Commonwealth, personally appeared the within-named AARON J. MARTIN, JEAN T. MARTIN and JOHN M. ROUSE, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purpose therein contained.

WITNESS my hand and notarial seal.

Barbara N. Bird



COMMONWEALTH OF PENNSYLVANIA:

SS.

COUNTY OF CHESTER

ON THIS 24th day of July, 1992, before me, a notary public, duly commissioned in and for the aforesaid County and Commonwealth, personally appeared Lawrence C. Ross, who acknowledged himself to be the Chairman of the Board of Supervisors of London Grove Township, and that he as such Chairman, being authorized to do so, executed the foregoing instrument for the purpose therein contained by signing on behalf of the Township.

WITNESS my hand and notarial seal.

Janet A. Smith



6K3108PG135

EXHIBIT "A"
LEGAL DESCRIPTION OF EASEMENT AREA
 INNISCRONE
 OPEN SPACE EASEMENT
 FOR THE
 TREATMENT, STORAGE, AND DISPOSAL
 OF SEWAGE BY SPRAY IRRIGATION

BEGINNING at a point on the Inniscrone property, said point being measured S. 21°-58'-32" E. a distance of 138.49' from a p.k. nail on the titleline of Rose Hill Road. THENCE through said property the following courses and distances:

SUBAREA 1 = 201.57 acres +/-

LINE	DIRECTION	DISTANCE
L1	N 10°42'26" W	131.25'
L2	N 88°52'37" E	172.56'
L3	N 02°20'07" W	217.21'
L4	N 01°44'53" W	57.14'
L5	N 02°12'47" W	484.47'
L6	N 88°49'10" E	25.00'
L7	N 01°43'00" W	237.53'
L8	N 88°49'10" E	105.72'
L9	N 55°32'00" E	173.59'
L10	N 45°57'30" E	164.18'
L11	N 21°55'50" W	45.33'
L12	N 08°18'50" E	265.69'
L13	N 36°50'40" E	981.49'
L14	S 89°15'00" E	88.73'
L15	N 02°11'00" W	3317.86'
L16	N 76°44'38" E	249.55'
L17	S 56°15'22" E	35.00'
L18	N 81°31'35" E	25.33'
L19	N 41°52'18" E	40.00'
L20	S 83°07'42" E	457.82'
L21	S 02°02'00" E	443.87'
L22	S 02°02'00" E	300.67'
L23	S 80°15'00" W	85.47'
L24	S 00°19'00" E	159.48'
L25	S 89°41'00" W	13.38'
L26	N 20°03'22" W	85.00'
L27	N 17°38'53" W	76.58'
L28	N 09°38'14" W	84.63'
L29	N 03°27'21" E	103.25'
L30	N 39°33'47" W	172.40'
L31	S 80°54'54" W	187.06'
L32	S 60°36'16" W	20.97'

LINE	DIRECTION	DISTANCE
L33	S 13°35'28" W	166.12'
L34	S 06°24'56" E	90.00'
L35	S 10°29'17" E	102.04'
L36	S 14°57'40" E	85.34'
L37	S 20°03'22" E	425.00'
L38	S 20°03'22" E	85.00'
L39	S 28°35'12" E	20.22'
L40	Omitted	
L41	Omitted	
L42	S 20°03'22" E	289.00'
L43	S 21°58'37" E	94.36'
L44	S 22°20'52" E	255.00'
L45	S 25°26'43" E	241.08'
L46	S 68°05'33" E	122.47'
L47	S 19°17'15" W	132.80'
L48	S 32°42'36" E	171.90'
L49	S 88°18'13" E	162.41'
L50	N 29°31'21" E	161.36'
L51	N 21°53'58" E	98.00'
L52	N 21°54'27" E	100.00'
L53	N 21°54'27" E	100.00'
L54	N 20°43'22" E	109.17'
L55	N 07°26'13" E	156.26'
L56	N 20°40'03" W	425.00'
L57	N 19°40'50" W	85.01'
L58	N 28°05'56" W	85.72'
L59	N 21°56'37" W	138.31'

LOT	CURVE	RADIUS	LENGTH	DELTA
none	C1	175.00'	187.40'	61°21'24"

LINE	DIRECTION	DISTANCE
L60	N 14°10'16" W	100.00'

LOT	CURVE	RADIUS	LENGTH	DELTA
none	C2	875.00'	83.22'	05°26'56"

LINE	DIRECTION	DISTANCE
L61	N 85°51'17" E	131.24'
L62	N 04°20'01" W	100.00'
L63	N 01°29'48" E	100.43'
L64	S 83°11'59" E	655.30'
L65	N 06°48'01" E	130.00'
L66	S 83°11'59" E	13.89'

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LOT	CURVE	RADIUS	LENGTH	DELTA
none	C3	1975.00'	88.03'	02'33"13"

LINE	DIRECTION	DISTANCE
L67	S 09°21'14" W	130.00'
L68	S 79°09'48" E	95.49'
L69	S 76°11'51" E	95.49'
L70	S 73°13'55" E	95.49'
L71	S 70°15'16" E	96.54'
L72	S 68°52'33" E	100.00'
L73	S 69°19'14" E	116.14'
L74	S 88°32'57" E	90.93'
L75	S 01°27'03" W	21.73'
L76	S 15°52'44" E	103.46'
L77	S 11°44'11" E	101.78'
L78	S 01°56'23" E	100.01'
L79	S 01°00'54" E	100.00'
L80	S 01°00'54" E	300.00'
L81	S 04°33'27" E	69.83'
L82	S 24°16'25" W	100.17'
L83	S 27°37'58" W	100.00'
L84	S 29°14'53" W	57.66'
L85	S 63°47'08" W	300.00'
L86	S 54°40'46" W	144.48'
L87	S 32°28'25" W	149.43'
L88	S 21°35'27" W	100.00'
L89	S 21°35'27" W	100.00'
L90	S 21°35'27" W	100.00'
L91	S 08°47'16" W	147.01'
L92	S 00°22'15" W	300.00'
L93	S 00°22'15" W	100.00'
L94	S 00°10'06" W	104.86'
L95	S 08°56'03" E	132.16'
L96	S 07°58'58" E	113.92'
L97	N 64°38'23" W	169.02'
L98	S 65°32'27" W	159.75'
L99	S 38°21'25" W	20.00'
L100	Omitted	
L101	S 11°10'22" W	159.75'
L102	S 32°05'05" E	136.11'
L103	S 58°34'33" E	104.51'
L104	S 58°08'56" E	116.00'
L105	S 76°11'11" E	116.00'
L106	N 86°09'43" E	112.10'
L107	N 76°33'31" E	99.18'
L108	N 62°46'20" E	116.58'
L109	N 52°29'31" E	85.00'
L110	S 37°30'29" E	176.44'
L111	S 05°46'23" W	34.28'
L112	S 49°03'15" W	243.78'
L113	S 69°14'28" W	291.87'
L114	S 65°31'08" W	239.54'
L115	S 69°38'32" W	114.11'

PK 3108 PG 138

LINE	DIRECTION	DISTANCE
L116	S 73°12'15" W	230.04'
L117	S 63°55'15" W	127.64'
L118	N 18°35'05" W	197.11'
L119	N 61°46'17" W	387.30'
L120	N 82°59'01" W	235.24'
L121	S 13°47'59" W	116.30'
L122	S 90°00'00" W	332.31'
L123	S 32°53'33" W	115.32'
L124	S 40°45'49" W	178.48'
L125	S 10°37'10" W	88.67'
L126	S 62°30'02" W	89.65'
L127	S 52°48'51" W	39.65'
L128	S 04°02'03" E	46.94'
L129	S 17°11'54" E	47.89'
L130	S 28°18'02" E	112.59'
L131	S 29°47'04" E	155.01'
L132	S 62°31'08" W	290.37'
L133	S 22°02'45" E	169.89'
L134	S 62°57'15" W	351.57'
L135	S 62°42'36" W	412.31'
L136	N 28°12'45" W	120.59'
L137	S 60°44'34" W	99.22'
L138	S 27°48'04" E	117.18'
L139	S 61°42'15" W	188.92'
L140	S 61°59'11" W	296.38'
L141	N 81°47'53" W	22.91'

BEGINNING at a p.k. nail on the titleline of Avondale - New London Road; THENCE through said property the following courses and distances:

SUBAREA 2 = 76.28 acres +/-

LINE	DIRECTION	DISTANCE
L142	S 27°02'45" E	290.00'
L143	N 62°57'15" E	98.75'
L144	N 62°57'15" E	420.50'
L145	N 27°15'42" W	167.28'
L146	N 59°31'39" E	103.96'
L147	S 26°09'41" E	173.09'
L148	N 62°09'56" E	782.14'
L149	N 62°09'56" E	113.67'
L150	N 13°48'52" E	51.93'
L151	N 37°20'33" W	81.47'
L152	S 40°15'33" W	145.77'
L153	N 62°31'02" W	66.83'
L154	N 62°35'03" W	85.00'
L155	N 48°55'36" W	130.21'
L156	N 30°22'11" W	95.73'
L157	N 27°48'30" W	85.09'
L158	N 27°48'30" W	85.09'
L159	N 28°13'39" W	85.06'
L160	N 34°15'42" W	77.83'
L161	N 37°17'18" W	658.08'
L162	N 85°42'31" W	65.45'
L163	N 87°35'53" W	85.00'
L164	N 87°35'53" W	85.00'
L165	S 87°14'24" W	76.86'
L166	S 80°02'37" W	70.86'
L167	S 72°31'50" W	81.22'
L168	S 68°46'28" W	340.00'
L169	S 71°23'29" W	106.11'
L170	N 88°37'23" W	115.04'
L171	N 70°37'40" W	118.19'
L172	N 52°07'41" W	127.97'
L173	S 41°22'07" W	75.52'
L174	S 42°55'47" W	89.16'
L175	S 39°36'55" W	91.26'
L176	S 27°57'17" W	91.45'
L177	S 30°30'55" W	147.92'
L178	N 27°34'06" W	146.82'

3K3108PG140

LOT	CURVE	RADIUS	LENGTH	DELTA
none	C142	50.00'	29.53'	33°50'09"

LINE	DIRECTION	DISTANCE
L179	S 06°16'03" W	146.82'
L180	N 49°25'18" W	170.66'
L181	N 04°25'10" W	167.80'
L182	N 35°09'52" E	118.80'
L183	N 36°38'22" E	122.02'
L184	N 01°33'47" W	25.12'
L185	S 88°26'13" W	206.05'
L186	S 01°30'30" E	756.81'
L187	N 88°53'39" E	80.00'
L188	S 01°06'21" E	80.00'
L189	S 88°53'39" W	80.00'
L190	S 01°06'20" E	375.18'
L191	S 86°53'59" W	203.95'
L192	S 30°00'03" E	188.66'
L193	S 19°17'41" E	112.87'
L194	N 70°33'37" E	180.84'
L195	S 86°46'44" E	511.57'
L196	S 20°46'09" E	267.11'
L197	S 23°11'26" W	270.69'
L198	S 31°48'47" E	113.08'
L199	N 58°20'33" E	128.94'
L200	N 72°13'25" E	128.05'
L201	N 80°37'47" E	108.10'
L202	N 27°01'23" W	251.91'
L203	N 62°57'15" E	447.87'

BEING a part of the same premises which Fred Shoun, a/k/a Fred W. Shoun and Agnes Shoun, a/k/a Agnes L. Shoun, by deed dated March 31, 1967, and recorded in the office of the Recorder of Deeds in and for Chester county, Pennsylvania, in Deed Book M-37, page 288, granted and conveyed unto Aaron J. Martin and Jean T. Martin, in fee. AND, a part of the same premises which Barnett R. Freedman, by deed dated September 9, 1973 and recorded in said office of the Recorder of Deeds in Deed Book S-41, page 90, granted and conveyed unto Aaron J. Martin, in fee.

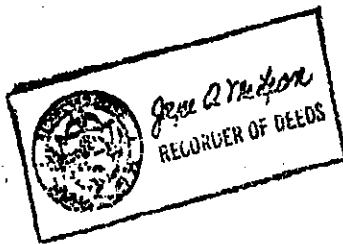
AND, the said Aaron J. Martin and Jean T. Martin, husband and wife, entered into an Agreement of Sale on August 19, 1988 with John M. Rouse, a memorandum of which was recorded in said office in Record Book 1479, page 315.

3K3108PG141

RECORDER OF DEEDS
CHESTER COUNTY, PA

023871

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#23871

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34.00

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SUBTL

34.50

CHECK

34.50

ITEM 2

07-27-92 MON NO

PETER 1836 14:06TH

RETURN TO

John H. Spangler Esq.
1216 W. Market St.
West Chester, PA 19382

34.50

map filed

BK3108PG142

PIPELINE RIGHT-OF-WAY AND EASEMENT

KNOW ALL MEN BY THESE PRESENTS that AARON J. MARTIN and JEAN T. MARTIN, his wife, and JOHN M. ROUSE, equitable owner, owners of property in London Grove Township, Chester County, Pennsylvania (hereinafter referred to as "Grantor", whether one or more) and in consideration of the sum of ONE DOLLAR (\$1.00) and other valuable consideration, receipt of which is hereby acknowledged, paid to Grantor by LONDON GROVE TOWNSHIP MUNICIPAL AUTHORITY, a municipal authority organized under the laws of the Commonwealth of Pennsylvania (hereinafter referred to as "Grantee"), and intending to be legally bound hereby, does hereby grant, bargain, sell and convey unto the said Grantee, its successors and assigns, a perpetual right-of-way and easement across the Grantor's property, twenty (20) feet in width, as more particularly described by metes and bounds in Exhibit "A", attached hereto and depicted on the plan entitled Inniscrone, Tentative Plan (Proposed Site Plan), prepared by James C. Kelly & Associates, Consulting Engineers, dated 5/15/92, attached hereto and marked Exhibit "B".

Grantors said property is situate in London Grove Township, Chester County and is more particularly described in deeds covering the same, which are recorded in the office of the Recorder of Deeds in and for Chester County, Pennsylvania, in Deed Book M-37, page 288, and Deed Book S-41, page 90. The said Aaron J. Martin and Jean T. Martin entered into an agreement of

8X3174 PG223

sale on August 19, 1988 with John M. Rouse, a memorandum of which was recorded in said office in Record Book 1479, page 315.

The right-of-way and easement is granted to Grantee, its successors and assigns, for the purpose of laying, relaying, installing, operating, inspecting, maintaining, repairing, altering, removing, renewing and replacing its pipes or conduits, appurtenances and appliances, to be used in conducting water as part of its public water system, with the right and privilege of entering and re-entering on the said right-of-way and easement, of making such excavations, fills and levels as may be required, and of laying other pipes or conduits, appurtenances and appliances as it may from time to time deem necessary, all upon the condition that upon the completion of any such activities, Grantee shall replace, repair and otherwise restore all disturbed areas to the condition in which the same were found before such work was undertaken.

The Grantor does hereby covenant and agree that Grantor will not alter or modify, or cause or permit to be altered or modified, the surface, grade, level or depth of the ground in the right-of-way through, over, under or above, which the Authority's said pipeline is or may be placed, by filling, flooding, dumping or in any other way interfering with the free access by the Authority thereto; and further that Grantor will not build, construct or erect or cause, or permit to be built, constructed or erected any structure whatsoever on, in or above the right-of-


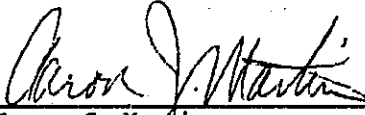

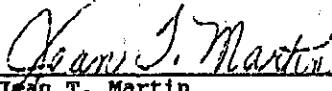

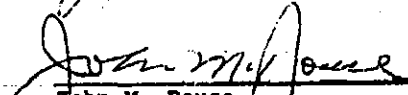
way hereby conveyed without first having obtained the written consent of the Grantee herein. Grantor retains, reserves and shall continue to enjoy the use of the surface of such property for any and all purposes which do not interfere with and prevent the use by Grantee of the within right-of-way and easement.

Grantor does further expressly covenant and agree that the Grantee, its successors and assigns, may enter upon the right-of-way conveyed herein at any time for the purposes of inspecting, installing, maintaining, replacing, relocating and/or removing its pipeline.

TO HAVE AND TO HOLD such right-of-way and easement for the purposes aforesaid unto the Grantee, its successors and assigns, forever.

IN WITNESS WHEREOF, the parties have executed this instrument this 3RD day of JUNE, 1992.

WITNESS:

 _____	 _____ Aaron J. Martin
 _____	 _____ Jean T. Martin
 _____	 _____ John M. Rouse

COMMONWEALTH OF PENNSYLVANIA:

SS.

COUNTY OF CHESTER

:

ON THIS 3rd day of June, 1992, before
me, a notary public, duly commissioned in and for the aforesaid
County and Commonwealth, personally appeared the within-named
AARON J. MARTIN, JEAN T. MARTIN and JOHN M. ROUSE, known to me
(or satisfactorily proven) to be the persons whose names are
subscribed to the within instrument and acknowledged that they
executed the same for the purpose therein contained.

WITNESS my hand and notarial seal.

Alana Sants



BK3174 PG226

INNISCORONE
CONSTRUCTION
WATER EASEMENT

BEGINNING at a point on the Inniscrone property, said point being measured from a pk nail in the cartway of Sullivan Road by the following courses and distances:

N 33°-53'-04" W 524.78' property corner
N 38°-26'-13" E 190.63' property corner
N 05°-10'-25" W 429.98' point of BEGINNING

THENCE through said property the following courses and distances to the point of BEGINNING:

N 50°-20'-41" W 42.77'
S 84°-39'-19" W 10.00'
S 39°-39'-19" W 10.37'
S 35°-57'-06" W 477.39'
S 47°-09'-15" W 126.51' Martin Drive centerline

RADIUS	LENGTH	CHORD	CHORD BEARING
170.00'	110.94'	108.98'	N 64°-45'-26" W
375.00'	181.77'	180.00'	S 82°-39'-40" W

S 68°-46'-28" W 320.36'

RADIUS	LENGTH	CHORD	CHORD BEARING
750'.00	309.28'	307.09'	S 80°-35'-17" W

N 87°-35'-53" W 230.26'

RADIUS	LENGTH	CHORD	CHORD BEARING
150.00'	131.71'	127.52'	N 62°-26'-36" W

N 37°-17'-18" W 679.08'

RADIUS	LENGTH	CHORD	CHORD BEARING
750.00'	124.09'	123.95'	N 32°-32'-54" W

N 27°-48'-30" W 271.85'

RADIUS	LENGTH	CHORD	CHORD BEARING
150'.00'	91.41'	90.00'	N 45°-15'-57" W

N 62°-43'-24" W 145.00'

BK 3174 PG 227

RADIUS	LENGTH	CHORD	CHORD BEARING
150.00'	75.00'	74.22'	N 48°-23'-58" W
N 34°-04'-32" W		118.99'	titleline in Avondale-New London Rd
N 61°-42'-15" E		25.13'	titleline in Avondale-New London Rd
S 34°-04'-32" E		116.46'	Martin Drive R-O-W
RADIUS	LENGTH	CHORD	CHORD BEARING
125.00'	62.50'	61.85'	S 49°-23'-58" E
S 62°-43'-24" E		145.00'	
RADIUS	LENGTH	CHORD	CHORD BEARING
175.00'	106.64'	105.00'	S 45°-15'-57" E
S 27°-48'-30" E		271.85'	
RADIUS	LENGTH	CHORD	CHORD BEARING
725.00'	119.96'	119.82'	S 32°-32'-54" E
S 37°-17'-18" E		679.08'	
RADIUS	LENGTH	CHORD	CHORD BEARING
125.00'	109.76'	106.27'	S 62°-26'-36" E
S 87°-35'-53" E		230.26'	
RADIUS	LENGTH	CHORD	CHORD BEARING
725.00'	298.97'	296.86'	N 80°-35'-17" E
N 68°-46'-28" E		320.36'	
RADIUS	LENGTH	CHORD	CHORD BEARING
400.00'	193.89'	192.00'	N 82°-39'-40" E
195.00'	108.55'	107.15'	S 67°-30'-19" E Martin Drive R-O-W
N 47°-09'-15" E		101.53'	
N 35°-57'-06" E		476.08'	
N 39°-39'-19" E		19.30'	
N 84°-39'-19" E		26.57'	
S 50°-20'-41" E		51.05'	
S 39°-39'-19" W		20.00'	point of BEGINNING

AREA = 81936.97 SF
= 1.88 AC

BK3174FG228

RECORDER OF DEEDS
CHESTER COUNTY, PA

033541

92 SEP -1 AM 10:26



RETURN TO

John H. Spangler, ESQ
Parke, Barnes, Spangler + Bortner
126 W. Miner St.
West Chester, PA 19382-3281

H33541

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ITEM 2

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5029

EASEMENT AGREEMENT

IT IS HEREBY AGREED that CONARD-PYLE CO., a Pennsylvania corporation (hereinafter referred to as "Grantor"), for the sum of One Dollar (\$1.00) and other valuable consideration paid by AARON J. MARTIN (hereinafter referred to as "Grantee"), does grant, sell and convey unto Grantee an easement and right-of-way upon and across the property of the Grantor described in a certain deed dated October 9, 1989 and recorded in the office of the Recorder of Deeds in and for Chester County, Pennsylvania, in Record Book 1737, page 559, as depicted on the plan entitled Inniscrone, "Golf Cart Access Easement through lands of Conard-Pyle Co.", dated February 9, 1995, prepared by James C. Kelly & Associates, Inc., attached hereto and marked Exhibit "A", and more particularly described by metes and bounds in Exhibit "B" attached hereto.

The right-of-way, easement, rights and privileges herein granted shall be used only for the purposes of providing a pedestrian walkway for residents of the Inniscrone planned residential development, their guests and invitees, and for a golf cart path for golf carts operated by golfers using the Inniscrone Golf Course and for golf course maintenance vehicles and equipment.

The easement, rights and privileges herein granted shall be perpetual or for so long as Grantee shall require a pedestrian and a golf cart path within said easement. Grantor hereby binds itself, its successors and assigns, to warrant and forever defend the above-described easement and rights unto Grantee, his heirs, executors, administrators, successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

The easement, rights and privileges herein granted are exclusive, and Grantor covenants that it will not convey any other easement or conflicting rights within the area covered by this grant. The easement, rights and privileges herein granted are conditioned upon the Grantee receiving final land development approval for the Inniscrone project.

As additional consideration for the easement hereby granted, Grantee shall provide a twenty (20)-foot wide sanitary sewer easement across the Inniscrone Golf Course property to facilitate the connection of the Grantor's property to the proposed public sanitary sewer system intended to serve the Inniscrone Planned Residential Development and the Golf Course property. The location of said easement shall be determined by the Grantee and shall be subject to the approval of London Grove Township and to existing easements of record. The final location of the easement shall be included in the final plan for the Golf Course property. Grantee shall assume no responsibility to construct or install the sanitary sewer connection to serve the Grantor's property.

This instrument shall be binding on the heirs, executors, administrators, successors and assigns of the parties hereto.

In addition to the easement, rights and privileges herein conveyed, Grantee shall have the right to use so much of the surface of the hereinbefore-described property of Grantor as may be reasonably necessary to construct, install and maintain within the right-of-way granted hereby, the facilities contemplated by this grant. On the completion of such construction and installation, Grantee shall replace and restore all fences, walls or other structures which may have been relocated or removed during the construction period.

The easement, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, are abandoned by Grantee or become impossible of performance.

Should Grantee fail to perform any covenant, undertaking or obligation arising hereunder, all rights and privileges granted hereby shall terminate, and this agreement shall be of no further force or effect.

Grantor also retains, reserves and shall continue to enjoy the use of the surface of such property for any and all purposes which do not interfere with and prevent the use by Grantee of the within easement.

IN WITNESS WHEREOF, the parties have executed this easement agreement this 6TH day of JULY, 1995.

ATTEST:

CONARD-PYLE CO.

David D. Larkins BY: R. J. Hutton
R. J. Hutton

WITNESS:

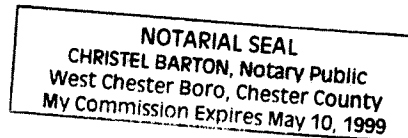
Jean S. Martin Aaron J. Martin
Aaron J. Martin

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER : SS.

ON THIS, the 7th day of August, 1995,
before me, a notary public, duly commissioned in and for the
aforesaid County and Commonwealth, personally appeared AARON J.
MARTIN, known to me (or satisfactorily proven) to be the person
whose name is subscribed to the foregoing Easement Agreement and
acknowledged that he executed the same for the purposes therein
contained.

WITNESS my hand and notarial seal.

Christel Barton

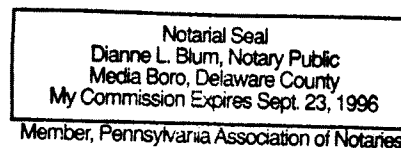


COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF ~~CHESTER~~ Delaware: SS.

ON THIS, the 6th day of July, 1995,
before me, a notary public, duly commissioned in and for the
aforesaid County and Commonwealth, personally appeared R. J.
HUTTON, who acknowledged himself to be the Chairman of the Board
of CONARD-PYLE CO., and that he, as such Chairman, being
authorized to do so, executed the foregoing Easement Agreement
for the purposes therein contained.

WITNESS WHEREOF my hand and official seal.

Dianne L Blum



6881920124M

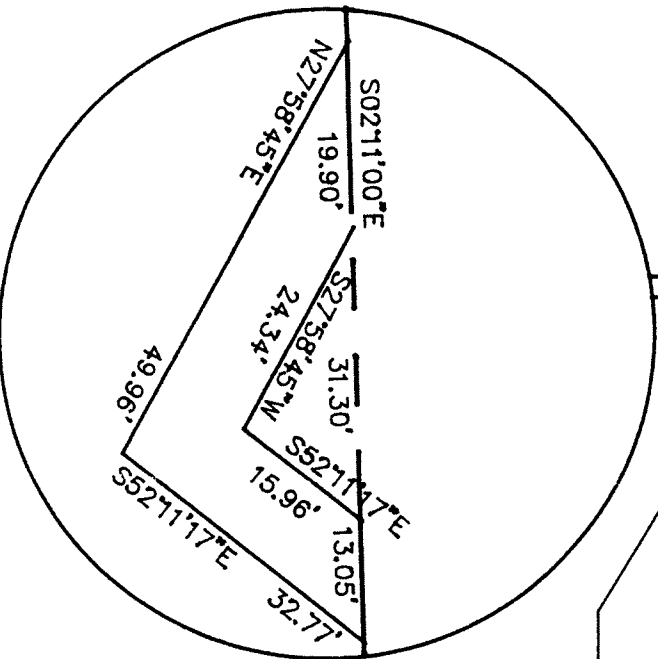
N/L AARON AND
JEANNE MARTIN

FOUND FIELD STONE MONUMENT
AT PROPERTY CORNER.

1020.79'

N/L CONARD-PYLE Co.

10' CART PATH EASEMENT
ON LANDS OF CONARD-PYLE



BLOW UP
N.T.S.

NOTE:
BEARINGS ARE BASED ON MARTIN PROPERTY DEED.

This document, and all information and work product represented by and contained herein, is the sole and exclusive property of James C. Kelly and Associates, Inc. The information contained herein is licensed only for limited use by the intended recipient, and no license, permission or authority is extended, directly or implied, to any party without express written permission of James C. Kelly and Associates, Inc.

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All rights reserved

Inniserone
A PLANNED RESIDENTIAL DEVELOPMENT

EXHIBIT 'A'
GOLF CART ACCESS
EASEMENT THROUGH
LANDS OF CONARD-PYLE Co.

JAMES C. KELLY & ASSOCIATES, INC.
Consulting Engineers & Surveyors
19 REGENCY PLAZA
U.S. ROUTE 1 & ROUTE 322
GLEN MILLS, PA 19342
(610) 358-9363 (610) 358-9376 Fax

date: 2/9/95
scale: 1"=200'
drawn by: C.C.K.
checked by: M.P.C.
project no.: 88-040
desig. file: NEWASE.DWG

SHEET
1 of 1

February 9, 1995
File # 88-040A

EXHIBIT 'B'

LEGAL DESCRIPTION

10 FOOT WIDE GOLF CART ACCESS EASEMENT THROUGH THE
LANDS OF CONARD-PYLE COMPANY

BEGINNING at a point on the property line between the lands of now or late Aaron and Jeanne Martin and now or late Conard-Pyle Company, said point being located the following course and distance from a found field stone monument property corner: North two degrees eleven minutes zero seconds West 1020.79 feet to a point, said point being the place of beginning; thence continuing the following six (6) courses and distances on the lands of now or late Conard-Pyle Company: (1) North fifty-two degrees eleven minutes seventeen seconds West 32.77 feet to a point; (2) THENCE North twenty-seven degrees fifty-eight minutes forty-five seconds East 49.96 feet to a point; (3) THENCE along the property line of now or late Martin South two degrees eleven minutes zero seconds East 19.90 feet to a point; (4) THENCE South twenty-seven degrees fifty-eight minutes forty-five seconds West 24.34 feet to a point; (5) THENCE South fifty-two degrees eleven minutes seventeen seconds east 15.96 feet to a point; (6) THENCE along the property line of now or late Martin South two degrees eleven minutes zero seconds East 13.05 feet to the point of place of beginning, containing an area of 615.2 square feet more or less.



43729

DATE: 07/31/1997 TIME: 03:00P INST NO.: 43729

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO :	021211	TYPE DOC :	MISC
REC FEE	:		15.00
LOC RTT	:		0.00
ST RTT	:		0.00
WRIT TAX	:		0.50

RETURN TO

Robert F. Adams Esq.

1197 N. High St.

West Chester, Pa 19381

BK4210PG189.1

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13-13
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CE

**INNISCRONE GOLF CLUB
DECLARATION OF RESTRICTIONS, COVENANTS AND EASEMENTS**

THIS DECLARATION OF RESTRICTIONS, COVENANTS AND EASEMENTS
(hereinafter "Declaration") is made this 14th day of January, 1999,
by **INNISCRONE GOLF CLUB, L.L.C.**, a Pennsylvania limited liability company organized
and existing under the Limited Liability Company Law of 1994 (hereinafter "Declarant"),

WITNESSETH:

WHEREAS, Declarant is the equitable owner of the real property referred to in Exhibit "A"
attached hereto and made a part hereof, being the property known as the Inniscrone Golf
Club located in London Grove Township, Chester County, Pennsylvania, upon which a golf
course has been developed (hereinafter "Golf Course Property"); and

WHEREAS, the Golf Course Property is shown on a certain plan set entitled "Phase 1A Golf
Course Final Plans for Inniscrone, dated April 10, 1995, revision #5, dated August 27, 1996,
prepared by James C. Kelly & Associates, Inc., Consulting Engineers & Surveyors (hereinafter
"Plans"), and given final approval by the London Grove Township (hereinafter "Township")
Board of Supervisors (hereinafter "Board of Supervisors") by Resolution #222, adopted on
August 14, 1996; and

WHEREAS, the Golf Course Property is identified on the Plan as Open Space Subarea 1
(North Side Golf Course) consisting of 203.05 acres (adjusted) and Open Space Subarea 2
(South Side Golf Course, consisting of 76.79 acres (adjusted); and

WHEREAS, the combined open space subareas constituting the Golf Course Property
comprise the entire Inniscrone golf course, consisting of 279.84 acres; and

WHEREAS, the Plans may be revised hereafter to reflect as-built features of the golf course,
and it is intended that the rights and obligations hereinafter created shall be governed by the
Plans in their revised form as hereafter approved by the Board of Supervisors; and

WHEREAS, the Golf Course Property is owned by Aaron J. Martin and Jean T. Martin, who
have joined in this Declaration to indicate their consent to its terms and conditions; and

WHEREAS, the Golf Course Property is included as part of a Planned Residential
Development (hereinafter "PRD") as defined by the London Grove Township Zoning
Ordinance and authorized by the Pennsylvania Municipalities Planning Code, submitted to
and given tentative approval by the Board of Supervisors by Decision and Order dated
October 16, 1990, as amended by Supplemental Decision dated July 6, 1992, as it may be
hereafter amended (together hereinafter "PRD Decision"); and

RECORD & RETURN TO:

LT NATIONAL ABSTRACT SERVICES

89 Hudson Street, 4th Floor

Hoboken, NJ 07030

(201) 610-9455

PA-1471-97

WHEREAS, Aaron J. Martin and Jean T. Martin, legal owners, and John M. Rouse, then equitable owner of the Golf Course Property, by General Easement Agreement dated April 22, 1992 and recorded in the office of the Recorder of Deeds in and for Chester County in Record Book 3108, page 131, created certain easement rights in the Township pursuant to the Decision relating to the installation and maintenance of a municipal sanitary sewer system on the Golf Course Property (hereinafter "1992 Easement Agreement"); and

WHEREAS, Pulte Home Corporation of the Delaware Valley (hereinafter "Pulte") has agreed to purchase from Aaron J. Martin and Jean T. Martin that part of the PRD which is not Golf Course Property, and which is designated on the Plans as Residential Subareas A, B, C and D of the Inniscrone PRD, being Phases 1B, 2, 3, 4, 5 and 6 of the PRD (hereinafter "Residential Property"), and will construct residences within the Residential Property in accordance with the Decision upon the approval of final plans for each phase thereof by the Board of Supervisors; and

WHEREAS, Pulte, as the declarant of a certain "Declaration of Covenants and Restrictions for Inniscrone, a Planned Community", dated December 17, 1999 (hereinafter "Inniscrone Declaration") has submitted certain real property therein described, being those phases or portions of the Residential Property for which final plan approval has been obtained, to the covenants and restrictions therein set forth; and

WHEREAS, the Inniscrone Declaration has submitted the Residential Property, referred to therein as "Inniscrone, a Planned Community", to its terms in accordance with the Pennsylvania Uniform Planned Community Act; and

WHEREAS, the Inniscrone Declaration has created the Inniscrone Community Association, Inc. (hereinafter "Association") which will hold title to the common property within the Residential Property not designated as lots for residential use and not owned by the record owners/members of the Association (hereinafter "Owners"); and

WHEREAS, the Golf Course Property forms the 279 acres of open space which was required to be set aside as part of the Inniscrone PRD by the PRD Decision; and

WHEREAS, the Golf Course Property, not being owned or intended hereafter to be owned by the Association, and being owned and maintained solely by the Declarant, is not subject to the Uniform Planned Community Act and is not subject to the Inniscrone Declaration; and

WHEREAS, the PRD Decision approved the Golf Course Property as part of the required open space under the PRD provisions of the Township Zoning Ordinance, subject to the right of the Township to use the Golf Course Property for spray irrigation of sewage pursuant to the 1992 Easement Agreement; and

WHEREAS, the PRD Decision also required that pedestrian access to the recreational facilities shall be reasonably available for use by the residents of the Inniscrone PRD; and

WHEREAS, the Golf Course Property includes a portion of the pedestrian walkway or path system referred to in the PRD Decision which is to be made available to the Owners and residents of the Residential Property; and

WHEREAS, Declarant has developed the Golf Course Property as a private first-class facility for its members (hereinafter "Members") and further desires to provide for the preservation and maintenance of the value and amenities on the Golf Course Property and of the adjacent Residential Property of the Inniscrone PRD and, therefore, hereby subjects the Golf Course Property to certain covenants, restrictions, easements, conditions, charges and liens as hereinafter set forth, all of which are for the benefit of the Golf Course Property, the Declarant, the Township, the Owners and any other specific parties hereinafter named.

NOW, THEREFORE, Declarant declares that the Golf Course Property, as described in Exhibit "A" and shown on the Plans, is and shall be held, transferred, sold, conveyed and occupied, subject to the covenants, restrictions, easements, conditions, charges and liens, all as hereinafter set forth (sometimes referred to hereinafter as "covenants and restrictions"), and all of which shall run with the land and shall be binding upon all parties having or acquiring any interest in the Golf Course Property (for the period of time hereinafter specified); subject, however, to the caveat that this Declaration does not create, and is not intended to create, real estate or interests therein which are subject to the provisions of the Pennsylvania Uniform Planned Community Act.

ARTICLE 1. PROPERTY SUBJECT TO THIS DECLARATION

- 1.1. **Property.** Declarant hereby declares that all of the Golf Course Property as described in Exhibit "A" shall be held, transferred, sold, conveyed, leased and occupied subject to this Declaration and all amendments and supplements hereto. The Golf Course Property is also shown on the Plans.
- 1.2. **Title to Property.** Fee Simple title to the Golf Course Property shall be conveyed by Aaron J. Martin and Jean T. Martin to the Declarant.
- 1.3. **Reservations.** Declarant reserves to itself, its successors and assigns, the unconditional right and authority to grant perpetual easements, in, upon, under, through, over and above the Golf Course Property for purposes of (a) providing services to the Inniscrone golf course, and (b) installing, maintaining, repairing, replacing, using, operating and improving utility systems, or components thereof, to serve the Golf Course Property. Such easements may be granted to any governmental entity or utility or other entity desirous of providing such services. Subject to obtaining any necessary approvals from the Township and/or the Township Municipal Authority, Declarant further reserves unto itself, its successors and assigns, the right to relocate, change or modify from time to time the location of any utility easement or area. In addition, Developer expressly reserves unto itself, its successors and assigns, the right to improve, redesign and regrade the Golf Course Property, or any part

thereof, subject to obtaining any necessary approvals from the Township or any utility or other service provider having rights therein.

ARTICLE 2. EASEMENTS

- 2.1. Grant of Easements.** The Golf Course Property, and any portion thereof, shall be owned, held, transferred, conveyed, assigned, sold, leased, occupied, used and enjoyed, subject to the easements set forth in this article, the 1992 Easement Agreement and any and all other easements of record.
- 2.2. Municipal Easements.** A blanket, perpetual and non-exclusive easement for the ingress, egress and travel in, upon, over, across and through the Golf Course Property shall exist for the benefit of the Township, the Township Municipal Authority, their respective officers, agents, employees (but not the public in general) and all police, fire and emergency personnel engaged in the proper performance of their respective official duties. Except in the event of emergencies, the rights accompanying the easements provided for in this subparagraph shall be exercised only during reasonable daylight hours and then, whenever practicable, only after at least 48 hours advance notice to and with permission of the Declarant.
- 2.3. Utility Easements.** Any utility company or entity furnishing utility service, including master or electronic security service to the Golf Course Property, its agents and employees, shall have a blanket, perpetual and non-exclusive easement to enter the Golf Course Property, or any part thereof, to read meters, service or repair utility lines and equipment and to do everything and anything else necessary to maintain and furnish utility service to the Golf Course Property. On the completion of any construction and installation, repair and maintenance of any utility system by a utility company or other entity furnishing utility service, such company or entity shall replace and restore all fences, walls or other structures which may have been relocated or removed during the performance of such work and otherwise restore all disturbed areas to the condition in which the same were found before such work was undertaken, including replacement and/or repair of damaged property, turf, greens, bushes, traps, tees, trees and other natural features, and other golf course and recreational facilities; and such company or entity shall pay the Declarant reasonable compensation for such fences, walls or other structures which may not be replaceable, and for such property, turf, greens, bushes, traps, tees, trees and other natural features and other golf course and recreational facilities as may have been damaged or destroyed during such construction and installation, repair and maintenance.
- 2.4. Owners' Easements.** The Owners of the Residential Property and their guests shall have an easement to enter the Golf Course Property along the designated 7-foot pedestrian walkways only, to use and enjoy the pedestrian walkways which are constructed thereon only in the location depicted on the plans, as the same may hereafter be amended; provided, however, this easement right shall not entitle an Owner to enter the Golf Course Property generally, nor shall it include the right to

utilize Golf Course facilities, including the clubhouse or halfway house facilities located on the Golf Course. This easement is granted subject to the condition that the Owners shall not use the pedestrian walkway except for walking and/or jogging, cross-country skiing and nature study, and that they shall not conduct themselves in any way which interferes with the principal use of the Golf Course Property as a private golf course for use by the Members and their guests.

a. **Prohibited Activities.** The permitted uses of the pedestrian walkways on the Golf Course Property shall not be available to members of the general public, but shall be limited to Owners and their guests. The foregoing easement rights in the pedestrian walkway shall exclude the following activities:

- (1) Injury, destruction, cutting, collection or removal of all plant species, including trees, shrubs and flowers.
- (2) Use of any motorized vehicle or similar mechanical means of locomotion, including automobiles, motorcycles, snowmobiles or other all-terrain vehicles.
- (3) Smoking of tobacco or other substances or lighting of fires of any kind.
- (4) Consumption of alcoholic beverages or use of any other kind of stimulant or drug.
- (5) Trapping or hunting.
- (6) Overnight camping or sleeping.
- (7) Cutting or tampering with fences or other structures.
- (8) Dumping of trash.
- (9) Pets not on a leash.
- (10) Horseback riding.

Declarant shall have the right, but not the obligation, to enforce such prohibited activities. Declarant shall have the right to impose any additional reasonable limitation with respect to the use of the pedestrian walkway as it deems necessary or appropriate in order to preserve and protect the rights of the Owners to use the walkway and to preserve and protect the value and amenities of the Golf Course Property for the use and enjoyment of the Members.

ARTICLE 3. RESTRICTIONS.

3.1. **Covenants and Restrictions.** The following covenants and restrictions shall run with the land and shall bind the Declarant, its successors and assigns. The restrictions and covenants contained in this Declaration shall be enforceable by the Declarant and, under certain circumstances, as set forth herein or provided by law, the Township:

- a. **Land Use.** The Golf Course Property shall be used for the operation of the private golf course known as Inniscrone Golf Club and for active and passive recreational use associated therewith, including tennis and swimming. Declarant shall have the right to convert the private golf course to a semi-private or public golf course at any time without amendment of this Declaration or the approval of the Township. The golf course shall continue to be subject to the terms and conditions of this Declaration after any such conversion. No business, trade or profession shall be conducted on the Golf Course Property, except as may be accessory to the normal operation of a golf course.
- b. **Permitted Activities.** By way of example, but not by way of limitation, the Golf Course Property may be used for the conduct of golf tournaments and group outings, the operation of a clubhouse with associated dining facilities (including the use of the clubhouse for weddings, outings and other catered events), and the operation of the adjacent guest cottages, a halfway house and a golf professional shop with associated instructional/practice facilities and retail activities normally incident to the operation of such a shop.
- c. **PRD Decision.** The use of the Golf Course Property shall be consistent with the PRD Decision issued by the Board of Supervisors, as the same may be hereafter supplemented or amended.
- d. **Vehicles.** No truck, tractor trailer or vehicles of any type which are not associated with the use, service and maintenance of the golf course shall be parked on the Golf Course Property in such a manner as to be visible to the Owners of the Residential Property.
- e. **Dumping.** No portion of the Golf Course Property shall be used or maintained for the dumping of rubbish or debris, other than that which is normally associated with the maintenance and operation of a golf course, excepting the dumping of pesticides, fertilizers and hazardous wastes of any kind.
- f. **Hazardous Activities.** No activities shall be conducted on the Golf Course Property which are or might be unsafe or hazardous to any person or property. Without limiting the generality of the foregoing, no firearms shall be discharged on the Golf Course Property. No hunting of any type shall be permitted on the Golf Course Property, and nothing shall be done or kept upon the Golf Course

Property which will result in the cancellation of insurance or the increase of premiums on any insurance maintained on the Golf Course Property by the Declarant.

- g. **Violation of Law.** No immoral, improper, offensive or unlawful use shall be made of the Golf Course Property, and all laws, zoning ordinances and applicable regulations of all governmental bodies having jurisdiction over the Golf Course Property shall be observed.
- h. **Peaceful Use.** No obnoxious or offensive activity shall be carried on or allowed to occur upon the Golf Course Property, nor shall anything be done on the Golf Course Property which may be or become an annoyance or nuisance to any owner or resident of the adjacent Residential Property which interferes with the peaceful possession and proper use of the Residential Property by Owners and residents. It is not meant or intended by the foregoing language in any way to limit the rights of the Declarant to perform normal golf course maintenance tasks on the Golf Course Property and to use the golf course Property for its intended Golf Course activities, including the operation of lawn mowers and other power equipment and maintenance vehicles and the use of golf carts for golfers and Inniscrone Golf Club staff.
- i. **Sewer System.** The golf course shall be maintained and operated by the Declarant in a manner which is consistent with the rights previously granted to the Township in the 1992 Easement Agreement to permit the Township to operate and maintain the municipal sanitary sewer system on the Golf Course Property, subject to the limitations therein set forth.
- j. **Dish Antennas.** No satellite dish antenna for television service shall be located on the Golf Course Property.

3.2. **Rules and Regulations.** The use of the Golf Course Property shall be subject to such bylaws and rules and regulations which are not inconsistent with this Declaration as may be adopted, from time to time, by Declarant, Board of Governors, Executive Committee, General Manager or head golf professional of Inniscrone Golf Club.

3.3. **Exemption of Declarant.** Without in any way limiting the generality of the foregoing, this Declaration shall not prevent or limit the right of the Declarant, Inniscrone Golf Club, their successors and assigns, to excavate and grade, to construct and alter drainage patterns and facilities, to construct buildings and any other types of improvements, including the clubhouse, halfway house, maintenance facility and any and other improvements which are customarily incidental to the development and operation of a high quality golf course, provided the same are consistent with the PRD Decision and/or have been approved by the Board of Supervisors, to the extent they have jurisdiction over such activities.

ARTICLE 4. INSURANCE

- 4.1. Declarant's Insurance Obligations.** The Declarant shall obtain and continue to remain in effect: (a) property insurance on the Golf Course Property in an amount equaling the replacement value of all buildings and improvements thereon; (b) general liability and directors' and officers' liability coverage, each in a minimum amount of \$1,000,000, singly and in the aggregate; (c) Workers' Compensation Insurance, as required by law. In addition, the Declarant shall obtain and continue such other amounts of insurance as may be required by its bylaws. The Declarant shall periodically review all of its insurance for adequacy of coverage limits and shall always maintain such limits of coverage as reflect reasonable practices and as are generally acceptable for projects of this nature.

ARTICLE 5. GENERAL PROVISIONS

- 5.1. Duration.** The covenants and restrictions of this Declaration shall be perpetual in duration, shall run with and bind all of the land within the Golf Course Property, and shall inure to the benefit of and be enforceable by the Declarant and, to the extent they are intended to be benefitted hereby, the Township and the Owners of the Residential Property, their respective successors, assigns, heirs, executors, administrators and personal representatives. The easements, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, or become impossible of performance. In the event the Golf Course Property at any time in the future ceases to be used as a golf course, it shall continue to be subject to the terms of this Declaration, as the same may be hereafter amended. In no case shall the Golf Course Property be used or developed for other than extensive agricultural uses (as that term is defined in the London Grove Township Zoning Ordinance) or passive open space purposes, or such other qualifying open space or recreational uses to which the Declarant or its successors and assigns may devote the Golf Course Property, as such uses may be approved by the Board of Supervisors. All such future uses shall be consistent with the PRD Decision and the allowed open space activities under the Township Zoning Ordinance, as the same may be amended from time to time.
- 5.2. Amendment.** This Declaration and the bylaws of the Declarant may be amended at any time after the date hereof by action of the Declarant, acting through its officers, a certificate of amendment signed and sworn to by an officer of the Declarant verifying the proper approval shall be recorded in the office of the Recorder of Deeds of Chester County, Pennsylvania. Amendments to the Declaration shall be subject to review and approval by the Township to permit it to ensure that the changes are consistent with the PRD Decision.
- 5.3. Enforcement.** Declarant, the Association acting on the behalf of Owners of the lots in the adjacent Residential Property of the Inniscrone PRD, and London Grove Township shall each have the right to enforcement of these covenants and restrictions


by any appropriate proceeding in law or in equity, against any person or persons violating or attempting to violate any covenant or restriction, to restrain or enjoin such violation, to require specific performance or to obtain any other appropriate relief to enforce any lien, easement or other right created by these covenants. Failure by any such party to enforce any covenant or restriction herein contained for any period of time shall in no event be deemed a waiver or estoppel of the right to enforce the same thereafter. Notwithstanding anything to the contrary contained herein, and except where irreparable injury would otherwise result, no person shall bring any action in any court, administrative or arbitral tribunal for enforcement of this Declaration until the provisions of this paragraph have been complied with, as applicable. In the event of any violation, attempted violation or threatened violation of this Declaration, the parties seeking enforcement shall be written notice of the violation to the person(s) involved, or alleged to be involved, which notice shall direct such person(s) to cure the violation within 20 days of receipt of such notice. If such person(s) fail(s), in the judgment of the enforcing party, to cure the violation within such 20-day period, the enforcing party may institute proceedings to remedy the violation.

- 5.4. Rights of Township.** In the event the Golf Course Property, or any portion thereof, is not maintained in reasonable order and condition, including, but not limited to, the Declarant's failure to maintain stormwater management facilities located on the Golf Course Property, London Grove Township shall have the right, but not the obligation, to enter upon and maintain such facilities or portion of the Golf Course Property. The cost of such maintenance to the Township shall be assessed against the Golf Course Property and shall become a lien thereon and shall be enforceable by the Township in the manner provided by law. The rights of the Township hereunder and the lien of the Township referred to herein shall be subordinate to the lien of all institutional mortgages affecting the Golf Course Property. The Township shall not exercise its right to enter until it shall have given to the Declarant a written notice to cure the condition complained of, which shall provide a 60-day period to cure the identified failure to maintain.
- 5.5. Notices.** Any notice required to be sent to Declarant or any Member or Owner under the provisions of this Declaration shall be deemed to have been properly sent and mailed, post-paid, to the last-known address of the person or entity to whom the notice is addressed. Such notice shall be conclusively presumed to have been delivered five days after deposit in the U.S. mails. Notice may also be served upon any person or entity receiving it by personal delivery at the last-known address of the party. Any person may also be served by affixing a notice to or sliding the same under the door of the party's last-known address. Notice to any one co-owner shall be deemed notice to all such Owners.
- 5.6. Controlling Effect.** In the event of any conflict between the terms of this Declaration and the Certificate of Organization of the Declarant, or the rules and regulations and bylaws of Inniscrone Golf Club, the terms of this Declaration shall control.

- 5.7. **Validity.** Invalidation of any of the provisions of this Declaration shall in no way impair or affect the validity, enforceability or effect of any other provisions and, in the event of a declaration of invalidity hereof, all other provisions of this Declaration, the Certificate or Organization, bylaws and rules and regulations shall continue in full force as if such invalid provisions had never been included.
- 5.8. **Waiver.** No provision contained in this Declaration shall be deemed to have been abrogated or waived by reason of any failure to enforce it or delay in enforcing, irrespective of the number of violations or breaches that may occur or at length of such delay.
- 5.9. **Exhibits.** Attached hereto and made a part hereof are the following exhibits: Exhibit "A" - Description of Golf Course Property.

IN WITNESS WHEREOF, the Declarant has caused this instrument to be executed the day and year first above written.

ATTEST:




Witness



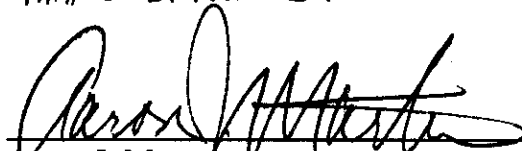
Witness

BY: INNISCRONE GOLF CLUB, L.L.C.
NATIONAL FAIRWAYS DEV. FUND, L.P.
MEMBER

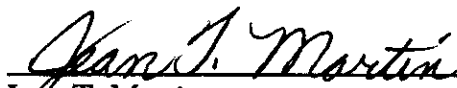
BY:



PRESIDENT
NATIONAL FAIRWAYS, INC. C.P.
MARC L. RINALDI



Aaron J. Martin



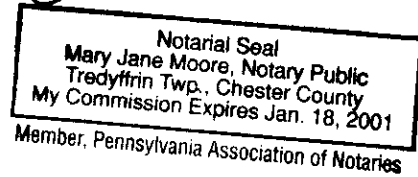
Jean T. Martin

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER.

ON THIS, the 14th day of January, 1999, before me, a notary public, in and for the aforesaid County and Commonwealth, personally appeared, Marc L. Rinaldi, who acknowledged himself to be the President of Inniscrone Golf Club, L.L.C. of INNISCRONE GOLF CLUB, L.L.C., and that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

WITNESS my hand and notarial seal.

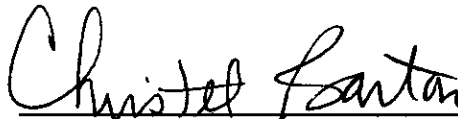


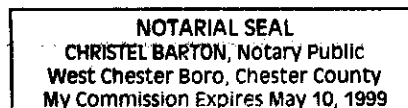


COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER : SS.

ON THIS, the 14th day of January, 1999, before me, a notary public in and for said County and Commonwealth, personally appeared AARON J. MARTIN and JEAN T. MARTIN, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

WITNESS my hand and notarial seal.

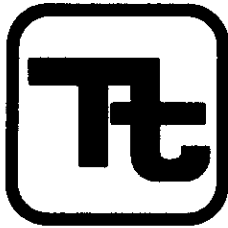




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EXHIBIT "A"

BK4505PG0937



TETRA TECH, INC.
56 WEST MAIN STREET
SUITE 400
CHRISTIANA, DE 19702-1501
TELEPHONE (302) 738-7551

January 14, 1999
RCN 0400

DESCRIPTION OF PROPERTY KNOWN AS OPEN SPACE SUB AREA 1 (NORTH SIDE GOLF COURSE) AS SHOWN ON AN ALTA/ACSM LAND TITLE SURVEY PREPARED BY TETRA TECH, INC. DATED NOVEMBER 17, 1998, REVISED THROUGH DECEMBER 29, 1998, RCN 0927, FILE NO. G-001, COMPUTER FILE NAME T:\SURVEY\0927\ALTA.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at a point in the northwesterly side of Avondale-New London Road, said point being a common corner for the sub area herein being described and Sub Area D, said northwesterly side of Avondale-New London Road being distant 30.00' in a northwesterly direction from its centerline thereof when measured at right angles thereto.

THENCE from the said point of beginning, continuing along the said northwesterly side of Avondale-New London Road, the six (6) following described courses and distances:

1. S 49° 03' 15" W, 238.90' to a point;
2. S 67° 34' 15" W, 64.45' to a point;
3. S 69° 18' 15" W, 231.06' to a point;
4. S 65° 32' 15" W, 241.60' to a point;
5. S 69° 40' 15" W, 113.95' to a point; and,
6. S 73° 12' 15" W, 231.60' to a point, a corner for Residential Sub Area C;

THENCE along said Residential Sub Area C, the nine (9) following described courses and distances:

1. N 86° 49' 40" W, 194.91' to a point;
2. N 61° 37' 29" W, 323.46' to a point;
3. N 34° 57' 46" W, 153.32' to a point;
4. N 79° 55' 33" W, 320.48' to a point;
5. S 23° 17' 15" W, 235.34' to a point;
6. S 27° 44' 14" W, 55.73' to a point;
7. N 62° 15' 46" W, 139.94' to a point;
8. S 49° 54' 28" W, 398.80' to a point; and
9. S 26° 28' 48" E, 375.22' to a point, a corner for an out parcel;

THENCE along out parcels, the five (5) following described courses and distances:

1. S 30° 47' 45" E, 199.27' to a point in the said northwesterly side of Avondale-New London Road;
2. Thence by the same, S 62° 57' 15" W, 21.85' to a point;
3. N 30° 47' 45" W, 171.82' to a point;
4. S 62° 31' 08" W, 290.37' to a point; and,
5. S 22° 02' 45" E, 169.89' to a point in the said northwesterly side of Avondale-New London Road;

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THENCE by the same, S 62° 57' 15" W, 763.92' to a point in line of another out parcel:

THENCE by the same, the three (3) following described courses and distances:

1. N 28° 12' 45" W, 118.83' to a point;
2. S 60° 44' 34" W, 99.22' to a point; and,
3. S 27° 54' 07" E, 117.18' to a point in the said northwesterly side of Avondale-New London Road;

THENCE by the same, S 61° 42' 15" W, 529.44' to a point, said point being the intersection formed by the said northwesterly side of Avondale-New London Road with the easterly side of Rose Hill Road, said easterly side of Rose Hill Road being distant 30.02' from its centerline (extended) thereof, when measured at right angles thereto;

THENCE along the said easterly side of Rose Hill Road, N 02° 24' 36" W, 154.53' to a point in line of other outbound parcels;

THENCE by the outbound line, the thirteen (13) following described courses and distances:

1. N 88° 52' 37" E, 169.98' to a point;
2. N 02° 20' 07" W, 608.83' to a point;
3. N 01° 43' 00" W, 150.00' to a point (set iron pipe);
4. N 88° 49' 10" E, 25.00' to a point (found iron pipe);
5. N 01° 43' 00" W, 237.53' to a point (found iron pipe);
6. N 88° 49' 10" E, 105.72' to a point (found iron pipe);
7. N 55° 32' 00" E, 173.59' to a point (set iron pipe);
8. N 45° 57' 30" E, 164.18' to a point;
9. N 21° 55' 50" W, 45.33' to a point (set iron pipe);
10. N 08° 18' 50" E, 265.69' to a point;
11. N 36° 50' 40" E, 981.49' to a point (found iron pipe);
12. S 89° 15' 00" E, 88.73' to a point (found field stone); and,
13. N 02° 11' 00" W, 3,317.86' to a point in the southerly side of State Road, said southerly side of State Road being distant 30.00' from its centerline thereof when measured at right angles thereto;

THENCE along the said southerly side of State Road, the five (5) following described courses and distances:

1. N 76° 44' 38" E, 249.55' to a point;
2. S 58° 15' 22" E, 34.99' to a point;
3. N 81° 31' 35" E, 25.33' to a point;
4. N 41° 52' 18" E, 39.99' to a point; and,
5. S 83° 07' 42" E, 457.82' to a point in line of another out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 02° 02' 00" E, 744.55' to a point (set iron pipe);
2. S 80° 15' 00" W, 85.47' to a point; and,
3. S 00° 19' 00" E, 159.48' to a point, a corner for said residential Sub Area D;

THENCE by the same, seventy-six (76) following described courses and distances:

1. S 89° 41' 00" W, 13.38' to a point;
2. N 18° 54' 53" W, 161.54' to a point;
3. N 09° 38' 14" W, 84.63' to a point;
4. N 03° 27' 21" E, 103.25' to a point;
5. N 39° 33' 47" W, 172.40' to a point;

6. S 80° 54' 54" W, 187.06' to a point;
7. S 60° 36' 16" W, 20.97' to a point;
8. S 13° 35' 28" W, 166.12' to a point;
9. S 08° 34' 46" E, 191.92' to a point;
10. S 14° 57' 40" E, 85.34' to a point;
11. S 20° 22' 49" E, 530.01' to a point;
12. S 20° 03' 22" E, 289.00' to a point;
13. S 22° 14' 52" E, 349.36' to a point;
14. S 25° 26' 43" E, 241.06' to a point;
15. S 68° 05' 33" E, 122.47' to a point;
16. S 19° 17' 15" W, 132.80' to a point;
17. S 32° 42' 36" E, 171.90' to a point;
18. S 88° 18' 13" E, 162.41' to a point;
19. N 29° 31' 21" E, 161.36' to a point;
20. N 21° 53' 58" E, 98.00' to a point;
21. N 21° 54' 27" E, 200.00' to a point;
22. N 20° 43' 22" E, 109.17' to a point;
23. N 07° 26' 13" E, 156.26' to a point;
24. N 20° 40' 03" W, 425.00' to a point;
25. N 19° 40' 50" W, 85.01' to a point;
26. N 28° 05' 56" W, 85.72' to a point;
27. N 21° 56' 37" W, 138.31' to a point;
28. Along the arc of a circle curving to the left (radius = 175.00') (chord = 178.58', chord bearing = N 16° 30' 26" E), an arc distance of 187.40' to a point;
29. N 14° 10' 16" W, 100.00' to a point;
30. Along the arc of a circle curving to the right (radius = 875.00') (chord = 83.19', chord bearing = N 11° 26' 47" W), an arc distance of 83.22' to a point;
31. N 85° 51' 17" E, 131.24' to a point;
32. N 04° 20' 01" W, 100.00' to a point;
33. N 01° 29' 48" E, 100.43' to a point;
34. S 83° 11' 59" E, 655.30' to a point;
35. N 06° 48' 01" E, 129.95' to a point;
36. Along the arc of a circle curving to the right (radius = 1,975.00') (chord = 101.91', chord bearing = S 82° 07' 28" E), an arc distance of 101.92' to a point;
37. S 09° 21' 14" W, 130.00' to a point;
38. S 79° 09' 48" E, 95.49' to a point;
39. S 76° 11' 51" E, 95.49' to a point;
40. S 73° 13' 55" E, 95.49' to a point;
41. S 70° 15' 16" E, 96.54' to a point;
42. S 68° 52' 33" E, 100.00' to a point;
43. S 69° 19' 14" E, 116.14' to a point;
44. S 88° 32' 57" E, 90.93' to a point;
45. S 01° 27' 03" W, 21.73' to a point;
46. S 15° 52' 44" E, 103.46' to a point;
47. S 11° 44' 11" E, 101.78' to a point;
48. S 01° 56' 23" E, 100.01' to a point;
49. S 01° 00' 54" E, 400.00' to a point;
50. S 04° 33' 27" E, 69.83' to a point;
51. S 24° 16' 25" W, 100.17' to a point;
52. S 27° 37' 58" W, 100.00' to a point;
53. S 29° 14' 53" W, 57.66' to a point;
54. S 63° 47' 08" W, 300.00' to a point;
55. S 54° 40' 46" W, 144.48' to a point;
56. S 32° 28' 25" W, 149.43' to a point;
57. S 21° 35' 27" W, 300.00' to a point;

58. S 08° 47' 16" W, 147.01' to a point;
59. S 00° 22' 15" W, 300.00' to a point;
60. S 00° 16' 02" W, 204.86' to a point;
61. S 08° 56' 03" E, 132.16' to a point;
62. S 07° 58' 58" E, 113.92' to a point;
63. N 64° 38' 23" W, 169.02' to a point;
64. S 65° 32' 27" W, 92.10' to a point;
65. S 38° 21' 25" W, 140.36' to a point;
66. S 11° 10' 22" W, 92.10' to a point;
67. S 32° 05' 05" E, 136.11' to a point;
68. S 58° 34' 33" E, 104.51' to a point;
69. S 58° 08' 56" E, 116.00' to a point;
70. S 76° 11' 11" E, 116.00' to a point;
71. N 86° 09' 43" E, 112.10' to a point;
72. N 76° 33' 31" E, 99.18' to a point;
73. N 62° 46' 20" E, 116.58' to a point;
74. N 52° 29' 31" E, 85.00' to a point;
75. S 37° 30' 29" E, 176.44' to a point; and,
76. S 05° 46' 23" W, 34.27' to a point in the said northwesterly side of Avondale-New London Road, the first mentioned point and place of beginning.

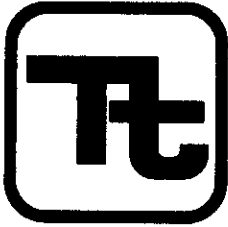
CONTAINING within said described metes and bounds 203.05 acres of land, be the same more or less.

SUBJECT, however, to the archaeological easements Nos. 4, 5, and 6 as shown with metes and bounds on the aforesaid plan.

ALSO TOGETHER WITH AND SUBJECT to any easements, restrictions and agreements of record.

F:\WPDATA\SURVEY\DESCRIPT\0400\0400NOV.FNL

BK4505PG0941



TETRA TECH, INC.
56 WEST MAIN STREET
SUITE 400
CHRISTIANA, DE 19702-1501
TELEPHONE (302) 738-7551

January 14, 1999
RCN 0400

DESCRIPTION OF PROPERTY KNOWN AS OPEN SPACE SUB AREA 2 (SOUTH SIDE GOLF COURSE) AS SHOWN ON THE FINAL PLAN OPEN SPACE EASEMENT PLAN OF INNISCRONE, A PLANNED RESIDENTIAL DEVELOPMENT, PHASE 1A-GOLF COURSE PREPARED BY JAMES C. KELLY AND ASSOCIATES, INC., DATED APRIL 10, 1995, REVISED THROUGH AUGUST 27, 1996, PROJECT NO. 88-040, DRAWING NAME PHASE-1A.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at a point in the southeasterly side of Avondale-New London Road at 60' wide, said point being the northeasterly end of a 25.00' radius junction curve joining the said southeasterly side of Avondale-New London Road with the northeasterly side of an existing 20' C.W.A. waterline easement.

THENCE from the said point of beginning, along the said southeasterly side of Avondale-New London Road, the two (2) following described courses and distances:

1. N 61° 42' 15" E, 595.04' to a point; and,
2. N 62° 57' 15" E, 311.07' to a point in line of an out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 26° 09' 41" E, 173.51' to a point;
2. N 59° 31' 39" E, 103.96' to a point; and,
3. N 27° 13' 44" W, 167.28' to a point in the said southeasterly side of Avondale-New London Road;

THENCE by the same, N 62° 57' 15" E, 519.15' to a point in line of another out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 27° 02' 45" E, 290.00' to a point (set iron pipe);
2. N 62° 57' 15" E, 447.87' to a point (set iron pipe); and,
3. N 27° 01' 23" W, 251.92' to a point in the said southeasterly side of Avondale-New London Road;

THENCE by the same, the three (3) following described courses and distances:

1. N 80° 47' 15" E, 106.00' to a point;
2. N 72° 38' 15" E, 126.53' to a point; and,
3. N 58° 22' 15" E, 188.16' to a point, a corner for residential Sub Area B;

THENCE by the same, the seven (7) following described courses and distances:

1. S 40° 16' 34" E, 161.01' to a point;
2. S 48° 56' 29" W, 163.82' to a point;
3. S 16° 15' 12" W, 101.03' to a point;
4. S 04° 06' 49" E, 164.93' to a point;
5. S 57° 24' 18" E, 229.67' to a point;
6. S 86° 22' 46" E, 346.36' to a point; and,
7. N 75° 46' 09" E, 184.15' to a point, a corner for outbound lands;

THENCE by the same, the nine (9) following described courses and distances:

1. S 19° 17' 41" E, 112.87' to a point;
2. S 30° 00' 03" E, 188.66' to a point;
3. S 86° 53' 59" W, 203.95' to a point;
4. S 01° 06' 21" E, 375.18' to a point;
5. S 88° 53' 39" W, 80.00' to a point;
6. S 01° 06' 21" E, 80.00' to a point;
7. N 88° 53' 39" E, 80.00' to a point;
8. S 01° 06' 21" E, 90.88' to a point; and,
9. S 01° 33' 47" E, 295.30' to a point, a corner for lands of residential Sub Area A;

THENCE by the same, the seventeen (17) following described courses and distances:

1. S 88° 21' 37" W, 241.97' to a point;
2. S 62° 02' 20" W, 122.44' to a point;
3. Along the arc of a circle, curving to the left (radius = 979.50') (chord = 243.24', chord bearing = S 52° 33' 02" W), an arc distance of 243.87' to a point;
4. S 35° 57' 06" W, 57.71' to a point;
5. N 71° 36' 44" W, 243.29' to a point;
6. N 88° 37' 23" W, 115.04' to a point;
7. S 69° 23' 49" W, 446.02' to a point;
8. S 72° 31' 50" W, 81.22' to a point;
9. S 80° 02' 37" W, 70.86' to a point;
10. S 87° 14' 24" W, 76.86' to a point;
11. N 87° 04' 22" W, 235.42' to a point;
12. N 37° 17' 18" W, 658.08' to a point;
13. N 34° 15' 42" W, 77.83' to a point;
14. N 28° 36' 30" W, 350.91' to a point;
15. N 48° 55' 36" W, 130.21' to a point;
16. N 62° 33' 17" W, 151.83' to a point; and,
17. S 40° 15' 33" W, 145.77' to a point in the said northeasterly side of the existing 20' C.W.A. waterline easement;

THENCE by the same, the two (2) following described courses and distances:

1. Along the arc of a circle, curving to the right (radius = 125.00') (chord = 34.08', chord bearing = N 41° 54' 38" W), an arc distance of 34.19' to a point; and
2. N 34° 04' 32" W, 58.65' to a point, said point being the southeasterly end of the aforesaid 25.00' radius junction curve joining the said northeasterly side of the existing 20.00' C.W.A. waterline easement with the said southeasterly side of Avondale-New London Road;

BK4505PG0943

THENCE along the arc of a circle, curving to the right (radius = 25.00') (chord = 37.64', chord bearing = N 14° 45' 27" E), an arc distance of 42.61' to a point in the said southeasterly side of Avondale-New London Road, the first mentioned point and place of beginning.

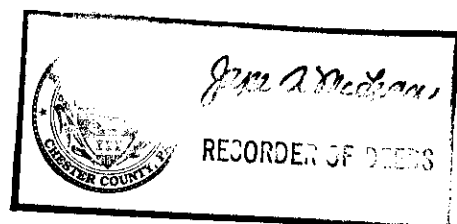
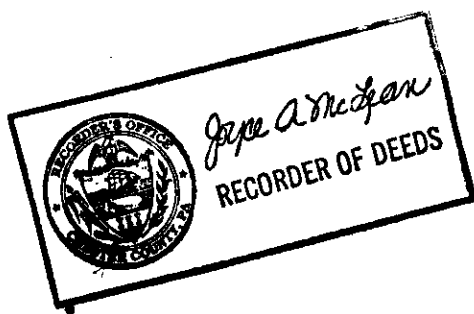
CONTAINING within said described metes and bounds 76.79 acres of land, be the same more or less.

ALSO TOGETHER WITH AND SUBJECT to any easements, restrictions and agreements of record.

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BK 4505PG0944



DATE: 02/09/1999 TIME: 11:48A INST NO.: 10430

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 004584 TYPE DOC : MISC

REC FEE	:	43.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50

DATE: 02/09/1999 TIME: 11:48A INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 004584 TYPE DOC : CO REC FUND

REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

DATE: 02/09/1999 TIME: 11:48A INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 004584 TYPE DOC : RE REC FUND

REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

5.0
2

ASSIGNMENT

THIS ASSIGNMENT is made this 2nd day of December, 1998, by and between CASTLEREA INVESTMENT PARTNERS, L.P. (hereinafter "Assignor") and INNISCRONE GOLF CLUB, LLC (hereinafter "Assignee"):

WHEREAS, Assignor desires to assign and Assignee desires to acquire from Assignor its rights, privileges and obligations, all of the plans, prints, approvals of all governmental agencies or authorities pertinent to or relating to the Aaron Martin subdivision and land development plan for the Inniscrone Golf Course to Assignee.

NOW, THEREFORE, the parties hereto, in consideration of the mutual promises and covenants contained herein, intending to be legally bound hereby, agree as follows:

1. Assignor hereby assigns its rights, privileges and obligations, as well as all rights, privileges and obligations for all plans, prints, approvals of all governmental agencies or authorities pertinent to or relating to the Aaron Martin subdivision and land development plan for the Inniscrone Golf Course to Assignee for and consideration of partnership interest in Assignee as more fully described in a Partnership Agreement between Aaron Martin and Assignor.

IN WITNESS WHEREOF, the General Partners of Assignor have executed this Assignment and all of the Limited Partners of the Assignor acknowledging their consent to this Assignment have executed this Assignment the day and year first above written.

CASTLEREA INVESTMENT PARTNERS, L.P.

By:

John M. Rouse
JOHN M. ROUSE, General Partner

By:

Dolores Z. Rouse
DOLORES Z. ROUSE, General Partner

By:

Dolores Z. Rouse
DOLORES Z. ROUSE, General Partner

By:

John M. Rouse
JOHN M. ROUSE, Limited Partner

By:

Dolores Z. Rouse
DOLORES Z. ROUSE, Limited Partner

By: [Signature]
MICHAEL M. ROUSE, Limited Partner

By: [Signature]
WILLIAM P. ROUSE, Limited Partner

By: [Signature]
CHRISTINE F. ROUSE, Limited Partner

COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared JOHN M. ROUSE who acknowledged himself to be one of the General Partners of CASTLEREA INVESTMENT PARTNERS, L.P., limited partnership and that he as such General Partner, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited partnership himself as General Partner.

I hereunto set my hand and official seal.

[Signature]
Notary Public

COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Chester) ss:

Notarial Seal
Zoraida Cabrera, Notary Public
Avondale Boro, Chester County
My Commission Expires Nov. 4, 2000
Member, Pennsylvania Association of Notaries

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared DOLORES Z. ROUSE who acknowledged herself to be one of the General Partners of CASTLEREA INVESTMENT PARTNERS, L.P., limited partnership and that she as such General Partner, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the limited partnership herself as General Partner.

I hereunto set my hand and official seal.

[Signature]
Notary Public

Notarial Seal
Zoraida Cabrera, Notary Public
Avondale Boro, Chester County
My Commission Expires Nov. 4, 2000
Member, Pennsylvania Association of Notaries

COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared JOHN M. ROUSE, a Limited Partner known to me (satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

I hereunto set my hand and official seal.

Notary Public

COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared DOLORES Z. ROUSE, a Limited Partner known to me (satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that she executed the same for the purposes therein contained.

I hereunto set my hand and official seal.

Notary Public

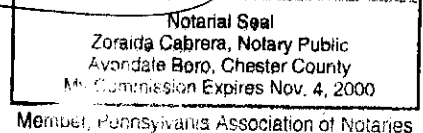
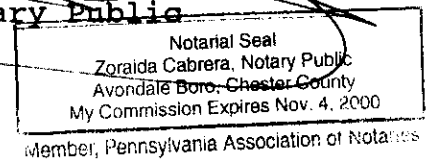
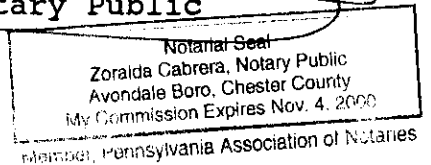
COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared MICHAEL J. ROUSE, a Limited Partner known to me (satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

I hereunto set my hand and official seal.

Notary Public

BK4546PG2025



COMMONWEALTH OF PENNSYLVANIA)

COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of _____, the undersigned Officer, personally appeared WILLIAM P. ROUSE, a Limited Partner known to me (satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

I hereunto set my hand and official seal.


Notary Public

COMMONWEALTH OF PENNSYLVANIA)

COUNTY OF Chester) ss:

On this, the 2nd day of December, 1998, before me, a Notary Public for the Commonwealth of Pennsylvania, residing in the County of Chester, the undersigned Officer, personally appeared CHRISTINE F. ROUSE, a Limited Partner known to me (satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that she executed the same for the purposes therein contained.

I hereunto set my hand and official seal.


Notary Public

c:\Rouse\assign.glf

Notarial Seal
Zoraida Cabrera, Notary Public
Avondale Boro, Chester County
My Commission Expires Nov. 4, 2000

Member, Pennsylvania Association of Notaries

PARCELS

59-8-152.7 (115.80 acres)

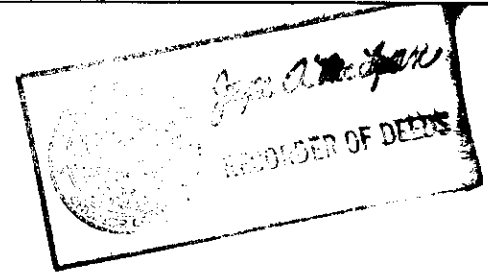
59-8-183 (97.70 acres)

59-8-184 (86.20 acres)

59-8-153.1 (16.30 acres)

59-8-170 (214.60 acres)

59-8-183.1 (5.20 acres)



DATE: 04/19/1999 TIME: 03:05P INST NO.: 31515

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 014706	TYPE DOC :	MISC
REC FEE	:	15.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50

DATE: 04/19/1999 TIME: 03:05P INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 014706	TYPE DOC :	CO REC FUND
REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

DATE: 04/19/1999 TIME: 03:05P INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 014706	TYPE DOC :	RE REC FUND
REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

Donald J Weiss Esq
202 S. Ave
Media Pa. 19063

BK4546PG2028

15-23
4-23

**INNISCRONE GOLF CLUB
AMENDMENT TO DECLARATION
OF RESTRICTIONS, COVENANTS AND EASEMENTS**

THIS AMENDMENT TO DECLARATION OF RESTRICTIONS, COVENANTS AND EASEMENTS is made this 20th day of August, 1999, by **INNISCRONE GOLF CLUB, L.L.C.**, a Pennsylvania limited liability company organized and existing under the Limited Liability Company Law of 1994 (hereinafter "Declarant"),

WITNESSETH:

WHEREAS, by Declaration of Restrictions, Covenants and Easements dated January 14, 1999 and recorded in the office of the Recorder of Deeds of Chester County, Pennsylvania in Book 4505, page 0926 (hereinafter "Declaration"), Declarant declared that certain property known as the Inniscrone Golf Club located in London Grove Township, Chester County, Pennsylvania, and described therein as the "Golf Course Property" would be conveyed to Declarant by Aaron J. Martin and Jean T. Martin and held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, conditions, charges and liens identified in the Declaration; and

WHEREAS, the Declaration provides in Article 5.2 that it may be amended by action of the Declarant, acting through its officers, and that such amendment shall be recorded in the office of the Recorder of Deeds of Chester County; and

WHEREAS, Aaron J. Martin and Jean T. Martin intend to transfer to Declarant additional land in London Grove Township consisting of 7.6389 acres of ground and known as "Clubhouse Area 1" and, upon the transfer of Clubhouse Area 1 to the Declarant, the Declarant intends to make the property transferred part of the Golf Course Property described in the Declaration.

NOW, THEREFORE, Declarant declares that Clubhouse Area 1, as described in Exhibit "A" attached hereto and made a part hereof, is made and shall hereafter be a part of the Golf Course Property referred to in the Declaration, and shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, conditions, charges and liens, all as set forth in the Declaration and all of which shall run with the Clubhouse Area 1 described in Exhibit "A", and shall be binding upon all parties having or acquiring any interest therein (for the period of time specified in the Declaration).

RECORD & RETURN TO:

LT NATIONAL ABSTRACT SERVICES

89 Hudson Street, 4th Floor

Hoboken, NJ 07030

(201) 610-9455 2461

RETURN TO


BK 4627PG0112


IN WITNESS WHEREOF, the Declarant has caused this instrument to be executed the day and year first above written.

INNISCRONE GOLF CLUB, L.L.C.

ATTEST:

BY: NATIONAL FAIRWAYS
DEVELOPMENT FUND, L.P., Member




BY: 

Marc L. Rinaldi, President
National Fairways, Inc., General Partner

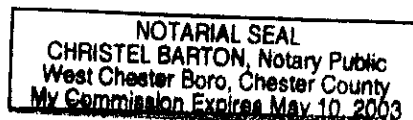
COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER.

ON THIS, the 20th day of August, 1999, before me, a notary public, in and for the aforesaid County and Commonwealth, personally appeared **MARC L. RINALDI**, who acknowledged himself to be the President of National Fairways, Inc., a General Partner of National Fairways Development Fund, Limited Partnership, a Member of **INNISCRONE GOLF CLUB, L.L.C.**, and that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

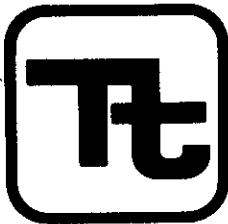
WITNESS my hand and notarial seal.



G:\DOCS\CHRISTEL\ROUSE.AME



BK4627PG0113



TETRA TECH, INC.
56 WEST MAIN STREET
SUITE 400
CHESTER, PA 19380
TEL: 610-336-1100

July 8, 1999
RCN 0400

DESCRIPTION OF PROPERTY KNOWN AS CLUB HOUSE AREA 1 AS SHOWN ON THE FINAL PLAN OPEN SPACE EASEMENT PLAN OF INNISCRONE PREPARED BY TETRA TECH, INC., DATED FEBRUARY 21, 1995 REVISED THROUGH JUNE 30, 1999, RCN 0400.00, COMPUTER FILE NAME T:\0400\CLUB\PHCLUB.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at a point in the northwesterly side of Avondale-New London Road (T-300), said northwesterly side of Avondale-New London Road being distant 30.00' in a northwesterly direction from its centerline thereof when measured at right angles thereto, said point being a common corner for Open Space Subarea 1, said point of beginning being the easterly corner of the parcel herein being described.

THENCE from the said point of beginning, along the said northwesterly side of Avondale-New London Road, the four (4) following described courses and distances:

1. S 63° 44' 15" W, 129.10' to a point;
2. S 48° 54' 15" W, 242.73' to a point;
3. S 53° 00' 15" W, 224.03' to a point; and,
4. S 58° 22' 15" W, 56.19' to a point, a corner for revised residential Subarea C;

THENCE by the same, the four (4) following described courses and distances:

1. Along the arc of a circle curving to the right (radius = 557.63') (chord = 350.84', chord bearing = S 28° 12' 16" E), an arc distance of 356.90' to a point;
2. S 83° 13' 19" W, 200.27' to a point;
3. N 67° 29' 21" W, 52.61' to a point; and,
4. N 21° 56' 13" W, 168.17' to a point, a corner for said lands known as Open Space Subarea 1;

THENCE by the same, the six (6) following described courses and distances:

1. N 27° 44' 14" E, 55.73' to a point;
2. N 23° 17' 15" E, 235.34' to a point;
3. S 79° 55' 33" E, 320.48' to a point;
4. S 34° 57' 46" E, 153.32' to a point;
5. S 61° 37' 29" E, 323.46' to a point; and,
6. S 86° 49' 40" E, 194.91' to a point in the said northwesterly side of Avondale-New London Road, the first mentioned point and place of beginning.

CONTAINING within said described metes and bounds 7.6389 acres of land, be the same more or less.

ALSO TOGETHER WITH AND SUBJECT to any easements, restrictions and agreements of record.



DATE: 08/31/1999 TIME: 10:27A INST NO.: 72183

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 032998 TYPE DOC : MISC

REC FEE	:	13.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50

DATE: 08/31/1999 TIME: 10:27A INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 032998 TYPE DOC : CO REC FUND

REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

DATE: 08/31/1999 TIME: 10:27A INST NO.:

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 032998 TYPE DOC : RE REC FUND

REC FEE	:	1.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.00

BK4627PG0115

5
3

SIDEWALK AND RETAINING WALL EASEMENT AGREEMENT

IT IS HEREBY AGREED that **INNISCRONE GOLF CLUB, L.L.C.**, a Pennsylvania limited liability company (hereinafter "Grantor") for the sum of One Dollar (\$1.00) and other valuable consideration paid by **AARON J. MARTIN** and **JEAN T. MARTIN** (hereinafter "Grantees"), does grant, sell and convey unto Grantees an easement and right-of-way upon and across the property of Grantor described in a certain deed recorded in the office of the Recorder of Deeds in and for Chester County in Record Book 4505, page 0973, and more particularly described by metes and bounds in Exhibit "A" attached hereto and depicted on the plan entitled "Permanent Easement for Sidewalk & Retaining Wall for Inniscrone Townhomes, Phase 1B and 2 Golf Course and Residential Development," prepared by Tetra Tech and dated 6/2/00, attached hereto and marked Exhibit "B."

The right-of-way, easement, rights and privileges herein granted shall be used only for the purpose of construction, maintenance and repair of a sidewalk and retaining wall adjacent to Golf House Boulevard to serve the townhomes to be constructed as part of Phase 1B and 2 of the Inniscrone Planned Residential Development in London Grove Township, Chester County, Pennsylvania.

The easement, rights and privileges herein granted shall be perpetual or for so long as Grantees shall maintain a sidewalk and retaining wall within said easement. Grantor hereby binds itself, its successors and assigns, to warrant and forever defend the above-described easement and rights unto Grantees, their successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

The easement, rights and privileges granted herein are exclusive, and Grantor covenants that it will not convey any other easement or conflicting rights within the area covered by this grant.

This instrument shall be binding on the heirs, executors, administrators, successors and assigns of the parties hereto.

In addition to the easement, rights and privileges herein conveyed, Grantees shall have the right to use so much of the surface of the hereinbefore-described property of Grantor as may be reasonably necessary to construct and install the sidewalk and retaining wall within the easement granted hereby. On the completion of such construction and installation, Grantees shall replace and restore all turf, fences, walls or other structures which may have been disturbed during the construction period, and Grantees shall pay Grantor reasonable compensation for such turf, fences, walls or structures which may not be replaceable and for such other vegetation as may have been damaged or destroyed during such construction.

UK4775PG0934

The easement, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, are abandoned by Grantees or become impossible of performance.

Should Grantees fail to perform any covenant, undertaking or obligation arising hereunder, all rights and privileges granted hereby shall terminate, and this agreement shall be of no further force or effect.

Grantor also retains, reserves and shall continue to enjoy the use of the surface of such property for any and all purposes which do not interfere with and prevent the use by Grantees of the within easement.

IN WITNESS WHEREOF, the parties have executed this easement agreement this 26th day of June, 2000.

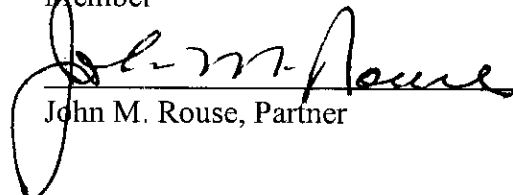
GRANTOR:

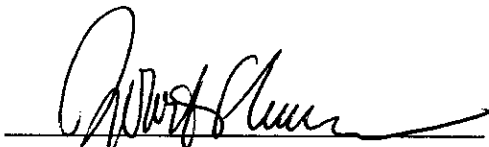
INNISCRONE GOLF CLUB, L.L.C.

By: Castlerea Investment Partners, L.P.,
Member

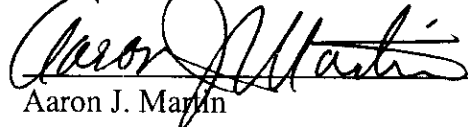

Witness

BY:


John M. Rouse, Partner


Witness

GRANTEES:


Aaron J. Martin


Witness


Jean T. Martin

BK4775PG0935

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER : SS.

ON THIS, the 26th day of June, 2000, before me, a notary public in and for said County and Commonwealth, personally appeared **AARON J. MARTIN and JEAN T. MARTIN**, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

WITNESS my hand and notarial seal.

Christel Barton

NOTARIAL SEAL
CHRISTEL BARTON, Notary Public
West Chester Boro, Chester County
My Commission Expires May 10, 2003

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF : SS.

ON THIS, the 26th day of June, 2000, before me, a notary public, in and for the aforesaid County and Commonwealth, personally appeared, **JOHN M. ROUSE**, who acknowledged himself to be a partner of Castlereia Investment Partners, L.P., a member of **INNISCRONE GOLF CLUB, L.L.C.**, Grantor herein, and that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

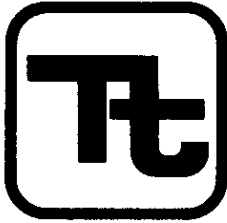
WITNESS my hand and notarial seal.

Christel Barton

NOTARIAL SEAL
CHRISTEL BARTON, Notary Public
West Chester Boro, Chester County
My Commission Expires May 10, 2003

G:\CHRISTEL\ROUSE\sidewalk retaining wall easement

BK4775PG0936



TETRA TECH, INC.
55 WEST MAIN STREET
SUITE 400
CHRYSTIANA, DE 19702-1501
TELEPHONE (302) 384-7000

June 2, 2000
RCN 0400-07

DESCRIPTION OF A PERMANENT EASEMENT FOR SIDEWALK AND RETAINING WALL AS SHOWN ON AN EASEMENT PLAN FOR INNISCRONE TOWNHOMES, PHASE 1B AND 2, GOLF COURSE AND RESIDENTIAL DEVELOPMENT, DATED JUNE 2, 2000, RCN 0400-07, FILE NO. A-001, COMPUTER FILE NAME T:\0400\7\EASEMENT.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at the point of intersection formed by the southeasterly side of East Avondale Road (T-300) at 60' wide with the southwesterly side of Golf House Boulevard.

THENCE from the said point of beginning, along the said southwesterly side of Golf House Boulevard, S 40°16'34"E, 168.70' to a point, a corner for Phase 1B Townhouse Development (Reference plan: Sheet 3 of 15 of the Inniscrone Phase 1B and 2 Townhouse Development prepared by Tetra Tech, Inc. dated June 22, 1998, revised through May 19, 2000, RCN 0400-07, File No. G-005, Computer File Name T:\0400\7\0400SUB1.DWG.);

THENCE by the same, S 48°56'29"W, 6.68' to a point;

THENCE by a new line passing through the Storage Lagoon #4 area, N 40°16'34"W, 169.52' to a point in the said southeasterly side of East Avondale Road;

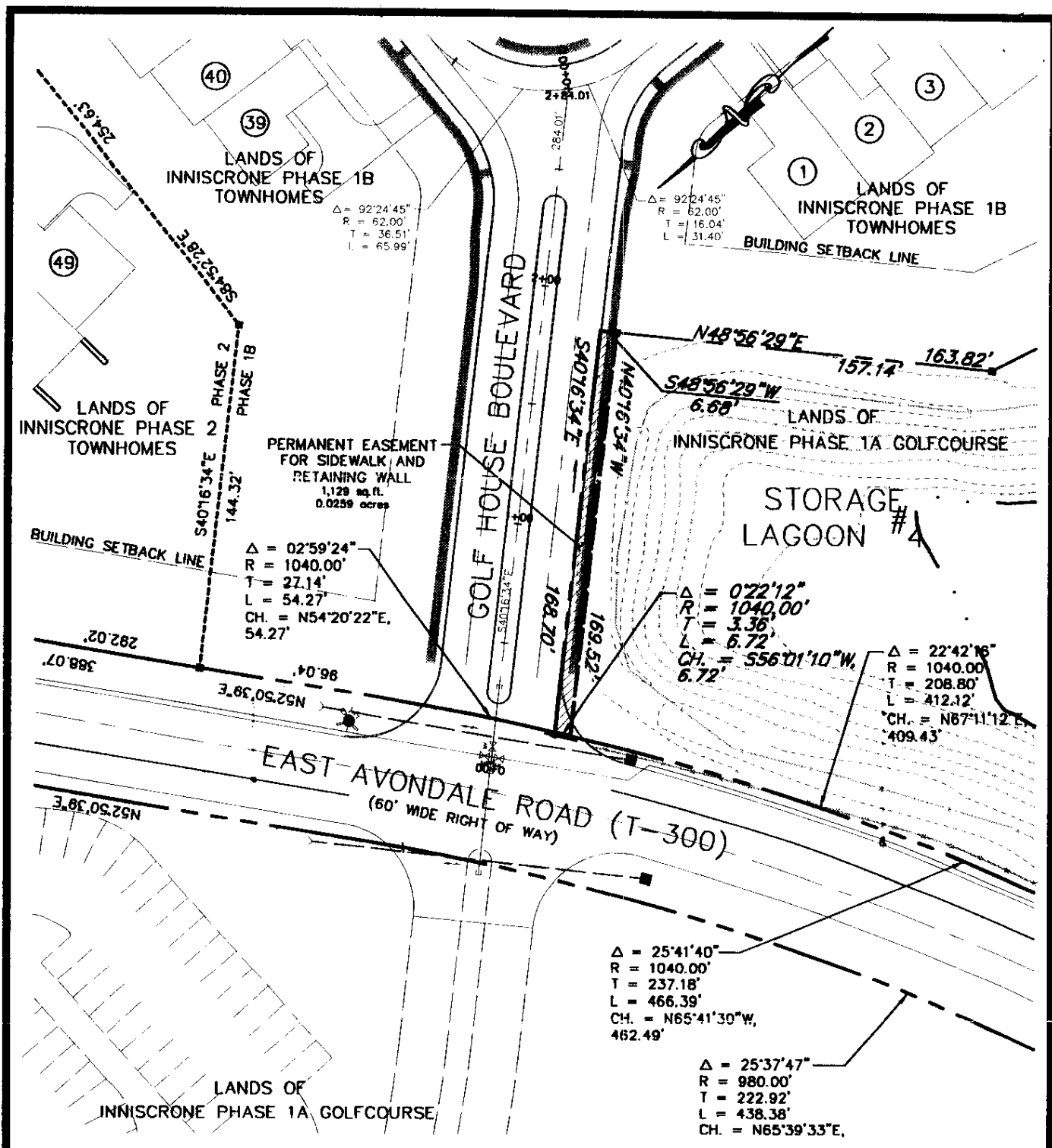
THENCE by the same, along the arc of a circle curving to the left (R=1,040.00') (chord=6.72', chord bearing=S56°01'10"W), an arc distance of 6.72' to the said point of intersection form by the southeasterly side of East Avondale Road with the southwesterly side of Golf House Boulevard, the first mentioned point and place of beginning.

CONTAINING within said described metes and bounds 1,129 sq. ft. of land, be the same more or less.

O:\WPdata\SURVEY\DESCRIPT\0400\0400-07eas6-2-00.wpd

BK4775PG0937

EXHIBIT "A"



**PERMANENT EASEMENT
FOR SIDEWALK & RETAINING WALL
FOR
INNISCORNE TOWNHOMES**

PHASE 1B AND 2
GOLF COURSE AND
RESIDENTIAL DEVELOPMENT
LONDON GROVE TOWNSHIP
CHESTER COUNTY
PENNSYLVANIA



TETRA TECH
ENGINEERS ARCHITECTS SCIENTISTS

56 West Main Street
Christiana, Delaware 19702-1501
302 738-7551 302 454-5980 fax

RCN:	0400-07	DATE:	6/2/00	DRAWN BY:	EMT
FILE NO.:	A-001	SCALE:	1"=60'	DESIGNED BY:	-
FILE NAME:	T:\0400\7\EASEMENT.DWG			CHECKED BY:	-

BK4775PG0938

EXHIBIT "B"



06/27/2000 03:02:42 P.M. INST NO: 0040741
CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS
RECEIPT NO: 0018386
MISCELLANEOUS \$15.00
CD REC FUND \$1.00
RE REC FUND \$1.00
WRIT - MISCELLANEOUS \$.50

\$17.50

RETURN TO:
ROBERT F ADAMS ESQ
POB 562
WEST CHESTER PA 19381-0562

BK4775PG0939

6
30

INFILTRATION BERM EASEMENT AGREEMENT

IT IS HEREBY AGREED that **INNISCRONE GOLF CLUB, L.L.C.**, a Pennsylvania limited liability company (hereinafter "Grantor") for the sum of One Dollar (\$1.00) and other valuable consideration paid by **AARON J. MARTIN** and **JEAN T. MARTIN** (hereinafter "Grantees"), does grant, sell and convey unto Grantees an easement and right-of-way upon and across the property of Grantor described in a certain deed recorded in the office of the Recorder of Deeds in and for Chester County in Record Book 4505, page 0973, and more particularly described by metes and bounds in Exhibit "A" attached hereto and depicted on the plan entitled "Easement Plan - Infiltration Berm 'A' Easement Plan for Inniscrone Townhomes, Phase 1B and 2," prepared by Tetra Tech and dated 5/30/00, attached hereto and marked Exhibit "B."

The right-of-way, easement, rights and privileges herein granted shall be used only for the purpose of construction and maintenance of an infiltration berm to serve the townhomes to be constructed as part of Phase 1B and 2 of the Inniscrone Planned Residential Development in London Grove Township, Chester County, Pennsylvania. Grantees shall have the continuing right to the permanent occupation of the easement area described above for the operation, repair, renewal and maintenance of the said infiltration berm, together with all associated accessories and appurtenances thereto.

The easement, rights and privileges herein granted shall be perpetual or for so long as Grantees shall operate an infiltration berm within said easement. Grantor hereby binds itself, its successors and assigns, to warrant and forever defend the above-described easement and rights unto Grantees, their successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

The easement, rights and privileges granted herein are exclusive, and Grantor covenants that it will not convey any other easement or conflicting rights within the area covered by this grant.

This instrument shall be binding on the heirs, executors, administrators, successors and assigns of the parties hereto.

In addition to the easement, rights and privileges herein conveyed, Grantees shall have the right to use so much of the surface of the hereinbefore-described property of Grantor as may be reasonably necessary to construct and install the infiltration berm within the easement granted hereby. On the completion of such construction and installation, Grantees shall replace and restore all turf, fences, walls or other structures which may have been disturbed during the construction period, and Grantees shall pay Grantor reasonable compensation for such turf, fences, walls or structures which may not be replaceable and for such other vegetation as may have been damaged or destroyed during such construction.

BK 4775 PG 0940

The easement, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, are abandoned by Grantees or become impossible of performance.

Should Grantees fail to perform any covenant, undertaking or obligation arising hereunder, all rights and privileges granted hereby shall terminate, and this agreement shall be of no further force or effect.

Grantor also retains, reserves and shall continue to enjoy the use of the surface of such property for any and all purposes which do not interfere with and prevent the use by Grantees of the within easement.

IN WITNESS WHEREOF, the parties have executed this easement agreement this 26th day of June, 2000.

GRANTOR:

INNISCRONE GOLF CLUB, L.L.C.
By: Castlerea Investment Partners, L.P.,
Member




Witness

BY:



John M. Rouse, Partner

GRANTEES:



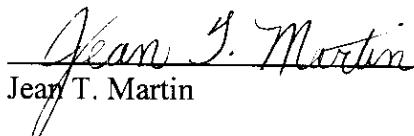
Witness



Aaron J. Martin



Witness



Jean T. Martin

BK4775PG0941

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF CHESTER : SS.

ON THIS, the 26th day of June, 2000, before me, a notary public in and for said County and Commonwealth, personally appeared **AARON J. MARTIN and JEAN T. MARTIN**, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

WITNESS my hand and notarial seal.

Christel Barton

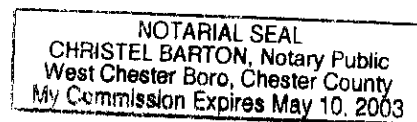


COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF : SS.

ON THIS, the 26th day of June, 2000, before me, a notary public, in and for the aforesaid County and Commonwealth, personally appeared, **JOHN M. ROUSE**, who acknowledged himself to be a partner of Castlerea Investment Partners, L.P., a member of **INNISCRONE GOLF CLUB, L.L.C.**, Grantor herein, and that he as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

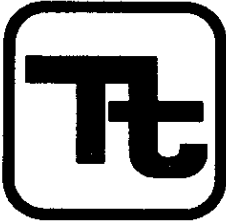
WITNESS my hand and notarial seal.

Christel Barton



G:\CHRISTEL\ROUSE\infiltration berm easement

BK4775PG0942



TETRA TECH, INC.
56 WEST MAIN STREET
SUITE 400
CHRISTIANA, DE 19702-1501
TELEPHONE (302) 738-7551

May 30, 2000
RCN 0400-07

DESCRIPTION OF PROPERTY KNOWN AS INFILTRATION BERM "A" AS SHOWN ON THE FINAL SUBDIVISION PLAN OF INNISCRONE PHASE 1B AND 2 TOWNHOUSE DEVELOPMENT DATED JUNE 22, 1998, SHEET 3 OF 15 REVISED THROUGH MAY 19, 2000, RCN 0400-07, FILE NO. G-005, COMPUTER FILE NAME T:\0400\7\0400SUB1.DWG, SAID EASEMENT BEING MORE PARTICULARLY SHOWN ON AN EASEMENT PLAN FOR INNISCRONE TOWN HOMES PHASE 1 B AND 2 GOLF COURSE AND RESIDENTIAL DEVELOPMENT, DATED MAY 30, 2000, RCN 0400-07, FILE NO. A-001, COMPUTER FILE NAME T:\0400\7\EASEMENT.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING at a point in division line between Phase 1A Inniscrone Golf Course and Phase 1B Townhouse Development, and further located the seven (7) following described courses and distances from the point of intersection formed by the southwesterly side of Golf House Boulevard with the southeasterly side of East Avondale Road (T-300) at 60 feet wide:

1. Along the said southwesterly side of Golf House Boulevard, S 40° 16' 34" E, 168.70' to a point;
2. S 48° 56' 29" W, 163.82' to a point;
3. S 16° 15' 12" W, 101.03' to a point;
4. S 04° 06' 49" E, 164.93' to a point;
5. S 57° 24' 18" E, 229.67' to a point;
6. S 86° 22' 46" E, 346.36' to a point; and,
7. N 75° 46' 09" W, 91.24', last six courses and distances being along the said division line separating between Phase 1A Inniscrone Golf Course, and Phase 1B Townhouse Development.

THENCE from the said point of beginning, along the said division line between Phase 1A Inniscrone Golf Course and Phase 1B Townhouse Development, N 75° 46' 09" E, 92.91' to a point, a corner for lands now or formerly of Geoffrey David Stroud and Dianne Caen (Deed Record Y, Volume 45, Page 307);

THENCE by the same, the two (2) following described courses and distances:

1. S 19° 17' 41" E, 112.87' to a point; and,
2. S 30° 00' 03" E, 188.66' to a point in line of lands now or formerly of Merner Family Partnership, et al. (Deed Record A, Volume 63, Page 302);

THENCE by the same, S 86° 53' 59" W, 203.95' to a point;

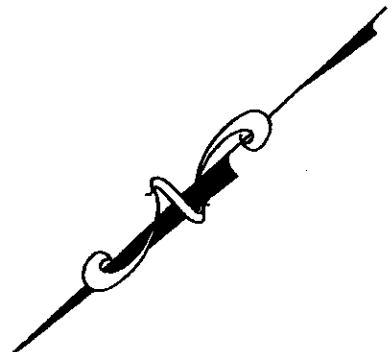
EXHIBIT "A"

BK 4775 PG 0943

THENCE passing through said Phase 1A Inniscrone Golf Course, the five (5) following described courses and distances:

1. N 39° 25' 51" W, 47.04' to a point;
2. N 00° 51' 02" W, 38.79' to a point;
3. N 74° 12' 40" E, 65.32' to a point;
4. N 36° 20' 40" E, 11.61' to a point; and,
5. N 20° 11' 25" W, 166.06' to a point in the aforesaid division line between Phase 1B Inniscrone Townhouse Development and Phase 1A Inniscrone Golf Course, the first mentioned point and place of beginning.

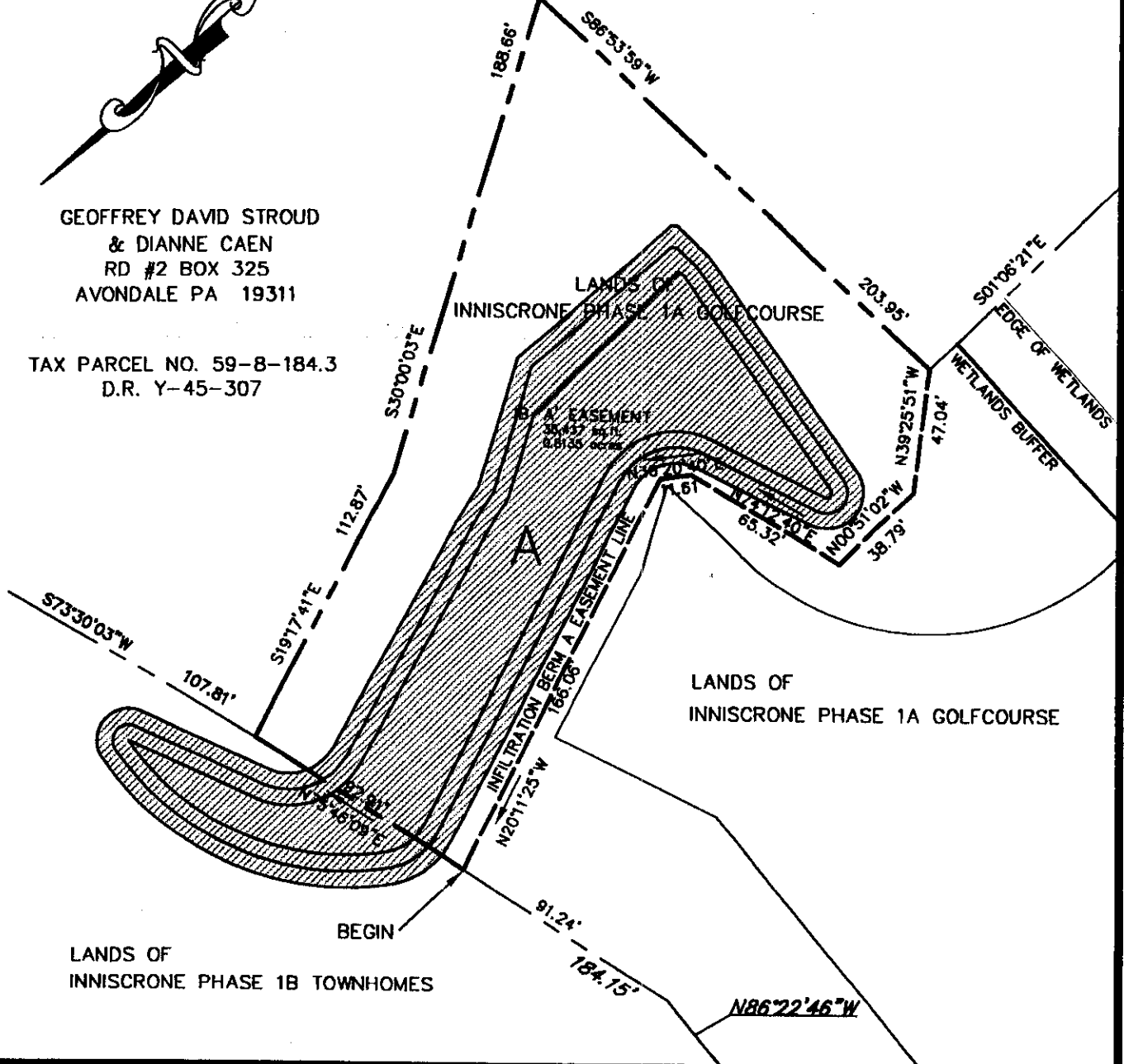
CONTAINING within said described metes and bounds 0.8135 acre of land, be the same more or less.



N/F
MERNER FAMILY PARTNERSHIP, ET AL.
D.R. A-63-302

GEOFFREY DAVID STROUD
& DIANNE CAEN
RD #2 BOX 325
AVONDALE PA 19311

TAX PARCEL NO. 59-8-184.3
D.R. Y-45-307



EASEMENT PLAN
INFILTRATION BERM 'A' EASEMENT PLAN
FOR
INNISCRONE TOWNHOMES
PHASE 1B AND 2
GOLF COURSE AND
RESIDENTIAL DEVELOPMENT
LONDON GROVE TOWNSHIP
CHESTER COUNTY
PENNSYLVANIA

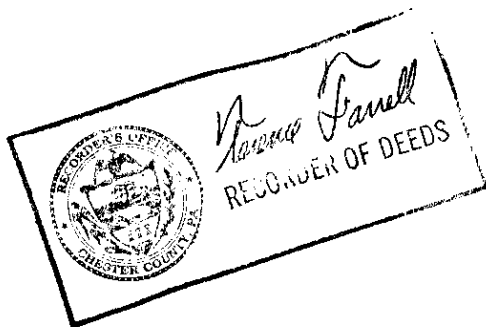


TETRA TECH
ENGINEERS ARCHITECTS SCIENTISTS

56 West Main Street
Christiana, Delaware 19702-1501
302 738-7551 302 454-5980 fax

RCN:	0400-07	DATE:	5/30/00	DRAWN BY:	WJM
FILE NO.:	A-001	SCALE:	1"=60'	DESIGNED BY:	-
FILE NAME:	T:\0400\7\EASEMENT.DWG			CHECKED BY:	-

BR4775PG0545 EXHIBIT "B"
Pg 945



06/27/2000 03:03:32 P.M. INST NO: 0040742
CHESTER COUNTY, PA

OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO: 0018386

MISCELLANEOUS	\$17.00
CO REC FUND	\$1.00
RE REC FUND	\$1.00
WRIT - MISCELLANEOUS	\$1.50

\$19.50

RETURN TO:
ROBERT F ADAMS ESQ
POB 562
WEST CHESTER PA 19381-0562

BK4775PG0946

ASSIGNMENT OF GENERAL EASEMENT AGREEMENT

This Assignment of the General Easement Agreement is made effective as of December 2, 2002 by LONDON GROVE TOWNSHIP, Chester County, Pennsylvania (the "Township") to and in favor of LONDON GROVE TOWNSHIP MUNICIPAL AUTHORITY, Chester County, Pennsylvania, its successors and assigns (the "Authority").

BACKGROUND

A. On or about April 22, 1992, Aaron J. Martin and Jean T. Martin, his wife (the "Martins"), John M. Rouse ("Rouse") and the Township entered into the General Easement Agreement, which is filed with the Chester County Recorder of Deeds at Record Book 3108, page 131. Pursuant to the General Easement Agreement, the Martins and Rouse granted an easement and right-of-way upon and across certain property located in London Grove Township, Chester County Pennsylvania known as UPI Nos. 59-8-170, 59-8-354, 59-8-170.1 and 59-8-183.4. to install, construct, reconstruct, replace, remove, enlarge, inspect, operate, repair, make connections with and maintain perpetually a municipal sanitary sewer system.

B. The Martins, Rouse and others have offered to dedicate the sanitary sewer system constructed within said easement and right-of-way to the Authority.

C. In connection with the dedication of the sanitary sewer system to the Authority, the Township is assigning all of its rights and interests in the General Easement Agreement to the Authority.

WITNESSETH

That the Township, for and in consideration of the sum of One Dollar (\$1.00), lawful money of the United States of America, unto it well and truly paid by the Authority, at or before the execution and delivery of this instrument, the receipt whereof is hereby acknowledged, and for other good and valuable consideration, has granted, bargained, sold, released, confirmed and assigned, and by these presents does grant, bargain, sell, release, confirm and assign unto the Authority, its successors and assigns, all of its rights and interests in the General Easement Agreement.

[SIGNATURE LINES APPEAR ON NEXT PAGE]

December 2, 2002

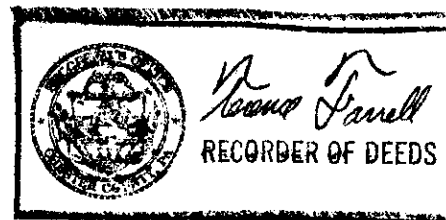
IN WITNESS WHEREOF, the Township and the Authority have executed this Assignment of General Easement Agreement as of the day and year first above written.

LONDON GROVE TOWNSHIP

By: Constance D. Allegretti
Chairman

LONDON GROVE TOWNSHIP MUNICIPAL
AUTHORITY

By: [Signature]
Chairman



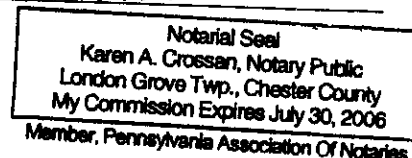
December 2, 2002

COMMONWEALTH OF PENNSYLVANIA :
COUNTY OF CHESTER : SS

On the 4th day of December, 2002, before me the undersigned, a notary public for the Commonwealth of Pennsylvania residing in the County of Chester, personally appeared Constance Aleganti, who acknowledged himself to be Chairman of the Board of Supervisors of the London Grove Township, and that he as the Chairman, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the London Grove Township by himself as the Chairman of the Board of Supervisors.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Karen A. Crossan
Notary Public

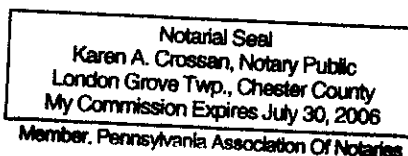


COMMONWEALTH OF PENNSYLVANIA :
COUNTY OF CHESTER : SS

On the 2nd day of December, 2002, before me the undersigned, a notary public for the Commonwealth of Pennsylvania residing in the County of Chester, personally appeared Benneth Crossan, who acknowledged himself to be Chairman of the London Grove Township Municipal Authority, and that he as the Chairman, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the London Grove Township Municipal Authority by himself as the Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Karen A. Crossan
Notary Public



UNRUH TURNER

12/26/2002 01:44P

10166966

Page 3 of 3

B-5509 P-1455

MEMORANDUM OF SEWER OPERATING AND MAINTENANCE AGREEMENT

THIS MEMORANDUM OF SEWER OPERATING AND MAINTENANCE AGREEMENT is executed by **LONDON GROVE TOWNSHIP MUNICIPAL AUTHORITY**, Chester County, Pennsylvania (the "Authority") with respect to certain real estate owned by **INNISCRONE GOLF CLUB, LLC**, a Pennsylvania limited liability company (the "Inniscrone Golf Club").

WITNESSETH:

KNOW ALL MEN BY THESE PRESENTS that the Authority entered into a Sewer Operating and Maintenance Agreement for the Inniscrone Wastewater Treatment and Spray Irrigation Facility dated June 3, 2001 (the "Operating Agreement") with the Inniscrone Golf Club, which governs their rights and responsibilities with respect to the lagoon/spray irrigation wastewater treatment plant and related facilities, a portion of which is located on certain property owned by the Inniscrone Golf Club in London Grove Township, Chester County, Pennsylvania identified as Open Space Subareas 1 and 2 (collectively the "Open Space") on the plan entitled Inniscrone, Tentative Open Space Easement Plan for the Treatment, Storage and Disposal of Sewage by Spray Irrigation, prepared by James C. Kelly and Associates, Consulting Engineers and Surveyors, dated 5/12/92 and part of UPI Nos. 59-8-170.1 and 59-8-183.4 as more fully described on Schedule "A" attached hereto and made a part hereof.

Notice is hereby given that until the Operating Agreement is terminated, the obligations and covenants of the Inniscrone Golf Club under the Operating Agreement shall run with the Open Space.

This Memorandum is intended for recording purposes only and for purpose of giving notice to third parties of the existence of the Operating Agreement and of the parties' rights and obligations thereunder. This Memorandum does not add to, diminish, amend or modify the Operating Agreement in any respect.

IN WITNESS WHEREOF, the undersigned has executed this Memorandum of Sewer Operating and Maintenance Agreement this 2nd day of December, 2002.

LONDON GROVE TOWNSHIP MUNICIPAL
AUTHORITY

By: _____

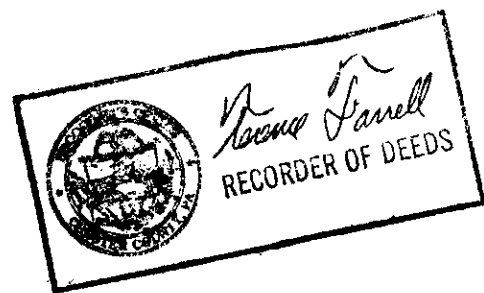
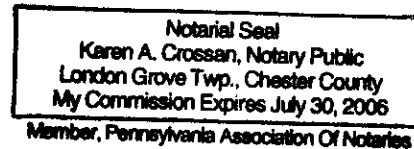
Chairman

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF CHESTER

On the 2nd day of December, 2002, before me the undersigned, a notary public for the Commonwealth of Pennsylvania residing in the County of Chester, personally appeared Kenneth Quinn who acknowledged himself to be Chairman of the London Grove Township Municipal Authority, and that he as the Chairman, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the London Grove Township Municipal Authority by himself as the Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Karen A. Crossan
Notary Public



10166967
Page 2 of 8
B-5509 P-1458



UNRUH TURNER

12/26/2002 01:44P

10166967
Page: 3 of 8
B-5509 P-1458

SCHEDULE "A"

DESCRIPTION OF PROPERTY KNOWN AS OPEN SPACE SUB AREA 1 (NORTH SIDE GOLF COURSE) AS SHOWN ON AN ALTA/ACSM LAND TITLE SURVEY PREPARED BY TETRA TECH, INC. DATED NOVEMBER 17, 1998, REVISED THROUGH DECEMBER 29, 1998, RCN 0927, FILE NO. G-001, COMPUTER FILE NAME T:\SURVEY\0927\ALTA.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at a point in the northwesterly side of Avondale-New London Road, said point being a common corner for the sub area herein being described and Sub Area D, said northwesterly side of Avondale-New London Road being distant 30.00' in a northwesterly direction from its centerline thereof when measured at right angles thereto.

THENCE from the said point of beginning, continuing along the said northwesterly side of Avondale-New London Road, the six (6) following described courses and distances:

1. S 49° 03' 15" W, 238.90' to a point;
2. S 67° 34' 15" W, 64.45' to a point;
3. S 69° 18' 15" W, 231.06' to a point;
4. S 65° 32' 15" W, 241.60' to a point;
5. S 69° 40' 15" W, 113.95' to a point; and,
6. S 73° 12' 15" W, 231.60' to a point, a corner for Residential Sub Area C;

THENCE along said Residential Sub Area C, the nine (9) following described courses and distances:

1. N 86° 49' 40" W, 194.91' to a point;
2. N 61° 37' 29" W, 323.46' to a point;
3. N 34° 57' 46" W, 153.32' to a point;
4. N 79° 55' 33" W, 320.48' to a point;
5. S 23° 17' 15" W, 235.34' to a point;
6. S 27° 44' 14" W, 55.73' to a point;
7. N 62° 15' 46" W, 139.94' to a point;
8. S 49° 54' 28" W, 398.80' to a point; and
9. S 26° 28' 48" E, 375.22' to a point, a corner for an out parcel;

THENCE along out parcels, the five (5) following described courses and distances:

1. S 30° 47' 45" E, 199.27' to a point in the said northwesterly side of Avondale-New London Road;
2. Thence by the same, S 62° 57' 15" W, 21.85' to a point;
3. N 30° 47' 45" W, 171.82' to a point;
4. S 62° 31' 08" W, 290.37' to a point; and,
5. S 22° 02' 45" E, 169.89' to a point in the said northwesterly side of Avondale-New London Road;

THENCE by the same, S 62° 57' 15" W, 763.92' to a point in line of another out parcel:

THENCE by the same, the three (3) following described courses and distances:

1. N 28° 12' 45" W, 118.83' to a point;
2. S 60° 44' 34" W, 99.22' to a point; and,
3. S 27° 54' 07" E, 117.18' to a point in the said northwesterly side of Avondale-New London Road;

THENCE by the same, S 61° 42' 15" W, 529.44' to a point, said point being the intersection formed by the said northwesterly side of Avondale-New London Road with the easterly side of Rose Hill Road, said easterly side of Rose Hill Road being distant 30.02' from its centerline (extended) thereof, when measured at right angles thereto;

THENCE along the said easterly side of Rose Hill Road, N 02° 24' 36" W, 154.53' to a point in line of other outbound parcels;

SCHEDULE "A" (continued)

THENCE by the outbound line, the thirteen (13) following described courses and distances:

1. N 88° 52' 37" E, 169.98' to a point;
2. N 02° 20' 07" W, 608.83' to a point;
3. N 01° 43' 00" W, 150.00' to a point (set iron pipe);
4. N 88° 49' 10" E, 25.00' to a point (found iron pipe);
5. N 01° 43' 00" W, 237.53' to a point (found iron pipe);
6. N 88° 49' 10" E, 105.72' to a point (found iron pipe);
7. N 55° 32' 00" E, 173.59' to a point (set iron pipe);
8. N 45° 57' 30" E, 164.18' to a point;
9. N 21° 55' 50" W, 45.33' to a point (set iron pipe);
10. N 08° 18' 50" E, 265.69' to a point;
11. N 36° 50' 40" E, 981.49' to a point (found iron pipe);
12. S 89° 15' 00" E, 88.73' to a point (found field stone); and,
13. N 02° 11' 00" W, 3,317.86' to a point in the southerly side of State Road, said southerly side of State Road being distant 30.00' from its centerline thereof when measured at right angles thereto;

THENCE along the said southerly side of State Road, the five (5) following described courses and distances:

1. N 76° 44' 38" E, 249.55' to a point;
2. S 58° 15' 22" E, 34.99' to a point;
3. N 81° 31' 35" E, 25.33' to a point;
4. N 41° 52' 18" E, 39.99' to a point; and,
5. S 83° 07' 42" E, 457.82' to a point in line of another out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 02° 02' 00" E, 744.55' to a point (set iron pipe);
2. S 80° 15' 00" W, 85.47' to a point; and,
3. S 00° 19' 00" E, 159.48' to a point, a corner for said residential Sub Area D;

THENCE by the same, seventy-six (76) following described courses and distances:

1. S 89° 41' 00" W, 13.38' to a point;
2. N 18° 54' 53" W, 161.54' to a point;
3. N 09° 38' 14" W, 84.63' to a point;
4. N 03° 27' 21" E, 103.25' to a point;
5. N 39° 33' 47" W, 172.40' to a point;
6. S 80° 54' 54" W, 187.06' to a point;
7. S 60° 36' 16" W, 20.97' to a point;
8. S 13° 35' 28" W, 166.12' to a point;
9. S 08° 34' 46" E, 191.92' to a point;
10. S 14° 57' 40" E, 85.34' to a point;
11. S 20° 22' 49" E, 530.01' to a point;
12. S 20° 03' 22" E, 289.00' to a point;
13. S 22° 14' 52" E, 349.36' to a point;
14. S 25° 26' 43" E, 241.06' to a point;
15. S 68° 05' 33" E, 122.47' to a point;
16. S 19° 17' 15" W, 132.80' to a point;
17. S 32° 42' 36" E, 171.90' to a point;
18. S 88° 18' 13" E, 162.41' to a point;
19. N 29° 31' 21" E, 161.36' to a point;
20. N 21° 53' 58" E, 98.00' to a point;
21. N 21° 54' 27" E, 200.00' to a point;



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SCHEDULE "A" (continued)

22. N 20° 43' 22" E, 109.17' to a point;
23. N 07° 26' 13" E, 156.26' to a point;
24. N 20° 40' 03" W, 425.00' to a point;
25. N 19° 40' 50" W, 85.01' to a point;
26. N 28° 05' 56" W, 85.72' to a point;
27. N 21° 56' 37" W, 138.31' to a point;
28. Along the arc of a circle curving to the left (radius = 175.00') (chord = 178.58', chord bearing = N 16° 30' 26" E), an arc distance of 187.40' to a point;
29. N 14° 10' 16" W, 100.00' to a point;
30. Along the arc of a circle curving to the right (radius = 875.00') (chord = 83.19', chord bearing = N 11° 26' 47" W), an arc distance of 83.22' to a point;
31. N 85° 51' 17" E, 131.24' to a point;
32. N 04° 20' 01" W, 100.00' to a point;
33. N 01° 29' 48" E, 100.43' to a point;
34. S 83° 11' 59" E, 655.30' to a point;
35. N 06° 48' 01" E, 129.95' to a point;
36. Along the arc of a circle curving to the right (radius = 1,975.00') (chord = 101.91', chord bearing = S 82° 07' 28" E), an arc distance of 101.92' to a point;
37. S 09° 21' 14" W, 130.00' to a point;
38. S 79° 09' 48" E, 95.49' to a point;
39. S 76° 11' 51" E, 95.49' to a point;
40. S 73° 13' 55" E, 95.49' to a point;
41. S 70° 15' 16" E, 96.54' to a point;
42. S 68° 52' 33" E, 100.00' to a point;
43. S 69° 19' 14" E, 116.14' to a point;
44. S 88° 32' 57" E, 90.93' to a point;
45. S 01° 27' 03" W, 21.73' to a point;
46. S 15° 52' 44" E, 103.46' to a point;
47. S 11° 44' 11" E, 101.78' to a point;
48. S 01° 56' 23" E, 100.01' to a point;
49. S 01° 00' 54" E, 400.00' to a point;
50. S 04° 33' 27" E, 69.83' to a point;
51. S 24° 16' 25" W, 100.17' to a point;
52. S 27° 37' 58" W, 100.00' to a point;
53. S 29° 14' 53" W, 57.66' to a point;
54. S 63° 47' 08" W, 300.00' to a point;
55. S 54° 40' 46" W, 144.48' to a point;
56. S 32° 28' 25" W, 149.43' to a point;
57. S 21° 35' 27" W, 300.00' to a point;
58. S 08° 47' 16" W, 147.01' to a point;
59. S 00° 22' 15" W, 300.00' to a point;
60. S 00° 16' 02" W, 204.86' to a point;
61. S 08° 56' 03" E, 132.16' to a point;
62. S 07° 53' 58" E, 113.92' to a point;
63. N 64° 38' 23" W, 169.02' to a point;
64. S 65° 32' 27" W, 92.10' to a point;
65. S 38° 21' 25" W, 140.36' to a point;
66. S 11° 10' 22" W, 92.10' to a point;
67. S 32° 05' 05" E, 136.11' to a point;
68. S 58° 34' 33" E, 104.51' to a point;
69. S 58° 08' 56" E, 116.00' to a point;
70. S 76° 11' 11" E, 116.00' to a point;
71. N 86° 09' 43" E, 112.10' to a point;
72. N 76° 33' 31" E, 99.18' to a point;



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SCHEDULE "A" (continued)

73. N 62° 46' 20" E, 116.58' to a point;
74. N 52° 29' 31" E, 85.00' to a point;
75. S 37° 30' 29" E, 176.44' to a point; and,
76. S 05° 46' 23" W, 34.27' to a point in the said northwesterly side of Avondale-New London Road, the first mentioned point and place of beginning.

CONTAINING within said described metes and bounds 203.05 acres of land, be the same more or less.

SUBJECT, however, to the archaeological easements Nos. 4, 5, and 6 as shown with metes and bounds on the aforesaid plan.

ALSO TOGETHER WITH AND SUBJECT to any easements, restrictions and agreements of record.

BEING Chester County UPI #59-8-170.1

DESCRIPTION OF PROPERTY KNOWN AS OPEN SPACE SUB AREA 2 (SOUTH SIDE GOLF COURSE) AS SHOWN ON THE FINAL PLAN OPEN SPACE EASEMENT PLAN OF INNISCORNE, A PLANNED RESIDENTIAL DEVELOPMENT, PHASE 1A-GOLF COURSE PREPARED BY JAMES C. KELLY AND ASSOCIATES, INC., DATED APRIL 10, 1995, REVISED THROUGH AUGUST 27, 1996, PROJECT NO. 88-040, DRAWING NAME PHASE-1A.DWG. SITUATED IN LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

BEGINNING at a point in the southeasterly side of Avondale-New London Road at 60' wide, said point being the northeasterly end of a 25.00' radius junction curve joining the said southeasterly side of Avondale-New London Road with the northeasterly side of an existing 20' C.W.A. waterline easement.

THENCE from the said point of beginning, along the said southeasterly side of Avondale-New London Road, the two (2) following described courses and distances:

1. N 61° 42' 15" E, 595.04' to a point; and,
2. N 62° 57' 15" E, 311.07' to a point in line of an out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 26° 09' 41" E, 173.51' to a point;
2. N 59° 31' 39" E, 103.96' to a point; and,
3. N 27° 13' 44" W, 167.28' to a point in the said southeasterly side of Avondale-New London Road;

THENCE by the same, N 62° 57' 15" E, 519.15' to a point in line of another out parcel;

THENCE by the same, the three (3) following described courses and distances:

1. S 27° 02' 45" E, 290.00' to a point (set iron pipe);
2. N 62° 57' 15" E, 447.87' to a point (set iron pipe); and,
3. N 27° 01' 23" W, 251.92' to a point in the said southeasterly side of Avondale-New London Road;

THENCE by the same, the three (3) following described courses and distances:

1. N 80° 47' 15" E, 106.00' to a point;
2. N 72° 38' 15" E, 126.53' to a point; and,
3. N 58° 22' 15" E, 188.16' to a point, a corner for residential Sub Area B;

SCHEDULE "A" (continued)

THENCE by the same, the seven (7) following described courses and distances:

1. S 40° 16' 34" E, 161.01' to a point;
2. S 48° 56' 29" W, 163.82' to a point;
3. S 16° 15' 12" W, 101.03' to a point;
4. S 04° 06' 49" E, 164.93' to a point;
5. S 57° 24' 18" E, 229.67' to a point;
6. S 86° 22' 46" E, 346.36' to a point; and,
7. N 75° 46' 09" E, 184.15' to a point, a corner for outbound lands;

THENCE by the same, the nine (9) following described courses and distances:

1. S 19° 17' 41" E, 112.87' to a point;
2. S 30° 00' 03" E, 188.66' to a point;
3. S 86° 53' 59" W, 203.95' to a point;
4. S 01° 06' 21" E, 375.18' to a point;
5. S 88° 53' 39" W, 80.00' to a point;
6. S 01° 06' 21" E, 80.00' to a point;
7. N 88° 53' 39" E, 80.00' to a point;
8. S 01° 06' 21" E, 90.88' to a point; and,
9. S 01° 33' 47" E, 295.30' to a point, a corner for lands of residential Sub Area A;

THENCE by the same, the seventeen (17) following described courses and distances:

1. S 88° 21' 37" W, 241.97' to a point;
2. S 62° 02' 20" W, 122.44' to a point;
3. Along the arc of a circle, curving to the left (radius = 979.50') (chord = 243.24', chord bearing = S 52° 33' 02" W), an arc distance of 243.87' to a point;
4. S 35° 57' 06" W, 57.71' to a point;
5. N 71° 36' 44" W, 243.29' to a point;
6. N 88° 37' 23" W, 115.04' to a point;
7. S 69° 23' 49" W, 446.02' to a point;
8. S 72° 31' 50" W, 81.22' to a point;
9. S 80° 02' 37" W, 70.86' to a point;
10. S 87° 14' 24" W, 76.86' to a point;
11. N 87° 04' 22" W, 235.42' to a point;
12. N 37° 17' 18" W, 658.08' to a point;
13. N 34° 15' 42" W, 77.83' to a point;
14. N 28° 36' 30" W, 350.91' to a point;
15. N 48° 55' 36" W, 130.21' to a point;
16. N 62° 33' 17" W, 151.83' to a point; and,
17. S 40° 15' 33" W, 145.77' to a point in the said northeasterly side of the existing 20' C.W.A. waterline easement;

THENCE by the same, the two (2) following described courses and distances:

1. Along the arc of a circle, curving to the right (radius = 125.00') (chord = 34.08', chord bearing = N 41° 54' 38" W), an arc distance of 34.19' to a point; and
2. N 34° 04' 32" W, 58.65' to a point, said point being the southeasterly end of the aforesaid 25.00' radius junction curve joining the said northeasterly side of the existing 20.00' C.W.A. waterline easement with the said southeasterly side of Avondale-New London Road;



SCHEDULE "A" (continued)

THENCE along the arc of a circle, curving to the right (radius = 25.00') (chord = 37.64', chord bearing = N 14° 45' 27" E), an arc distance of 42.61' to a point in the said southeasterly side of Avondale-New London Road, the first mentioned point and place of beginning.

CONTAINING within said described metes and bounds 76.79 acres of land, be the same more or less.

ALSO TOGETHER WITH AND SUBJECT to any easements, restrictions and agreements of record.

BEING Chester County UPI #59-8-183.4

BEING the same premises which Aaron J. Martin and Jean T. Martin, by Indenture bearing date the 14th day of January, A.D. 1999 and recorded at West Chester, Pennsylvania in the Office of the Recorder of Deeds as Chester County Record Book 4505 page 973, granted and conveyed unto Inniscrone Golf Club, L.L.C., in fee



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Prepared By/Return To:

Robert F. Adams, Esquire

P. O. Box 562

West Chester, PA 19381-0562

610-696-8225

RETURN TO

UPI #59-8-170 and UPI #59-8-170.1

STORMWATER AND GRADING EASEMENT AGREEMENT

IT IS HEREBY AGREED, this 23rd day of March, 2005, by and between **REALTY DISPOSITION CO., L. P.**, a Pennsylvania limited partnership ("RDC") and **SPE LISACUL CONSTRUCTION CO., L.P.**, a Pennsylvania limited partnership ("SPE") and **AARON J. MARTIN** ("Martin") for the sum of \$1.00 and other valuable consideration paid by SPE to RDC, that RDC hereby grants, sells and conveys unto SPE, Martin and their respective successors and assigns, certain stormwater and grading easements upon and across a portion of the property of RDC described in a deed recorded in the office of the Recorder of Deeds in and for Chester County, Pennsylvania, in Book 6092, page 2072, being a portion of the property known as the Inniscrone Golf Course ("Golf Course") in London Grove Township, Chester County, Pennsylvania, being UPI #'s 59-8-170 and 59-8-170.1.

1. The easements, rights and privileges in and to the Golf Course hereby granted to SPE and Martin shall be as follows:

a. A permanent easement on the Golf Course for stormwater management to permit the construction and maintenance of stormwater management facilities on the Golf Course, including ponds for stormwater detention, infiltration areas and berms, pipes and other associated accessories and appurtenances thereto which are necessary for the conveyance of stormwater runoff into wetland areas and other areas of proposed discharge, said facilities being for the management of stormwater from the development of residential housing in Phases 3, 4, 5 and 6 of the Inniscrone Planned Residential Development ("PRD"), being UPI #s 59-8-170.2 and 59-8-170.3, currently owned by Martin and described in deed recorded in the said Recorder of Deeds Office in Book S-41, Page 90.

b. A temporary grading easement on the Golf Course to facilitate the grading of the abutting residential lots in Phases 3, 4, 5 and 6 of the PRD.

2. The easement, rights and privileges for stormwater management hereby granted shall be perpetual, or for so long as SPE, Martin and their respective successors and assigns, operate and maintain stormwater facilities within the easement area hereinafter designated. The easement, rights and privileges for grading shall be temporary, shall last for so long as SPE is developing the residential portion of the PRD being served by the grading easements, and shall terminate when the areas on the Golf Course disturbed by grading have been restored and stabilized to the satisfaction of London Grove Township and RDC.

3. The areas on the Golf Course being used for the stormwater and grading easements are on the north side of Avondale-New London Road as identified on the plan marked Exhibit "A" attached hereto. The stormwater management facilities shall be located substantially in accordance with Exhibit "A", but shall be subject to relocation and/or expansion, as to both size and number, on the Golf Course as required by London Grove Township, restricted as to location only by the limit of grading easement depicted by the yellow line on Exhibit "A" attached hereto and the condition that the location and size of any berm, pond for storm water detention, infiltration area, pipes or other associated facilities or appurtenances thereto necessary for the conveyance of stormwater runoff and stormwater management shall be approved by RDC and Tee to Green, 304, LLC, the equitable owner of the Golf Course ("TTG"), their assigns or successors. Such approval shall not be unreasonably withheld so long as the construction and maintenance of the aforementioned stormwater facilities do not interfere with or materially affect or alter the layout of the Golf Course holes, the flow of play on the Golf Course or the topographical integrity of the Golf Course. Written permission from RDC or TTG shall be received by SPE prior to the commencement of any construction or grading activities.

4. RDC hereby binds itself, its successors and assigns, to warrant and forever defend the above-described easements and rights unto SPE, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

5. The easement, rights and privileges granted hereby are exclusive to SPE, Martin and their respective successors and assigns, and RDC covenants that it will not convey any conflicting rights within the stormwater and grading easement areas identified on Exhibit "A" hereto.

6. Subject to the restrictions provided in that certain Golf Course Agreement of even date herewith, in addition to the permanent and temporary easements, rights and privileges granted hereunder, SPE shall have a temporary license to access, and subject to approval by RDC and TTG, modify areas of the Golf Course outside of the easement area



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shown on Exhibit "A" as may be reasonably necessary to construct and install the storm water facilities, and perform grading activities within the said easement area contemplated under the Golf Course Agreement, subject to the condition that any disturbance of the Golf Course outside of the easement area caused by the exercise of the temporary license be approved by RDC and TTG, their assigns or successors. Such approval shall not be unreasonably withheld so long as the areas and/or degree of disturbance do not interfere with or materially affect or alter the layout of the Golf Course holes, the flow of play on the Golf Course or the topographical integrity of the Golf Course.

7 Upon the completion of construction, grading or any other activity taken in conjunction this Agreement, SPE shall replace and restore all affected turf areas with sod equivalent to surrounding turf areas. SPE shall replace and restore all fences, walls, cart paths, or other structures on the Golf Course, which may have been disturbed during the period of construction. SPE will restore all disturbed areas to the condition in which the same were found prior to the when the work was undertaken including replacement and/or repair of damaged property, turf, bushes, sand traps, trees, other natural features and other similar Golf Course facilities. SPE shall ensure that the installation and construction of any stormwater management facilities and water runoff there from does not negatively impact the layout of the golf holes or the topographical integrity of the Golf Course. Should SPE fail to reasonably repair or replace such facilities on the Golf Course in a prompt and timely manner so as to not interrupt or limit play on the Golf Course, SPE shall pay to TTG and RDC reasonable compensation for the repair and/or replacement for such fences, cart paths, walls or other structures, turf, bushes, sand traps, trees, other natural features, other similar Golf Course facilities and for loss of revenue due to the interruption of play on the Golf Course as may have been occasion by the failure of SPE to promptly and properly repair or replace the damaged areas. SPE and Martin (should SPE not take title to Phases 3, 4, 5 and 6 of the PRD), and their respective successors and assigns, shall have the continuing right and obligation to enter the Golf Course solely to maintain and repair the stormwater facilities located thereon.

8. The easements, rights and privileges granted hereunder shall terminate when or at such time as the purposes hereof cease to exist, are abandoned by SPE, its successors and assigns, or become impossible of performance.

9. Should SPE or Martin (in the event SPE does not take title to Phases 3, 4, 5 and 6 of the PRD), or their successors or assigns, fail to perform any covenant, undertaking or obligation arising hereunder or under the Golf Course Agreement, after 30 days written notice from RDC or its successors or assigns, with an opportunity to cure, then all rights and privileges granted hereby shall terminate, and RDC or its successors or



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assigns may exercise any and all rights it may have hereunder, under the Golf Course Agreement or otherwise at law or in equity against SPE, Martin or their respective successors and assigns.

10. Except as specifically provided herein, RDC and its successors and assigns, shall retain all rights with respect to the Golf Course, including with respect to the easement area depicted on Exhibit "A" attached hereto, provided however, that neither RDC, its successors or assigns may utilize the Golf Course in such manner which unreasonably impairs the proper functioning of the stormwater facilities or the grading of the Golf Course permitted hereunder, or unreasonably increases the cost to maintain such improvements.

11. The easements, rights, privileges and obligations of the parties hereto shall be subject further to the terms of a certain Golf Course Agreement of even date herewith by and among SPE, Martin RDC and TTG, the terms of which are incorporated herein by reference.

12. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF, the parties have executed this easement agreement the day and year aforesaid.

Witness:

Karen Carter

Realty Disposition Co., L.P.
By Realty Recovery Company, LLC,
General Partner

By:

Dennis Cirucci
Dennis Cirucci
Authorized Agent

Attest:

Robert F. Adams

SPE Lisacul Construction Co., L.P.
By SPE Lisacul Construction Co., Inc.,
A Florida Corporation, General Partner

By:

John M. Rouse
John M. Rouse, President



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Witness:


Aaron J. Martin

JOINDER

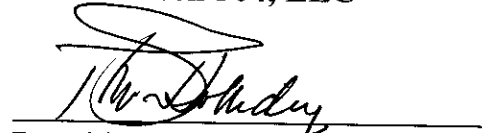
Tee to Green 304, LLC, a Pennsylvania limited liability company, as equitable owner of the within described Inniscrone Golf Course property, hereby consents to, agrees to be bound by and joins in this Stormwater and Grading Easement Agreement.

Witness



Tee to Green 304, LLC

By:


Ronald C. Holliday
Member

ROBERT F ADAMS ESQ

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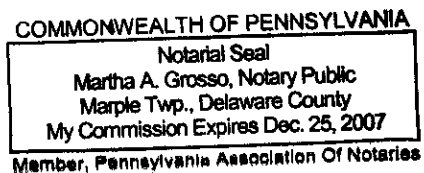
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COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF DELAWARE : SS.

ON THIS, the 23rd day of MARCH, 2005, before me, a notary public in and for the aforesaid County and Commonwealth, personally appeared Dennis Cirucci, who acknowledged himself to be the authorized agent of Realty Recovery Company, LLC, General Partner of **Realty Disposition Co., L.P.** and that he, as such agent, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

WITNESS my hand and notarial seal.

Martha A. Grosso

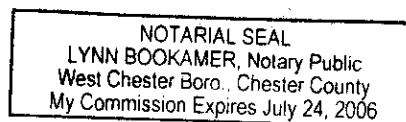


COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF Pennsylvania Chester: SS.

ON THIS, the 23rd day of March, 2005, before me, a notary public in and for the aforesaid County and Commonwealth, personally appeared John M. Rouse, who acknowledged himself to be the President of SPE Lisacul Construction Co., Inc., General Partner of **SPE Lisacul Construction Co., L.P.**, and that he, as such President, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporation.

WITNESS my hand and notarial seal.

Lynn Bookamer



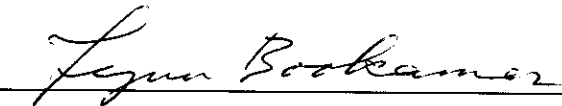
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COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF *Chester* : SS.

ON THIS, the 23rd day of March, 2005, before me, a notary public in and for the aforesaid County and Commonwealth, personally appeared **Aaron J. Martin**, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.


WITNESS my hand and notarial seal.


NOTARIAL SEAL
LYNN BOOKAMER, Notary Public
West Chester Boro., Chester County
My Commission Expires July 24, 2006

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF *Chester* : SS.

ON THIS, the 23rd day of March, 2005, before me, a notary public in and for the aforesaid County and Commonwealth, personally appeared Ronald C. Holliday, who acknowledged himself to be a member of **Tee to Green 304, LLC**, and that he, as such member, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing on behalf of the company.

WITNESS my hand and notarial seal.


NOTARIAL SEAL
LYNN BOOKAMER, Notary Public
West Chester Boro., Chester County
My Commission Expires July 24, 2006

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LONDON GROVE TWP. CHESTER COUNTY PENNSYLVANIA

DATE: DECEMBER 6, 2004



GRAPHIC SCALE

0 100 200 300 400 500 600 700 800 900 1000

0 100 200 300 400 500 600 700 800 900 1000

1 inch = 200 ft.

EXHIBIT "A"

32

3



RETURN TO

Return To:

Cheryl Cummings
Assessment Office
121 N. Walnut St., Suite 200
P. O. Box 2748
West Chester, PA. 19380-0991

UPI No(s).

59-8-170 ✓

59-8-170.1 ✓

59-8-183.4 ✓

che

Prepared By:

Cheryl Cummings
Assessment Office
121 N. Walnut St., Suite 200
P. O. Box 2748
West Chester, PA. 19380-0991



CONTRACT AND COVENANT (UNDER "ACT 515")

THIS CONTRACT AND COVENANT, made this 28th day of June 2007,
between
Inniscrone Property Limited Partnership

And COUNTY OF CHESTER,

Re: Tax Map Parcel # 59-8-170, 59-8-170.1 & 59-8-183.4

Deed Book 6749, Page 2367

In consideration of the mutual promises contained herein and
intending to be legally bound, the undersigned property owner (whether singular
or plural "OWNER") and the County of Chester ("COUNTY") agree as follows:

1. COUNTY will assess the covenanted land for real estate tax purpose at fair market value as restricted by this Covenant and OWNER, as Grantor, at or before the seal and delivery of these presents, the receipt of which is hereby acknowledged, has and does grant, bargain, sell, alien, enfeoff, release, convey, and confirm unto COUNTY, as Grantee, an interest in the land in the nature of a covenant running with the land. Said land is the entire parcel or portion of Tax Map Parcel No. described in Deed Book and page mentioned above, and is set forth or described in Application heretofore filed by OWNER.
2. This Agreement and the covenant herein granted by OWNER unto COUNTY shall constitute a covenant within the meaning of Act 515, P.L. 1292 (1965), January 13, 1966 (16 P.S. 11941, et seq), (Act 515), as amended and as amended in the future, effective January 1, 20.



TAX ASSESSMENT

11/27/2007 09:13A

10804755

Page 2 of 3

B-7313 P-1019

3. OWNER and COUNTY hereby incorporate herein by reference and make a part hereof as if set forth verbatim all of the provisions of the "Declaration of General Conditions for Covenants Under Act 515"

adopted by the County of Chester dated July 17, 1974 and recorded in the Office of the Recorder Of Deeds in Misc. Deed Book No. 240, Page 335.

Approved by County of Chester

Inniscrone Property Limited Partnership
By: SRH Inniscrone Property Corporation,
its general partner

By [Signature]
County Solicitor

[Signature] (SEAL)
(Owner) Dale S. Okonow, Vice President

[Signature] (SEAL)
(Owner)

[Signature] (SEAL)
(Owner)

Commonwealth (or State) of Massachusetts :

SS

County of Norfolk :

On this, the 23rd day of August, 20 07, before me,

the undersigned notary, personally appeared Dale S. Okonow,

Vice President of SRH Inniscrone Property Corporation
the General Partner of Inniscrone Property Limited Partnership
who acknowledged himself to be the Vice President
(officer, partner, other)

of SRH Inniscrone Property Corporation and that he as such, being authorized
(corporation, partnership, other)

to do so, executed the foregoing contract and covenant for the purposes therein

contained by signing the name of the above corporation, partnership or other entity by

him (her) self as an authorized person.

In witness whereof, I hereunto set my hand and official seal.

[Signature]
Ellen M. Costigan
My Commission Expires: 8/1/2014



TAX ASSESSMENT

11/27/2007 09:13A

10804755
Page 3 of 3
B-7313 P-1019

Prepared by and return to:

RETURN TO

Ross A. Unruh, Esquire
Unruh, Turner, Burke & Frees
P.O. Box 515
West Chester, PA 19381-0515
(610) 692-1371



U.P.I. 59-8-170 ✓

59-8-170.1 ✓

59-8-183.4 ✓

-----[Space Above This Line For Recording Data]-----

**INNISCRONE GOLF COURSE AGREEMENT
TO TREATED EFFLUENCE SPRAY CAPACITY**

Background

The London Grove Township Municipal Authority ("LGTMA") operates a sanitary sewer treatment facility. Pursuant to an Assignment of General Easement Agreement, recorded in B-5509, P-1455 in the Chester County Recorder of Deeds Office and a Sewer Operating and Maintenance Agreement ("O&M Agreement") for the Inniscrone Wastewater Treatment and Spray Irrigation Facility, a Memorandum of which is recorded in B-5509, P-1458 in the Chester County Recorder of Deeds Office, the LGTMA sprays treated effluent onto certain areas, Seasonal Spray Fields as defined in the O&M Agreement, of the Inniscrone Golf Course ("Golf Course") which is owned by the London Grove Township ("LGT"). The parties want to establish a minimum volume of treated effluent which the LGTMA will be entitled to spray on these areas of the Golf Course during specified months of the year. The purpose of this Agreement is to memorialize their agreement in that regard.

DOC # 11523521 01/23/2017 02:18 PM
Receipt #: 17-02751
Rec Fee: \$70.50

Chester County, Recorder of Deeds

11523521 B: 9480 P: 190 MSC
01/23/2017 02:18 PM Page 1 of 4
UNRUH TURNER BURKE & FREES



Terms and Conditions

AND NOW, THEREFORE, this 5th day of December, 2016 the parties hereto, on behalf of themselves and any successors and assigns, intending to be legally bound hereby, and in consideration of the premises and covenants and conditions set forth hereinafter, agree to with each other as follows:

1. LGTMA shall be entitled to spray treated effluent onto certain areas of the Golf Course a minimum of 20,000,000 gallons per year, which shall be allocated monthly in accordance with the following schedule:

Month	Volume (Gallons)
March	100,000
April	600,000
May	2,000,000
June	3,000,000
July	5,000,000
August	3,500,000
September	3,000,000
October	2,000,000
November	800,000
TOTAL	20,000,000

2. In the event that weather conditions or other unanticipated circumstances make strict compliance with any part of the above referenced schedule to be ill advised, upon request for modification by LGT's golf course operator and/or management company, and when recommended by the LGTMA's consulting engineer, the LGTMA may agree to either the requested modification or some other modification to the schedule. In the event that a modification is agreed to, it does not relieve the golf course of disposing of 20 million gallons of treated effluent in a given year.

11523521 B: 9480 P: 191 MSC
01/23/2017 02:18 PM Page 2 of 4
UNRUH TURNER BURKE & FREES



3. The parties intend that this fully executed Agreement shall be recorded in the office of the Recorder of Deeds for Chester County and be indexed against the property owned by the LGT so that the terms, conditions and covenants contained herein run with the land.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their duly authorized officers and members and their corporate seals hereunto affixed and duly attested.

LONDON GROVE TOWNSHIP
MUNICIPAL AUTHORITY

Attest: Karen G. Liawlor

By: [Signature]
Chairman

LONDON GROVE TOWNSHIP

Attest: Don Maciejczyk

By: [Signature]
Chairman

11523521 B: 9480 P: 192 MSC
01/23/2017 02:19 PM Page 3 of 4
UNRUH TURNER BURKE & FREES

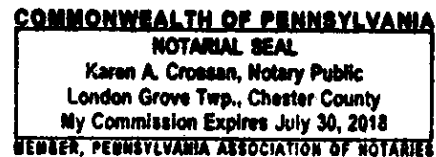


COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF CHESTER :

On the 5th day of December, 2016, before me the undersigned, a notary public for the Commonwealth of Pennsylvania residing in the County of Chester, personally appeared GERALD YEATMAN who acknowledged himself to be Chairman of the London Grove Township Municipal Authority, and that he as the Chairman, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the London Grove Township Municipal Authority by himself as the Chairman.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Karen A. Crossan Linaweaver
Notary Public

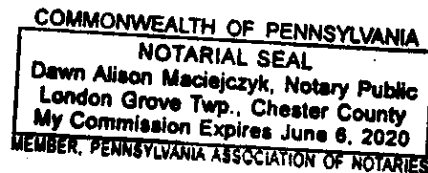


COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF CHESTER :

On the 7th day of December, 2016, before me the undersigned, a notary public for the Commonwealth of Pennsylvania residing in the County of Chester, personally appeared Richard Scott Harper, who acknowledged himself to be Chairman of the Board of Supervisors of the London Grove Township Municipal Authority, and that he as the Chairman, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the London Grove Township by himself as the Chairman of the Board of Supervisors.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Dawn Alison Maciejczyk
Notary Public



11523521 B: 9480 P: 193 MSC
01/23/2017 02:18 PM Page 4 of 4
UNRUH TURNER BURKE & FREES



RETURN TO ADCO 14023

Pipe Line-Right of Way and Easement

Know all Men by these Presents, that

AARON J. MARTIN AND JEAN T. MARTIN and
John M. Rouse, Equitable Owner

Of London Grove Township, Chester County, Commonwealth of Pennsylvania, (herein called Grantor, whether one or more) for and in consideration of the sum of One Dollar, (\$1.00), and/or other valuable considerations, receipt of which is hereby acknowledged, paid to Grantor by Chester Water Authority, a municipal authority organized under the laws of the Commonwealth of Pennsylvania, (herein called Grantee), and intending to be legally bound hereby, does hereby grant, bargain, sell and convey unto the said Chester Water Authority, its successors and assigns a perpetual right-of-way and easement across the Grantor's property, as shown in a plan attached hereto and made part hereof, for the purposes hereinafter specified:

BEGINNING at a p.k. nail on the title line of Sullivan Road, said p.k. being measured S. 38°-26'-14" W. 78.00 feet from a p.k. nail marking the property corner of Inniscrone; thence through said property the eleven (11) following courses and distances:

1. N. 53°-38' 07" W. 106.27 feet to a point of curvature
2. On a line curving to the left having a radius of 325.00 feet, an arc distance of 99.37 feet and a chord of N. 62°-23'-39" W. 98.98 feet to a point of tangency
3. N. 71°-09'-11" W. 144.68 feet to a point on a curve in the bed of a proposed road
4. Along the bed of said road on a line curving to the left having a radius of 190.00 feet, a arc distance of 128.28 feet and a chord of N. 08°-02'-40" W. 125.86 feet to a point of tangency (P.C. station 41+55.79 of proposed road)
5. N. 27°-23'-12" W. 122.91 feet to a point of curvature (P.T. station 40+32.88 of proposed road)
6. On a line curving to the right having a radius of 265.00 feet, a arc distance of 410.96 feet and a chord of N. 17°-02'-23" E. 371.00 feet to a point of tangency (P.C. station 35+98.66 of proposed road)
7. N. 61°-27'-38" E. 117.46 feet to a point of curvature (P.T. station 34+81.20 of proposed road)
8. On a line curving to the left having a radius of 165.00 feet, an arc distance of 327.51 feet and a chord of N. 4°-36'-04" E. 276.33 feet to a point on curve.

Grantor's said property is situate in London Grove Township, Chester County, and is more particularly described in his deed covering the same, which is recorded at Pennsylvania, in the office for the Recording of Deeds, in Deed Book No. M37, Page No. 288.

This right-of-way and easement is granted to Chester Water Authority, its successors, or assigns, for the purpose of laying, relaying, installing, operating, inspecting, maintaining, repairing, altering, renewing, renewing and replacing its pipes or conduits, appurtenances and appliances, to be used in conducting water; with the right and privilege of entering and re-entering on the said right-of-way and easement, of making such excavations, fills and levels as may be required, and of laying other pipes or conduits, appurtenances and appliances, as it may from time to time deem necessary.

The Grantor does hereby covenant and agree that he will not alter or modify, or cause or permit to be altered or modified, the surface, grade, level or depth of the ground in the right-of-way through, over, under or above which the Authority's said pipeline is or may be placed, by filling, flooding, dumping, or in any other way interfering with the free access by the Authority therein; and further, that he will not build, construct or erect, or cause or permit to be built, constructed or erected, any structure whatsoever on, in or above the right-of-way hereby conveyed without first having obtained the written consent of the Grantee herein.

The Grantor does further expressly covenant and agree that the Grantee, its successors or assigns, may enter upon the right-of-way conveyed herein at any time for the purposes of inspecting, installing, maintaining, replacing, relocating and/or removing its pipeline.

To have and to hold such right-of-way and easement for the purposes aforesaid unto the said Chester Water Authority, its successors and assigns forever.

Grantor (if a Corporation) hereby constitutes and appoints

to be its attorney for it and in its name, and as,

(succ)

BX 2427 PG 227

DESCRIPTION CONTINUED:

9. Leaving said proposed road N. 39°-39'-19" E. 285.30 feet to a point of curvature
10. On a line curving to the left having a radius of 145.00 feet, an arc distance of 103.73 feet and a chord of N. 19°-09'-39" E. 101.53 feet to a point of tangency.
11. N. 1°-19'-59" W. 17.54 feet to a point in line of a 80' x 80' parcel of land to be used for a proposed water pumping station and the terminus of said 20' wide permanent easement.
12. The perpetual right-of-way and easement shall be 20 feet in width and the center line of said perpetual right-of-way and easement shall be directly over a 10 inch water main installed by London Grove Township Municipal Authority.

and for his corporate act and deed to acknowledge this agreement before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment to the intent that the same may be duly recorded,

WITNESS THEIR hand and seal this 23rd day of May A. D. 1971.

Signed, Sealed and Delivered
in the Presence of

[Signature] Witness Arnon J. Martin (SEAL)
[Signature] Witness Jean T. Martin (SEAL)
[Signature] Witness John M. Rouse (SEAL)
COMMONWEALTH OF PENNSYLVANIA
COUNTY OF CHESTER

I hereby certify that on this _____ day of _____ A.D. 19____, before me, the undersigned a Notary Public personally appeared the attorney named in the foregoing contract, and by virtue and in pursuance of the authority therein conferred upon him acknowledged the said agreement to be the act of the said

My Commission Expires _____ Notary Public

COMMONWEALTH OF PENNSYLVANIA }
COUNTY OF CHESTER }

On the 23rd day of May, 1971 Anno Domini 19____, before me, a Notary Public for the Commonwealth of Pennsylvania residing in _____ personally appeared the above-named Arnon J. Martin and Jean T. Martin AND John M. Rouse and in due form of law acknowledged the above Indenture to be their act and deed and desired the same might be recorded as such.

WITNESS my hand and Notarial Seal the day and year aforesaid.

NOTARIAL SEAL
AUDREY P. KAHN, Notary Public
West Chester Boro, Chester Co.
My Commission Expires April 17, 1982

My Commission Expires _____

State of _____ County of _____ on this _____ day of _____, A.D. 19____, before me, the undersigned officer, personally appeared _____, who acknowledged himself to be the President of the said corporation, and that he, as such instrument, for the purposes therein contained, by signing the name of the corporation by himself as President. IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

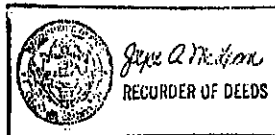
024531

RECORDER OF DEEDS
CHESTER COUNTY, PA.

91 MAY 23 PM 1:29

#24531
MISC
TAX

13.00
0.50



④
\$13.50 London Move

BK 2427 PG 230

EP 50.50



RETURN 10

Prepared By/Return to:
Robert F. Adams, Esquire
17 East Gay Street
West Chester, PA 19381-0562
(610) 696-8225

Part of UPI # 59-8-170.1 ✓

THIS DEED, made the 30th day of November, 2006,

BETWEEN INNISCRONE PROPERTY LIMITED PARTNERSHIP, a Pennsylvania Limited Partnership, (hereinafter called "Grantor") and **SPE LISACUL CONSTRUCTION CO., L.P.**, a Pennsylvania Limited Partnership, (hereinafter called "Grantee"),

WITNESSETH that the said Grantor, for and in consideration of the sum of One Dollar (\$1.00) lawful money of the United States of America, unto Grantor well and truly paid by the said Grantee, at or before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, has granted, bargained, sold, aliened, enfeoffed, released and confirmed, and by these presents does grant, bargain, sell, alien, enfeoff, release and confirm unto the said Grantee, its successors and assigns,

ALL THAT CERTAIN lot or piece of ground, bounded and described as follows:

DESCRIPTION OF PROPERTY known as future (Revised) Phase 3 for Park Lands, bounded to the North by State Road (Old Baltimore Pike), to the East by lands now or formerly of Clair I. Beyer and Florence A. Beyer (Deed Record W, Volume 46, Page 172), to the South by residential Sub Area D of the Inniscrone Residential Development and Open Space Sub-area 1 (North side of golf course) (Deed Book 3108 page 131) of the Inniscrone Residential Development, and to the West by lands now or formerly of Raymond E. Dunn and Pearl L. Dunn, his wife (Deed Record W, Volume 40, Page 813)(said property further shown on an ALTA/ASCM land title survey prepared by Tetra Tech, Inc., dated April 12, 2006 (with various revisions if applicable). RCN T17865-01 REN, Computer File Name \\T17865\\ALTAx.DWG). Situate in London Grove Township, Chester County, Pennsylvania.

BEGINNING at a point on the southerly side of State Road (also known as Old Baltimore Pike), said southerly side of State Road being distant 30 feet in a southerly direction from its title centerline thereof when measured at right angles thereto, said point being a common corner for the lands herein having been described and land now or formerly of Raymond E. Dunn and Pearl L. Dunn, his wife (Deed Record W, Volume 40 page 813), said point being further located along the said southerly side of State

Road, South 76 degrees 44 minutes 38 seconds West a distance of 250 feet more or less, from its point of intersection formed with the westerly side (extended) of Meadow Woods Lane and further located along the said southerly and southeasterly sides of State Road, in a northeasterly and easterly direction by its various courses and distances, a total distance of 1,750 feet more or less, from the intersection formed by the southeasterly side of State Road with the northeasterly side of Rose Hill Road; thence from the said point of beginning, continuing along the said southerly side of State Road the 5 following described courses and distances: (1) North 76 degrees 44 minutes 38 seconds East 249.55 feet to a point; (2) South 58 degrees 15 minutes 22 seconds East 34.99 feet to a point; (3) North 81 degrees 31 minutes 35 seconds East 25.33 feet to a point; (4) North 41 degrees 52 minutes 18 seconds East 39.99 feet to a point; and (5) South 83 degrees 07 minutes 42 seconds East 457.82 feet to a point in line of said lands now or formerly of Clair I. Beyer and Florence A. Beyer (Deed Record W, Volume 46 page 172); thence by the same the 3 following described courses and distances: (1) South 02 degrees 02 minutes 00 seconds East 744.55 feet to a set iron pipe; (2) South 80 degrees 15 minutes 00 seconds West 85.47 feet to set iron pipe; and (3) South 00 degrees 19 minutes 11 seconds East 159.48 feet to a point a corner for lands known as Residential Sub Area D; thence passing through said Open Space Sub Area 1 the 9 following described courses and distances: (1) South 89 degrees 41 minutes 00 seconds West 13.38 feet to a point; (2) North 18 degrees 54 minutes 53 seconds West 161.54 feet to a point; (3) North 09 degrees 38 minutes 14 seconds West 84.63 feet to a point; (4) North 03 degrees 27 minutes 21 seconds East 103.25 feet to a point; (5) North 39 degrees 33 minutes 47 seconds West 172.40 feet to a point; (6) South 80 degrees 54 minutes 54 seconds West 187.06 feet to a point; (7) South 60 degrees 36 minutes 16 seconds West 20.97 feet to a point; thence by the same the 2 following described courses and distances: (1) North 54 degrees 32 minutes 36 seconds West 238.24 feet to a point; and (2) South 87 degrees 49 minutes 00 seconds West 128.79 feet to a point in line of said lands now or formerly of Raymond E. Dunn and Pearl L. Dunn, his wife (Deed Record W, Volume 40 page 813); thence by the same North 02 degrees 11 minutes 00 seconds West 335.11 feet to a point in the said southerly side of State Road, the first mentioned point and place of beginning.

CONTAINING within said described metes and bounds 9.4461 acres of land, be the same more or less.

SUBJECT, however to any easements, restrictions and agreement of record.

SUBJECT ALSO to the covenant that the premises hereby granted to Grantee shall only be used (a) for the construction of recreational facilities for the benefit of the residents of the Inniscrone planned residential development or London Grove Township as a whole, or as otherwise agreed to in writing by Grantor or the then-owner of the remainder of the lands from which the premises hereby conveyed were a part, being known as the Inniscrone Golf Club property; and (b) as provided in that certain Stormwater and Grading Easement Agreement dated March 23, 2005 and recorded in the office of the Recorder of Deeds in and for Chester County, Pennsylvania in Book 6447, page 1023; AND subject further to the covenant that should agreement be reached between Grantee and London Grove Township that the said recreational facilities are no longer required to be constructed on the premises hereby conveyed, then Grantor shall have the right to repurchase the premises from Grantee for the sum of One Dollar (\$1.00), upon which event the foregoing covenants shall no longer be effective. The repurchase right of Grantor shall be extinguished at such time as the recreational facilities have been constructed and the premises hereby conveyed are dedicated to such purpose.



BEING part of the same premises which Realty Disposition Co., L.P., a Pennsylvania Limited Partnership, by deed dated January 17, 2006 and recorded January 26, 2006 in the Office of the Recorder of Deeds of Chester County, Pennsylvania in Deed Book 6749, page 2367, granted and conveyed unto Inniscrone Property Limited Partnership, a Pennsylvania General Partnership, in fee.

AND THE SAID Deed erroneously identified the Grantee therein (Grantor herein) as Inniscrone Property Limited Partnership, a Pennsylvania "General Partnership", rather than as a "Limited Partnership", as it is so registered in the records of the Pennsylvania Department of State, Corporation Bureau (entity # 568404).

TOGETHER with, all and singular, the buildings and improvements, ways, streets, alleys, driveways, passages, waters, watercourses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever unto the hereby granted premises belonging, or in any wise appertaining, and the reversions and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, property, claim and demand whatsoever of the said Grantor, as well at law as in equity, of, in and to the same.

TO HAVE AND TO HOLD the said lot or piece of ground described above with the buildings and improvements thereon erected and the hereditaments and premises hereby granted or mentioned and intended so to be, with the appurtenances, unto the said Grantee, its successors and assigns, to and for the only proper use and behoof of the said Grantee, its successors and assigns forever.

AND the said Grantor, its successors and assigns, does by these presents covenant, grant, promise and agree to and with the said Grantee, its successors and assigns, that the said Grantor all and singular the hereditaments and premises herein described and granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee, its successors and assigns, against it, the said Grantor, and against all and every other person and persons whomsoever lawfully claiming or to claim the same or any part thereof by, from or under him, her, it, them or any of them, shall and will forever hereafter warrant and forever defend.

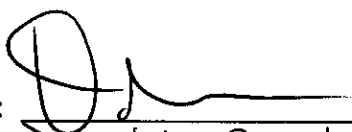
IN WITNESS WHEREOF, Grantor has caused these presents to be duly executed the day and year first above written.

Witness:

Inniscrone Property Limited Partnership,
a Pennsylvania Limited Partnership

By: SRH Inniscrone Property Corporation,
General Partner



By: 
David M. Rosenberg
President



ROBERT ADAMS ESC

01/03/2007 03:26P

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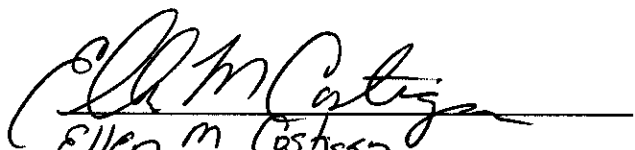
Page 3 of 5

B-7049 P-732

COMMONWEALTH OF Massachusetts
COUNTY OF Norfolk : SS.

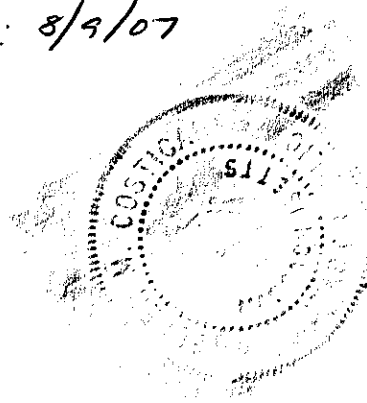
ON THIS, the 30th day of November, 2006, before me, a notary public in and for said County and Commonwealth, personally appeared David M. Rosenberg, of SRH Inniscrone Property Corporation, General Partner of Inniscrone Property Limited Partnership, a Pennsylvania Limited Partnership, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

WITNESS my hand and notarial seal.


Ellen M. Costigan
My Commission Expires: 8/9/07

Address of Grantee:

2109 Bellemead Avenue
Havertown, PA 19083



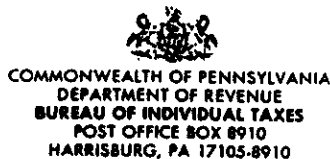
ROBERT ADAMS ESQ

01/03/2007 03:26P

10717855

Page 4 of 5

B-7049 P-732



REALTY TRANSFER TAX STATEMENT OF VALUE

See Reverse for Instructions

RECORDER'S USE ONLY	
State Tax Paid	1,221.61
Book Number	7049
Page Number	732
Date Recorded	Jan - 3 - 2007

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) when the deed is without consideration, or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on: (1) family relationship or (2) public utility easement. If more space is needed, attach additional sheet(s).

A CORRESPONDENT - All inquiries may be directed to the following person:

Name: Robert F. Adams Telephone Number: _____
 Street Address: _____ City: West Chester State: PA Zip Code: 19381-0562
17 E. Gay St., Ste. 100

B TRANSFER DATA

Grantor(s)/Lessor(s): Inniscrone Property Limited Partnership Date of Acceptance of Document: 11/30/06
 Street Address: 75 Second Avenue, Ste. 200 Grantee(s)/Lessee(s): SPE Lisacul Construction
 City: Needham State: MA Zip Code: 02494 Street Address: 2109 Bellemead Avenue
 City: Havertown State: PA Zip Code: 19083

C PROPERTY LOCATION

Street Address: One Clubhouse Drive City, Township, Borough: Avondale, London Grove Township
 County: Chester School District: Avondale Tax Parcel Number: Part of 59-8-170.1 (.04653)

D VALUATION DATA

1. Actual Cash Consideration <u>1.00</u>	2. Other Consideration <u>+ -0-</u>	3. Total Consideration <u>= \$1.00</u>
4. County Assessed Value <u>Total: 1,442,540</u>	5. Common Level Ratio Factor <u>x 1.82</u>	6. Fair Market Value Total: <u>2,625,422.80</u> <u>= % conveyed total: 122,160.93</u>

E EXEMPTION DATA

1a. Amount of Exemption Claimed: -0- 1b. Percentage of Interest Conveyed: _____

2. Check Appropriate Box Below for Exemption Claimed

- ☐ Will or intestate succession _____ (Name of Decedent) _____ (Estate File Number)
- ☐ Transfer to Industrial Development Agency.
- ☐ Transfer to agent or straw party. (Attach copy of agency/straw party agreement).
- ☐ Transfer between principal and agent. (Attach copy of agency/straw trust agreement). Tax paid prior deed \$ _____
- ☐ Transfers to the Commonwealth, the United States, and Instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (Attach copy of resolution).
- ☐ Transfer from mortgagor to a holder of a mortgage in default. Mortgage Book Number _____, Page Number _____
- ☐ Corrective deed (Attach copy of the prior deed).
- ☐ Statutory corporate consolidation, merger or division. (Attach copy of articles).
- ☐ Other (Please explain exemption claimed, if other than listed above.) _____

Under penalties of law, I declare that I have examined this Statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party: Robert F. Adams, atty for Grantee Date: 1/3/07

(SEE REVERSE)



ROBERT ADAMS ESQ

01/03/2007 03:26P

10717855
Page 5 of 5
B-7049 P-732

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION. SAFETY, ALL CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL LAWS AND REGULATIONS THEREAFTER. THIS DRAWING AND THE DESIGN FEATURES OR CONSTRUCTION DESCRIBED ARE PROPRIETARY TO TETRA TECH, INC. AND SHALL NOT BE REPRODUCED, ALTERED OR COPIED WITHOUT WRITTEN PERMISSION. SHALL NOT BE USED IN ANY MANNER CONTRARY TO ITS INTEREST AND SHALL BE RETURNED UPON REQUEST.

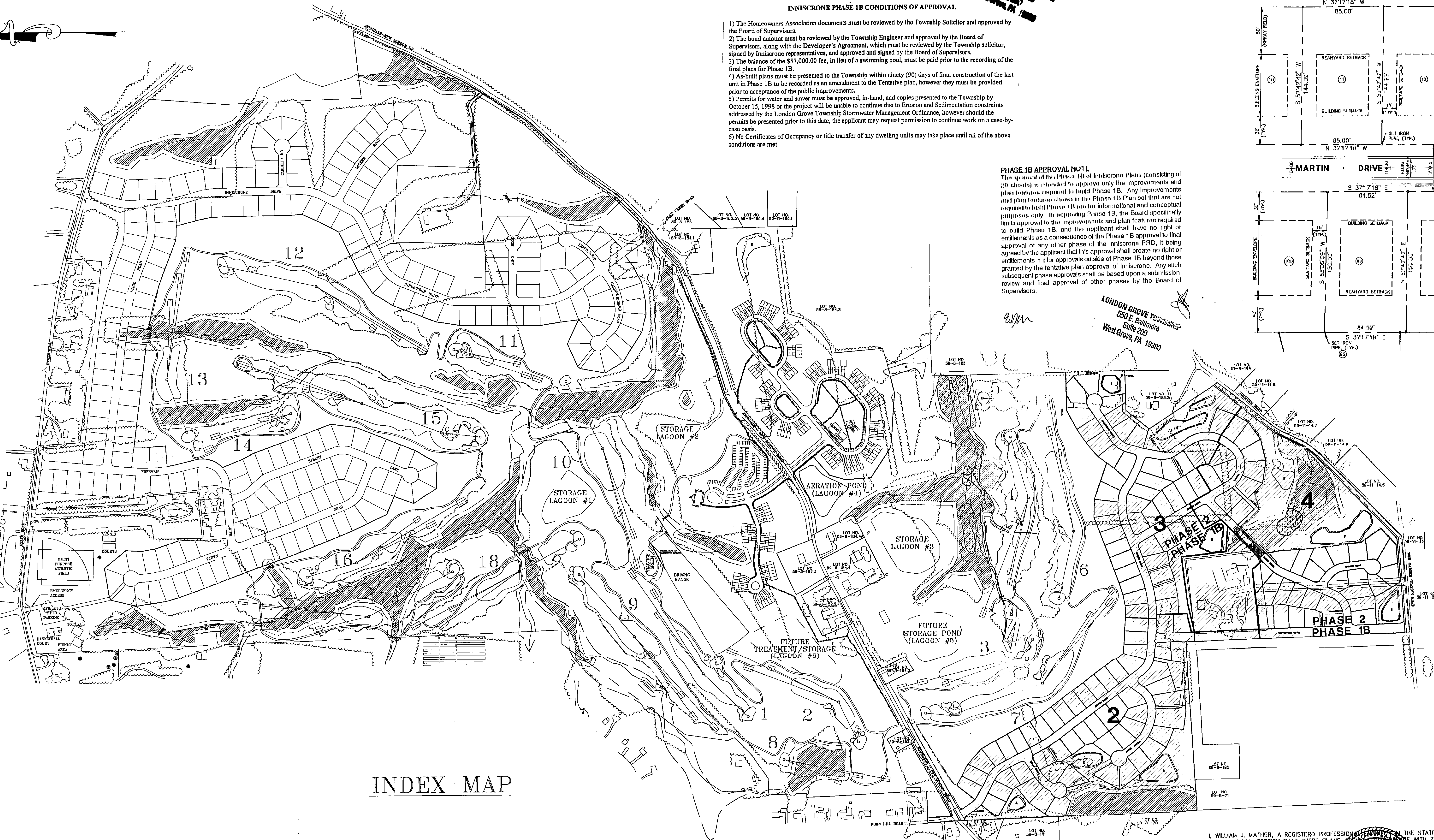
RECORDER OF DEEDS
CHESTER COUNTY, PA
98 OCT -9 PM 1:11

14623



THIS DOCUMENT IS UNCLASSIFIED
DATE 12/20/2017 BY 60322 UCBAW/STP
REASON: 25X0000
AUTHORITY: 50 USC 552a

NAME OF OWNER	ADDRESS	PARCEL NUMBER
THOMAS WALTER & PHYLLIS ANN MCARRY	736 E AVONDALE NEW LONDON RD WEST GROVE PA 19380	59-8-184.2
RAYMOND E. & PEARL L. DUNN	723 E AVONDALE NEW LONDON RD WEST GROVE PA 19390	59-8-152.1
KENNETH & KAY QUINN	753 W AVONDALE NEW LONDON RD WEST GROVE PA 19390	59-8-152.2
ERIC O. & KELLY L. QUINN	765 E AVONDALE NEW LONDON RD WEST GROVE PA 19390	59-8-152.3
FRANCIS D. JR & ANNE MARIE PUOGI	768 E AVONDALE NEW LONDON RD WEST GROVE PA 19390	59-8-184.4A
MICHAEL A. & ROSIN D. GREER	PO BOX 715 AVONDALE PA 19311	59-8-184.4
TIMM O. PHOEBE & LOREEN C. WEIGL	RR 2 BOX 319 AVONDALE PA 19311	59-8-186
ERIC BRICE & JOSEFA MARIA	P.O. BOX 672 AVONDALE PA 19311	59-8-184.1
EDWARD J. DOYLE	782 CLAY CREEK ROAD AVONDALE PA 19311	59-8-186.3
ALFRED W. & IRENE W. ROY	P.O. BOX 140 KELTON PA 19346	59-8-186.4
DENNIS G. KILLIAN	786 CLAY CREEK ROAD AVONDALE PA 19311	59-8-186.1
GEORFREY DAVID & DIANNE CAEN STROUD	RD #2 BOX 325 AVONDALE PA 19311	59-8-184.3
ROBERT DOUGLAS & DORIS ANN FRANGE	352 SULLIVAN RD. AVONDALE PA 19311	59-8-183.2
MERNER FAMILY PARTNERSHIP	220 SULLIVAN RD. AVONDALE PA 19311	59-8-185
KEVIN S. & KELLY M. KAUFFMAN	329 GARDEN STATION RD. AVONDALE PA 19311	59-8-195
JOSEPH WM. & ROSALIE C. MCADDEN	568 E. AVONDALE NEW LONDON RD. WEST GROVE PA 19390	59-8-182
ROGER E. & ELIZABETH J. FLAHERTY	564 E. AVONDALE NEW LONDON RD. WEST GROVE PA 19390	59-8-181
TIMOTHY S. & PATRICIA LYNN ROBINSON	568 EAST AVONDALE RD. WEST GROVE PA 19390	59-8-179
LAWRENCE E. & DARLENE G. CROMWELL	328-B SULLIVAN RD. AVONDALE PA 19311	59-8-184
JOANNA TORELLO	339 BAKER STATION RD. WEST GROVE PA 19390	59-8-71
SCOTT R. & TINA M. AULT	1331 SLATE HILL RD. PEACH BOTTOM PA 17563	59-11-14.5
SEAN C. & CAROLYN G. CONNORS	329 SULLIVAN RD AVONDALE PA 19311	59-11-14.6
GUIDO & CONCETTA GORDANO	11 HENRY RD WYNNWOOD PA 19096	59-11-14.7
GUIDO & CONCETTA GORDANO	11 HENRY RD WYNNWOOD PA 19096	59-11-14.8
GOURMETS DELIGHT MUSHROOMS	PO BOX 160 AVONDALE PA 19311	59-11-24
DALE E. & IRMA LUCILLE MUNDAY	PO BOX 285 AVONDALE PA 19311	59-11-25



INDEX MAP

GENERAL NOTES

- THE PURPOSE OF THIS PLAN IS TO SHOW THE FOLLOWING:
PROPERTY OUTBOUNDS
LOT METES & BOUNDS
EXISTING C.W.A. EASEMENTS
PROPOSED STREET RIGHT-OF-WAYS
PROPOSED WATERLINE EASEMENTS
PROPOSED SANITARY SEWER EASEMENTS
PROPOSED STORM SEWER EASEMENTS
PROPOSED PHASING LINES
- OPEN SPACE SUBAREAS WILL CONTAIN THE STORMWATER MANAGEMENT AREAS, RECREATIONAL FACILITIES, WALKWAYS, AND WETLANDS.
- RESIDENTIAL SUBAREAS WILL CONTAIN HOME AND TOWNHOUSE LOTS, AND STREETS.
- CONCRETE MONUMENTS SHALL BE PLACED AT INTERSECTIONS OF ALL LINES FORMING ANGLES, AT CHANGES IN DIRECTION, AND AT SUCH INTERMEDIATE POINTS AS MAY BE REQUIRED FOR THE RIGHT OF WAY AND PHASE LINES.
- ALL PROPOSED RIGHT-OF-WAY IS OFFERED FOR DEDICATION TO THE TOWNSHIP.
- AS PER THE TENTATIVE PLAN, PHASE 1A MUST BE COMPLETED PRIOR TO STARTING PHASE 1B, AND PHASE 1B MUST BE COMPLETED PRIOR TO STARTING PHASE 2.
- IRON MARKERS WILL BE ACCURATELY PLACED AT ALL LOT CORNERS WITHIN PHASE 1B AND 2. MARKERS WILL BE SET BY A PENNSYLVANIA REGISTERED LAND SURVEYOR OR ENGINEER.
- A PERMANENT ACCESS EASEMENT IS GRANTED TO LONDON GROVE TOWNSHIP AT EACH INFILTRATION BERM FOR THE PURPOSE OF REGULAR INSPECTIONS OF THE BERMS. ACCESS TO EACH INFILTRATION BERM CAN BE GAINED THROUGH OPEN SPACE AND NO EASEMENTS ARE REQUIRED THROUGH ANY INDIVIDUAL LOTS.

ZONING DATA

SINGLE FAMILY HOMES	REQUIRED	PROPOSED
MINIMUM LOT SIZE	12,000 SF	12,000 SF
FRONT YARD SETBACK	30 FT	30 FT
REAR YARD SETBACK	40 FT	40 FT
SIDE YARD SETBACK	15 FT	15 FT
LOT WIDTH AT BLDG. LINE	80 FT	80-100 FT
MAXIMUM COVERAGE	25%	< 25%
LESSER OF 3 STORIES OR 35'		
BUILDING HEIGHT		

LOCATION

SOUTHEAST CORNER OF TOWNSHIP - SOUTH OF STATE ROAD - WEST OF CLAY CREEK ROAD - NORTH AND SOUTH OF AVONDALE - NEW LONDON ROAD - EAST OF ROSE HILL ROAD - NORTH OF SULLIVAN ROAD - NORTH OF NEW GARDEN STATION ROAD.

EXISTING CONDITIONS

ROLLING SECOND GROWTH WOODLANDS AND AGRICULTURAL FIELDS WITH PERENNIAL AND INTERMITTENT STREAMS, WETLANDS AND STEEP AND VERY STEEP SLOPES.

PROJECT DATA

DISTRICT	R-2 RESIDENTIAL
PROJECT	PHASE 1B - 59 LOTS PHASE 2 - 77 LOTS
SINGLE FAMILY UNITS	PUBLIC - LONDON GROVE TOWNSHIP MUNICIPAL AUTHORITY
WASTEWATER DISPOSAL	SPRAY IRRIGATION / LAGOON TREATMENT
TOTAL TRACT AREA	531,342 ACRES (GROSS)
OVERALL OPEN SPACE	± 310 ACRES (GROSS)
DEVELOPED AREA	78,0152 ± acres
SINGLE FAMILY HOMES	
LOT AREA	1,505,548 sq.ft., 43.9142 ± acres
RIGHT OF WAY AREA	477,386 sq.ft., 10.9303 ± acres
OPEN SPACE AREA	1,012,208 sq.ft., 23.2417 ± acres
TOTAL AREA	3,998,342 sq.ft., 78.0152 ± acres
OUT PARCEL AREA	230,625 sq.ft., 5.2944 ± acres

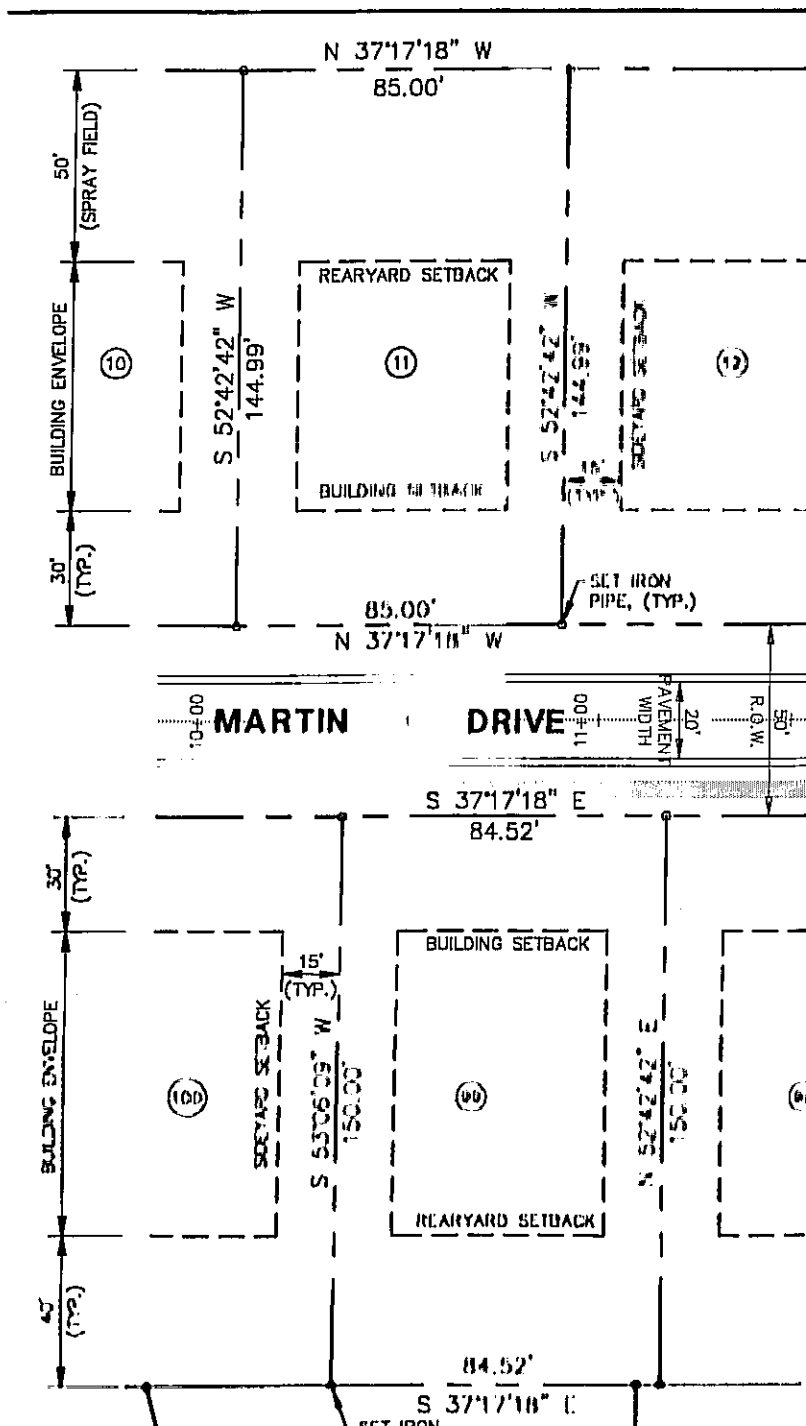
INNISCRONE PHASE 1B CONDITIONS OF APPROVAL

- The Homeowners Association documents must be reviewed by the Township Solicitor and approved by the Board of Supervisors.
- The bond amount must be reviewed by the Developer's Agreement, which must be reviewed by the Township solicitor, signed by Inniscrone representatives, and approved and signed by the Board of Supervisors.
- The balance of the \$57,000.00 fee, in lieu of a swimming pool, must be paid prior to the recording of the final plans for Phase 1B.
- As-built plans must be presented to the Township within ninety (90) days of final construction of the last unit in Phase 1B to be recorded as an amendment to the Tentative plan, however they must be provided prior to acceptance of the public improvements.
- Permits for water and sewer must be approved, in-hand, and copies presented to the Township by October 15, 1998 or the project will be unable to continue due to Erosion and Sedimentation constraints addressed by the London Grove Township Stormwater Management Ordinance, however should the permits be presented prior to this date, the applicant may request permission to continue work on a case-by-case basis.
- No Certificates of Occupancy or title transfer of any dwelling units may take place until all of the above conditions are met.

PHASE 1B APPROVAL NO. 11

The approval of this Phase 1B of Inniscrone Plans (consisting of 29 sheets) is extended to approve only the improvements and plan features required to build Phase 1B. Any improvements and plan features shown in the Phase 1B Plan set that are not required to build Phase 1B are for informational and conceptual purposes only. In approving Phase 1B, the Board specifically limits approval to the improvements and plan features required to build Phase 1B, and the applicant shall have no right or approval of any other phase of the Inniscrone PRO, it being agreed by the applicant that this approval shall create no right or entitlements in it for approvals outside of Phase 1B beyond those granted by the tentative plan approval of Inniscrone. Any such subsequent phase approvals shall be based upon a submission, review and final approval of other phases by the Board of Supervisors.

DETAIL OF BUILDING ENVELOPE



REVISION	DATE
REVISED FOR (LONDON GROVE TOWNSHIP)	12/14/97
COMMENTS: DATE 9/2/97	9/2/97
REVISED FOR (LONDON GROVE TOWNSHIP)	3/1/98
COMMENTS: DATE 9/2/97	9/2/97
REVISED FOR (LONDON GROVE TOWNSHIP)	7/2/98
COMMENTS: DATE 9/2/97	9/2/97
REVISED FOR (LONDON GROVE TOWNSHIP)	8/10/98
COMMENTS: DATE 9/2/97	9/2/97

Owner

Aaron and Joanne Martin
182 Redwood Lane
Kensett Square, PA 19168-2731
Tel: (800) 244-0440

Applicant/Equitable Owner

John M. Bower, Partner
Chatterbox Development Partners
2109 Baltimore Ave.
Haverhill, PA 19955
Tel: (800) 448-0000

LEGEND

- EXIST. PROPERTY LINE
- PROSP. PHASING LINE
- PROSP. RIGHT-OF-WAY
- PROSP. PROPERTY LINE
- ST. TRACK LINE
- PROSP. EASEMENT
- EXIST. TREE LINE
- PROSP. TREE REMOVAL LINE
- POTENTIAL BOB
- BOB HABITAT
- EXIST. WETLANDS
- W/ 20' BUFFER
- RESIDENTIAL WALKWAYS
- RESIDENTIAL SIDEWALKS
- PERMANENT CONCRETE MONUMENTS



Inniscrone
A PLANNED RESIDENTIAL DEVELOPMENT

PHASE 1B AND 2 RESIDENTIAL DEVELOPMENT

LONDON GROVE TOWNSHIP
CHESTER COUNTY
PENNSYLVANIA

0 100 200 300 600
1"=300'

BCN	0400-02
FILE NO.	0-001
FILE NAME	T:\ADMIN\2\0400SLT.DWG
DRAWN BY	EMT/MLB
DESIGNED BY	HRM
CHECKED BY	
ISSUED DECEMBER 31, 1997	SCALE 1"=800'

FINAL SUBDIVISION PLAN

1 of 4



Prepared by and Return to:
Atty. Jack Wiggen
MICHAEL BEST & FRIEDRICH LLP
5815 Oleander Drive, Suite 300
Wilmington, NC 28403

UPI Nos. 59-8-191.16, 59-9-50, 59-9-72



SUMMATION OF MEMORANDUM OF AGREEMENT

THIS SUMMATION OF MEMORANDUM OF AGREEMENT ("Summation") is made and entered into this 12 day of April, 2023, by and between LONDON GROVE TOWNSHIP, (the "Township"), and WATER & LAND SOLUTIONS, L.L.C., a North Carolina limited liability company located at 7721 Six Forks Road, Suite 130, Raleigh, North Carolina 27615 ("Sponsor").

WHEREAS, the Township and the Sponsor have entered into a certain Memorandum of Agreement (the "Agreement") dated April 12, 2023, pursuant to which the Township has agreed that Sponsor, its successors and assigns, will construct a stream and wetland restoration project (the "Project") in and around the property located in and around Clay Creek in London Grove Township, Pennsylvania, having Parcel ID Nos. 59-08-0191160E and 59-09-0072000E, containing approximately 121.615 and being more particularly described on Exhibit A attached hereto and incorporated herein by reference, together with the improvements thereon and all appurtenances thereto belonging and appertaining, and all creeks, streams, rights-of-way, roads, streets and ways bounding said real property (collectively the "Property"); and

WHEREAS, the parties enter into this Summation for the purpose of setting forth certain terms and conditions of the Agreement and to provide constructive notice of the Agreement;

NOW, THEREFORE, in consideration of the foregoing, the parties hereby agree as follows.

1. The term of the Agreement commenced on April 12, 2023 and shall continue in full force and effect until the completion of the Project as described in the Agreement, unless earlier terminated by the Parties.
2. All of the provisions set forth in the Agreement are incorporated in this Summation by reference.
3. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors and assigns.

[SIGNATURES AND NOTARY ACKNOWLEDGMENTS APPEAR ON FOLLOWING PAGES]

IN WITNESS WHEREOF, the parties have duly executed this Memorandum as of the date first above written.

LONDON GROVE TOWNSHIP:

By: [Signature]

Print Name: Stephen Zurl

Title: Chairman, Board of Supervisors

COMMONWEALTH/STATE OF Pennsylvania

COUNTY OF Chester

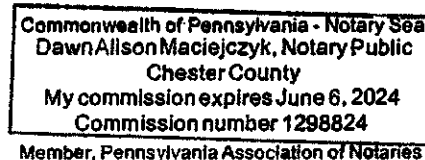
I, Dawn Alison Maciejczyk, the undersigned Notary Public of the County and Commonwealth/State aforesaid, certify that Stephen Zurl personally appeared before me this day, acknowledging to me that he/she is Chairman, Board of Supervisors of London Grove Township, a political subdivision of the County of Chester, Pennsylvania, and that he/she acknowledged to me that he/she voluntarily signed the foregoing document for the purposes therein expressed and in the representative capacity so stated. I have received satisfactory evidence of the principal's identity in the form of License.

Witness my hand and Notarial stamp or seal, this 12 day of April, 2023.

[Signature]
Official Signature of Notary
Dawn Alison Maciejczyk
Notary Public Notary's printed or typed name


My Commission Expires: June 6, 2024

[AFFIX NOTARIAL STAMP-SEAL]



SPONSOR:

**WATER & LAND SOLUTIONS, L.L.C., a
North Carolina limited liability company**

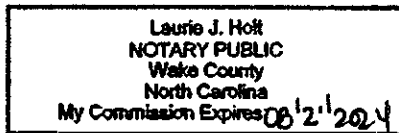
By: 
Print Name: Tommy Cousins
President


STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Laurie J. Holt, the undersigned Notary Public of the County and State aforesaid, certify that Tommy Cousins personally appeared before me this day, acknowledging to me that he is President of Water & Land Solutions, L.L.C., a North Carolina limited liability company and that he acknowledged to me that he voluntarily signed the foregoing document for the purposes therein expressed and in the representative capacity so stated. I have received satisfactory evidence of the principal's identity in the form of personally known to me.

Witness my hand and Notarial stamp or seal, this 25th day of April, 2023.




Notary Public
Laurie J. Holt
Typed or Printed Name of Notary

My Commission Expires: August 21, 2024

[AFFIX NOTARIAL STAMP-SEAL]

EXHIBIT A

Legal Description of Property

Tax Parcel ID Nos. 5908-0191160

Beginning at concrete monument on the southerly right-of-way line of Indian Run Road (25 feet from center line of road) a corner of lands N/L of W. McKinley & Ruby G. Hall; thence along lands of Hall South 18 degrees 10 minutes 02 seconds East 118.51 feet to an i. pipe found a corner of Lot #33 on said plan; thence along Lot #33 and Lot #32 the three € following courses and distances:

4. South 20 degrees 47 minutes 02 seconds West 407.76 feet to a point.
5. South 25 degrees 39 minutes 21 seconds East 92.00 feet to a point.
6. North 76 degrees 35 minutes 25 seconds East 350.00 feet to a point on the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive the three (3) following courses and distances:
 4. On the arc of a circle curving to the left having a radius of 50.00 feet an arc length of 58.35 feet and a chord bearing of North 60 degrees 37 minutes 10 seconds East 55.10 feet to a point of reverse curvature.
 5. On the arc of a circle curving to the right having a radius of 25.00 feet an arc length of 23.27 feet and a chord bearing of North 53 degrees 51 minutes 04 seconds East 22.44 feet to a point of compound curvature.
 6. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 8.32 feet and a chord bearing of North 81 degrees 14 minutes 56 seconds East 8.32 feet to a corner of Lot #31; thence along Lot #31 South 26 degrees 41 minutes 15 seconds East 263.97 feet to a point in line of Lot #30; thence along Lots #30, 22, 21, and 20 South 59 degrees 18 minutes 29 seconds West 623.34 feet to a point a corner of Lot #20; thence along Lots #20, 19 and 18 the two (2) following courses and distances:
 3. South 35 degrees 50 minutes 02 seconds East 595.96 feet to a point.
 4. North 54 degrees 09 minutes 58 seconds East 231.88 feet to a point on the southerly right-of-way line of Wiscoy Place; thence along the southerly right-of-way line of Wiscoy Place the two (2) following courses and distances:
 3. On the arc of a circle curving to the left having a radius of 525.00 feet an arc length of 244.47 feet and a chord bearing of South 65 degrees 46 minutes 32 seconds East 242.27 feet to a concrete monument a point of reverse curvature.
 4. On the arc of a circle curving to the right having a radius of 25.00 feet an arc length 35.65 feet and a chord bearing of South 38 degrees 15 minutes 59 seconds East 32.70 feet to a point on the easterly right-of-way line of Friendship Lane; thence along the right-of-way line of Friendship Lane the three (3) following courses and distances:
 4. On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 28.12 feet and a chord bearing of South 00 degrees 26 minutes 04 seconds West 28.11 feet to a point of tangency.
 5. South 01 degrees 42 minutes 50 seconds East 145.18 feet to a point of curvature.
 6. On the arc of a circle curving to the right having a radius of 30.00 feet an arc length of 45.66 feet and a chord bearing of South 41 degrees 53 minutes 28 seconds West 41.38 feet to a concrete monument a point on curve on the easterly

right-of-way line of Clay Creek Road (30 feet from centerline); thence along the easterly right-of-way line of Clay Creek Road the eleven following courses and distances:

12. On the arc of a circle curving to the left having a radius of 1100.00 feet an arc length of 213.62 feet and a chord bearing of South 79 degrees 55 minutes 58 seconds West 213.28 feet to a concrete monument point of tangency.
13. South 74 degrees 24 minutes 10 seconds West 43.70 feet to a concrete monument a point of curvature.
14. On the arc of a circle curving to the right having a radius of 470.00 feet an arc length of 237.96 feet and a chord bearing of South 88 degrees 52 minutes 25 seconds West 235.42 feet to a concrete monument a point of tangency.
15. North 76 degrees 37 minutes 20 seconds West 192.01 feet to a concrete monument a point of curvature.
16. On the arc of the circle curving to the right having a radius of 50.00 feet an arc length of 51.51 feet and a chord bearing of North 47 degrees 06 minutes 35 seconds West 49.26 feet to a concrete monument a point of tangency.
17. North 17 degrees 35 minutes 48 seconds West 179.22 feet to a concrete monument.
18. North 32 degrees 42 minutes 59 seconds West 216.50 feet to a concrete monument.
19. North 21 degrees 02 minutes 03 seconds West 92.51 feet to a concrete monument.
20. North 04 degrees 15 minutes 59 seconds West 888.46 feet to a concrete monument.
21. North 19 degrees 55 minutes 59 seconds West 159.42 feet to a concrete monument a point of curvature.
22. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 77.91 feet and a chord bearing of North 24 degrees 40 minutes 30 seconds East 70.27 feet to an i.pin a point of tangency on the southerly right-of-way line of Indian Run Road (25 feet from centerline); thence along the southerly right-of-way line of Indian Run Road North 69 degrees 20 minutes 59 seconds East 343.92 to the first mentioned point and place of beginning.

CONTAINING: 16.9575 ACRES

Tax Parcel ID No. 5909-0072000

Beginning at a concrete monument marking the easterly right-of-way line of Clay Creek Road (30 feet from title line of road) and the southerly right-of-way line of Friendship Lane (50 feet wide); thence along the southerly right of way line of Friendship Lane the three (3) following courses and distances:

4. On the arc of a circle curving to the right having a radius of 30.00 feet an arc length of 47.12 feet and a chord bearing of North 46 degrees 42 minutes 50 seconds West 42.43 feet to concrete monument of tangency.
5. North 01 degrees 42 minutes 50 seconds West 145.85 feet to a concrete monument a point of curvature.
6. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 99.24 feet and a chord bearing of North 07 degrees 02 minutes 01 seconds East 98.85 feet to a point a corner of Lot 17; thence along Lot 17 the two (2) following courses and distances:
3. South 74 degrees 13 minutes 09 seconds East 150.00 feet to a point.
4. North 32 degrees 40 minutes 36 seconds East 293.22 feet to a point on the right-of-way line of Angelica Drive; thence along the right-of-way line of Angelica Drive On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 35.63 feet and a chord bearing of South 88 degrees 33 minutes 45 seconds East 35.62 feet to a point a corner of Lot 16; thence leaving said right-of-way line and along Lot 16 South 01 degrees 17 minutes 05 seconds East 250.00 feet to a point the rear corner of Lot 16; thence along the rear property line of Lots 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, and 1 the eleven (11) following courses and distances:
 12. South 87 degrees 10 minutes 38 seconds East 149.81 feet to a point.
 13. North 84 degrees 32 minutes 57 seconds East 276.00 feet to a point.
 14. South 69 degrees 07 minutes 56 seconds East 93.18 feet to a point.
 15. South 20 degrees 54 minutes 29 seconds East 112.67 feet to a point.
 16. South 15 degrees 03 minutes 34 seconds East 149.72 feet to a point.
 17. South 17 degrees 08 minutes 36 seconds East 175.18 feet to a point.
 18. South 26 degrees 55 minutes 56 seconds East 175.09 feet to a point.
 19. South 27 degrees 04 minutes 52 seconds East 173.60 feet to a point.
 20. South 48 degrees 38 minutes 03 seconds East 300.12 feet to a point.
 21. South 21 degrees 46 minutes 41 seconds West 225.31 feet to a point.
22. South 14 degrees 03 minutes 02 seconds East 100 feet to a point on the right-of-way line of Angelica Drive; thence along the right-of-way line of Angelica Drive the three (3) following courses and distances:
 4. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 29.64 feet and a chord bearing of South 73 degrees 20 minutes 13 seconds West 29.63 feet to a point of tangency.
 5. South 70 degrees 43 minutes 28 seconds West 121.02 feet to a point of curvature.
 6. On the arc of a circle curving to the right having a radius of 40.00 feet an arc length of 67.57 and a chord bearing of North 60 degrees 52 minutes 55 seconds West 59.82 feet to a concrete monument a point of compound curvature on the easterly right-of-way of Clay Creek Road the eight (8) following courses and distances.

9. On the arc of a circle curving to the right having radius of 590.00 feet an arc length of 31.29 and a chord bearing of North 10 degrees 58 minutes 09 seconds West 31.28 feet to a concrete monument a point of tangency.
10. North 09 degrees 27 minutes 00 seconds West 176.00 feet to a concrete monument a point of curvature.
11. On the arc of a circle curving to the left having a radius of 560.00 feet an arc length of 348.06 feet and a chord bearing of North 27 degrees 15 minutes 20 seconds West 342.48 feet to a concrete monument a point of tangency.
12. North 45 degrees 03 minutes 40 seconds West 355.50 feet to a concrete monument a point of curvature.
13. On the arc of a circle curving to the left having a radius of 750.00 feet an arc length of 197.04 feet and a chord bearing of North 52 degrees 35 minutes West 196.47 feet to a concrete monument a point of tangency.
14. North 60 degrees 06 minutes 50 seconds East 125.00 feet to a concrete monument a point of curvature.
15. On the arc of a circle curving to the left having a radius of 610.00 feet an arc length of 336.43 feet and a chord bearing of North 75 degrees 54 minutes 50 seconds West 332.18 feet to a concrete monument a point of tangency.
16. South 88 degrees 17 minutes 10 seconds West 70.30 feet to the first mentioned point and place of beginning.

CONTAINING 12.662 ACRES



PLEASE RETURN TO
Bell of Pennsylvania
 A Bell Atlantic Company

Development Grant

2864
 (1/87)
 Side 1

Grantor(s) Charles L. & Ellen E. Wilkinson (corporation, partnership, individual)

recognizing the intrinsic value of utility facilities to Grantor's property, hereby grant(s) to **The Bell**

Telephone Company of Pennsylvania, and to _____ (Power Service Company)

and to their respective successors, assigns, lessees and agents, the right, privilege and authority to construct, reconstruct, operate and maintain aerial and/or underground communication and electric lines and appliances, including conduits, manholes, CEV vaults, interface(s) and (or) remote terminal equipment cabinet(s) transformers, pads, vaults, secondary junction boxes, poles, anchors, crossarms, cables and wires (hereinafter referred to as utility facilities), on, over, under, along, and across the land, and the highways adjacent thereto,

known as The Hills of Sullivan Tax Parcel #59-8-191 Plan of Lots,

situate along Clay Creek & Indian Run Roads

in the municipality of, _____ in Township of, London Grove

County of Chester, Commonwealth of Pennsylvania with the right of access over said land to construct and maintain said utility facilities by the most reasonable means; with the right to trim and keep trimmed trees and shrubs so as to clear utility facilities by at least _____ feet; and with the right to permit others to use said utility facilities. The approximate location of said utility facilities to be placed by virtue of this grant is more fully shown on a plan marked Exhibit "A".

Prepared by Mike Sleichter

and dated 2-94, which is made part hereof by reference. Any dedicated utility easement shown on the developer's plan shall not be interpreted as restricting the grantees' rights hereunder.

Grantor(s), their successors and assigns, hereby agree(s) that they will:

1. Grade to within six inches of final grade all private property locations where utility facilities are to be constructed prior to the placing thereof.
2. Establish and stake property lines as needed before said utility facilities are constructed.
3. Keep the area where the utility facilities are located clear of trees, tall shrubs, outdoor fireplaces or any structure which could, in the opinion of grantees, interfere with the construction, maintenance or use of the said utility facilities as provided for under the terms of this grant.
4. Reimburse the respective grantees the actual cost of any changes deemed feasible in the opinion of grantee made in the utility facilities constructed hereunder to accommodate grantor(s).
5. Comply with Public Utility Commission Ruling, 52 PA Code Chapters 57 and 63, if applicable.

IN WITNESS WHEREOF, Grantor(s) Charles L. & Ellen E. Wilkinson

caused this grant to be duly executed this 30th day of February MARCH, A.D. 1994,

at RD #1 Box 184, Landenberg, PA 19350

(POST OFFICE ADDRESS)

PLEASE SIGN NAMES BELOW:

WITNESS OR ATTEST:

Christina Service

Charles L. Wilkinson

Charles L. Wilkinson

Ellen E. Wilkinson
 ELLEN E. WILKINSON

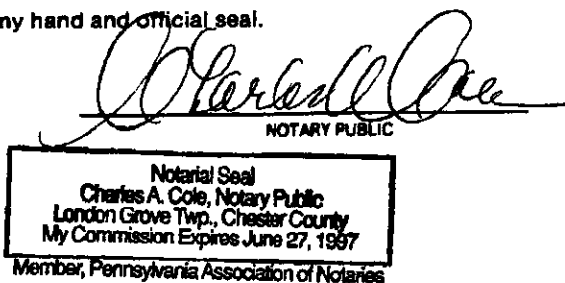
BR 3869 PG 1991

Vicki L. Jamison
Right of Way Agent:

(Individual(s) Acknowledgement)

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF CHESTEROn this 30th day of MARCH, A.D. 1994before me, CHARLES A. COLE, a Notary Public for the Commonwealthof Pennsylvania, personally appeared CHARLES L. & ELLEN E. WILKINSONknown to me (or satisfactorily proven) to be the person(s) whose name(s) ARE subscribed to the
within instrument and in due form of law acknowledged the said instrument for the purpose therein
contained to be their act and deed, and desired the same might be recorded as such.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.



(Corporation Acknowledgement)

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF _____

On this _____ day of _____, A.D. 19____

before me, _____, a Notary Public for the Commonwealth

of Pennsylvania, personally appeared _____

who acknowledgedh....self to be the _____ of
(TITLE)the _____ a corporation,
(NAME OF CORPORATION)and that ...he... as such _____ being authorized to do so,
(TITLE)

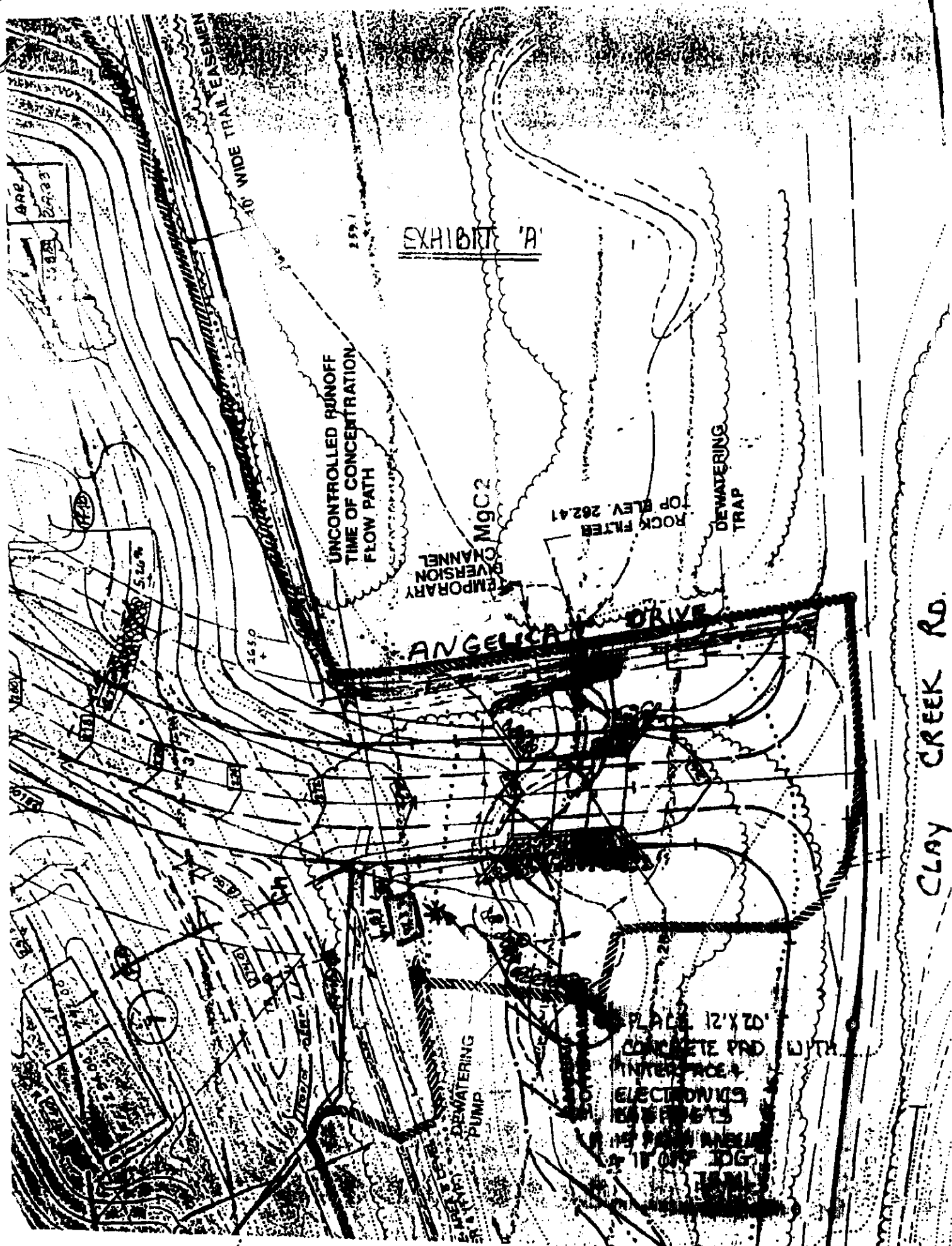
executed the foregoing instrument for the purpose therein contained by signing the name of the

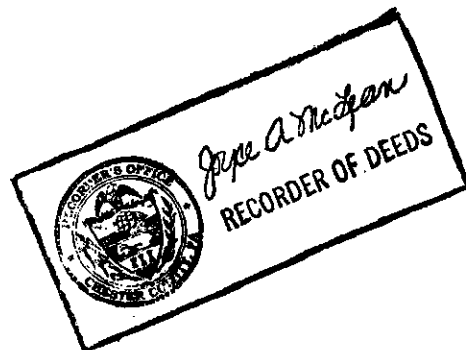
corporation by ...h....self as said _____
(TITLE)

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

NOTARY PUBLIC

BK 3869PG 1992





DATE: 03/10/1995 TIME: 10:25A INST NO.: 12492

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 003807	TYPE DOC :	MISC
REC FEE	:	13.00
LINC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50

PLEASE RETURN TO

VICKI L. JAMISON
C/O BELL ATLANTIC-PENNSYLVANIA, INC.
SUITE 820
600 WILLOWBROOK LANE
WEST CHESTER, PA 19382

London Grove Twp.

BK3869PG1994

RETURN TO

PECO Energy Company
Real Estate & Facilities
175 N. Cain Road
Coatesville, PA 19320

RIGHT OF WAY

File Number: 35-23622
Quad Number: 60D

THIS AGREEMENT, made this 27 day of MAY 1999 between **JUDD ASSOCIATES**, a Pennsylvania corporation, (the "Grantor"), and **PECO ENERGY COMPANY**, a Pennsylvania corporation, and **BELL ATLANTIC-PENNSYLVANIA, INC.**, a Pennsylvania corporation, and (collectively the "Company"),

WHEREAS, The Grantor is the owner of premises situate on the east side of Clay Creek Road, in the Township of London Grove, County of Chester, Commonwealth of Pennsylvania (the "Premises"), as more particularly described in Deed(s) dated August 1985, and recorded in the Office of the Recorder of Deeds, in the aforesaid County, in Deed Book(s) 3953, Page 66 &c.,

NOW, THEREFORE, WITNESSETH: That the Grantor for and in consideration of the sum of ONE DOLLAR (\$1.00), the receipt whereof is hereby acknowledged, does hereby grant to the Company, the full, free, and uninterrupted right, liberty, privilege and authority to locate, relocate, construct, erect, install, renew, replace, add to, operate and maintain on, over, under, along, across and within the Premises such electric, gas and communication (including but not limited to cable television) transmission and distribution facilities (the "Facilities") as from time to time the Company shall determine are necessary or proper to supply the Premises and those adjacent thereto with electricity, gas and communication (including but not limited to cable television) service, together with the right of ingress and egress across the Premises and the right to trim, keep trimmed, cut down and remove, in a workmanlike manner, all trees, roots and branches of trees to the extent determined necessary by the Company to provide sufficient clearance for the protection of the Facilities; also together with the right to attach the Facilities to the building(s) erected or to be erected on the Premises.

PARCEL NUMBER: 59 08 0191 00

59 08 0192 00

BK 4694 PG 0818

The aforesaid rights are granted under and subject to the following conditions:

(1) The Company may install and construct the Facilities inside, and within three (3) feet outside, the right of way limits of all roads as now existing or as may be subsequently established within the Premises, whether dedicated or private, and also the right to install beyond said three (3) feet outside of such roads, such anchors and guys as may be necessary to stabilize any poles. In addition, Company may also construct, install and maintain electric and communication transformers, manholes, vaults, interfaces, remote terminal equipment, secondary junction boxes, pads, pedestals, enclosures, CEV, wires, cables and other appurtenances within an area not to exceed 15 feet of either side of all common lot lines and up to, but not exceeding, 15 feet outside of the right of way limits of any existing or future roads. The location of any other Facilities to be constructed, installed and maintained by virtue of this agreement shall be shown and delineated on plans prepared by Company, copies of which will be in possession of the parties hereto having been approved by them, which approval shall not be unreasonably withheld or delayed;

(2) The final grades of all locations where the Facilities are to be constructed on the Premises are to be established by Grantor prior to the construction of the Facilities;

(3) Grantor agrees to establish and stake property lines as needed before the Facilities are constructed;

(4) Grantor agrees to reimburse the Company for any excess cost incurred due to changes deemed feasible in the opinion of Company and made to Facilities constructed hereunder to accommodate Grantor in accordance with the then effective provisions of Company's tariff;

(5) Grantor agrees to keep the area where underground Facilities are located clear of trees, shrubs, buildings or any other permanent structure which could, in the opinion of Company, interfere with the construction, maintenance or use of the Facilities as provided for under the terms of this agreement;

(6) Grantor agrees that the initial exercise of any of the powers and rights herein granted shall not be construed as limiting Company's rights and privileges hereunder;

(7) Any utility easement(s) shown on the recorded plan(s) shall not be construed as limiting the Company's rights hereunder.

(8) Grantor reserves the right to approve plans as set forth in Paragraph (1) above on all lots sold out of the Premises until all Facilities initially required to provide service to the Premises have been installed.

(9) Grantor agrees not to plant any trees within fifteen (15) feet of Company's aerial Facilities unless the trees are of a low growth variety which have a maximum growing height of twenty-five (25) feet. A list of the trees which are recommended and acceptable for planting within this fifteen (15) foot area is shown on Exhibit "A" attached hereto and made a part hereof.

The rights and conditions herein contained shall run with the land and shall inure to and bind the respective heirs, executors, administrators, successors and assigns of the parties hereto.


EXECUTED as of the day and year first above written.

JUDD ASSOCIATES

ATTEST:



SECRETARY

BY: 

PRESIDENT


COMMONWEALTH OF PENNSYLVANIA:

COUNTY OF MONTGOMERY : SS.
:

On this, the 27TH day of MAY, 1999, before me, a Notary Public, personally appeared PETER DePAUL, who acknowledged him/herself to be the

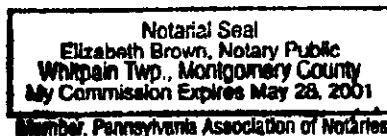
President of **JUDD ASSOCIATES**, a corporation, and that as such President, being authorized to do so, executed this instrument for the purposes therein contained by signing the name of the corporation by him/herself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



NOTARY PUBLIC
My commission expires:

3



BK 4694 PG 0820

**EXHIBIT "A" ATTACHED TO
AND MADE A PART OF THE
AGREEMENT DATED 17 MAY, 1999
BETWEEN JUDD ASSOCIATES AND
PECO ENERGY COMPANY AND BELL ATLANTIC PENNSYLVANIA, INC.,
AND SUBURBAN CABLE TV CO., INC.,**

Trees acceptable for planting:

*Cleveland Select Callery Pear	*Prairiefire Crabapple
*Capital Callery Pear	*Madonna Crabapple
*Aristocrat Callery Pear	*Harvest Gold Crabapple
*Autumn Blaze Callery Pear	*Centurion Crabapple
*Kwanzan Oriental Cherry	*Adams Crabapple
*Accolade Flowering Cherry	*Star Magnolia
Dancer Ornamental Birchleaf Pear	*Galaxy Magnolia
Macho Amur Corktree	Vaughn Hawthorn
Shademaster Amur Corktree	Winter King Green Hawthorn
Imperial Honeylocust	Crimson Cloud English Hawthorn
*Summer Snow Japanese Tree Lilac	*Columnar Sargent Cherry
Regent Japanese Tree Lilac	Goldenrain Tree
Shubert Chokecherry	Crimson King Norway Maple
Canada Red Cherry	Hedge Maple
*Amanogawa Oriental Cherry	Amur Maple
*Redbud Crabapple	Trident Maple
*Sugar Tyme Crabapple	Tartarian Maple
*Spring Snow Crabapple	Queen Elizabeth Hedge Maple
*Snowdrift Crabapple	Paperbark Maple
*Sentinel Crabapple	*Chanticleer Callery Pear
*Red Jewel Crabapple	*Redspire Callery Pear
*Red Barron Crabapple	*Whitehouse Callery Pear
*Professor Sprenger Crabapple	

*Flowering

BK 4694 PG 0821



01/05/2000 10:24:16 A.M. INST NO: 0000699
CHESTER COUNTY, PA

OFFICE OF THE RECORDER OF DEEDS
RECEIPT NO: 0000309
MISCELLANEOUS \$13.00
CO REC FUND \$1.00
RE REC FUND \$1.00
WRIT - MISCELLANEOUS \$4.50

\$15.50

BK4694PG0822

of ingress, egress and regress in the said Grantee, its successors and assigns, to and along the said permanent right-of-way above defined, for the purpose of constructing, renewing, replacing, repairing and maintaining the said water pipe-line or any part thereof, at any and all times and seasons.

That the Grantor(s) do also grant(s) unto the Grantee, its successors and assigns, a temporary forty feet wide right-of-way through their said property, the center line of which shall be located as shown for the aforementioned permanent twenty feet wide right-of-way except where otherwise shown on Exhibit "A", to be used by the Grantee, its contractors agents, servants and employees in and about and during the construction of the said water pipe-line therein.

That, in consideration of the grant, hereinbefore defined, the grantee hereby covenants and agrees with the Grantor(s) their heirs, executors, administrators, and assigns, as follows:-

1. The Grantee will at all times, now and hereafter save and indemnify the Grantor(s) of and from any and all loss or damage which may be sustained by the Grantor(s) by reason of the construction, operation, maintenance, repair, or replacement of the aforementioned water pipe-line through their said property, including damage or injury done or occasioned to persons or property of any kind.

2. The Grantee shall construct, operate and maintain its said water pipe-line in a workmanlike manner, in accordance with modern and approved practices, and with a minimum of interference to the Grantor(s) in the use of their said property.

That this agreement, shall be binding upon the parties hereto and their respective heirs, executors, administrators, successors and assigns, and the benefits thereof shall inure to the same.

IN WITNESS WHEREOF, the parties of the first part hereunto set their hand and seal, and the said party of the second part has caused to be affixed hereto its corporate name and seal duly signed and attested by its proper officers, this 27th day of July A. D. 1949.

Witnesses:

D. Caldwell Stewart

Chester Bartoli
Rose Bartoli
CHESTER MUNICIPAL AUTHORITY
By: S.P. Gray, -
Attest: F.C. Andrews, secretary

(SEAL)
(SEAL)
.....
: CORPORATE :
: SEAL :
.....

STATE OF PENNSYLVANIA : SS:
COUNTY OF DELAWARE :

On this the 2nd day of November 1949 before me the subscriber a Notary Public in and for the Commonwealth of Pennsylvania, residing in Delaware County, personally appeared the above named Chester Bartoli and Rose Bartoli and in due form of law acknowledged the above AGREEMENT to be an act and deed, and desired the same might be recorded as such.

WITNESS my hand and notarial seal the day and year aforesaid.

Hollan G. Malin, Notary Public
My Commission Expires Mar. 5, 1953

.....
: NOTARIAL :
: SEAL :
.....

Transcribed By: Durante
Compared by: RAMSEY
Recorded: November 4, 1949

89 p. 248

RIGHT OF WAY AGREEMENT
MARK SULLIVAN
TO
CHESTER MUNICIPAL AUTHORITY

RIGHT OF WAY AGREEMENT

THIS AGREEMENT, made this 24th day of August A. D. 1949 by and between Mark Sullivan of the London Grove Township County of Chester, Commonwealth of Pennsylvania, party of the first part (hereinafter called the Grantors) AND the Chester Municipal Authority, of the City of Chester, County of Delaware, Commonwealth of Pennsylvania, party of the second part (hereinafter called the Grantee), WITNESSETH:

That, for and in consideration of the sum of \$225.00 to him in hand this day paid, the receipt whereof is hereby acknowledged, and intending to be legally bound hereby the Grantor has granted, bargained, and sold and by these presents does, grant, bargain and sell unto the Grantee, its successors and assigns (subject to any and all existing liens,) the free uninterrupted and permanent right, liberty and privilege of constructing, operating and maintaining a water pipe-line along and through so much of the property of the Grantor Situate on Township Road #327 and Legislative Route #15207, Township of London Grove, County of Chester, State of Penna., as is located within a twenty feet wide strip of land the center line of which is located as shown on a certain plan hereto attached and made a part hereof, marked "Exhibit A", TOGETHER WITH the perpetual right of ingress, egress and regress in the said Grantee, its successors and assigns, to and along the said permanent right-of-way above defined, for the purpose of constructing, renewing, replacing, repairing and maintaining the said water pipe-line or any part thereof, at any and all times and seasons.

That the Grantor(s) does also grant(s) unto the Grantee, its successors and assigns, a temporary forty feet wide right-of-way through their said property, the center line of which shall be located as shown for the aforementioned permanent twenty feet wide right-of-way to be used by the Grantee, its contractors, agents, servants and employees, in and about and during the construction of the said water pipe-line therein.

That, in consideration of the grant hereinbefore defined, the Grantee hereby covenants and agrees with the Grantor(s); their heirs, executors, administrators and assigns, as follows:-

1. The Grantee will at all times, now and hereafter, save and indemnify the Grantor(s) of and from any and all loss or damage which may be sustained by the Grantor(s) by reason of the construction, operation, maintenance, repair, or replacement of the aforementioned water pipe-line through their said property including damage or injury done or occasioned to persons or property of any kind.

2. The Grantee shall construct, operate and maintain its said water pipe-line in a workmanlike manner, in accordance with modern and approved practices, and with a minimum of interference to the Grantor(s) in the

RETURN TO

DEED OF DEDICATION

Parke Barnes Spangler & Bortner

THIS INDENTURE, made this 27th day of November, 2002, between JUDD ASSOCIATES, a Pennsylvania limited partnership, hereinafter referred to as the GRANTOR;

AND

LONDON GROVE TOWNSHIP, County of Chester, Commonwealth of Pennsylvania, hereinafter referred to as the GRANTEE.

WITNESSETH:

THAT the said Grantor, for and in consideration of the sum of \$1.00 (One dollar), as well as the advantages accruing to it and for divers other considerations affecting the public welfare, which it seeks to advance, has granted, bargained, sold, aliened, enfeoffed, released and confirmed and by these presents does grant, bargain, sell, alien, enfeoff, release and confirm unto the said Grantee, its successors and assigns:

CLAY CREEK ROAD

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of a portion of Clay Creek Road, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "A" hereto.

BEING the bed of a portion of Clay Creek Road (30 feet wide)

ANGELICA DRIVE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Angelica Drive, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "B" hereto.

BEING the bed of Angelica Drive (50 feet wide)

BELMONT CIRCLE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Belmont Circle, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated

This Document Recorded
03/20/2003 State RTT: 0.00
11:54AM Local RTT: 0.00
Doc Code: DOD Chester County, Recorder of Deeds Office

Doc Id: 10206795
Receipt #: 92856
Rec Fee: 176.50
PARKE BARNES SPANGLER & BORTNER

10206795
Page 1 of 35
B-5616 P-1149
03/20/2003 11:54A

February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "C" hereto.

BEING the bed of Belmont Circle (50 feet wide)

WELLSVILLE LANE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Wellsville Lane, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "D" hereto.

BEING the bed of Wellsville Lane (50 feet wide)

WISCOY PLACE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Wiscoy Place, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "E" hereto.

BEING the bed of Wiscoy Place (50 feet wide)

RUSHFORD PLACE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Rushford Place, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "F" hereto.

BEING the bed of Rushford Place (50 feet wide)

LETCHWORTH LANE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Letchworth Lane, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "G" hereto.

BEING the bed of Letchworth Lane (50 feet wide)

INDIAN RUN ROAD (WEST)

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of a portion of Indian Run Road, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "H" hereto.

BEING the bed of a portion of Indian Run Road (West) (25 feet wide)

INDIAN RUN ROAD (EAST)

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of a portion of Indian Run Road, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "I" hereto.

BEING the bed of a portion of Indian Run Road (East) (25 feet wide)

HOLLAND COURT

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Holland Court, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "J" hereto.

BEING the bed of Holland Court (50 feet wide)

FRIENDSHIP LANE

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Friendship Lane, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "K" hereto.

BEING the bed of Friendship Lane (50 feet wide)

GLEN IRIS COURT

ALL THAT CERTAIN ROADBED, SITUATE in London Grove Township, Chester County, Pennsylvania, consisting of the bed of Glen Iris Court, as shown on that certain Plan of



Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully bounded and described in Exhibit "L" hereto.

BEING the bed of Glen Iris Court (50 feet wide)

UNDER AND SUBJECT, nevertheless, to any and all matters of record and conditions visible upon the ground.

TO HAVE AND TO HOLD the said pieces of ground above described to the said Grantee, its successors and assigns, to and for the only proper use and behoof of the said Grantee, its successors and assigns, forever as and for public streets or highways and for no other use or purpose whatsoever and to the same extent and with the same effect as if the streets had been opened by a Decree of the Court of Common Pleas of Chester County, Pennsylvania, after proceedings duly had for that purpose under and in pursuance of the Road Laws of the Commonwealth of Pennsylvania, and the said Grantor, for itself, its successors and assigns, does by these presents confirm, promise to and agree to and with the Grantee, its successors and assigns, that neither said Grantor, nor its successors or assigns shall or will at any time hereafter, ask, demand, recover or receive of or from the said Grantee, its successors or assigns, any sum or sums of money as and for or by reason of the physical grading of the said streets to the grade as now established by London Grove Township, and if such grade shall not be established at the date of these presents, that neither the said Grantors, nor its successors and assigns, shall or will at any time hereafter ask, demand, recover or receive any such damages by reason the physical grading of the said streets to conform to the grade as first hereafter established or confirmed by the said London Grove Township.

AND the said Grantor, for itself, its successors and assigns, does by these presents further covenant, promise, and agree to and with the said Grantee, its successors and assigns, against them, the said Grantor, its successors and assigns, and against all and every person or persons whomsoever lawfully claiming or to claim the same or any part thereof, by, from or under them or any of them, shall and will warrant and forever defend.

IN WITNESS WHEREOF, the said JUDD ASSOCIATES has executed this Deed, the date and year first above written.

WITNESS:

GRANTOR:

JUDD ASSOCIATES
a Pennsylvania limited partnership

Elizabeth Brown

By: *Donna DePaul-Bartynski*

Print Name: Donna DePaul Bartynski

Notarial Seal
Elizabeth Brown, Notary Public
Whitpain Twp., Montgomery County
My Commission Expires May 28, 2005

Member, Pennsylvania Association of Notaries



PARKE BARNES SPANGLER & BORTNER

03/20/2003 11:54A

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Page: 4 of 35

B-5616 P-1149

Title: Managing General Partner

* I hereby certify that the address
of the within named Grantee is:

London Grove Township
372 Rose Hill Road
West Grove, PA 19390

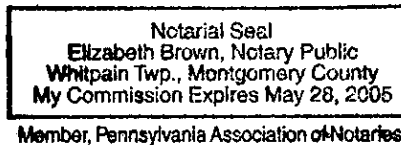
[Signature]
On Behalf of said Grantee

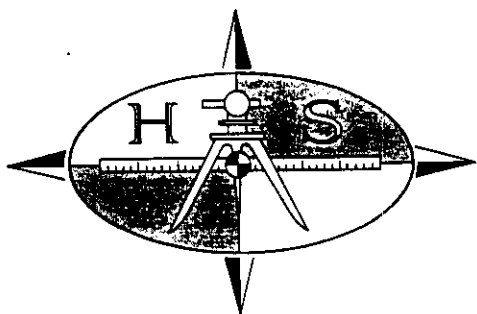
COMMONWEALTH OF PENNSYLVANIA :
COUNTY OF MONTGOMERY : SS

On this 27th day of November, 2002, before me, the undersigned officer,
personally appeared DONNA DETRAUL DAKYNSKI, who acknowledged himself/herself to be
the Managing General Partner of JUDD ASSOCIATES and, being authorized to do so,
acknowledged that he/she executed the foregoing instrument on behalf of the company for the
purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Elizabeth Brown
Notary Public





HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002

(REV. 11-14-02)

CLAY CREEK ROAD

Description of a portion of Clay Creek Road (30 feet wide from title line) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Clay Creek Road on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Clay Creek Road being more fully described as follows to wit.

Beginning at a point at the intersection of the title line of Clay Creek Road (proposed 30 feet wide from title line of road) and the title line of Indian Run Road (proposed 25 feet wide from title line of road); thence along the title line of Indian Run Road North 69 degrees 20 minutes 59 seconds East 30.00 feet to a point marking the extension of the easterly right-of-way line of Clay Creek Road; thence along the easterly right-of-way line of Clay Creek Road the nineteen (19) following courses and distances:

1. South 19 degrees 56 minutes 01 seconds East 233.80 feet to a concrete monument.
2. South 04 degrees 15 minutes 59 seconds East 888.46 feet to a concrete monument.
3. South 21 degrees 02 minutes 03 seconds East 92.51 feet to a concrete monument.
4. South 32 degrees 42 minutes 59 seconds East 216.50 feet to a concrete monument.
5. South 17 degrees 35 minutes 48 seconds East 179.22 feet to a concrete monument a point of curvature.
6. On the arc of a circle curving to the left having a radius of 50.00 feet an arc length of 51.51 feet and a chord bearing of South 47 degrees 06 minutes 34 seconds East 49.26 feet to a concrete monument a point of tangency.
7. South 76 degrees 37 minutes 20 seconds East 192.01 feet to a concrete monument a point of curvature.
8. On the arc of a circle curving to the left having a radius of 470.00 feet an arc length of 237.96 feet and a chord bearing of South 88 degrees 52 minutes 25 seconds East 235.42 feet to a concrete monument a point of tangency.
9. North 74 degrees 22 minutes 10 seconds East 43.70 feet to a concrete monument a point of curvature.



PARKE BARNES SPANGLER & BORTNER

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Page: 6 of 35

B-5616 P-1149

(2)
Clay Creek Road

10. On the arc of a circle curving to the right having a radius of 1100.00 feet an arc length of 267.18 feet and a chord bearing of North 81 degrees 19 minutes 40 seconds East 266.52 feet to a concrete monument a point of tangency.
11. North 88 degrees 17 minutes 10 seconds East 125.30 feet to a concrete monument a point of curvature.
12. On the arc of a circle curving to the right having a radius of 610.00 feet an arc length of 336.43 feet and a chord bearing of South 75 degrees 54 minutes 50 seconds East 332.18 feet to a concrete monument a point of tangency.
13. South 60 degrees 06 minutes 50 seconds East 125.00 feet to a concrete monument a point of curvature.
14. On the arc of a circle curving to the right having a radius of 750.00 feet an arc length of 197.04 and a chord bearing of South 52 degrees 35 minutes 15 seconds East 196.47 feet to a concrete monument a point of curvature.
15. South 45 degrees 03 minutes 40 seconds East 355.50 feet to a concrete monument a point of curvature.
16. On the arc of a circle curving to the right having a radius of 560.00 feet an arc length of 348.06 feet and a chord bearing of South 27 degrees 15 minutes 20 seconds East 342.48 feet to a concrete monument a point of tangency.
17. South 09 degrees 27 minutes 00 seconds East 176.00 feet to a concrete monument a point of curvature.
18. On the arc of a circle curving to the left having a radius of 590.00 feet an arc length of 106.18 feet and a chord bearing of South 14 degrees 36 minutes 20 seconds East 106.03 feet to a concrete monument a point of tangency.

Clay Creek Road
(3)

19. South 19 degrees 45 minutes 40 seconds East 66.24 feet to a concrete monument a point in line of lands of N/L of Albert and Patricia Staszsky; thence leaving the said right-of-way line and along lands of Staszsky South 65 degrees 48 minutes 10 seconds West 30.09 feet to a point on the title line of Clay Creek Road; thence along the title line of Clay Creek Road the eighteen (18) following courses and distances:

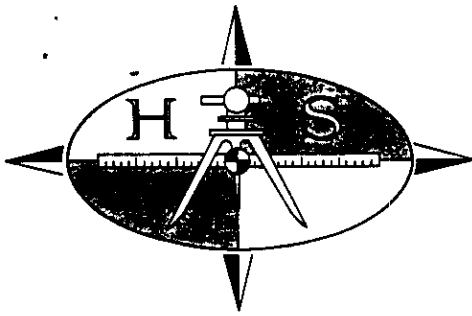
1. North 19 degrees 45 minutes 40 seconds West 68.57 feet to a point of curvature.
2. On the arc of a circle curving to the right having a radius of 620.00 feet an arc length of 111.58 feet and a chord bearing of North 14 degrees 36 minutes 20 seconds West 111.43 feet to a point of tangency.
3. North 09 degrees 27 minutes 00 seconds West 176.00 feet to a point of curvature.
4. On the arc of a circle curving to the left having a radius of 530.00 feet an arc length of 329.41 feet and a chord bearing of North 27 degrees 15 minutes 20 seconds West 324.13 feet to a point of tangency.
5. North 45 degrees 03 minutes 40 seconds West 355.50 feet to a point of curvature.
6. On the arc of a circle curving to the left having a radius of 720.00 feet an arc length of 189.16 feet and a chord bearing of North 52 degrees 35 minutes 15 seconds West 188.62 feet to a point of tangency.
7. North 60 degrees 06 minutes 50 seconds West 125.00 feet to a point of curvature.
8. On the arc of a circle curving to the left having a radius of 580.00 feet an arc length of 319.88 feet and a chord bearing of North 75 degrees 54 minutes 50 seconds West 315.85 feet to a point of tangency.
9. South 88 degrees 17 minutes 10 seconds West 125.30 feet to a point of curvature.



Clay Creek Road
(4)

10. On the arc of a circle curving to the left having a radius of 1070.00 feet an arc length of 259.89 feet and a chord bearing of South 81 degrees 19 minutes 40 seconds West 259.26 feet to a point of tangency.
11. South 74 degrees 22 minutes 10 seconds West 43.70 feet to a point of curvature.
12. On the arc of a circle curving to the right having a radius of 500.00 feet an arc length of 253.15 feet and a chord bearing of South 88 degrees 52 minutes 25 seconds West 250.45 feet to a point of tangency.
13. North 76 degrees 37 minutes 20 seconds West 237.30 feet to a point.
14. North 17 degrees 35 minutes 48 seconds West 219.79 (erroneously 202.53 feet on plan) feet to a point.
15. North 32 degrees 42 minutes 59 seconds West 215.58 feet to a point.
16. North 21 degrees 02 minutes 03 seconds West 100.00 feet to a point.
17. North 04 degrees 15 minutes 59 seconds West 888.75 feet to a point.
18. North 19 degrees 55 minutes 59 seconds West 229.30 feet to the first mentioned point and place of beginning.

CONTAINING: 2.936 ACRES

**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-933-1754****FAX 610-933-0268**

November 7, 2002

(REV. 11-13-02)

ANGELICA DRIVE

Description of Angelica Drive (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Angelica Drive on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Angelica Drive being more fully described as follows to wit.

Beginning at a concrete monument marking the intersection of the easterly right-of-way line of Clay Creek Road (60 feet wide) and the westerly right-of-way line of Angelica Drive (50 feet wide); thence along the westerly right-of-way line of Angelica Drive the fifteen (15) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 40.00 feet an arc length of 67.57 feet and a chord bearing of South 60 degrees 52 minutes 55 seconds East 59.82 feet to a point of tangency.
2. North 70 degrees 43 minutes 28 seconds East 121.02 feet to a point of curvature.
3. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 169.64 feet and a chord bearing of North 85 degrees 40 minutes 41 seconds East 167.72 feet to a point of tangency.
4. South 79 degrees 22 minutes 07 seconds East 102.23 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 200.00 feet an arc length of 521.03 feet and a chord bearing of North 25 degrees 59 minutes 55 seconds East 385.70 feet to a point of tangency.
6. North 48 degrees 38 minutes 03 seconds West 425.19 feet to a point of curvature.
7. On the arc of a circle curving to the right having a radius of 725.00 feet an arc length of 490.98 feet and a chord bearing of North 29 degrees 14 minutes 01 seconds West 481.65 feet to a point of tangency.
8. North 09 degrees 49 minutes 59 seconds West 220.50 feet to a point of curvature.

(1)



PARKE BARNES SPANGLER & BORTNER

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Angelica Drive
(2)

9. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 485.65 feet and a chord bearing of North 52 degrees 38 minutes 31 seconds West 441.71 feet to a point of tangency.
10. South 84 degrees 32 minutes 57 seconds West 419.94 feet to a point of curvature.
11. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 593.05 feet and a chord bearing of North 50 degrees 08 minutes 42 seconds West 533.15 feet to a point of tangency(having crossed over the terminus of Friendship Lane).
12. North 04 degrees 50 minutes 20 seconds West 112.61 feet to a point of curvature.
13. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 536.86 feet and a chord bearing of North 52 degrees 09 minutes 43 seconds West 477.87 feet to a point of compound curvature.
14. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 23.27 feet and a chord bearing of South 53 degrees 51 minutes 04 seconds West 22.44 feet to a point of reverse curvature.
15. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 240.71 feet and a chord bearing of North 14 degrees 47 minutes 21 seconds West 66.88 feet to a point of reverse curvature on the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive the fourteen (14) following courses and distances:
 1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 19.22 feet and a chord bearing of South 78 degrees 47 minutes 20 seconds to a concrete monument a point of reverse curvature.
 2. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 628.15 feet and a chord bearing of South 52 degrees 49 minutes 35 seconds East 557.25 feet to a concrete monument a point of tangency (having crossed over the terminus of Letchworth Drive).

Angelica Drive
(3)

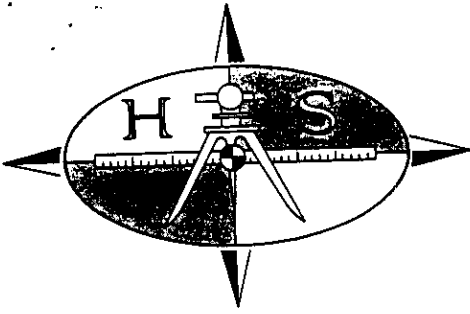
3. South 04 degrees 50 minutes 20 seconds East 112.61 feet to a concrete monument a point of curvature.
4. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 513.98 feet and a chord bearing of South 50 degrees 08 minutes 42 seconds East 462.07 feet to a concrete monument a point of tangency.
5. North 84 degrees 32 minutes 57 seconds East 419.94 feet to a concrete monument a point of curvature (having crossed over the terminus of Letchworth Drive).
6. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 560.37 feet and a chord bearing of South 52 degrees 38 minutes 31 seconds East 509.67 feet to a concrete monument a point of tangency.
7. South 09 degrees 49 minutes 59 seconds East 220.50 feet to a point of curvature (having crossed the terminus of Belmont Circle).
8. On the arc of a circle curving to the left having a radius of 675.00 feet an arc length of 457.11 feet and a chord bearing of South 29 degrees 14 minutes 01 seconds East 448.43 feet to a concrete monument a point of tangency.
9. South 48 degrees 38 minutes 03 seconds East 425.19 feet to a concrete monument a point of curvature(having crossed over the terminus of Belmont Circle).
10. On the arc of a circle curving to the right having a radius of 250.00 feet an arc length of 651.29 feet and a chord bearing of South 25 degrees 59 minutes 55 seconds West 482.12 feet to a concrete monument a point of tangency.
11. North 79 degrees 22 minutes 07 seconds West 102.23 feet to a concrete monument a point of curvature.
12. On the arc of a circle curving to the left having a radius of 275.00 feet an arc length of 143.54 feet and a chord bearing of South 85 degrees 40 minutes 41 seconds West 141.92 feet to a concrete monument a point of tangency.



Angelica Drive
(4)

13. South 70 degrees 43 minutes 28 seconds West 139.47 feet to a concrete monument a point of curvature.
14. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.48 feet and a chord bearing of South 25 degrees 28 minutes 54 seconds West 35.50 feet to a point of tangency marking the intersection of the westerly right-of-way line of Angelica Drive and the easterly right-of-way line of Clay Creek Road; thence along the easterly right-of-way line of Clay Creek Road the two (2) following courses and distances:
 1. North 19 degrees 45 minutes 40 seconds West 45.21 feet to a point of curvature.
 2. On the arc of a circle curving to the right having a radius of 590.00 feet an arc length of 74.89 and a chord bearing of North 16 degrees 07 minutes 28 seconds West 74.84 feet to the first mentioned point and place of beginning.

CONTAINING: 5.164 ACRES



HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002
(REV. 11-13-02)
BELMONT CIRCLE

Description of Belmont Circle (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Belmont Circle on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Belmont Circle being more fully described as follows to wit.

Beginning at a concrete monument marking the easterly right-of-way line of Angelica Drive (50 feet wide) and the northerly right-of-way line of Belmont Circle (50 feet wide); thence along the northerly right-of-way line of Belmont Circle the five (5) following courses and distances:

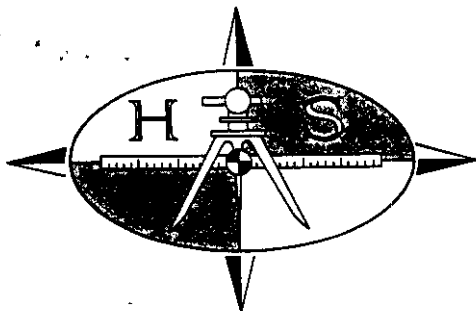
1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 54 degrees 49 minutes 59 seconds East 35.36 feet to a concrete monument a point of tangency.
2. North 80 degrees 10 minutes 01 seconds East 380.13 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the right having a radius of 215.00 feet an arc length of 529.84 feet and a chord bearing of South 29 degrees 14 minutes 01 seconds East 405.58 feet to a concrete monument a point of tangency.
4. South 41 degrees 21 minutes 57 seconds West 351.96 feet to a concrete monument a point of curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 03 degrees 38 minutes 03 seconds East 35.36 feet to a concrete monument a point of tangency marking the intersection of the northerly right-of-way line of Belmont Circle and the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive and crossing the terminus of Belmont Circle North 48 degrees 38 minutes 03 seconds West 100.00 feet to a concrete monument marking the easterly right-of-way line of Angelica Drive and the southerly right-of-way line of Belmont Circle (as mentioned in the first course); thence along the southerly right-of-way line of Belmont Circle the five (5) following courses and distances:

(1)

Belmont Circle
(2)

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of North 86 degrees 21 minutes 57 seconds East 35.36 feet to a point of tangency.
2. North 41 degrees 21 minutes 57 seconds East 351.96 feet to a point of curvature.
3. On the arc of a circle curving to the left having a radius of 165.00 feet an arc length of 406.62 feet and a chord bearing of North 29 degrees 14 minutes 01 seconds West 311.26 feet to a point of tangency.
4. South 80 degrees 10 minutes 01 seconds West 380.13 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 35 degrees 10 minutes 01 seconds West 35.36 feet to a point of tangency marking the intersection of the southerly right-of-way line of Belmont Circle and the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive North 09 degrees 49 minutes 59 seconds West 100.00 feet to the first mentioned point and place of beginning.

CONTAINING: 1.447 ACRES



HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002
WELLSVILLE LANE

Description of Wellsville Lane (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Wellsville Lane on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Wellsville Lane being more fully described as follows to wit.

Beginning at a concrete monument marking the intersection of the easterly right-of-way line of Letchworth Lane (50 feet wide) and the northerly right-of-way line of Wellsville Lane (50 feet wide); thence along the northerly right-of-way line of Wellsville lane the five (5) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 70 degrees 46 minutes 11 seconds East 35.36 feet to a point of tangency.
2. North 64 degrees 13 minutes 49 seconds East 237.33 feet to a point of curvature.
3. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 235.42 feet and a chord bearing of North 43 degrees 28 minutes 42 seconds East 230.31 feet to a point of tangency.
4. North 22 degrees 43 minutes 35 seconds East 35.44 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 and a chord bearing of North 22 degrees 16 minutes 25 seconds West 35.36 feet to a concrete monument a point of tangency marking the intersection of the northerly right-of-way line of

Wellsville Lane and the westerly right-of-way line of Rushford Place (50 feet wide); thence along the westerly right-of-way line of Rushford Place and crossing the terminus of Wellsville Lane South 67 degrees 16 minutes 25 seconds East 100.00 feet to a point marking the westerly right-of-way line of Rushford Lane and the southerly right-of-way line of Wellsville Lane; thence along the southerly right-of-way line of Wellsville Lane the five (5) following courses and distances:

(1)



PARKE BARNES SPANGLER & BORTNER

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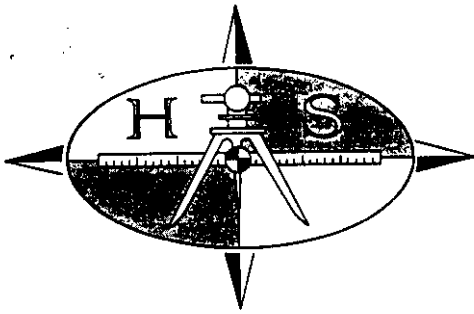
B-5616 P-1149

Wellsville Lane
(2)

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of North 67 degrees 43 minutes 35 seconds West 35.36 feet to a point of tangency.
2. South 22 degrees 43 minutes 35 seconds West 35.44 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 271.64 feet and a chord bearing of South 43 degrees 28 minutes 42 seconds West 265.74 feet to a concrete monument a point of tangency.
4. South 64 degrees 13 minutes 49 seconds West 237.33 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 19 degrees 13 minutes 49 seconds West 35.36 feet to a concrete monument a point of tangency marking the intersection of the southerly right-of-way line of Wellsville Lane and the easterly right-of-way line of Letchworth Lane; thence along the easterly right-of-way line of Letchworth Lane and crossing the terminus of Wellsville Lane North 25 degrees 46 minutes 11 seconds West 100.00 feet to the first mentioned point and place of beginning.

CONTAINING: 0.674 ACRES





HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002

(REV. 11-13-02)

WISCOY PLACE

Description of Wiscoy Place (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Wiscoy Place on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Wiscoy Place being more fully described as follows to wit.

Beginning at a point marking the intersection of the westerly right-of-way line of Friendship Lane (50 feet wide) and the southerly right-of-way line of Wiscoy Place (50 feet wide); thence along the southerly right-of-way line of Wiscoy Place the five (5) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 35.65 feet and a chord bearing of North 38 degrees 15 minutes 59 seconds West 32.70 feet to a concrete monument a point of reverse curvature.
2. On the arc of a circle curving to the right having a radius of 525.00 feet an arc length of 443.71 feet and a chord bearing of North 54 degrees 54 minutes 14 seconds West. 430.62 feet to a concrete monument a point of tangency.
3. North 30 degrees 41 minutes 31 seconds West 57.96 feet to a concrete monument a point of curvature.
4. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 30.77 feet and a chord bearing of North 65 degrees 57 minutes 23 seconds West 28.87 feet to a point of reverse curvature.
5. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 218.63 feet and a chord bearing of North 24 degrees 02 minutes 37 seconds East 81.65 feet to a point of tangency on the northerly right-of-way line of Wiscoy Place; thence along the northerly right-

of-way line of Wiscoy Place the three (3) following courses and distances:

1. South 30 degrees 41 minutes 31 seconds East 128.68 feet to a point of curvature.

(1)



PARKE BARNES SPANGLER & BORTNER 03/20/2003 11:54A

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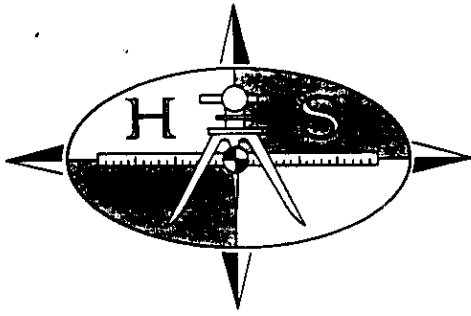
B-5616 P-1149

Wiscoy Place
(2)

2. On the arc of a circle curving to the left having a radius of 475.00 feet an arc length of 399.39 feet and a chord bearing of South 54 degrees 46 minutes 47 seconds East 387.73 feet to a point of compound curvature.
3. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.73 feet and a chord bearing of North 59 degrees 02 minutes 25 seconds East 33.52 feet to a point on curve marking the northerly right-of-way line of Wiscoy Place and the westerly right-of-way line of Friendship Lane; thence along the westerly right-of-way line of Friendship Lane and crossing the terminus of Wiscoy Place On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 94.02 feet and a chord bearing of South 09 degrees 45 minutes 54 seconds West 93.77 feet to the first mentioned point and place of beginning.

CONTAINING: 0.799 ACRES



**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-933-1754****FAX 610-933-0268**

November 7, 2002
(REV. 11-14-02)
RUSHFORD PLACE

Description of Rushford Place (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Rushford Place on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Rushford Place being more fully described as follows to wit.

Beginning at a concrete monument marking the intersection of the easterly right-of-way line of Angelica Drive (50 feet wide) and the westerly right-of-way line of Rushford Place (50 feet wide); thence along the westerly right-of-way line of Rushford Place the nine (9) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of North 85 degrees 02 minutes 09 seconds East 33.07 feet to a concrete monument a point of tangency.
2. North 43 degrees 37 minutes 35 seconds East 309.61 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 403.09 feet and a chord bearing of North 08 degrees 05 minutes 36 seconds to a concrete monument a point of tangency (having crossed over the terminus of Glen Iris Court).
4. North 27 degrees 26 minutes 11 seconds West 415.25 feet to a concrete monument a point of curvature.
5. On the arc of a circle curving to the left having a radius of 275.00 feet an arc length of 191.20 feet and a chord bearing of North 47 degrees 21 minutes 18 seconds West 187.38 feet to a concrete monument a point of tangency.
6. North 67 degrees 16 minutes 25 seconds West 236.11 feet to a concrete monument a point of curvature (having crossed over the terminus of Wellsville Lane).

(1)



PARKE BARNES SPANGLER & BORTNER

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Rushford Place
(2)

7. On the arc of a circle curving to the right having a radius of 625.00 feet an arc length of 223.78 feet and a chord bearing of North 57 degrees 00 minutes 57 seconds West 222.59 feet to a concrete monument a point of tangency.
8. North 46 degrees 45 minutes 31 seconds West 87.81 feet to a point of curvature.
9. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 218.62 feet and a chord bearing of North 78 degrees 30 minutes 20 seconds East 81.65 feet to a point of reverse curvature on the easterly right-of-way line of Rushford Place; thence along the

easterly right-of-way line of Rushford Place the nine (9) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 30.77 feet and a chord bearing of South 11 degrees 29 minutes 38 seconds East 28.87 feet to a point of tangency.
2. South 46 degrees 45 minutes 30 seconds East 17.10 feet to a point of curvature.
3. On the arc of a circle curving to the left having a radius of 575.00 feet an arc length of 205.88 feet and a chord bearing of South 57 degrees 00 minutes 57 seconds East 204.78 feet to a point of tangency.
4. South 67 degrees 16 minutes 25 seconds East 236.11 feet to a point of curvature.
5. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 225.97 feet and a chord bearing of South 47 degrees 21 minutes 18 seconds East 221.45 feet to a point of tangency.
6. South 27 degrees 26 minutes 11 seconds East 415.25 feet to a point of curvature.

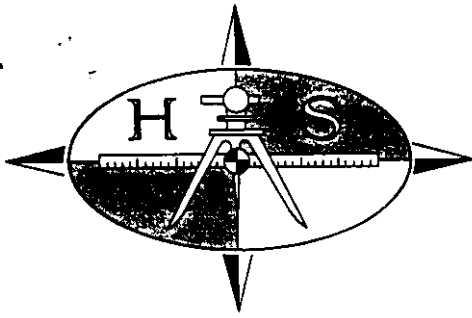


Rushford Place
(3)

7. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 465.11 feet and a chord bearing of South 08 degrees 05 minutes 36 seconds West 435.86 feet to a point of tangency (having crossed over the terminus of Holland Court).
8. South 43 degrees 37 minutes 35 seconds West 309.61 feet to a point of curvature.
9. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of South 02 degrees 12 minutes 59 seconds West 33.07 feet to a point on curve marking the intersection of the easterly right-of-way line of Rushford Place and the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 94.00 feet and a chord bearing of North 46 degrees 22 minutes 27 seconds West 93.75 feet to the first mentioned point and place of beginning.

CONTAINING: 2.355 ACRES



**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-933-1754****FAX 610-933-0268**

November 7, 2002

(REV: 11-14-02)

LETCWORTH LANE

Description of Letchworth Lane (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Letchworth Lane on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Letchworth Lane being more fully described as follows to wit.

Beginning at a concrete monument marking the easterly right-of-way line of Angelica Drive (50 feet wide) and the northerly right-of-way line of Letchworth Lane (50 feet wide); thence along the northerly right-of-way line (which becomes the easterly right-of-way line) of Letchworth Lane the nine (9) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of North 59 degrees 26 minutes 35 seconds East 33.07 feet to a concrete monument a point of tangency.
2. North 18 degrees 02 minutes 00 seconds East 236.86 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the right having a radius of 275.00 feet an arc length of 267.70 feet and a chord bearing of North 45 degrees 55 minutes 16 seconds East 257.26 feet to a concrete monument a point of tangency.
4. North 73 degrees 48 minutes 32 seconds East 116.26 feet to a concrete monument a point of curvature.
5. On the arc of a circle curving to the right having a radius of 225.00 feet an arc length of 315.81 feet and a chord bearing of South 65 degrees 58 minutes 49 seconds East 290.52 feet to a concrete monument a point of tangency.
6. South 25 degrees 46 minutes 11 seconds East 478.47 feet to a concrete monument a point of curvature (having crossed over the terminus of Wellsville Lane).



PARKE BARNES SPANGLER & BORTNER

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(1)

Letchworth Lane

(2)

7. On the arc of a circle curving to the right having a radius of 525.00 feet an arc length of 186.18 feet and a chord bearing of South 15 degrees 36 minutes 37 seconds East 185.20 feet to a concrete monument a point of tangency.

8. South 05 degrees 27 minutes 04 seconds East 419.60 feet to a point of curvature.

9. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 50 degrees 27 minutes 04 seconds East 35.36 feet to a concrete monument a point of tangency marking the intersection of the easterly right-of-way line of Letchworth Lane and the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive South 84 degrees 32 minutes 57 seconds West 100.00 feet to a concrete monument marking the intersection of the easterly right-of-way line of Angelica Drive and the westerly right-of-way line of Letchworth Lane; thence along the westerly right-of-way line of Letchworth Lane the nine (9) following courses and distances:

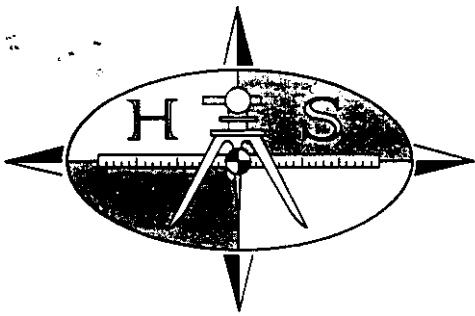
1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 39.27 feet and a chord bearing of South 50 degrees 27 minutes 04 seconds 35.36 feet to a point of tangency.
2. North 05 degrees 27 minutes 04 seconds West 419.60 feet to a point of curvature.
3. On the arc of a circle curving to the left having a radius of 475.00 feet an arc length of 168.45 feet and a chord bearing of North 15 degrees 36 minutes 37 seconds West 167.57 feet to a point of tangency.
4. North 25 degrees 46 minutes 11 seconds West 478.47 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 175.00 feet an arc length of 245.63 feet and a chord bearing of North 65 degrees 58 minutes 49 seconds West 225.96 feet to a point of tangency.



Letchworth Lane
(3)

6. South 73 degrees 48 minutes 32 seconds West 116.26 feet to a point of curvature.
7. On the arc of a circle curving to the left having a radius of 225.00 feet an arc length of 219.03 feet and a chord bearing of South 45 degrees 55 minutes 16 seconds West 210.48 feet to a point of tangency.
8. South 18 degrees 02 minutes 00 seconds West 236.86 feet to a point of curvature.
9. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of South 23 degrees 22 minutes 35 seconds East 33.07 feet to a point on curve marking the westerly right-of-way line of Letchworth Lane and the easterly right-of-way line of Angelica Drive; thence along the easterly right-of-way line of Angelica Drive On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 94.00 feet and a chord bearing of North 71 degrees 58 minutes 00 seconds West 93.75 feet to the first mentioned point and place of beginning.

CONTAINING: 2.306 ACRES



HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002
(REV. 11-14-02)
INDIAN RUN ROAD (West)

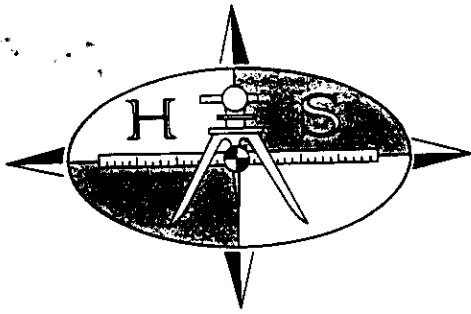
Description of a portion of Indian Run Road about to be conveyed to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Indian Run Road (T - 339) on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Indian Run Road being more fully described as follows to wit:

Beginning at a point on the title line of Indian Run Road; said point of beginning being measured North 69 degrees 20 minutes 59 seconds East 30.00 feet from a point marking the intersection of the title line of Clay Creek Road and title line of Indian Run Road; thence along the title line of Indian Run Road North 69 degrees 20 minutes 59 seconds East 394.07 feet to a P.K. nail a corner of lands N/L of W. McKinley and Ruby G. Hall; thence leaving said title line and along lands of Hall South 08 degrees 10 minutes 02 seconds East 25.61 (erroneously 25.02 feet on plan) feet to a concrete monument on the proposed southerly right-of-way line of Indian Run Road (said right-of-way being 25.00 feet from the title line in the road); thence along the southerly right-of-way the two (2) following courses and distances:

1. South 69 degrees 20 minutes 59 seconds West 339.52 feet (erroneous on plan as 343.92 feet) to a concrete monument a point of curvature.
2. On the arc of a circle curving to the left having a radius of 50.00 feet an arc length of 77.91 feet and a chord bearing of South 24 degrees 40 minutes 30 seconds West 70.27 feet to a concrete monument marking the intersection of the southerly right-of-way line of Indian Run Road and the easterly right-of-way line of Clay Creek Road; thence through the bed of Indian Run Road North 19 degrees 55 minutes 59 seconds West 74.38 feet to the first mentioned point and place of beginning.

CONTAINING: 0.238 ACRES





HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002
(REV. 11-14-02)
INDIAN RUN ROAD (East)

Description of a portion of Indian Run Road about to be conveyed to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Indian Run Road (T - 339) on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Indian Run Road being more fully described as follows to wit:

Beginning at a point on the title line of Indian Run Road a corner of lands N/L of W. McKinley and Ruby G. Hall; thence along the said title line and lands N/L of Old Oak Development Corp. and lands N/L of Lewis and Cecelia Ross the six (6) following courses and distances:

1. North 71 degrees 44 minutes 01 seconds East 365.79 feet to a point.
2. North 73 degrees 48 minutes 32 seconds East 365.53 feet to a point.
3. North 72 degrees 53 minutes 19 seconds East 106.57 feet to a point.
4. North 69 degrees 52 minutes 01 seconds East 161.81 feet to a point.
5. North 67 degrees 05 minutes 14 seconds East 313.23 feet to a point.
6. North 65 degrees 18 minutes 37 seconds East 401.65 feet to a point.

thence leaving said title line South 08 degrees 00 minutes 23 seconds East 26.10 feet to a point on the proposed southerly right-of-way of Indian Run Road (said right-of-way being 25.00 feet from the title line in the road); thence along the southerly right-of-way line the six (6) following courses and distances:

1. South 65 degrees 18 minutes 37 seconds West 394.55 feet to a concrete monument.
2. South 67 degrees 05 minutes 14 seconds West 314.22 feet to a concrete monument.
3. South 69 degrees 52 minutes 01 seconds West 163.08 feet to a concrete monument.
4. South 72 degrees 53 minutes 19 seconds West 107.43 feet to a concrete monument.
5. South 73 degrees 48 minutes 32 seconds West 365.28 feet to a concrete monument.
6. South 71 degrees 44 minutes 01 seconds West 371.14 feet to a concrete monument in line of lands

N/L of W. McKinley and Ruby G. Hall; thence along said lands North 05 degrees 11 minutes 20 seconds West 25.67 feet to the first mentioned point and place of beginning.

CONTAINING: 0.984 ACRES



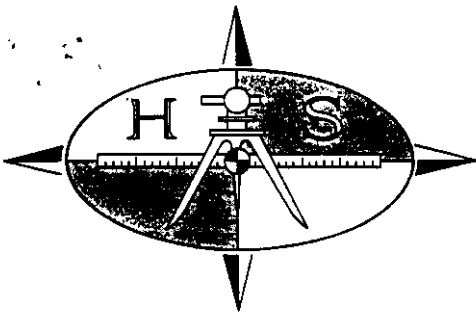
PARKE BARNES SPANGLER & BORTNER

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B-5616 P-1149



HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002
HOLLAND COURT

Description of Holland Court (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Holland Court on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Holland Court being more fully described as follows to wit.

Beginning at a point marking the intersection of the easterly right-of-way line of Rushford Lane (50 feet wide) and the northerly right-of-way line of Holland Court (50 feet wide); thence along the northerly right-of-way line of Holland Court the five (5) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of South 29 degrees 33 minutes 45 seconds East 33.07 feet to a point of tangency.
2. South 70 degrees 58 minutes 19 seconds East 54.00 feet to a point of curvature.
3. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 207.46 feet and a chord bearing of South 52 degrees 41 minutes 03 seconds East 203.95 feet to a point of compound curvature.
4. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 212.03 feet and a chord bearing of South 87 degrees 04 minutes 53 seconds West 85.28 feet to a point of reverse curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 34.24 feet and a chord bearing of North 10 degrees 39 minutes 54 seconds West 31.62 feet to a concrete monument a point of compound curvature on the southerly right-of-way line of Holland Court;

thence along the southerly right-of-way line of Holland Court the three (3) following courses and distances

1. On the arc of a circle curving to the left having a radius of 275.00 feet an arc length of 101.16 feet and a chord bearing of North 60 degrees 26 minutes 03 seconds West 100.59 feet to a concrete monument a point of tangency.

(1)



PARKE BARNES SPANGLER & BORTNER

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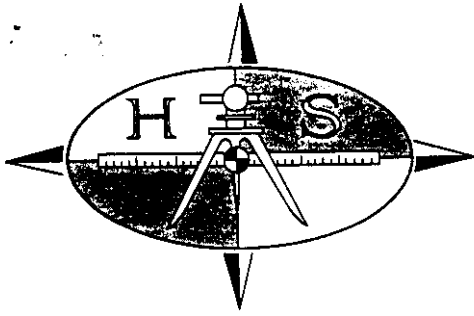
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HOLLAND
(2)

2. North 70 degrees 58 minutes 19 seconds West 54.00 feet to concrete monument a point of curvature.
3. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of South 67 degrees 37 minutes 06 seconds West 33.07 feet to a point on a curve marking the intersection of the southerly right-of-way line of Holland Court and the easterly right-of-way line of Rushford Place; thence along the right-of-way line of Rushford Place and crossing the terminus of Holland Court On the arc of circle curving to the left having a radius of 375.00 feet an arc length of 94.00 feet and a chord bearing of North 19 degrees 01 minutes 37 seconds East 93.75 feet to the first mentioned point and place of beginning.

CONTAINING: 0.448 ACRES



HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002

FRIENDSHIP LANE

Description of Friendship Lane (50 feet wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Friendship Lane on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Friendship Lane being more fully described as follows to wit.

Beginning at a concrete monument marking the intersection of the northerly right-of-way line of Clay Creek Road (60 feet wide) and the westerly right-of-way line of Friendship Lane (50 feet wide); thence along the westerly right-of-way line of Friendship Lane the five (5) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 30.00 feet an arc length of 45.66 feet and a chord bearing of North 41 degrees 53 minutes 28 seconds East 41.38 feet to a point of tangency.
2. North 01 degrees 42 minutes 50 seconds West 145.18 feet to a point of curvature.
3. On the arc of a circle curving to the right having a radius of 375.00 feet an arc length of 227.40 feet and a chord bearing of North 15 degrees 39 minutes 29 seconds East 223.93 feet to a point of tangency.
4. North 33 degrees 01 minutes 48 seconds East 172.85 feet to a point of curvature.
5. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of North 08 degrees 22 minutes 47 seconds West 33.07 feet to a point on curve marking the intersection of the westerly right-of-way line of Friendship Lane and the southerly right-of-way line of Angelica Drive (50 feet wide); thence along the southerly right-of-

way line of Angelica Drive and crossing the terminus of Friendship Lane On the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 94.00 feet and a chord bearing of South 56 degrees 58 minutes 13 seconds East 93.75 feet to a point of curvature marking the intersection of the southerly right-of-way line of Angelica Drive and the easterly right-of-way line of Friendship Lane; thence along the easterly right-of-way line of Friendship Lane the five (5) following courses and distances:

(1)



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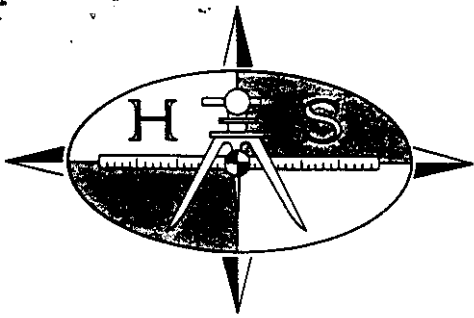
B-5616 P-1149

FRIENDSHIP LANE
(2)

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 36.14 feet and a chord bearing of South 74 degrees 26 minutes 23 seconds West 33.07 feet to a concrete monument a point of tangency.
2. South 33 degrees 01 minutes 48 seconds West 172.85 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 197.08 feet and a chord bearing of South 15 degrees 39 minutes 29 seconds West 194.07 feet to a concrete monument a point of tangency.
4. South 01 degrees 42 minutes 50 seconds East 143.85 feet to a concrete monument a point of curvature.
5. On the arc of a circle curving to the left having a radius of 30.00 feet an arc length of 47.12 feet and a chord bearing of South 46 degrees 42 minutes 50 seconds East 42.43 feet to a concrete monument a point of tangency marking the easterly right-of-way line of Frienship Lane and the northerly right-of-way line of Clay Creek Road; thence along the northerly right-of way line of Clay Creek Road the two (2) following courses and distances:
 1. South 88 degrees 17 minutes 10 seconds West 55.00 feet to a point of curvature.
 2. On the arc of a circle curving to the left having a radius of 1100.00 an arc length of 53.55 feet and a chord bearing of South 86 degrees 53 minutes 28 seconds West 53.56 feet to the first mentioned point and place of beginning.

CONTAINING: 0.680 ACRES





HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 7, 2002

GLEN IRIS COURT

Description of Glen Iris Court (50' wide) about to be dedicated to London Grove Township, situate in London Grove Township, Chester County, Pa., shown as Glen Iris Court on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said Glen Iris Court being more fully described as follows to wit.

Beginning at a point marking the westerly right-of-way line of Rushford Place (50 feet wide) and the southerly right-of-way line of Glen Iris Court (50 feet wide); thence along the southerly right-of-way line of Glen Iris Court the four (4) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 43.46 feet and a chord bearing of North 21 degrees 11 minutes 27 seconds West 38.19 feet to a concrete monument a point of tangency.
2. North 70 degrees 58 minutes 19 seconds West 154.90 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 21.03 feet and a chord bearing of South 84 degrees 55 minutes 59 seconds West 20.41 feet to a point of reverse curvature.
4. On the arc of a circle curving to the right having a radius of 50.00 feet an arc length of 241.19 feet and a chord bearing of North 19 degrees 01 minutes 41 seconds East 66.67 feet to a point of reverse curvature on the northerly right-of-way line of Glen Iris Court; thence along the

northerly right-of-way line of Glen Iris Court the three (3) following courses and distances:

1. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 21.03 feet and a chord bearing of South 46 degrees 52 minutes 38 seconds East 20.41 feet to a point of tangency.
2. South 70 degrees 58 minutes 19 seconds East 154.90 feet to a point of curvature.

(1)



PARKE BARNES SPANGLER & BORTNER

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GLEN IRIS
(2)

3. On the arc of a circle curving to the left having a radius of 25.00 feet an arc length of 43.46 feet and a chord bearing of North 59 degrees 13 minutes 51 seconds East 38.19 feet to a point on curve marking the northerly right-of-way line of Glen Iris Court and the westerly right-of-way line of Rushford Place; thence along the right-of-way line of Rushford Place and crossing the terminus of Glen Iris Court On the arc of a circle curving to the left having a radius of 325.00 feet an arc length of 108.84 feet and a chord of South 19 degrees 01 minutes 35 seconds West 108.34 feet to the first mentioned point and place of beginning.

CONTAINING: 0.410 ACRES



**LONDON GROVE TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

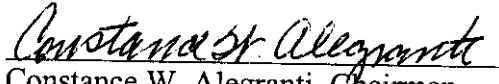
RESOLUTION NO. 329

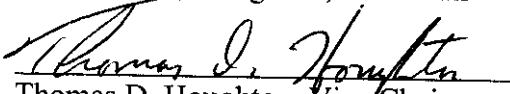
AND NOW THIS 16th day of December 2002, BE IT RESOLVED by the Board of Supervisors of London Grove Township (the "Township") to accept Clay Creek Road, Angelica Drive, Belmont Circle, Wellsville Lane, Wiscoy Place, Rushford Place, Letchworth Lane, Indian Run Road, Holland Court, Friendship Lane, and Glen Iris Court, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as Township roads to be hereinafter a part of the Township's public road system.

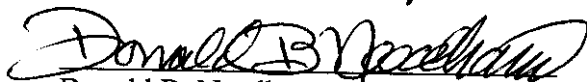
The property so dedicated is more fully described in the attached deed of dedication from Judd Associates to the Township, dated November 27, 2002, which the Township Solicitor is hereby authorized to record in the Office of the Recorder of Deeds in and for Chester County, Pennsylvania.

ADOPTED AND APPROVED this 16th day of December 2002.

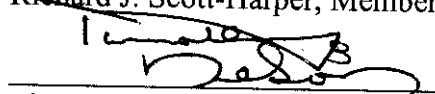
**BOARD OF SUPERVISORS
LONDON GROVE TOWNSHIP**


Constance W. Aleganti, Chairman

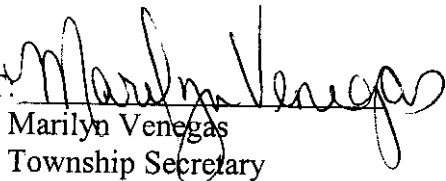

Thomas D. Houghton, Vice Chairman


Donald B. Needham, Member


Richard J. Scott-Harper, Member


Timothy B. Nelson, Member

ATTEST:


Marilyn Venegas
Township Secretary



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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF REVENUE
BUREAU OF INDIVIDUAL TAXES
DEPT. 280603
HARRISBURG, PA 17128-0603

REALTY TRANSFER TAX STATEMENT OF VALUE

See Reverse for Instructions

RECORDER'S USE ONLY

State Tax Paid	0
Book Number	5616
Page Number	1149
Date Recorded	3-20-03

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) when the deed is without consideration, or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on: (1) family relationship or (2) public utility easement. If more space is needed, attach additional sheet(s).

A CORRESPONDENT - All inquiries may be directed to the following person:

Name	John H. Spangler, Esquire	Telephone Number:	
Street Address	126 West Miner Street	Area Code (610)	696-2208
City	West Chester,	State	PA
		Zip Code	19382

B TRANSFER DATA

Grantor(s)/Lessor(s)	Judd Associates	Date of Acceptance of Document	
Street Address	1750 Walton Road	Grantee(s)/Lessee(s)	London Grove Township
City	Blue Bell,	Street Address	372 Rosehill Road, Suite 100
State	PA	City	West Gorge,
Zip Code	19422	State	PA
		Zip Code	19390

C PROPERTY LOCATION

Street Address		City, Township, Borough	London Grove Township
County	Chester	School District	Avon Grove
		Tax Parcel Number Being part of 359-8-191 (Retired), #59-8-192 (Retired), #59-9-12 (Retired)	

D VALUATION DATA

1. Actual Cash Consideration	0	2. Other Consideration	+	0	3. Total Consideration	=	0
4. County Assessed Value	NA-Roads	5. Common Level Ratio Factor	x	1.24	6. Fair Market Value	=	0

E EXEMPTION DATA

1a. Amount of Exemption Claimed	100%	1b. Percentage of Interest Conveyed	100%
---------------------------------	------	-------------------------------------	------

2. Check Appropriate Box Below for Exemption Claimed

- ☐ Will or intestate succession _____ (Name of Decedent) _____ (Estate File Number)
- ☐ Transfer to Industrial Development Agency.
- ☐ Transfer to a trust. (Attach complete copy of trust agreement identifying all beneficiaries.)
- ☐ Transfer between principal and agent. (Attach complete copy of agency/straw party agreement.)
- ☒ Transfers to the Commonwealth, the United States and Instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (If condemnation or in lieu of condemnation, attach copy of resolution.)
- ☐ Transfer from mortgagor to a holder of a mortgage in default. Mortgage Book Number _____, Page Number _____
- ☐ Corrective or confirmatory deed. (Attach complete copy of the prior deed being corrected or confirmed.)
- ☐ Statutory corporate consolidation, merger or division. (Attach copy of articles.)
- ☐ Other (Please explain exemption claimed, if other than listed above.) _____

Under penalties of law, I declare that I have examined this Statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party

Date

3-20-03

FAILURE TO COMPLETE THIS FORM PROPERLY
TO RECORD THE DEED.



PARKE BARNES SPANGLER & BORTNER 03/20/2003 11:54A

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RECORDER'S REFUSAL

11/26/02
3:44 PM

RETURN TO

Spangler Law Offices
126 W. Market St.
West Chester Pa.

DEED OF DEDICATION OF EASEMENTS

THIS DEED OF DEDICATION OF EASEMENTS, made this 27th day of November, 2002, between JUDD ASSOCIATES, a Pennsylvania limited partnership, hereinafter referred to as the GRANTOR;

AND

LONDON GROVE TOWNSHIP, County of Chester, Commonwealth of Pennsylvania, hereinafter referred to as the GRANTEE.

WITNESSETH:

THAT the said Grantor, for and in consideration of the sum of \$1.00 (One dollar), as well as the advantages accruing to it and for divers other considerations affecting the public welfare, which it seeks to advance, has granted, bargained, sold, aliened, enfeoffed, released and confirmed and by these presents does grant, bargain, sell, alien, enfeoff, release and confirm unto the said Grantee, its successors and assigns:

Grantor's right, title, interest, right-of-way and easement on and over certain lands situate in London Grove Township, Chester County, Pennsylvania, as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as more fully described in the metes and bounds descriptions attached hereto as Exhibits "A-1", "A-2", "A-3", "A-4", "A-5" and "A-6", for the collection, transportation, distribution, discharge and drainage of stormwater.

UNDER AND SUBJECT, nevertheless, to any and all matters of record and conditions visible upon the ground.

TO HAVE AND TO HOLD the said easements above described to the said Grantee, its successors and assigns, to and for the only proper use and behoof of the said Grantee, its successors and assigns, forever.

AND the said Grantor, for itself, its successors and assigns, does by these presents further covenant, promise, and agree to and with the said Grantee, its successors and assigns, against them, the said Grantor, its successors and assigns, and against all and every person or persons whomsoever lawfully claiming or to claim the same or any part thereof, by, from or under them or any of them, shall and will warrant and forever defend.

BEING part of #59-8-191 (Retired), #59-8-192 (Retired), #59-9-12 (Retired).

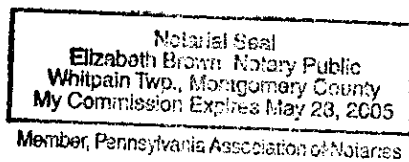
IN WITNESS WHEREOF, the said JUDD ASSOCIATES has executed this Deed of Dedication of Easements, the date and year first above written.

WITNESS:

GRANTOR:

JUDD ASSOCIATES
a Pennsylvania limited partnership

Elizabeth Brown



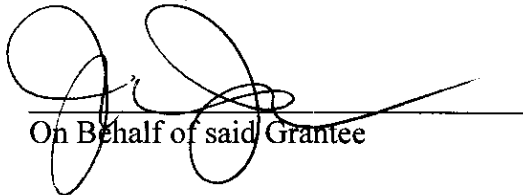
By: Donna DePaul Bartynski
Print Name: Donna DePaul Bartynski
Title: Managing General Partner



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B-5620 P-873

I hereby certify that the address
of the within named Grantee is:

London Grove Township
372 Rose Hill Road
West Grove, PA 19390

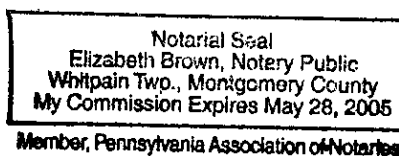

On Behalf of said Grantee

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF *MONTGOMERY* :

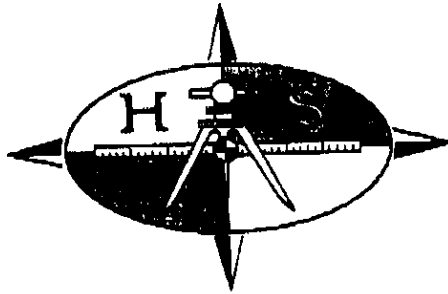
On this 27th day of November, 2002, before me, the undersigned officer,
personally appeared DAVID PAUL DARYNSKI, who acknowledged himself/herself to be
the Managing General Partner of JUDD ASSOCIATES and, being authorized to do so,
acknowledged that he/she executed the foregoing instrument on behalf of the company for the
purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


Notary Public




SPANGLER LAW OFFICES
03/24/2003 02:44P
10208363
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**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS**

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 14, 2002
(REV: 12-04-02)
Lot Nos. 7 and 8
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lots 7 and Lot 8 and 20 feet east of the common property line of Lot 8 and the open space A), situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point on the westerly right-of-way line of Angelica Drive (50 feet wide) a common corner of Lot 7 and Lot 8 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 7 and Lot 8 North 57 degrees 46 minutes 36 seconds East 245.78 feet to a point on the common property of Lot 7 and Lot 8 and the open space; thence along the property line common to Lot 8 and the open space North 26 degrees 55 minutes 56 seconds East 175.09 feet to a common corner of Lot 8 and the open space and the terminus of the said storm water easement.



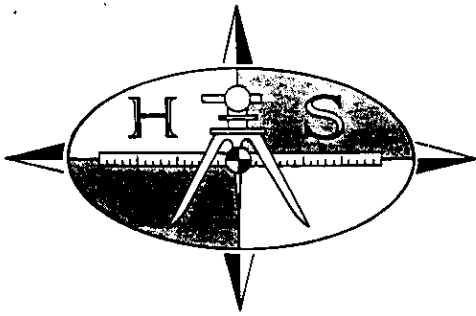
SPANGLER LAW OFFICES

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HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 14, 2002
Lot Nos. 14 and 15
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lots 14 and 15) situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point on the westerly right-of-way line of Angelica Drive (50 feet wide) a common corner of Lot 14 and Lot 15 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 14 and Lot 15 South 05 degrees 27 minutes 04 seconds East 269.91 feet to a point marking the rear corner common to Lot 14 and Lot 15 and the terminus of the said storm water easement.



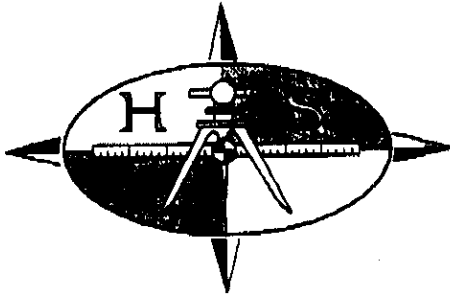
SPANGLER LAW OFFICES

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B-5620 P-873

**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-833-1754****FAX 610-833-0268**

December 6, 2002
Lot Nos. 57, 58 & 77
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lot 57 and Lot 58 and the common property line of Lot 58 and Lot 77 and 20 feet north of the common property line of Lot 76 and Lot 77), situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

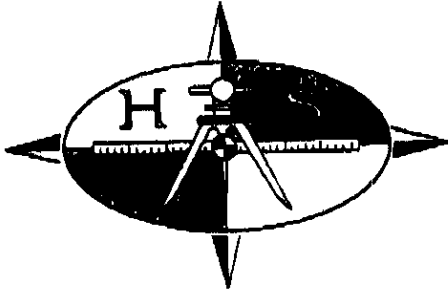
Beginning at a point on the northerly right-of-way line of Letchworth Lane (50 feet wide) a common corner of Lot 57 and Lot 58 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 57 and Lot 58 North 64 degrees 13 minutes 49 seconds East 217.36 feet to a point on the common property of Lot 57 and Lot 58 in line of Lot 77; thence along the common property line of Lot 58 and Lot 77 South 46 degrees 45 minutes 30 seconds East 125.54 feet to a point a common corner of Lot 58, Lot 76 and Lot 77; thence along the common property line of Lot 76 and Lot 77 North 55 degrees 15 minutes 56 seconds East 185.67 feet to a point on the westerly right-of-way line of Rushford Place (50 feet wide) a common corner of Lot 76 and Lot 77 and the terminus of the said storm water easement.



SPANGLER LAW OFFICES

03/24/2003 02:44P

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**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-833-1754****FAX 610-833-0268**

November 8, 2002

(REV: 12-04-02)

Lot 79

Water Line Easement

(20 feet wide)

Description of a waterline easement (20 feet wide) through Lot 79 situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point on the westerly right-of-way line of Rushford Place (50 feet wide) a common corner of Lot 79 and Lot 80 on the above mentioned plan; thence said right-of-way line on the arc of a circle curving to the left having a radius of 50.00 feet and an arc length of 20.58 to a point; thence leaving said right-of-way line and through Lot 79 North 31 degrees 08 minutes 18 seconds West 175.22 feet to the southerly right-of-way line of Indian Run Road; thence along said right-of-way line North 67 degrees 05 minutes 14 seconds East 20.21 feet to a point a common corner of Lot 79 and Lot 80 on the above mentioned plan; thence along the common property line of Lot 79 and Lot 80 South 31 degrees 08 minutes 18 seconds East 168.15 feet to the first mentioned point and place of beginning.

CONTAINING: 3419.25 S.F.



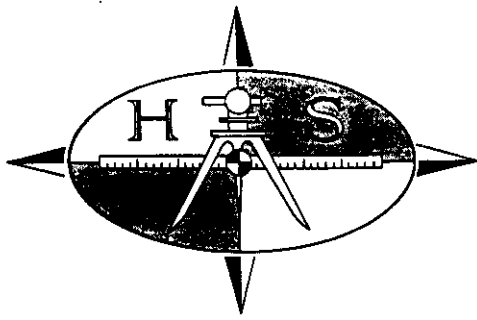
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HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 21, 2002

Lot Nos. 83 to 87

Storm Water Easement

(50 and 60 feet wide)

Description of a storm water easement (50 to 60 feet wide) through Lots # 83 to Lot # 87 situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point a marking the northeast corner of Lot 83, in line of lands of William P. Webb; the along the common property line of Lot 83 to Lot 87 and lands of Webb South 27 degrees 26 minutes 11 seconds East 849.52 feet to a point in line of a portion of the Open Space the southeast corner of Lot 87; thence along the common property line of the open space and Lot 87 South 55 degrees 36 minutes 08 seconds West 50.37 feet to a point; thence through lot 87 to 83 The three (3) following courses and distances:

1. North 27 degrees 26 minutes 11 seconds West 95.00 feet to a point.

2. North 29 degrees 30 minutes 50 seconds West 275.81 feet to a point.

3. North 27 degrees 26 minutes 11 seconds West 485.00 feet to a point in line of Lot 83; thence along Lot 83 North 62 degrees 33 minutes 49 seconds East 60.00 feet to the first mentioned point and place of beginning.



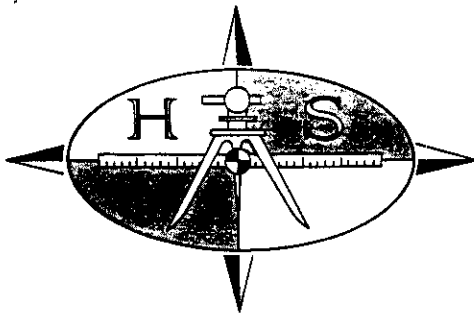
SPANGLER LAW OFFICES

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HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 14, 2002
Lot Nos. 103 and 104
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lots 103, 104 & open space) situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point on the northerly right-of-way line of Belmont Circle (50 feet wide) a common corner of Lot 103 and Lot 104 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 103 and Lot 104 North 42 degrees 45 minutes 33 seconds East 242.46 feet to a point on the common property of Lot 103 and Lot 104 and the open space; thence along the property line common to Lot 104 and the open space North 03 degrees 48 minutes 58 seconds East 104.57 feet to a common corner of Lot 104 and the open space and the terminus of the said storm water easement.



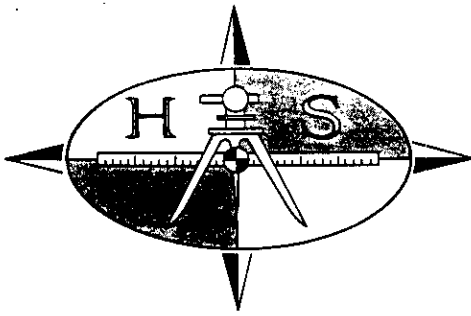
SPANGLER LAW OFFICES

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HOPKINS & SCOTT, INC.

REGISTERED SURVEYORS

P.O. BOX 244

KIMBERTON, PA 19442

PHONE 610-933-1754

FAX 610-933-0268

November 14, 2002
Lot Nos. 108 and 109
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lots 108 and 109) situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a concrete monument on the northerly right-of-way line of Belmont Circle (50 feet wide) a common corner of Lot 108 and Lot 109 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 108 and Lot 109 South 48 degrees 38 minutes 03 seconds East 170.00 feet to a point on the common property line of Lot 108 and Lot 109 and the terminus of the said storm water easement.



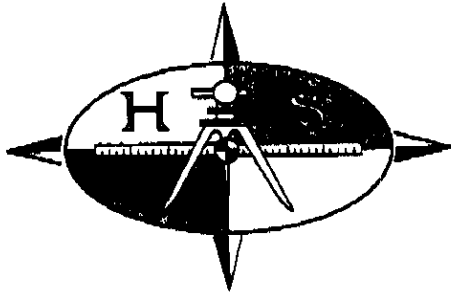
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**HOPKINS & SCOTT, INC.****REGISTERED SURVEYORS****P.O. BOX 244****KIMBERTON, PA 19442****PHONE 610-933-1754****FAX 610-933-0268**

November 14, 2002
(REV: 12-04-02)
Lot Nos. 115 and 116
Storm Water Easement
(20 feet wide)

Description of centerline of a storm water easement (20 feet wide) (10 feet either side of the common property line of Lots 115 and 116) situate in London Grove Township, Chester County, Pa., as shown on a Plan of Subdivision of The Hills of Sullivan dated 02-08-93 last revised 03-01-94, prepared by Edward B. Walsh & Associates, Inc., said easement being more fully described as follows to wit.

Beginning at a point on the easterly right-of-way line of Angelica Drive (50 feet wide) a common corner of Lot 115 and Lot 116 on the above mentioned plan; thence leaving said right-of-way line and along the common property line of Lot 115 and Lot 116 South 24 degrees 55 minutes 30 seconds East 263.77 feet to a point the rear corner common to Lot 115 and Lot 116 and the terminus of the said storm water easement.



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**LONDON GROVE TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

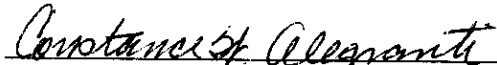
RESOLUTION NO. 328


AND NOW THIS 16th day of December 2002, BE IT RESOLVED by the Board of Supervisors of London Grove Township (the "Township"), to accept dedication of the stormwater drainage easements within the Hills of Sullivan community as shown on that certain Plan of Subdivision for the Hills of Sullivan, made by Edward B. Walsh & Associates, Inc., dated February 8, 1993 (last revised 3/1/94) and recorded as Plan No. 13027, as Township property.

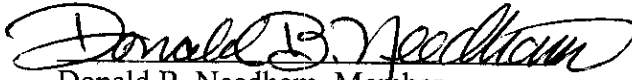
The property so dedicated is more fully described in the attached deed of dedication from Judd Associates to the Township, dated November 27, 2002, which the Township Solicitor is hereby authorized to record in the Office of Recorder of Deeds in and for Chester County, Pennsylvania.

ADOPTED AND APPROVED this 16th day of December 2002.


**BOARD OF SUPERVISORS
LONDON GROVE TOWNSHIP**

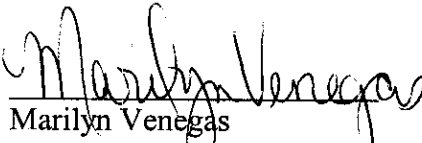

Constance W. Aleganti, Chairman


Thomas D. Houghton, Vice Chairman


Donald B. Needham, Member


Richard J. Scott-Harper, Member


Timothy B. Nelson, Member

ATTEST: 
Marilyn Venegas
Township Secretary



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF REVENUE
BUREAU OF INDIVIDUAL TAXES
DEPT. 280603
HARRISBURG, PA 17128-0603

REALTY TRANSFER TAX STATEMENT OF VALUE

See Reverse for Instructions

RECORDER'S USE ONLY

State Tax Paid

Book Number

Page Number

Date Recorded

5620

873

3-24-03

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) when the deed is without consideration, or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on: (1) family relationship or (2) public utility easement. If more space is needed, attach additional sheet(s).

A CORRESPONDENT - All inquiries may be directed to the following person:

Name: John H. Spangler, Esquire Telephone Number: _____
Area Code (610) 696-2208
Street Address: 126 West Miner Street City: West Chester, State: PA Zip Code: 19382

B TRANSFER DATA

Date of Acceptance of Document: 11-27-02
Grantor(s)/Lessor(s): Judd Associates Grantee(s)/Lessee(s): London Grove Township
Street Address: 1750 Walton Road Street Address: 372 Rosehill Road, Suite 100
City: Blue Bell, State: PA Zip Code: 19422 City: West Grove, State: PA Zip Code: 19390

C PROPERTY LOCATION

Street Address: _____ City, Township, Borough: London Grove Township
County: Chester School District: Avon Grove Tax Parcel Number: Being part of #59-8-191 (Retired), #59-8-192 (Retired), #59-9-12 (Retired)

D VALUATION DATA

1. Actual Cash Consideration: 0 2. Other Consideration: 0 3. Total Consideration: 0
4. County Assessed Value: NA - Easements 5. Common Level Ratio Factor: 1.24 6. Fair Market Value: 0

E EXEMPTION DATA

1a. Amount of Exemption Claimed: 100% 1b. Percentage of Interest Conveyed: Easements Only

2. Check Appropriate Box Below for Exemption Claimed

- ☐ Will or intestate succession _____ (Name of Decedent) _____ (Estate File Number)
- ☐ Transfer to Industrial Development Agency.
- ☐ Transfer to a trust. (Attach complete copy of trust agreement identifying all beneficiaries.)
- ☐ Transfer between principal and agent. (Attach complete copy of agency/straw party agreement.)
- ☒ Transfers to the Commonwealth, the United States and Instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (If condemnation or in lieu of condemnation, attach copy of resolution.)
- ☐ Transfer from mortgagor to a holder of a mortgage in default. Mortgage Book Number _____, Page Number _____
- ☐ Corrective or confirmatory deed. (Attach complete copy of the prior deed being corrected or confirmed.)
- ☐ Statutory corporate consolidation, merger or division. (Attach copy of articles.)
- ☐ Other (Please explain exemption claimed, if other than listed above)



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SPANGLER LAW OFFICES

03/24/2003 02:44P

Under penalties of law, I declare that I have examined this Statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party

Date

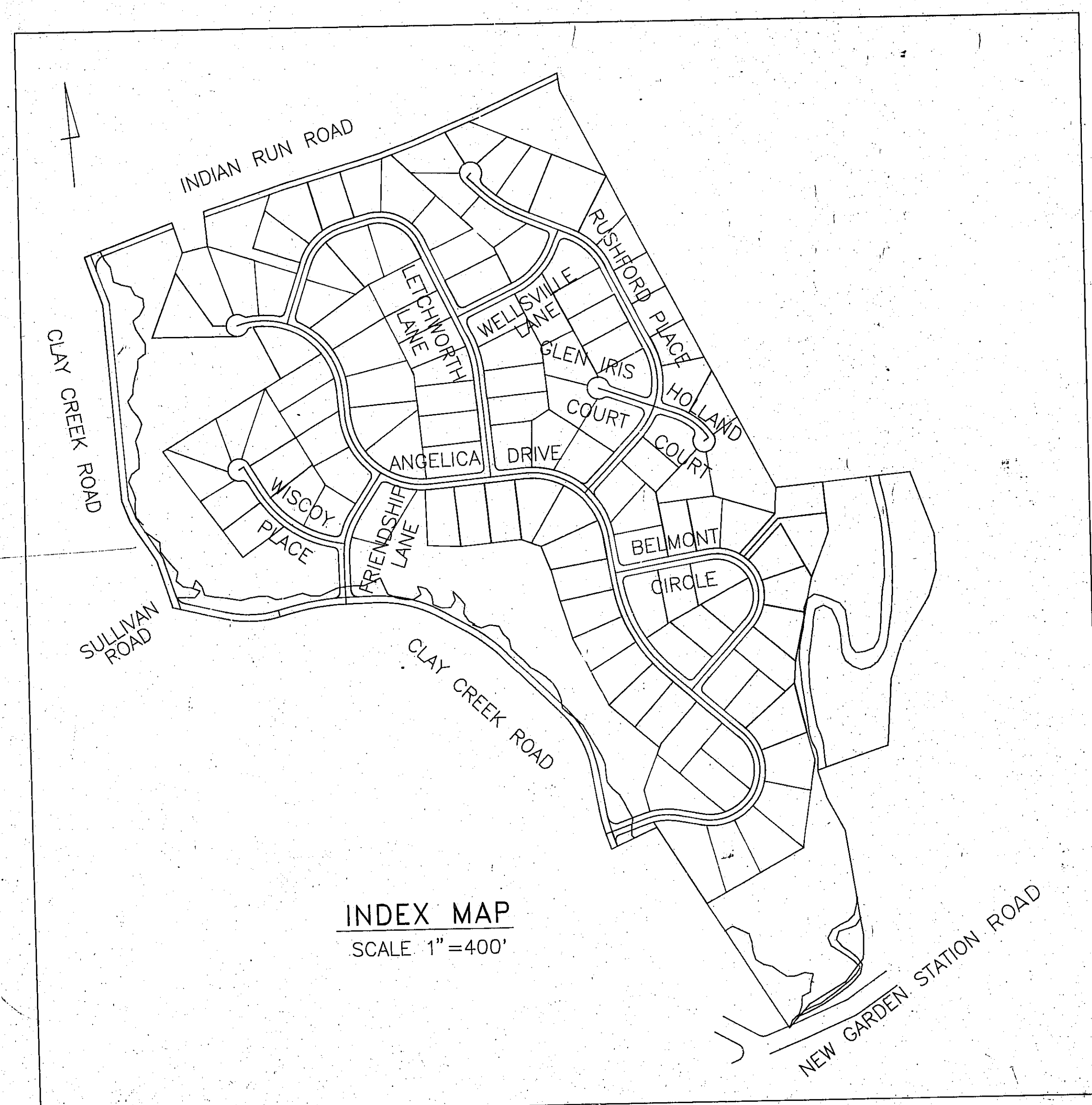
3/24/03

FAILURE TO COMPLETE THIS FORM PROPERLY OR ATTACH APPLICABLE DOCUMENTATION MAY RESULT IN THE RECORDER'S REFUSAL TO RECORD THE DEED.

PLAN OF SUBDIVISION
OF
THE HILLS OF SULLIVAN

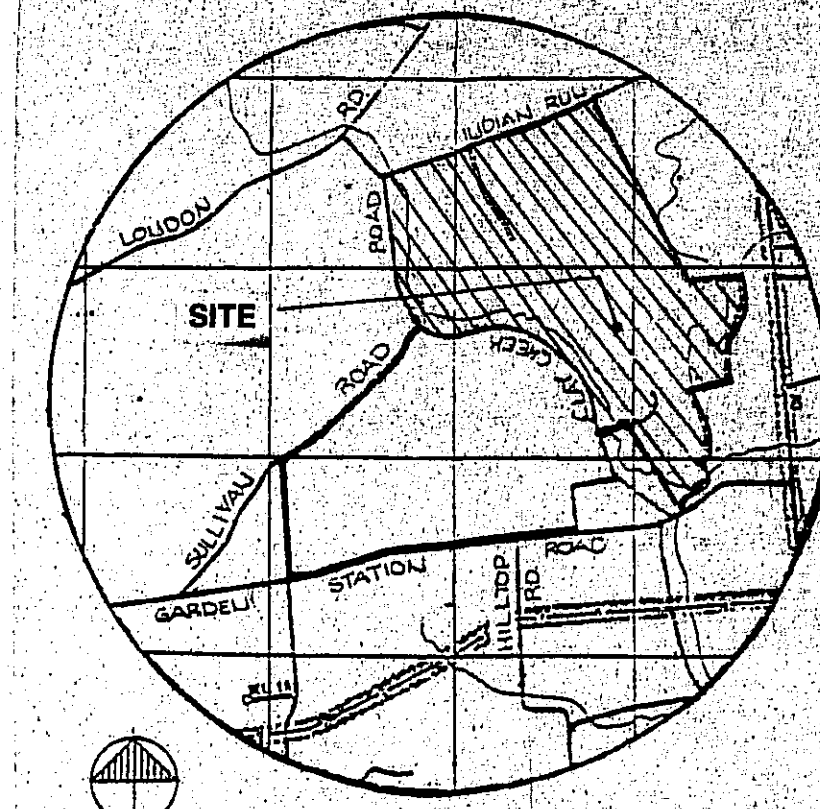
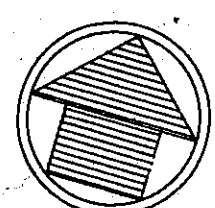
LONDON GROVE TOWNSHIP

CHESTER COUNTY, PA.



PREPARED FOR:
THE WILKINSON GROUP
C/O HANKIN BUILDERS
EAGLEVIEW CORPORATE CENTER
717 CONSTITUTION DRIVE
P.O. BOX G
EXTON, PA. 19341
(215) 458-1900

PREPARED BY:
E.B. WALSH AND ASSOCIATES
750 SPRINGDALE DRIVE
EXTON, PA. 19341
(215) 363-1360



LOCATION MAP
SCALE 1"=200'

LIST OF PLANS	SHEET NO.
Cover Sheet	1 of 31
Title Plans	2-3 of 31
Grading and Utilities Plans	4-7 of 31
Erosion and Sedimentation Control Plans	8-11 of 31
Plan of Profile for: Angelica Drive Belmont Circle Rushford Place Leachworth Lane Friendship Lane, Wilcox Place Wellsville Lane, Glen Iris Court, Holland Court	12-14 of 31 15 of 31 16-17 of 31 18-19 of 31 20 of 31 21 of 31
Storm Sewer Profiles	22 of 31
State Roadway Improvements and Concrete Box Culvert Construction	23 of 31
Details	24 of 31
Details and Construction Sequences	25 of 31
Box Culvert Details	26 of 31
RIPARIAN BUFFER ZONE	28-31 OF 31

GENERAL NOTES

- TOTAL TRACT AREA 178.1568 ACRES
- TOTAL NUMBER OF PROPOSED LOTS 117 LOTS
- TOTAL OPEN SPACE 56.793 ACRES
- ALL LOTS SHALL BE SERVED BY PUBLIC WATER AND ON-LOT SEPTIC SYSTEMS. ALL ON-LOT SEPTIC SYSTEMS SHALL BE SUBJECT TO APPROVAL OF THE CHESTER COUNTY HEALTH DEPARTMENT.
- BOUNDARY LINE INFORMATION FOR LAWRENCE FARM FROM BOUNDARY SURVEY MADE BY CROSSAN RAMOTO, INC. PROFESSIONAL LAND SURVEYOR, BOUNDARY LINE INFORMATION FOR SULLIVAN FARM FROM BOUNDARY DATA ROTATED TO MATCH LAWRENCE FARM DATA BY CROSSAN RAMOTO, INC.
- TOPOGRAPHY WAS PHOTOGRAMMETRICALLY COMPILED FROM AERIAL PHOTOGRAPHY BY AERIAL DATA REDUCTION ASSOCIATES, INC. PENNSAUKEN, NEW JERSEY AND CONTROLLED BY GROUND SURVEY. BENCHMARK ELEVATION 304.00 P.K. NAIL LOCATED IN INTERSECTION OF CLAY CREEK ROAD AND AVONDALE NEW LONDON ROAD. DATUM U.S.G.S.
- WETLANDS SHOWN ON THE LAWRENCE FARM WERE DELINEATED BY PENNON ASSOCIATES, INC. JUNE 24, 1989 AND FIELD SURVEYED BY CROSSAN RAMOTO, INC. WETLANDS SHOWN ON THE SULLIVAN FARM WERE DELINEATED BY R.E. COLEMAN ASSOCIATES NOVEMBER 16, 1988 AND FIELD SURVEYED BY BURSICH ASSOCIATES, INC.
- THE PROPOSED NEW RIGHT-OF-WAY, STREETS AND RELATED IMPROVEMENTS ARE OFFERED FOR DEDICATION TO LONDON GROVE TOWNSHIP FOR PUBLIC USE.
- ALL UTILITY SERVICES SHALL BE UNDERGROUND.
- THE DEVELOPER SHALL INSTALL ALL REQUIRED STREET AND REGULATORY SIGNS.
- PERMANENT CONCRETE MONUMENTS SHALL BE PLACED AT ALL PROPERTY CORNERS, ANGLE POINT P.C.'S AND P.T.'S OF CURVES AS INDICATED ON THE PLAN BY THE SYMBOL ALL LOT CORNERS SHALL BE PERMANENTLY MARKED WITH IRON PINS OF AT LEAST 5/8" DIAMETER. MONUMENTS WILL BE PLACED UPON COMPLETION OF FINAL GRADING.
- ALL PRIVATE DRIVEWAYS SHALL BE 10 FEET WIDE AND CONSTRUCTED IN ACCORDANCE WITH THE SUBDIVISION ORDINANCE.
- ALL LANDSCAPED BERMS, OR SYSTEM OF BERMS, WHICH ARE CREATED FOR INDIVIDUAL LOTS AT THE LOCATIONS SHOWN SHALL AT A MINIMUM SPAN THE ENTIRE LENGTH OF THE DESIGNATED PLANTED AREA, AND HAVE A MINIMUM BERM HEIGHT OF 18".

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF CHESTER

On the 3rd day of May, 1995, before me, the undersigned, a Notary Public of the Commonwealth of Pennsylvania, residing in Exton, Pa., personally appeared Edward B. Walsh, who acknowledged himself to be a General Partner of The Wilkinson Group, and that as such to do so, he executed the foregoing plan by signing his name as follows:

Edward B. Walsh

My Commission Expires: March 3, 1998
Notary Public

REVIEWED by the Planning Commission of London Grove Township, Chester County, Pa., this 18 day of May, 1995.

APPROVED by the Board of Supervisors of London Grove Township, Chester County, Pa., this 18 day of May, 1995.

REVIEWED by the Chester County Planning Commission this 22nd day of May, 1995.

APPROVED by the London Grove Township Engineer

Date May 18, 1995
Recorded in the Office of the Recorder of Deeds of Chester County at West Chester, Pennsylvania in Plan Book 222 Page 18 on the 18 day of May, 1995.

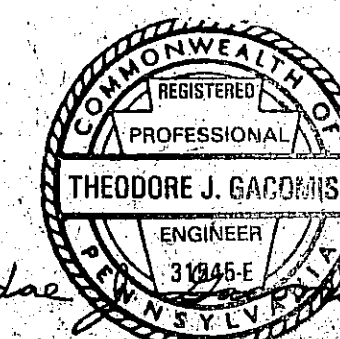
(Deputy) Recorder of Deeds



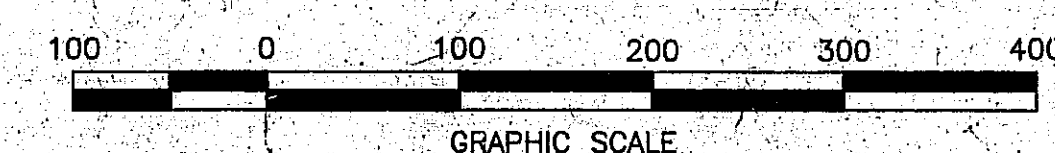
9	1-24-94 REV. PER C.C.D. REVIEW LETTER DATED 2-22-94 AND RELOCATE LOT LINES FOR LOTS 107-109, 112, 113.
8	2-11-94 REVISED PER C.C.D. LETTER DATED 2-24-94.
7	1-24-94 REV. INDIVIDUAL LOTS TO PROVIDE OPEN SPACE FOR TRAIL SYSTEM.
6	1-24-94 REV. PER COMMENTS DISCUSSED IN PHONE CONVERSATION WITH TWP. ENGR. ON 12-24-94.
5	1-2-94 REV. PER COMMENTS DISCUSSED AT BOARD OF SUPERVISORS MEETING ON 12-9-94 AND PER C.C.D. REVIEW LETTER DATED 12-14-94.
4	11-12-93 REVISED PER THE FOLLOWING AGENCY REVIEW LETTERS: CWA DATED 10-25-93, C.C.D. DATED 10-15-93, AND TWP. ENGR. DATED 11-1-93.
3	9-30-93 REVISED PER TWP. ENGR. REVIEW LETTER DATED 9-20-93.
2	9-13-93 NOT THIS SHEET.
1	9-18-93 REV. 7-1-93 PER MEETING WITH TWP. ENGR. 6-18-93.

PLAN OF SUBDIVISION
OF
THE HILLS OF SULLIVAN
FOR
THE WILKINSON GROUP
LONDON GROVE TOWNSHIP, CHESTER COUNTY, PA.
Edward B. Walsh & Associates, Inc.
CIVIL ENGINEERS
750 Springdale Drive
Exton, Pennsylvania 19341
(215) 368-1360

Project - 1315
Date - 12-8-93
Scale - 1"=100'
Drawn - L.R.
Checked - T.G.
Sheet - 2 OF 31



FINAL TITLE PLAN



OWNER AND DEVELOPER

THE WILKINSON GROUP
C/O HANKIN BUILDERS
EAGLEVIEW CORPORATE CENTER
717 CONSTITUTION DRIVE
EXTON, PA 19341
215-458-1900

OPEN SPACE 'A'
12.6621 ACRES

R-2 ZONING DISTRICT

13' OPEN SPACE AREA
N/L WILLIAM P. WEBB
D.B. 946-55

N84°25'00"E 460.98'
N84°45'55"E 144.70'

OPEN SPACE 'D'
22.74 ACRES

R-2 ZONING DISTRICT

R-2 ZONING DISTRICT

OPEN SPACE 'D'
22.74 ACRES

R-2 ZONING DISTRICT

R-2 ZONING DISTRICT

N/L ALBERT M. PATRICK W.
STANZISKI
D.B. 990-507

N/L HENRY M. & PHILLIS C. ROBERTS
D.B. L59-417

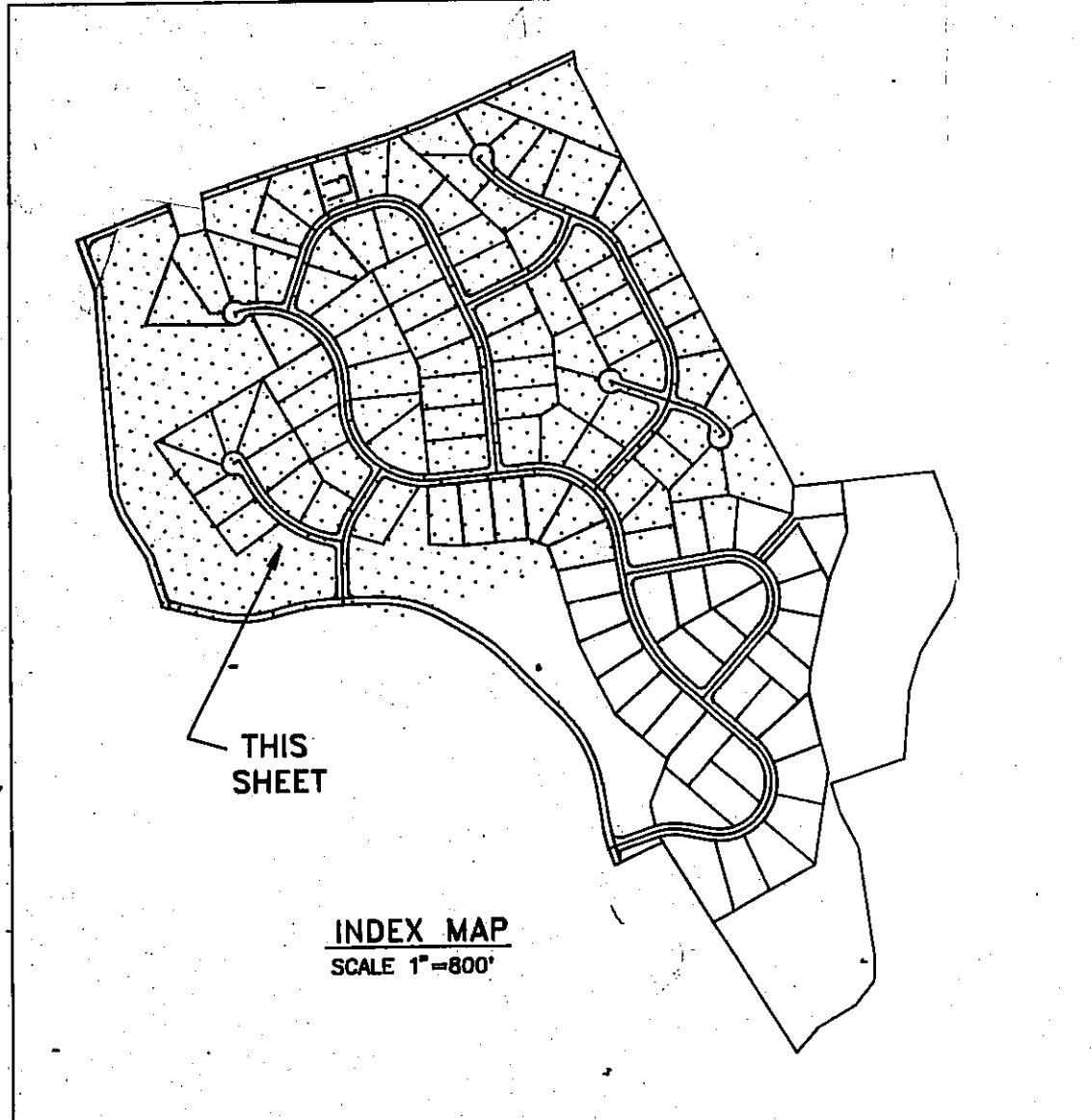
N/L THOMAS R. NEEL
D.B. K21-183

N/L RICHARD P. & WILLA L. STANZISKI
D.B. 133-298

CURVE	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
C1	300.00	29°54'58"	159.59'	80.12'	154.88'	N85°40'41"E
C2	300.00	140°15'05"	199.18'	618.83'	435.01'	N05°59'00"W
C3	700.00	38°48'04"	474.05'	248.53'	465.04'	N26°14'01"W
C4	300.00	38°10'51"	202.28'	115.28'	219.41'	N08°18'14"W
C12	180.00	141°11'56"	468.23'	639.53'	338.42'	N26°14'01"W

LOT LINE CURVE TABLE						
CURVE	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
L1	40.00	68°47'14"	67.67'	35.04'	59.86'	N80°10'25"W
L2	325.00	05°13'26"	28.64'	14.43'	28.63'	S73°20'43"E
L3	385.00	24°40'36"	140.05'	73.11'	138.85'	S68°17'35"E
L4	200.00	29°15'55"	106.16'	52.25'	101.05'	S65°09'29"E
L5	200.00	44°38'39"	156.95'	81.78'	151.38'	S49°07'17"E
L6	300.00	75°31'21"	263.65'	164.92'	244.85'	S10°28'28"E
L7	725.00	08°38'26"	41.85'	40.27'	81.80'	S49°07'17"E
L8	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L9	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L10	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L11	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L12	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L13	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L14	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L15	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L16	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L17	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L18	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L19	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L20	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L21	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L22	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L23	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L24	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L25	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L26	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L27	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L28	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L29	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L30	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L31	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L32	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L33	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L34	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L35	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L36	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L37	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L38	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L39	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L40	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L41	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L42	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L43	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L44	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L45	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L46	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L47	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L48	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L49	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L50	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L51	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L52	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L53	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L54	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L55	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L56	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L57	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L58	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L59	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L60	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L61	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L62	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L63	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L64	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L65	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L66	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L67	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L68	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L69	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L70	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L71	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L72	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L73	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L74	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L75	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L76	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L77	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L78	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L79	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L80	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L81	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L82	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L83	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L84	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L85	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L86	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L87	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L88	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L89	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L90	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L91	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L92	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L93	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L94	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L95	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L96	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L97	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E
L98	725.00	08°38'26"	156.81'	83.08'	156.65'	S37°11'40"E
L99	725.00	19°20'28"	135.95'	65.65'	132.67'	S37°10'12"E
L100	725.00	10°20'39"	130.89'	65.65'	130.78'	S10°41'59"E

R-2 ZONING DISTRICT

N/L OLD OAK DEVELOPMENT CORP.
D.B. 1477-402N/L LEWIS C. & CECELIA L. ROSS
D.B. 083-520

LOT LINE CURVE TABLE

CURVE	RADIUS	CHORD	CHORD BEARING
1	300.00	300.00	0°00'00"
2	300.00	300.00	0°00'00"
3	300.00	300.00	0°00'00"
4	300.00	300.00	0°00'00"
5	300.00	300.00	0°00'00"
6	300.00	300.00	0°00'00"
7	300.00	300.00	0°00'00"
8	300.00	300.00	0°00'00"
9	300.00	300.00	0°00'00"
10	300.00	300.00	0°00'00"
11	300.00	300.00	0°00'00"
12	300.00	300.00	0°00'00"
13	300.00	300.00	0°00'00"
14	300.00	300.00	0°00'00"
15	300.00	300.00	0°00'00"
16	300.00	300.00	0°00'00"
17	300.00	300.00	0°00'00"
18	300.00	300.00	0°00'00"
19	300.00	300.00	0°00'00"
20	300.00	300.00	0°00'00"
21	300.00	300.00	0°00'00"
22	300.00	300.00	0°00'00"
23	300.00	300.00	0°00'00"
24	300.00	300.00	0°00'00"
25	300.00	300.00	0°00'00"
26	300.00	300.00	0°00'00"
27	300.00	300.00	0°00'00"
28	300.00	300.00	0°00'00"
29	300.00	300.00	0°00'00"
30	300.00	300.00	0°00'00"
31	300.00	300.00	0°00'00"
32	300.00	300.00	0°00'00"
33	300.00	300.00	0°00'00"
34	300.00	300.00	0°00'00"
35	300.00	300.00	0°00'00"
36	300.00	300.00	0°00'00"
37	300.00	300.00	0°00'00"
38	300.00	300.00	0°00'00"
39	300.00	300.00	0°00'00"
40	300.00	300.00	0°00'00"
41	300.00	300.00	0°00'00"
42	300.00	300.00	0°00'00"
43	300.00	300.00	0°00'00"
44	300.00	300.00	0°00'00"
45	300.00	300.00	0°00'00"
46	300.00	300.00	0°00'00"
47	300.00	300.00	0°00'00"
48	300.00	300.00	0°00'00"
49	300.00	300.00	0°00'00"
50	300.00	300.00	0°00'00"
51	300.00	300.00	0°00'00"
52	300.00	300.00	0°00'00"
53	300.00	300.00	0°00'00"
54	300.00	300.00	0°00'00"
55	300.00	300.00	0°00'00"
56	300.00	300.00	0°00'00"
57	300.00	300.00	0°00'00"
58	300.00	300.00	0°00'00"
59	300.00	300.00	0°00'00"
60	300.00	300.00	0°00'00"
61	300.00	300.00	0°00'00"
62	300.00	300.00	0°00'00"
63	300.00	300.00	0°00'00"
64	300.00	300.00	0°00'00"
65	300.00	300.00	0°00'00"
66	300.00	300.00	0°00'00"
67	300.00	300.00	0°00'00"
68	300.00	300.00	0°00'00"
69	300.00	300.00	0°00'00"
70	300.00	300.00	0°00'00"
71	300.00	300.00	0°00'00"
72	300.00	300.00	0°00'00"
73	300.00	300.00	0°00'00"
74	300.00	300.00	0°00'00"
75	300.00	300.00	0°00'00"
76	300.00	300.00	0°00'00"
77	300.00	300.00	0°00'00"
78	300.00	300.00	0°00'00"
79	300.00	300.00	0°00'00"
80	300.00	300.00	0°00'00"
81	300.00	300.00	0°00'00"
82	300.00	300.00	0°00'00"
83	300.00	300.00	0°00'00"
84	300.00	300.00	0°00'00"
85	300.00	300.00	0°00'00"
86	300.00	300.00	0°00'00"
87	300.00	300.00	0°00'00"
88	300.00	300.00	0°00'00"
89	300.00	300.00	0°00'00"
90	300.00	300.00	0°00'00"
91	300.00	300.00	0°00'00"
92	300.00	300.00	0°00'00"
93	300.00	300.00	0°00'00"
94	300.00	300.00	0°00'00"
95	300.00	300.00	0°00'00"
96	300.00	300.00	0°00'00"
97	300.00	300.00	0°00'00"
98	300.00	300.00	0°00'00"
99	300.00	300.00	0°00'00"
100	300.00	300.00	0°00'00"
101	300.00	300.00	0°00'00"
102	300.00	300.00	0°00'00"
103	300.00	300.00	0°00'00"
104	300.00	300.00	0°00'00"

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF CHESTER

On the 21st day of March, 1993, before me, the undersigned, a Notary Public of the Commonwealth of Pennsylvania, personally appeared Edward B. Walsh, who acknowledged himself to be a General Partner of The Wilkinson Group, a partnership, and that as such to do so, he executed the foregoing plan by signing his name as follows:

Edward B. Walsh

and that The Wilkinson Group is the owner of the designated land, that all necessary approval of the plan has been obtained and is endorsed thereon and the said partnership desires that the foregoing plan be duly recorded.

My Commission Expires: March 2, 1998

Notary Public
KATHLEEN A. WILSON, Esq.
My Commission Expires April 1, 1998

REVIEWED by the Planning Commission of London Grove Township, Chester County, Pa., this day of March, 1993

APPROVED by the Board of Supervisors of London Grove Township, Chester County, Pa., this day of March, 1993

REVIEWED by the Chester County Planning Commission this day of March, 1993

APPROVED by the London Grove Township Engineer

Date
Recorded in the Office of the Recorder of Deeds of Chester County at West Chester, Pennsylvania in Plan Book 13027 Page 3 of 3
day of March, 1993
(Deputy) Recorder of Deeds

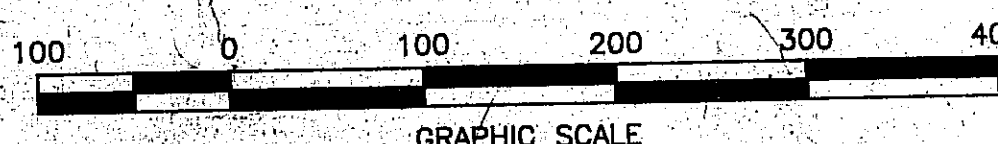
ZONING REQUIREMENTS PER COURT APPROVED AGREEMENT

MIN. LOT AREA 30,000 SQ. FT.
MIN. LOT WIDTH 125 FT. AT BLDG LINE
MIN. FRONT YARD 40 FT.
MIN. SIDE YARD 15 FT, 30 FT. AGGR.
MIN. REAR YARD 50 FT
MAX. IMPERVIOUS COVERAGE 25%

OWNER AND DEVELOPER

THE WILKINSON GROUP
C/O HAWKIN BUILDERS
EAGLEVIEW CORPORATE CENTER
717 CONSTITUTION DRIVE
P.O. BOX 10
EXTON, PA 19341
215-458-1900

FINAL TITLE PLAN



MANUAL CONSTRUCTION LINES

Parcel	Total Area	Disturbed Area	Undisturbed Area
Parcel 1	48.29 Acres	2.47 Acres	45.82 Acres
Parcel 2	17.21 Acres	1.14 Acres	16.07 Acres
Parcel 3	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 4	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 5	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 6	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 7	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 8	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 9	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 10	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 11	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 12	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 13	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 14	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 15	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 16	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 17	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 18	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 19	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 20	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 21	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 22	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 23	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 24	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 25	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 26	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 27	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 28	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 29	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 30	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 31	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 32	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 33	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 34	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 35	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 36	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 37	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 38	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 39	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 40	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 41	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 42	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 43	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 44	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 45	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 46	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 47	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 48	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 49	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 50	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 51	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 52	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 53	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 54	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 55	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 56	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 57	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 58	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 59	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 60	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 61	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 62	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 63	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 64	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 65	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 66	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 67	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 68	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 69	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 70	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 71	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 72	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 73	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 74	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 75	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 76	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 77	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 78	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 79	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 80	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 81	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 82	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 83	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 84	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 85	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 86	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 87	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 88	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 89	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 90	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 91	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 92	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 93	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 94	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 95	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 96	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 97	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 98	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 99	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 100	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 101	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 102	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 103	16.87 Acres	1.14 Acres	15.73 Acres
Parcel 104	16.87 Acres	1.14 Acres	15.73 Acres

CENTER LINE CURVE TABLE						
CURVE	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
2	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
3	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
4	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
5	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
6	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
7	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
8	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
9	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
10	350.00	30.00	93.28	110.90	218.45	S89°02'12"E
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13027 5 of 31

13027 5 of 31

Existing Contour: 290

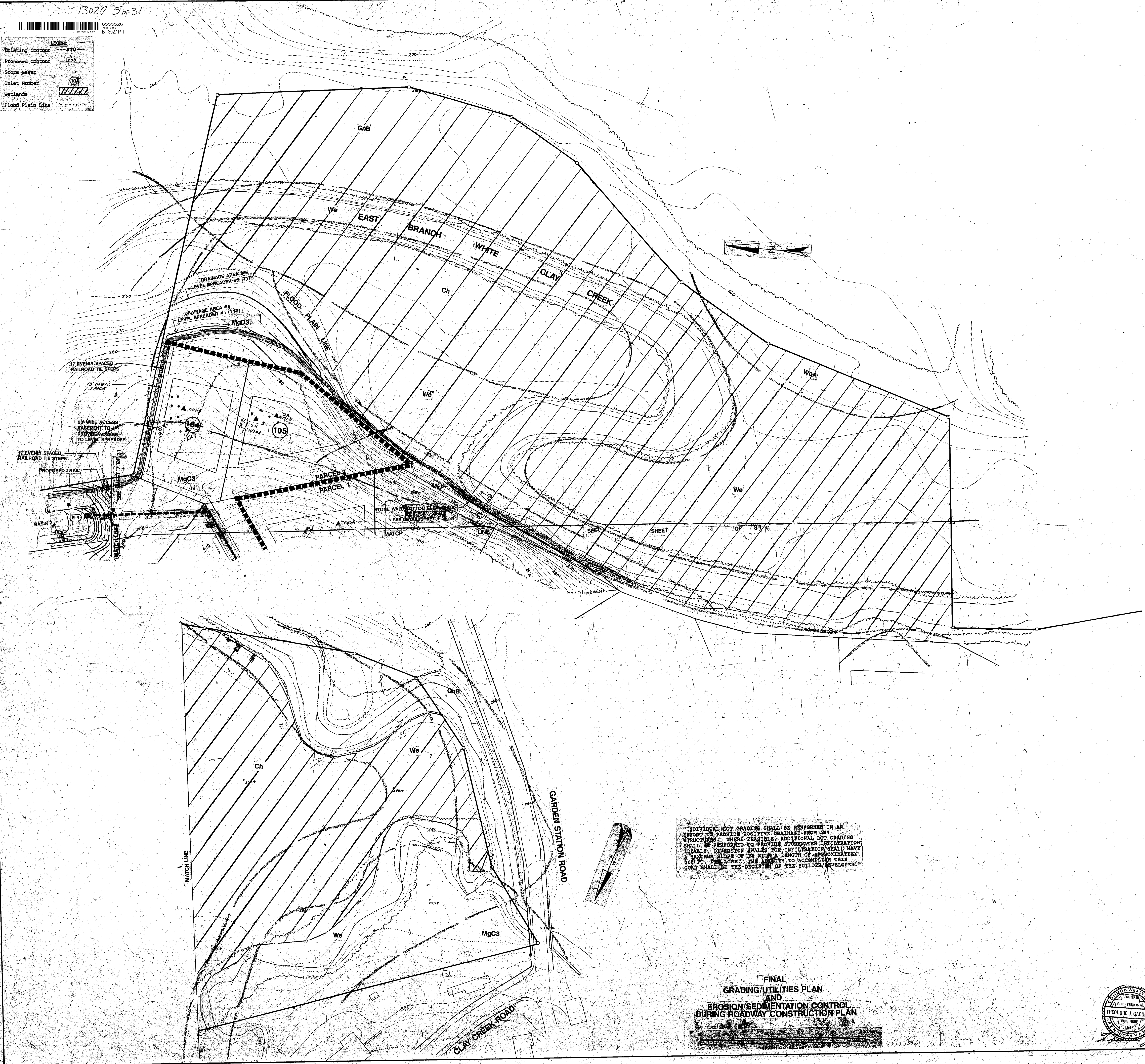
Proposed Contour: 230

Storm Sewer: [Symbol]

Inlet Number: [Symbol]

Wetlands: [Symbol]

Flood Plain Line: [Symbol]



"INDIVIDUAL LOT GRADING SHALL BE PERFORMED IN AN EFFORT TO PROVIDE POSITIVE DRAINAGE FROM ANY STRUCTURES. WHERE FEASIBLE, ADDITIONAL LOT GRADING SHALL BE PERFORMED TO PROVIDE STORMWATER INFILTRATION IDEALLY. DIVERSION SWALES FOR INFILTRATION SHALL HAVE A MINIMUM SLOPE OF 1% WITH A LENGTH OF APPROXIMATELY 300 FT. PER ACRE. THE ABILITY TO ACCOMPLISH THIS GOAL SHALL BE THE DECISION OF THE BUILDER/DEVELOPER."

FINAL
GRADING/UTILITIES PLAN
AND
EROSION/SEDIMENTATION CONTROL
DURING ROADWAY CONSTRUCTION PLAN

NOTE: MOUNTABLE ROCK BERMS SHALL BE INSTALLED EVERY 200 FT. ON CENTER IN THE ROADWAYS UNDER CONSTRUCTION IF CONSTRUCTION IS TO STOP FOR A PERIOD GREATER THAN 24 HOURS UNTIL THE BASE COURSE IS INSTALLED.

Revised by Chester Co. Pa. Inc
13027

3	3-1-84	REV. PER CDD REVIEW LETTER DATED 2-22-84 AND RELOCATE LOT LINES FOR LOTS 107-109, 115, 152
6	2-18-84	REVISED PER LONDON GROVE MUNICIPAL AUTHORITY VERBAL REQUESTS.
7	1-27-84	REV. INDIVIDUAL LOTS TO PROVIDE OPEN SPACE FOR TRAIL SYSTEM
8	1-24-84	REV. PER COMMENTS DISCUSSED IN PHONE CONVERSATION WITH TWP. ENGR. ON 1-24-84
9	1-3-84	REV. PER COMMENTS DISCUSSED AT BOARD OF SUPERVISORS MEETING ON 12-9-83 AND PER CDD REVIEW LETTER DATED 12-14-83
10	11-12-83	REVISED PER THE FOLLOWING AGENCY REVIEW LETTERS: CWA DATED 10-25-83, CDD DATED 10-18-83, AND TWP. ENGR. DATED 11-1-83.
11	9-30-83	REVISED PER TWP. ENGR. REVIEW LETTER DATED 9-30-83
12	9-12-83	REV. PER CDD LETTER DATED 9-28-83 AND TELEPHONE CONVERSATION WITH TWP. ENGR. ON 9-7-83.
13	8-18-83	REV. 7-1-83 PER MEETING WITH TWP. ENGR. 8-18-83

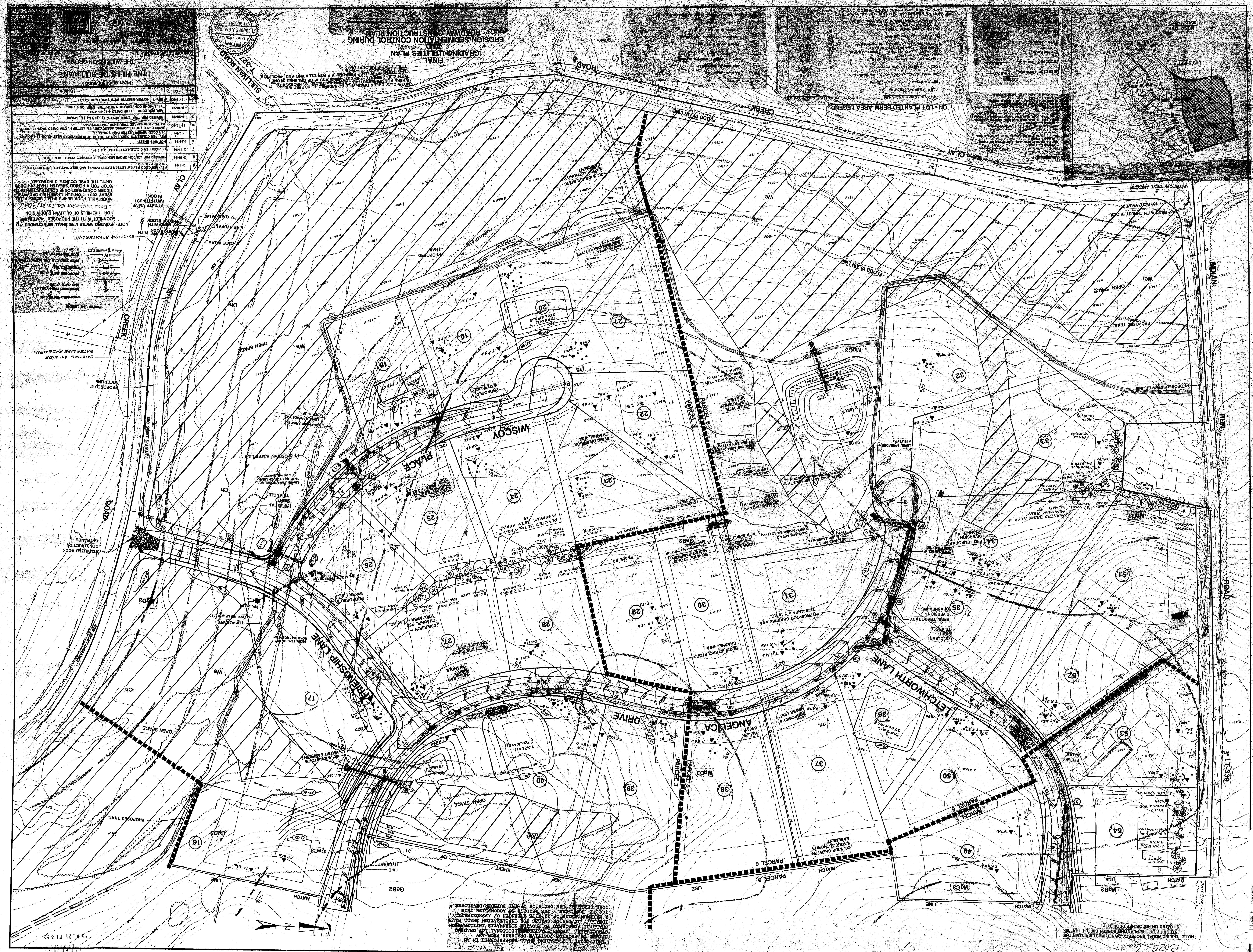
PLAN OF SUBDIVISION
THE HILLS OF SULLIVAN
FOR
THE WILKINSON GROUP

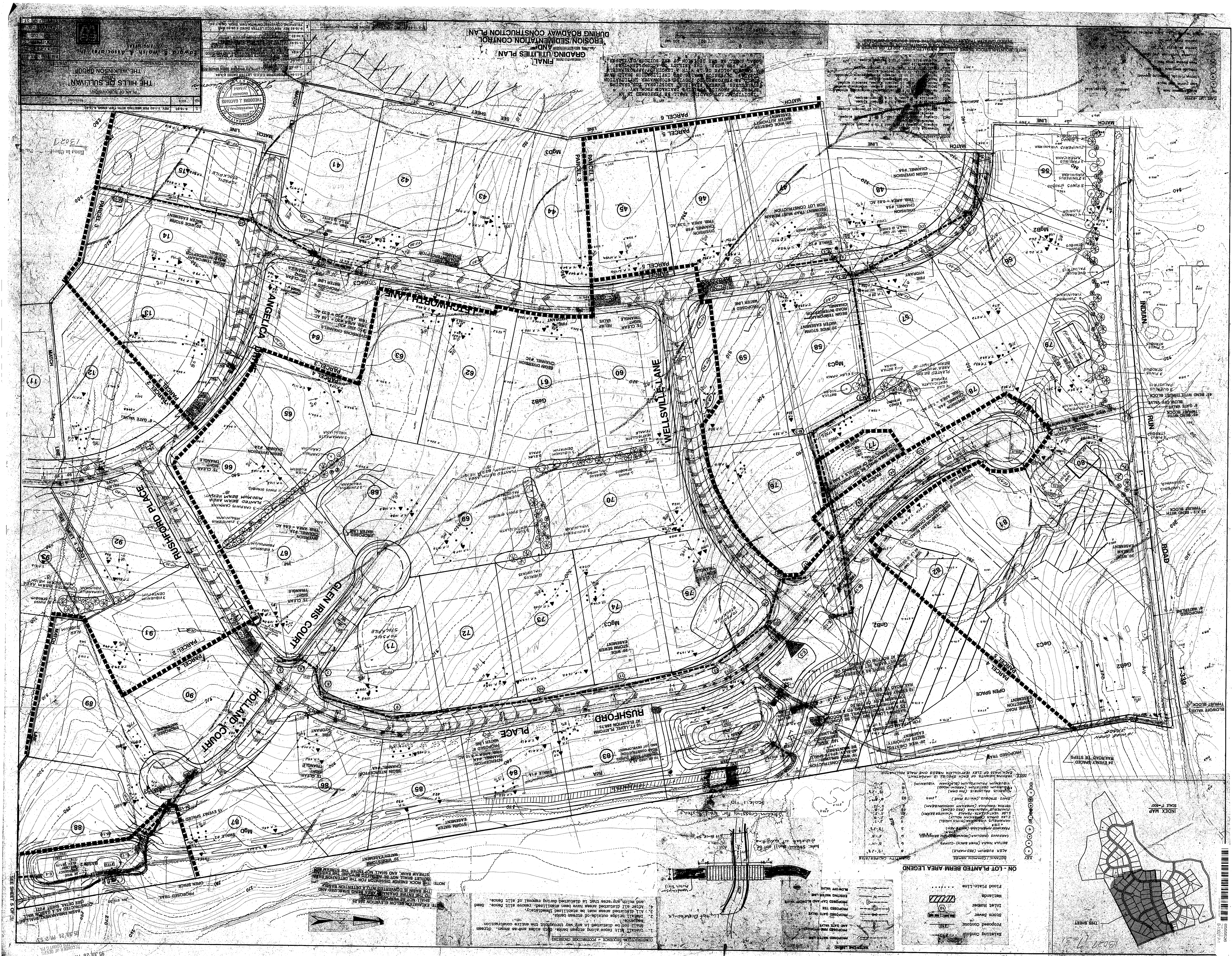
LONDON GROVE TOWNSHIP, CHESTER COUNTY, PA.

Edward B. Walsh & Associates, Inc.
CIVIL ENGINEERS

THEODORE J. GACOMIS
PROFESSIONAL ENGINEER
11/14/83

Project 1316
Date: 12-14-83
Sheet: 5 of 31





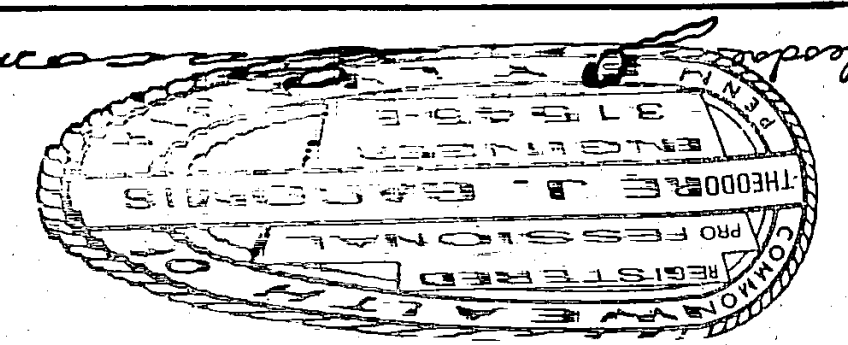
Sheet 0 of 1
Project: 1302
Date: 1-19-83
Scale: 1"=50'
City: Springfield
County: Hampden
Project: 1302
Date: 1-19-83
Scale: 1"=50'
City: Springfield
County: Hampden

Edward B. Walsh & Associates, Inc.
Civil Engineers
750 Springfield Drive
Springfield, Massachusetts 01104

THE HILLS OF SULLIVAN
FOR
LONDON GROVE TOWNSHIP
1302

PLAN OF SUBDIVISION
REVISIONS

NO.	DATE	REVISIONS
1	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
2	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
3	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
4	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
5	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
6	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83
7	1-19-83	REVISED PER MEETING WITH TWP. ENGR. 8-18-83



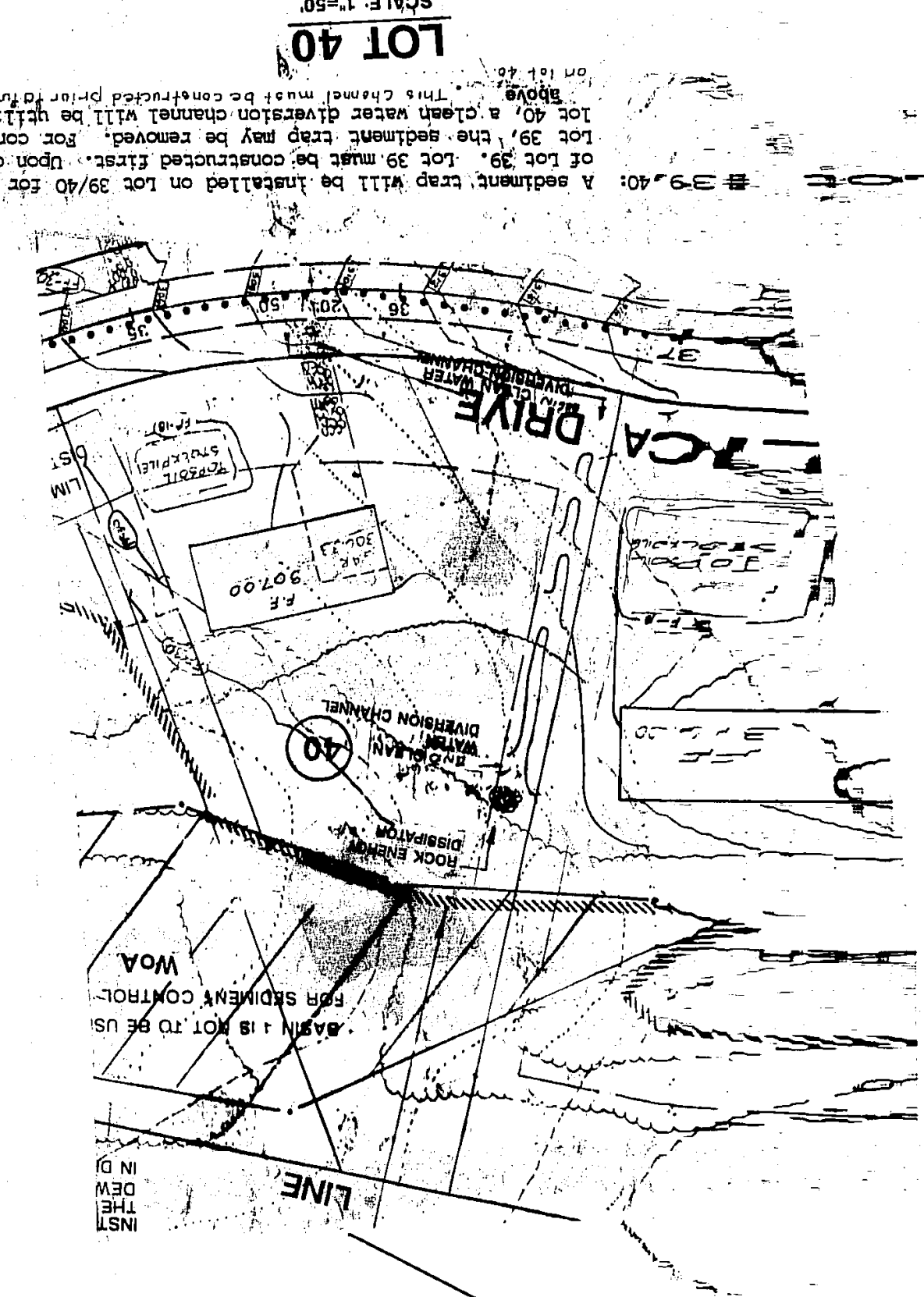
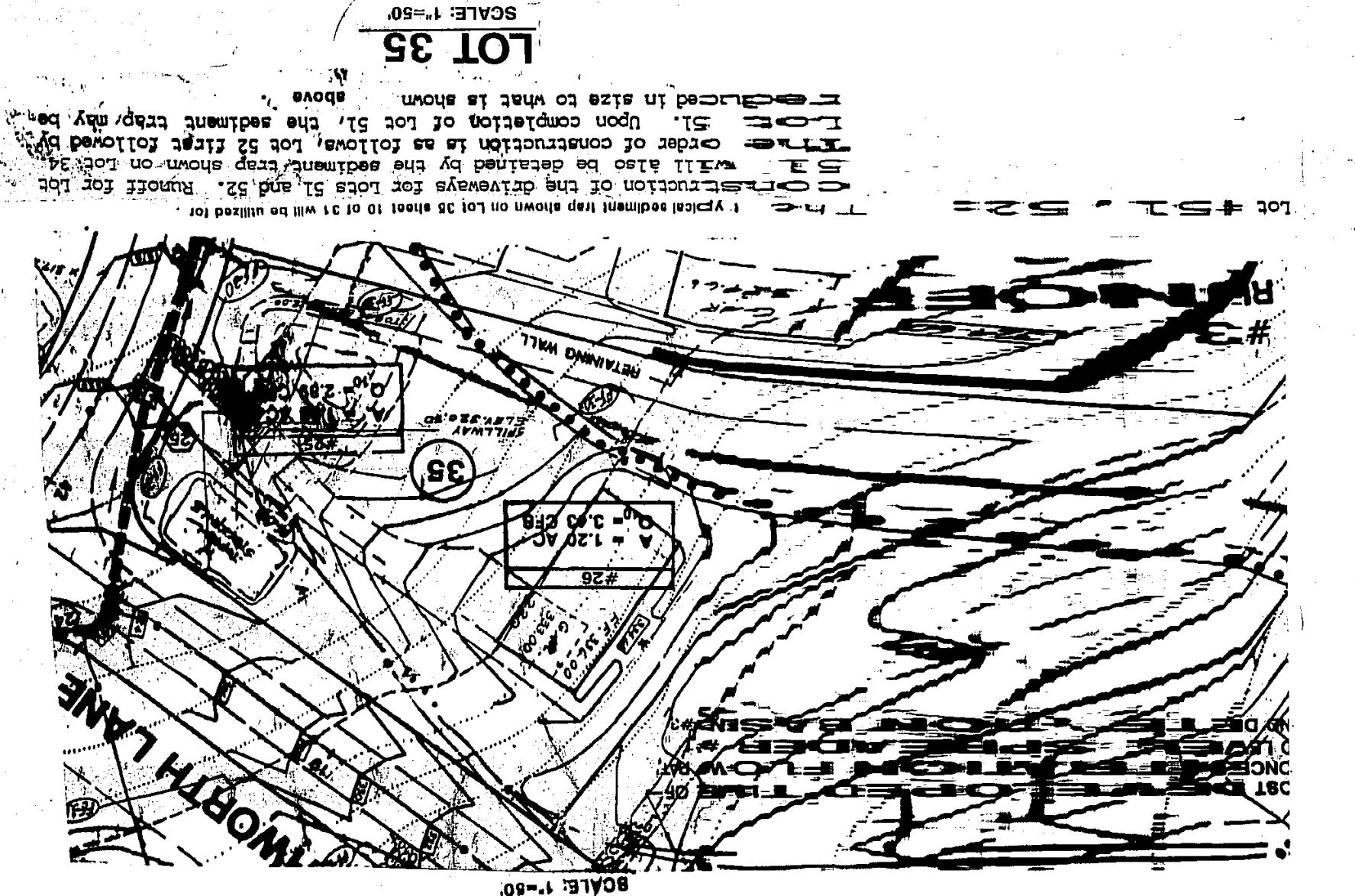
FINAL EROSION & SEDIMENTATION CONTROL PLAN

ALL AREA DISTURBED DURING ROAD CONSTRUCTION MUST BE STABILIZED
PRIOR TO ANY DISTURBED ROAD CONSTRUCTION SEQUENCE

NOTE: SEE SHEET 25 FOR CONSTRUCTION SEQUENCE

CONSTRUCTION AND MAINTENANCE OF THE ROAD CONSTRUCTION
PROJECT SHALL BE IN ACCORDANCE WITH THE APPROVED PLAN, WHICH IS
SUBJECT TO THE FOLLOWING CONDITIONS:

1. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
2. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
3. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
4. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
5. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
6. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
7. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
8. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
9. The construction shall be in accordance with the approved plan, which is subject to the following conditions:
10. The construction shall be in accordance with the approved plan, which is subject to the following conditions:



1. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

2. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

3. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

4. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

5. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

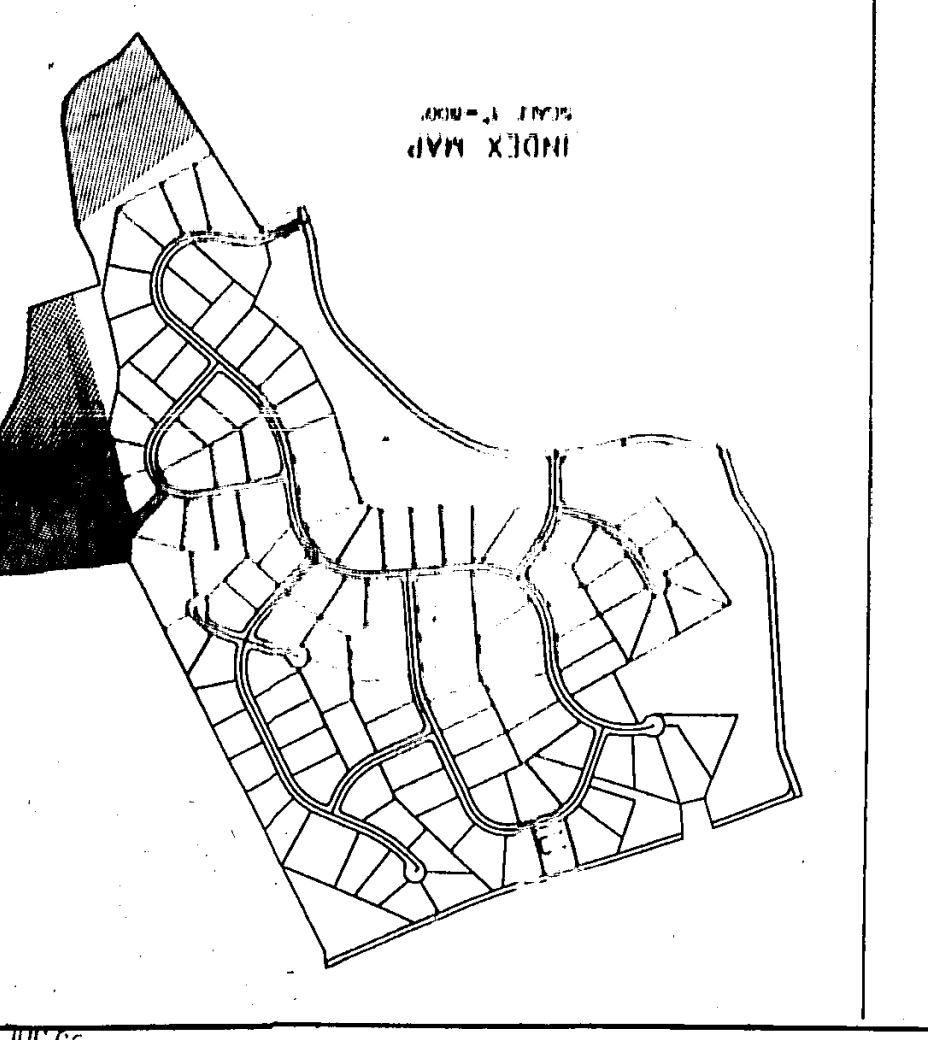
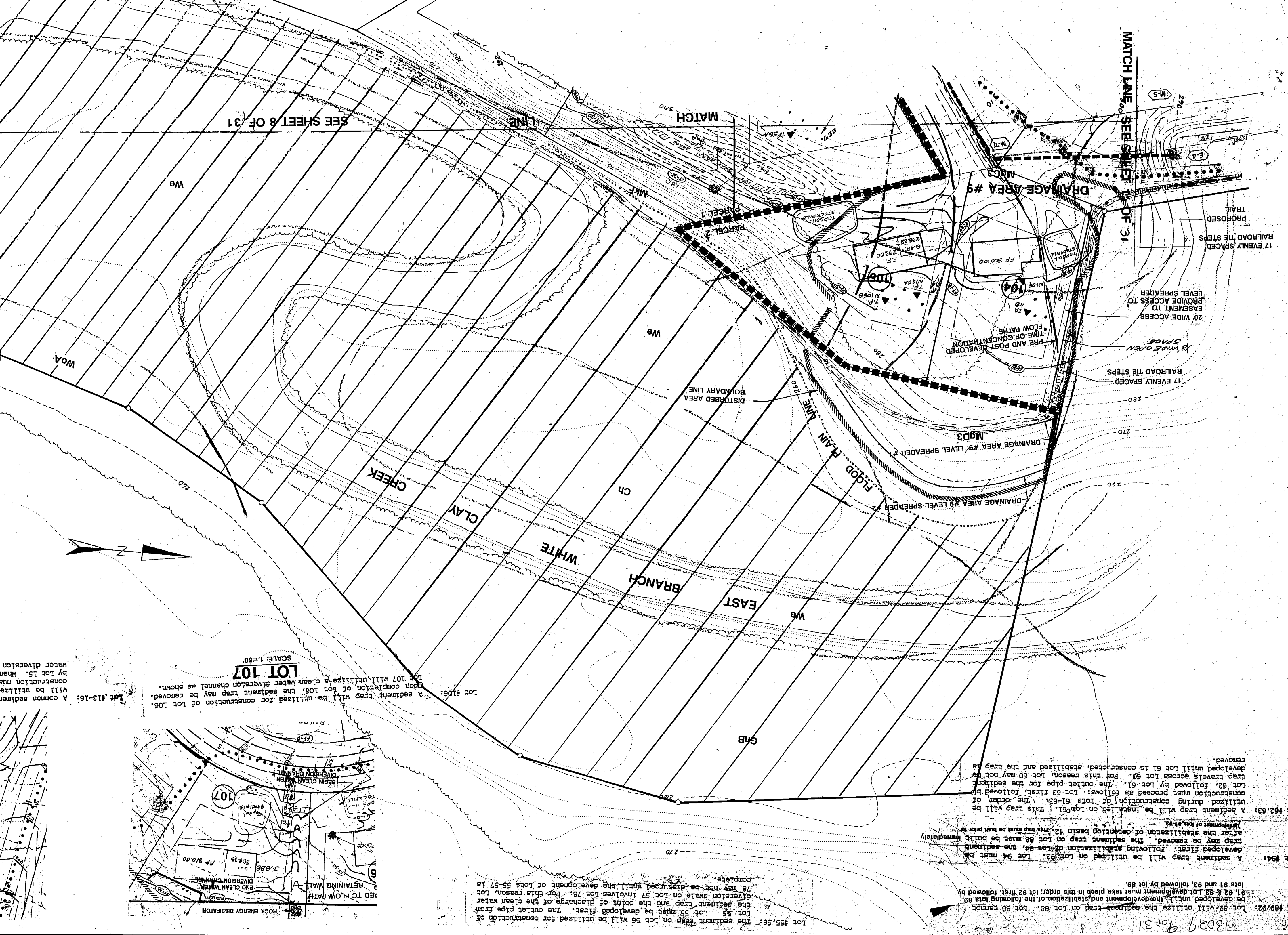
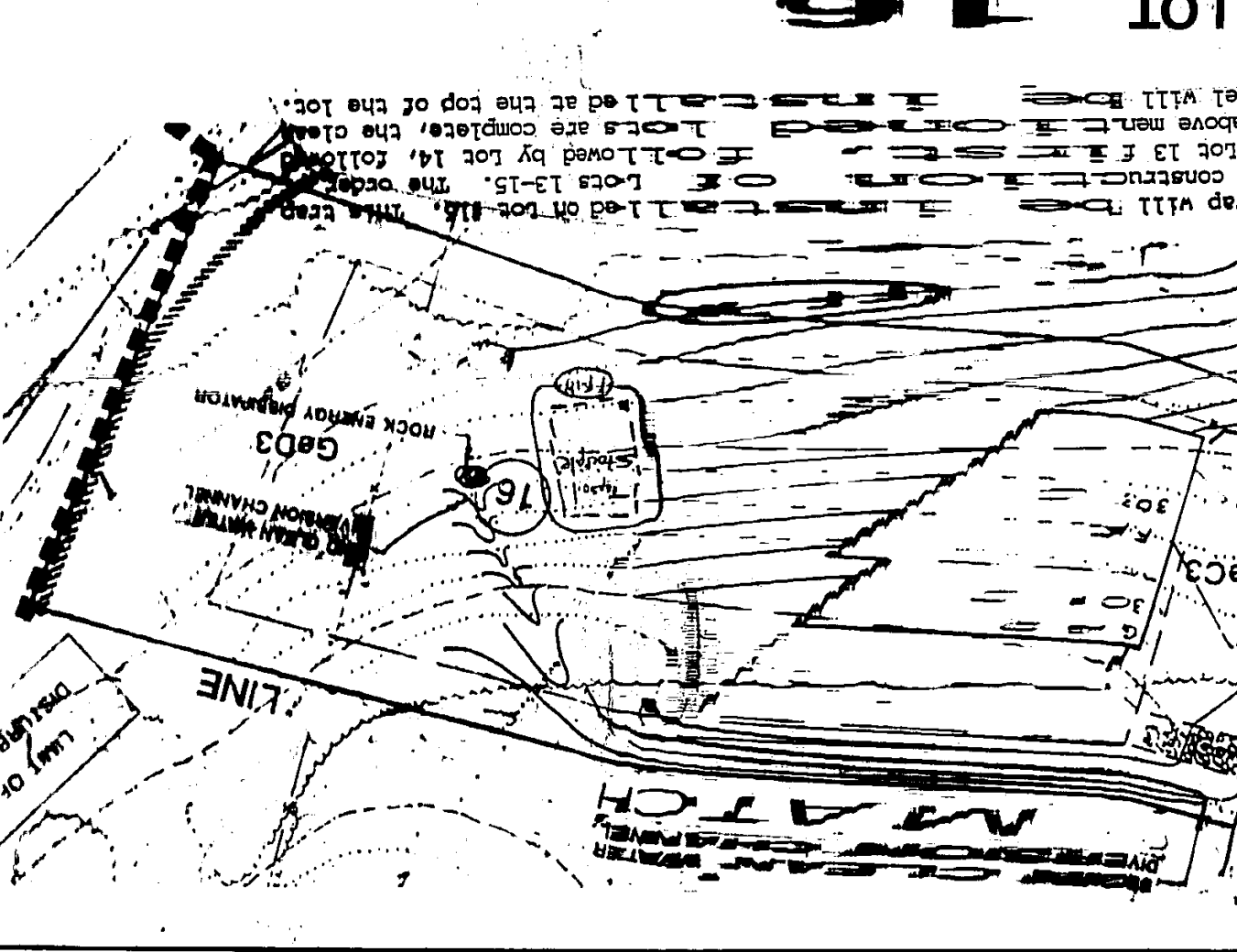
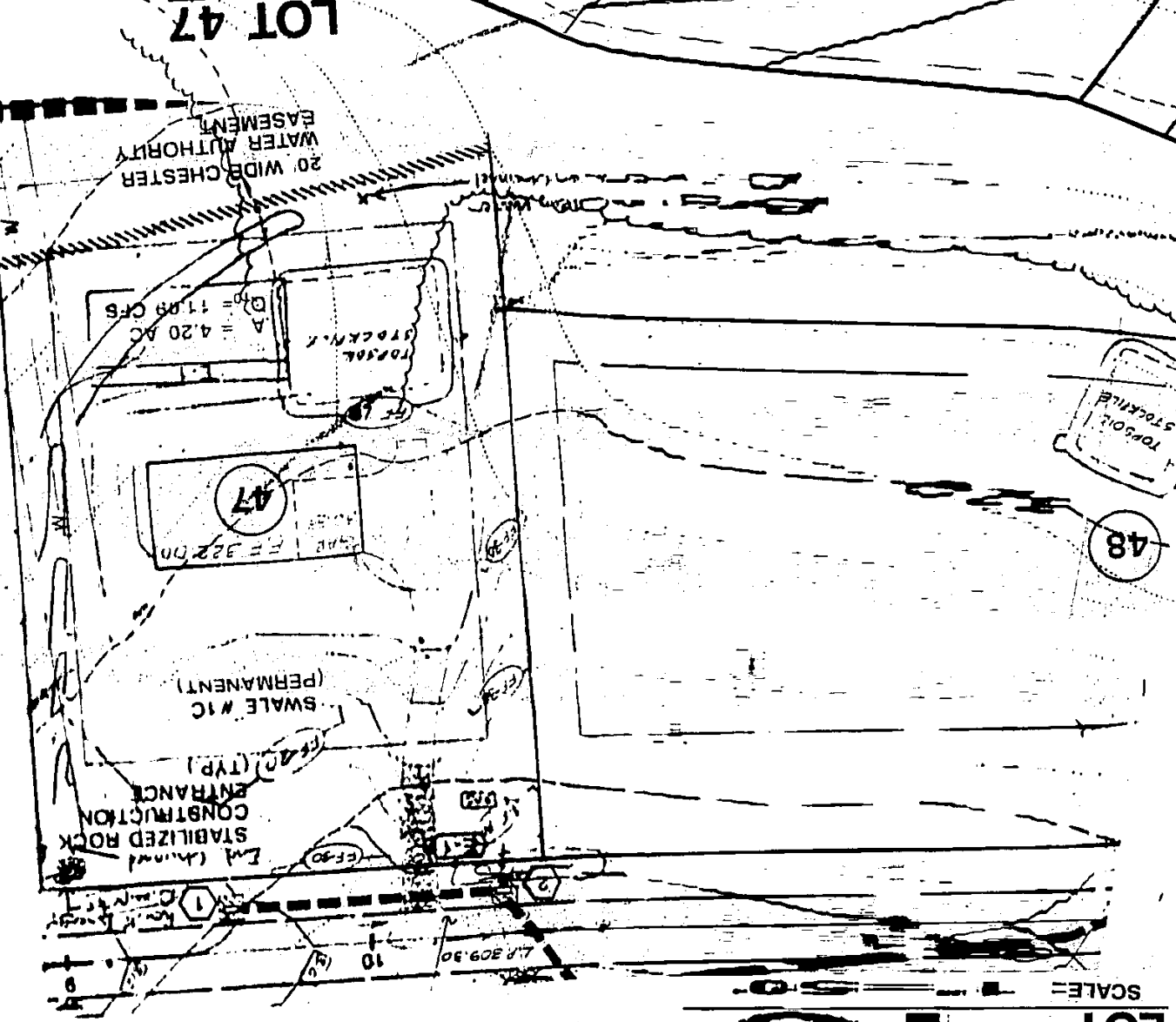
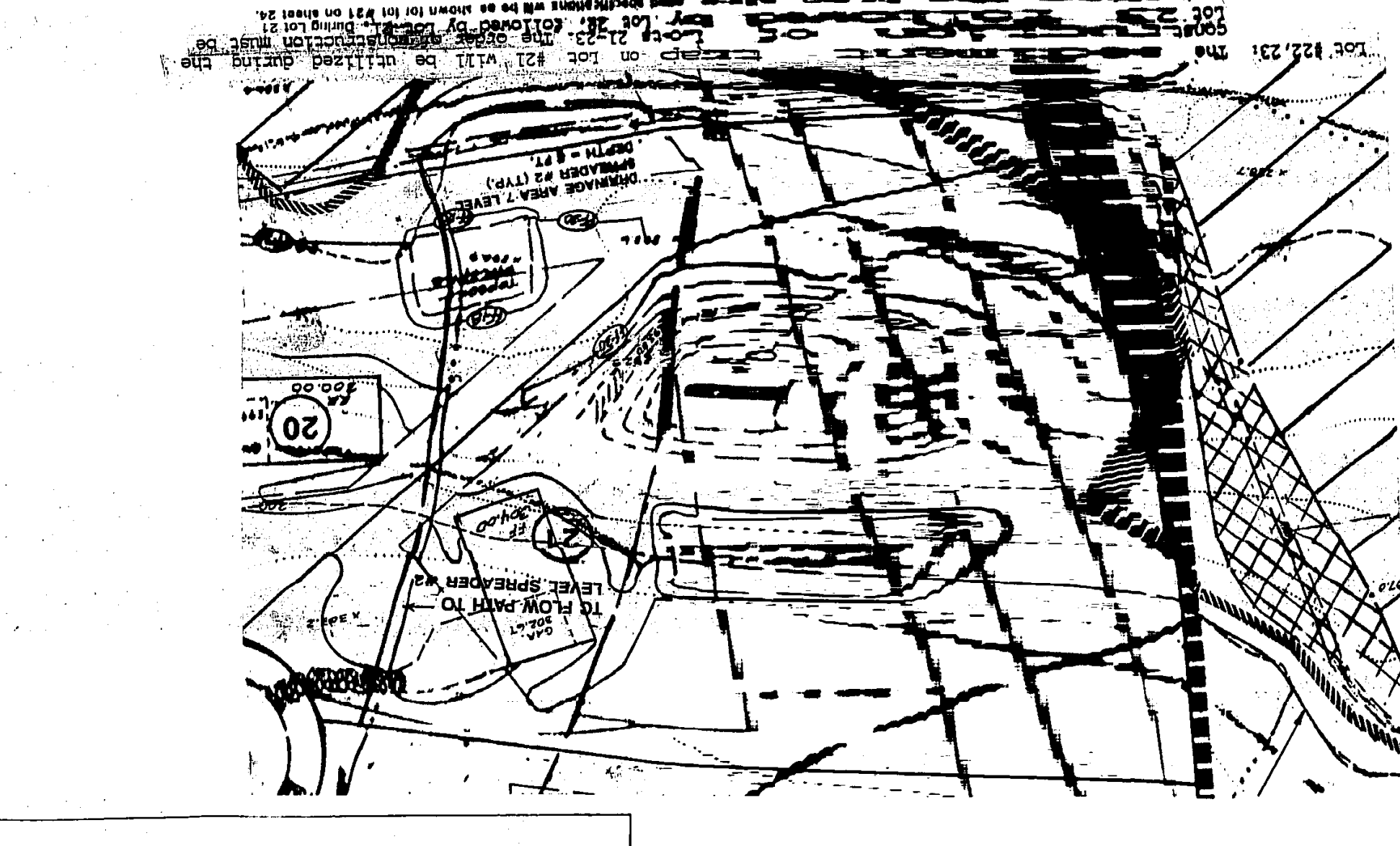
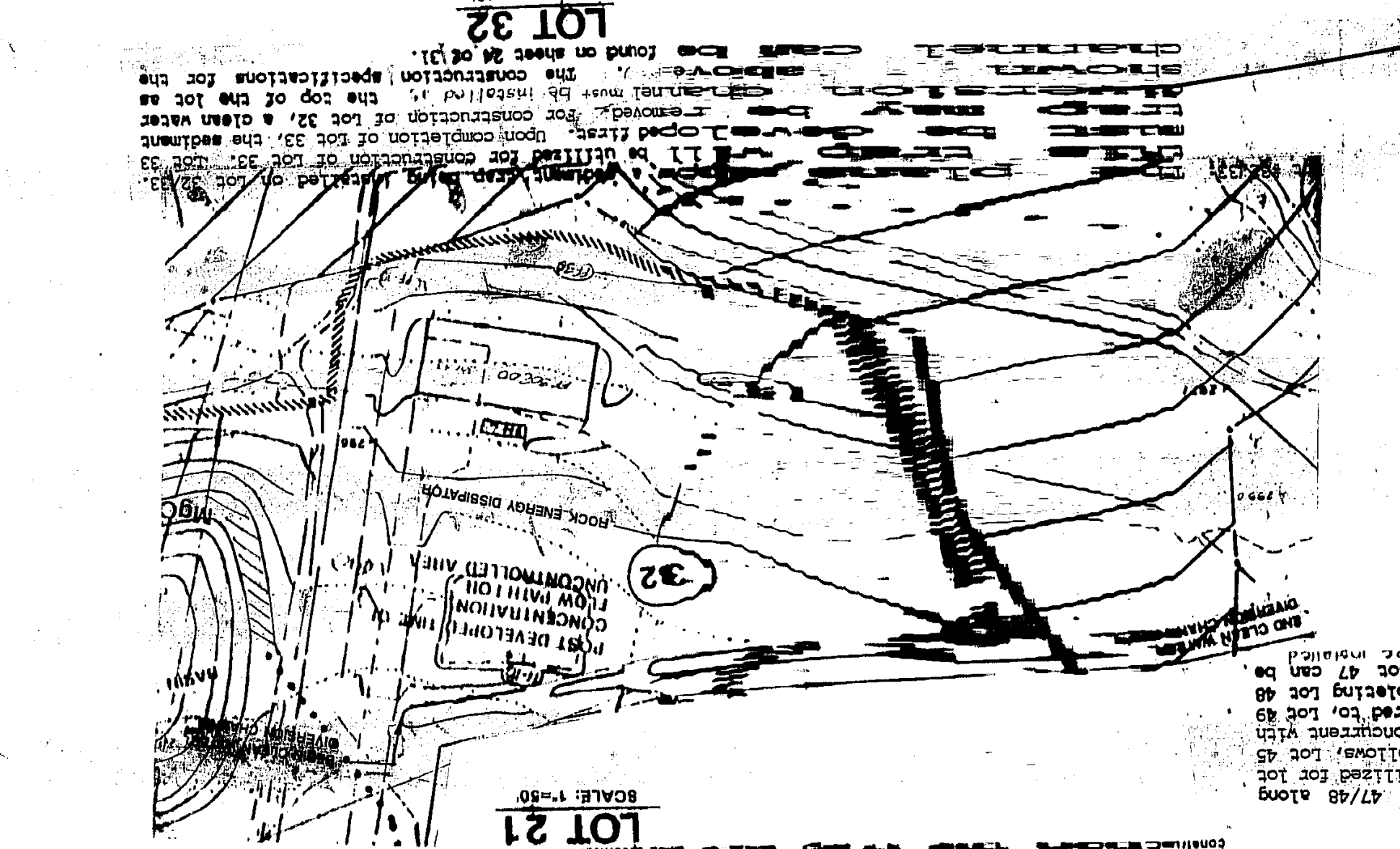
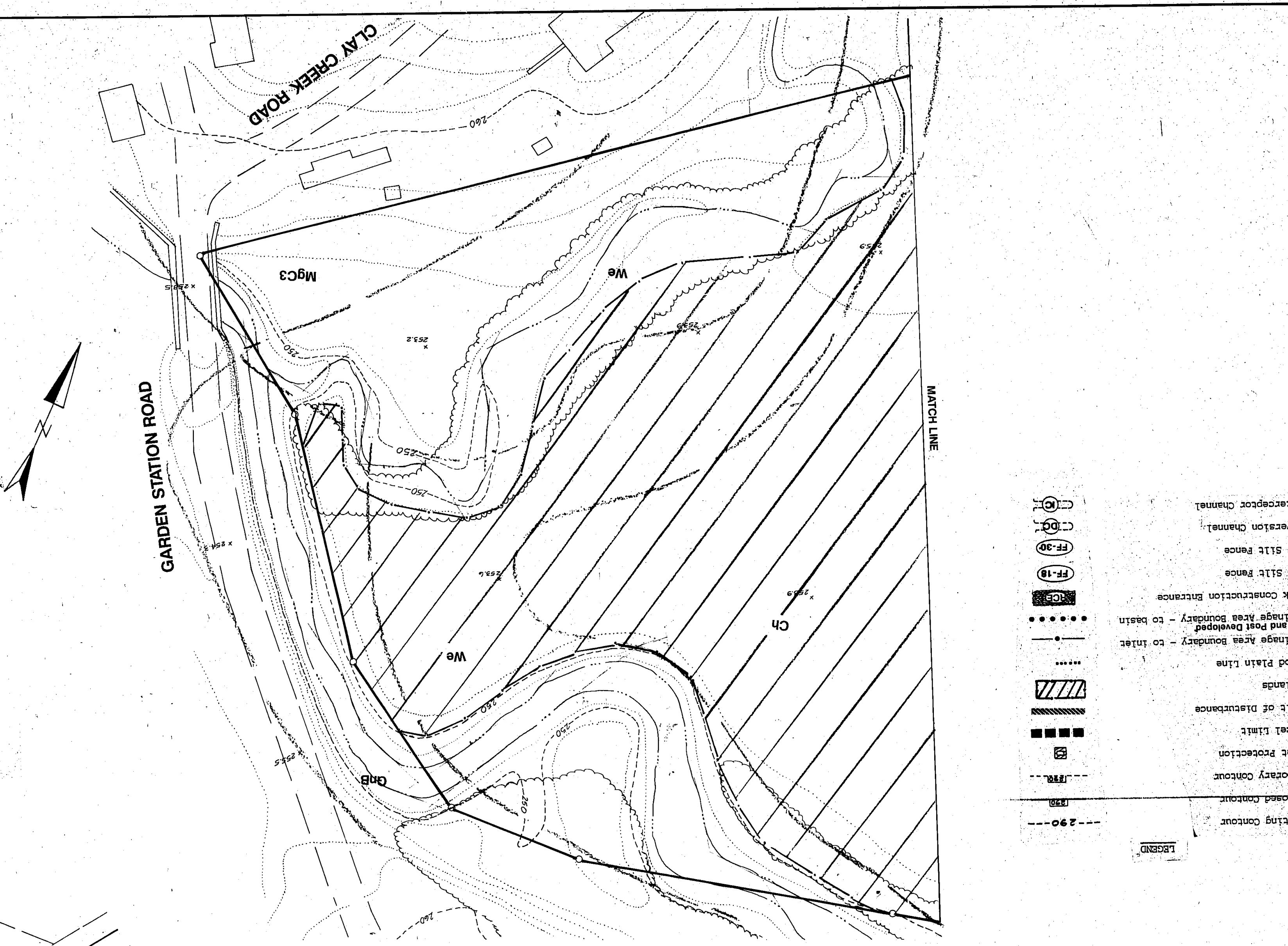
6. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

7. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

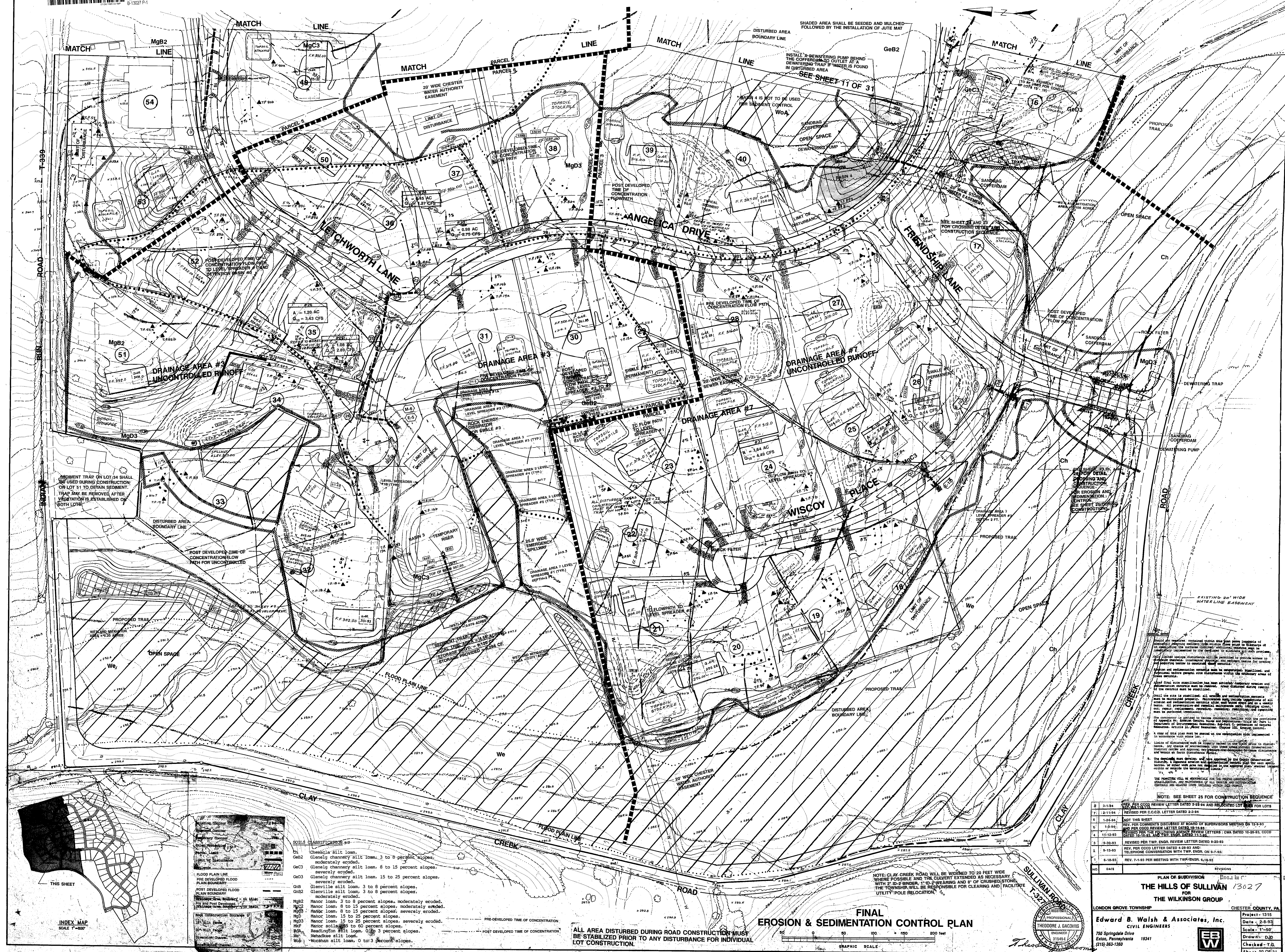
8. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

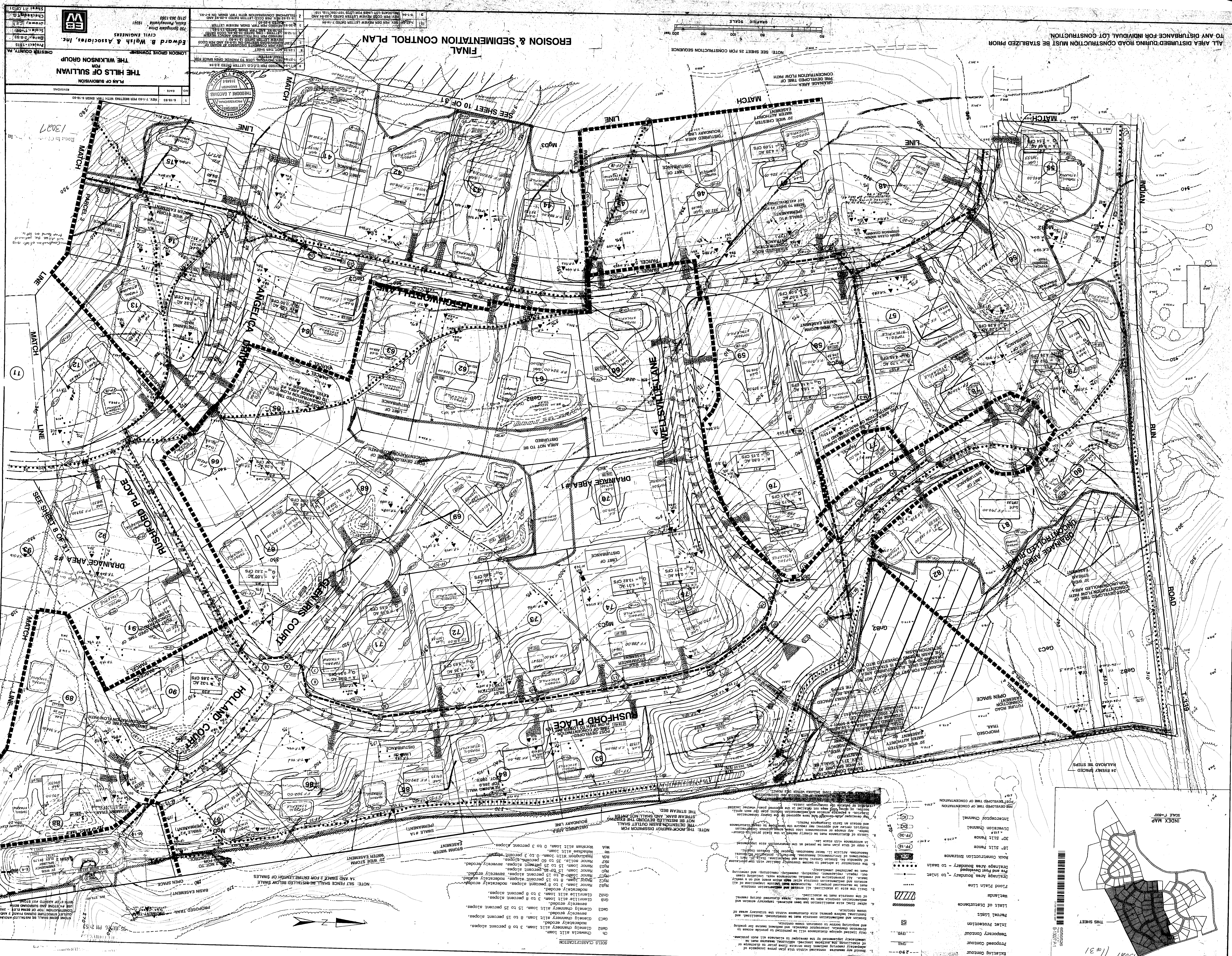
9. The construction shall be in accordance with the approved plan, which is subject to the following conditions:

10. The construction shall be in accordance with the approved plan, which is subject to the following conditions:



1302





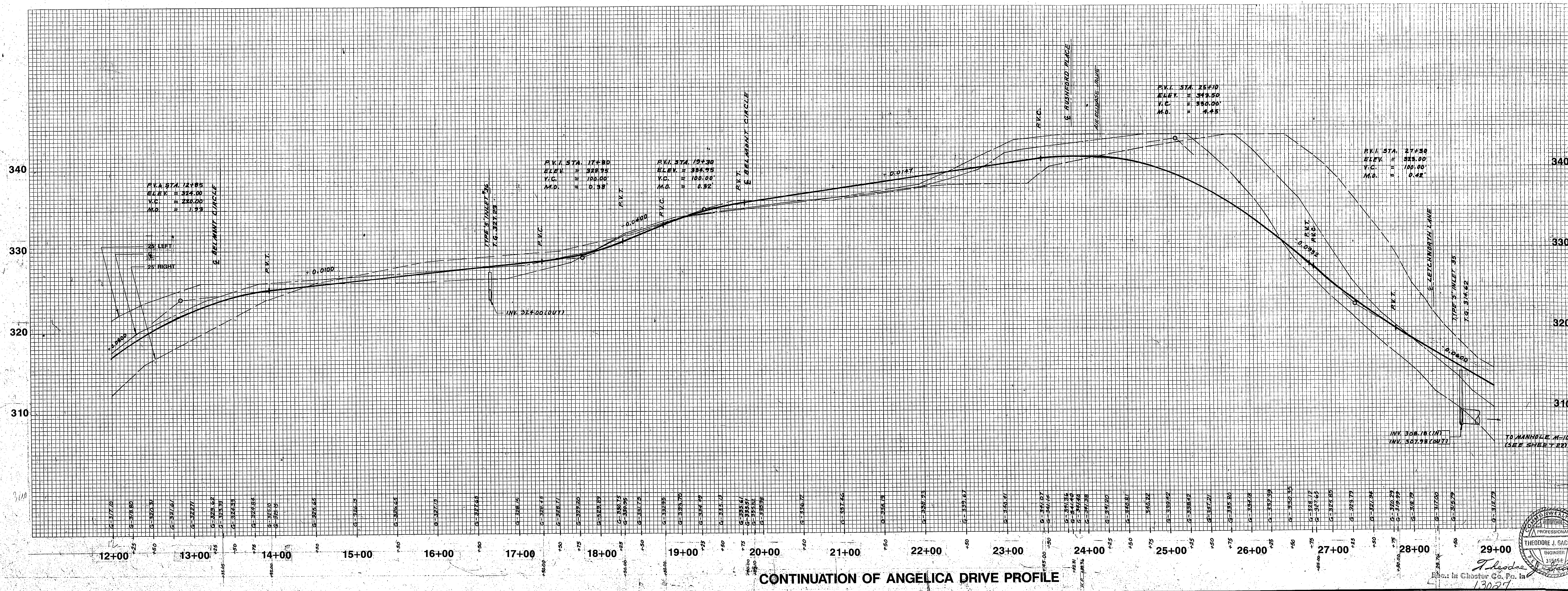
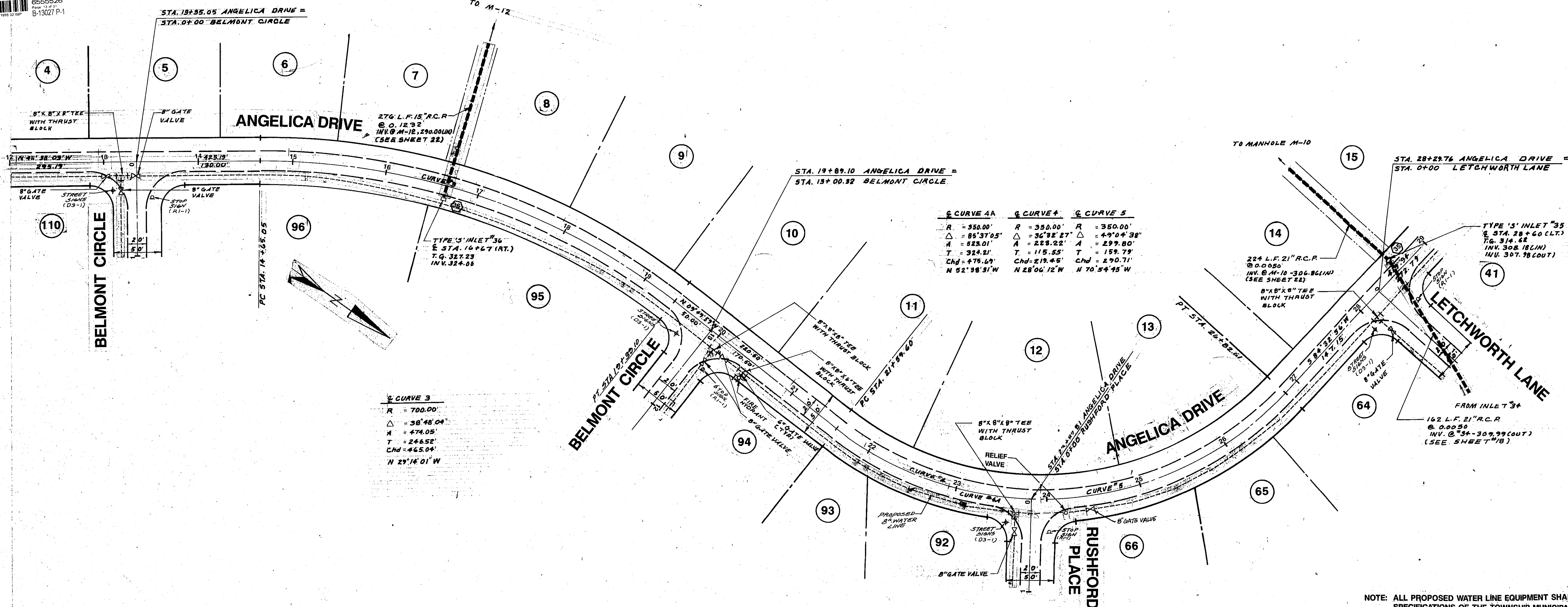


Edward B. Walsh & Associates, Inc. CIVIL ENGINEERS 750 Springdale Drive Suite 200 Westborough, MA 01581 (219) 965-1990			
PROJECT NO. 1915		DESIGNED BY DRAWN BY CHECKED BY DATE	
SCALE: H 1"=50' V 1"=10'		DATE: 12-08-93	
SHEET NO. 12 OF 31		DATE: 12-08-93	

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13027 13 of 31

25 JUN 26 PM 2:54



FINAL

PLAN OF SUBDIVISION
FOR
THE HILLS OF SULLIVA
FOR
THE WILKINSON GROUP

ANGELICA DRIVE

CHESTER COUNTY, PA

EDWARD B. WALSH & ASSOCIATES, INC.
ENGINEERS

750 Springdale Drive
Elyria, Pennsylvania 18041
(610) 362-1380

PROJECT NO. 1915

DESIGNED BY: DUD
DRAWN BY: DUD
CHECKED BY: J.G.

SCALE: 1" = 40'

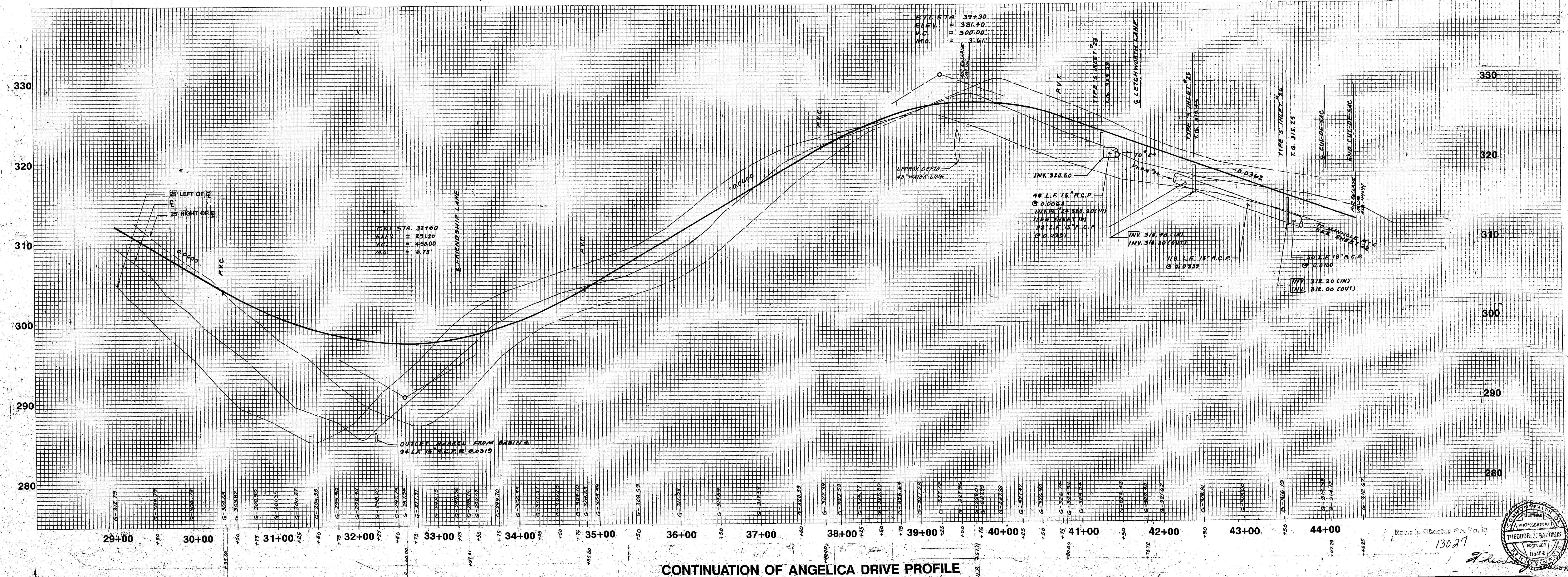
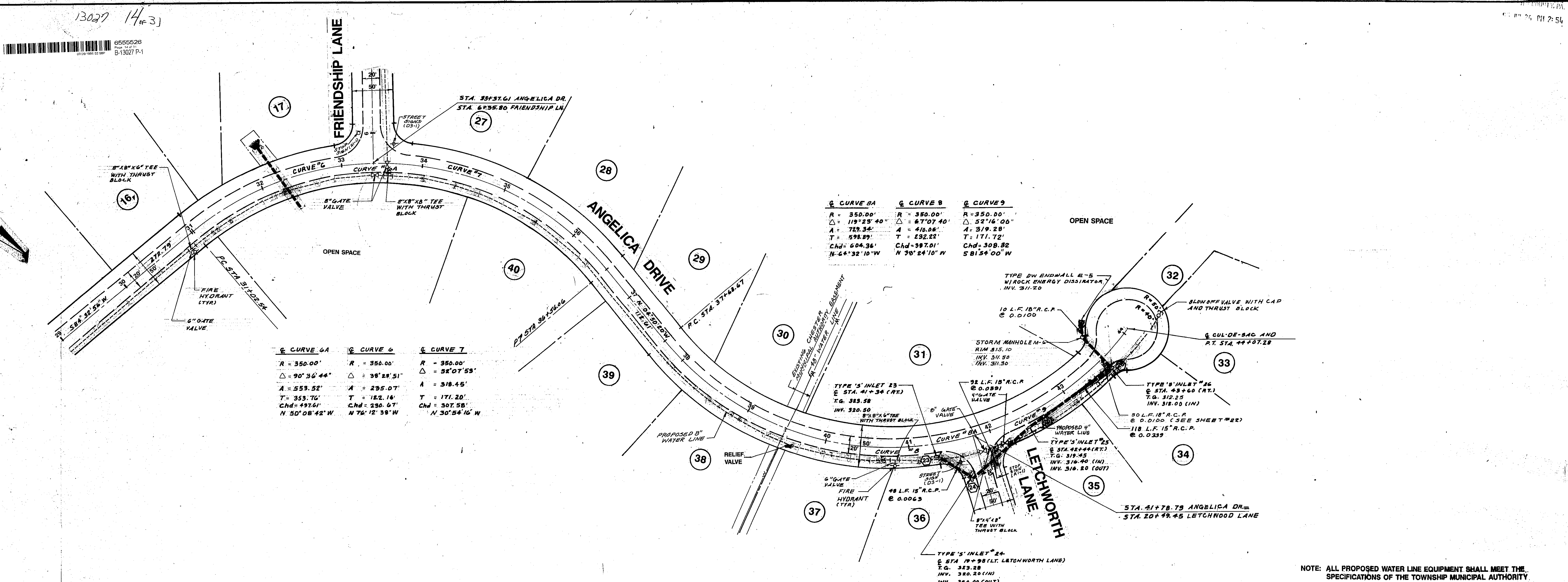
DATE: 2-8-93

SHEET NO. 13 OF 31

DWG. NO. 13027

13027 14 (3)

6555526
B-13027 P-1



PLAN OF PROFILE FOR ANGELICA DRIVE

FINAL

PLAN OF SUBDIVISION THE HILLS OF SULLIVAN FOR THE WILKINSON GROUP

REVISIONS

NO.	DATE	DESCRIPTION
1	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
2	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
3	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
4	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
5	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
6	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
7	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
8	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
9	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
10	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
11	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
12	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
13	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
14	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
15	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
16	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
17	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
18	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
19	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
20	12-14-84	REVISED PER LONDON GROVE MANICURE, AUTHORITY VISUAL REQUEST
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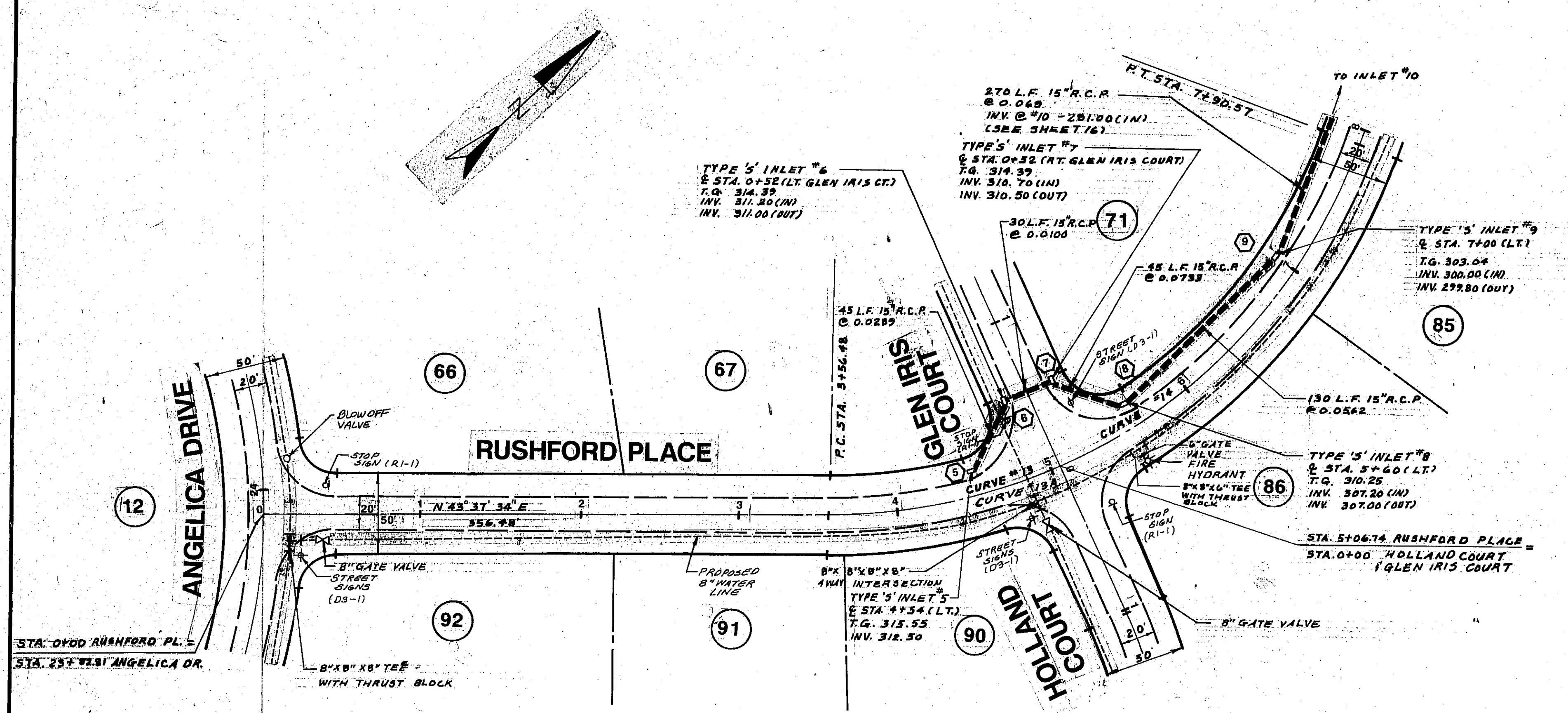
Edward B. Walsh & Associates, Inc.
CIVIL ENGINEERS
750 Springdale Drive
Eaton, Pennsylvania 15021
(412) 381-1381

PROJECT NO. 1315
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
DATE: 12-14-84
SCALE: 1"=50'
SHEET NO. 14 OF 31
DRAWN BY: [Signature]

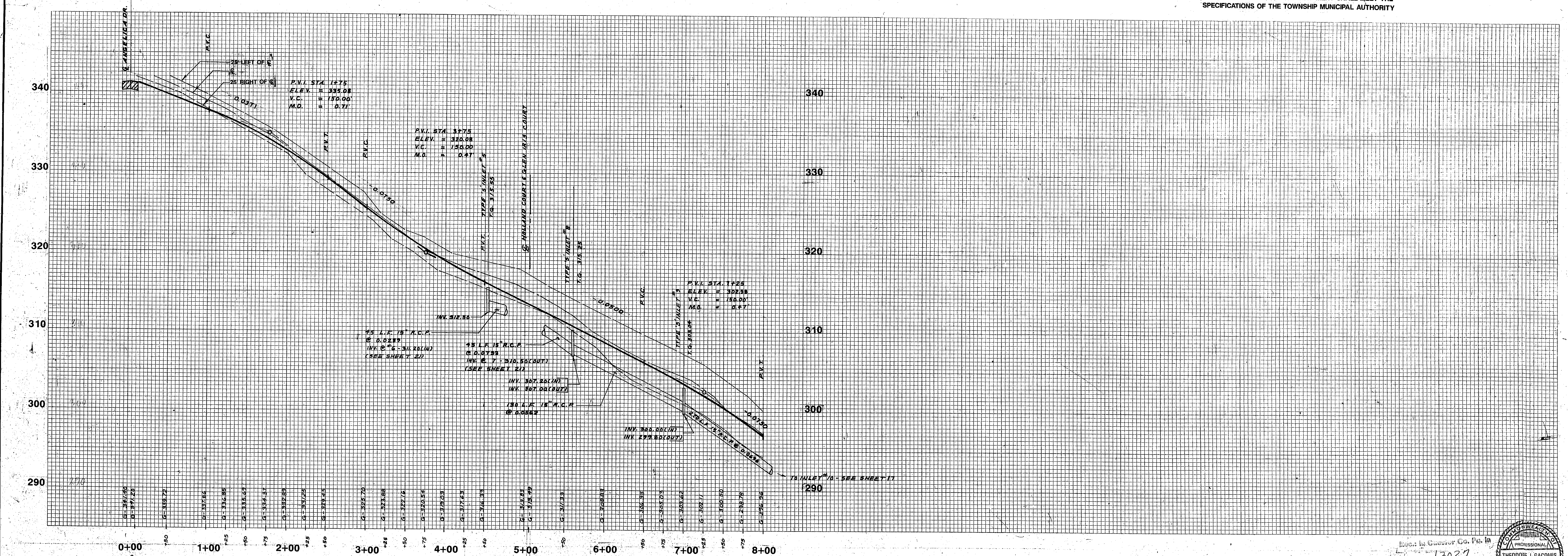
13027 16 of 31

E CURVE 13A	E CURVE 13B	E CURVE 13C
R = 350.00'	R = 350.00'	R = 350.00'
$\Delta = 71^{\circ}03'43''$	$\Delta = 24^{\circ}35'55''$	$\Delta = 46^{\circ}27'52''$
A = 434.10'	A = 180.26'	A = 289.83'
T = 249.94'	T = 76.31'	T = 150.24'
Chd = 406.80'	Chd = 149.11'	Chd = 276.12'
N 08°05'42"E	N 31°19'37"E	N 04°12'15"W

25 JUN 26 PM 2:54



NOTE: ALL PROPOSED WATER LINE EQUIPMENT SHALL MEET THE SPECIFICATIONS OF THE TOWNSHIP MUNICIPAL AUTHORITY



FINAL

PLAN OF SUBDIVISION

THE HILLS OF SULLIVAN

FOR

THE WILKINSON GROUP

CHESTER COUNTY, PA

UNION GROVE TOWNSHIP

REVISIONS

NO.	DATE	DESCRIPTION
1	8-18-83	REV. 7-153 PER MEETING WITH TWP ENR 6-18-83
2	8-30-83	REV. 7-153 PER MEETING WITH TWP ENR 6-18-83
3	8-30-83	REV. 7-153 PER MEETING WITH TWP ENR 6-18-83
4	11-18-83	REVISED PER THE FOLLOWING: REVISION LETTER DATED 8-24-83
5	12-28-83	REVISED PER THE FOLLOWING: REVISION LETTER DATED 11-18-83
6	12-28-83	REVISED PER THE FOLLOWING: REVISION LETTER DATED 11-18-83

Edward B. Walth & Associates, Inc.

799 Springdale Drive

Exton, Pennsylvania 19341

(610) 360-1500

PROJ. NO. 1315

DESIGNED BY: D.J.D.

SCALE: H 1"=50'

DATE: 2-8-83

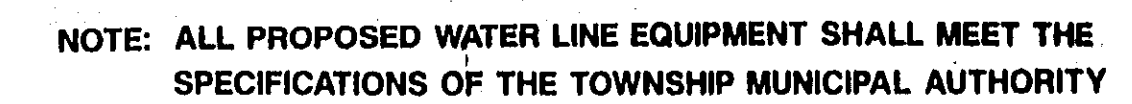
SHEET NO. 16 OF 31

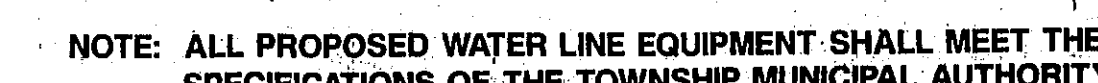
THEODORE J. GACONIS

REGISTERED PROFESSIONAL ENGINEER

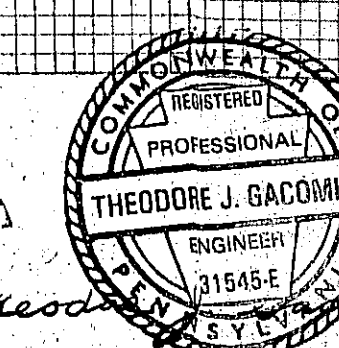
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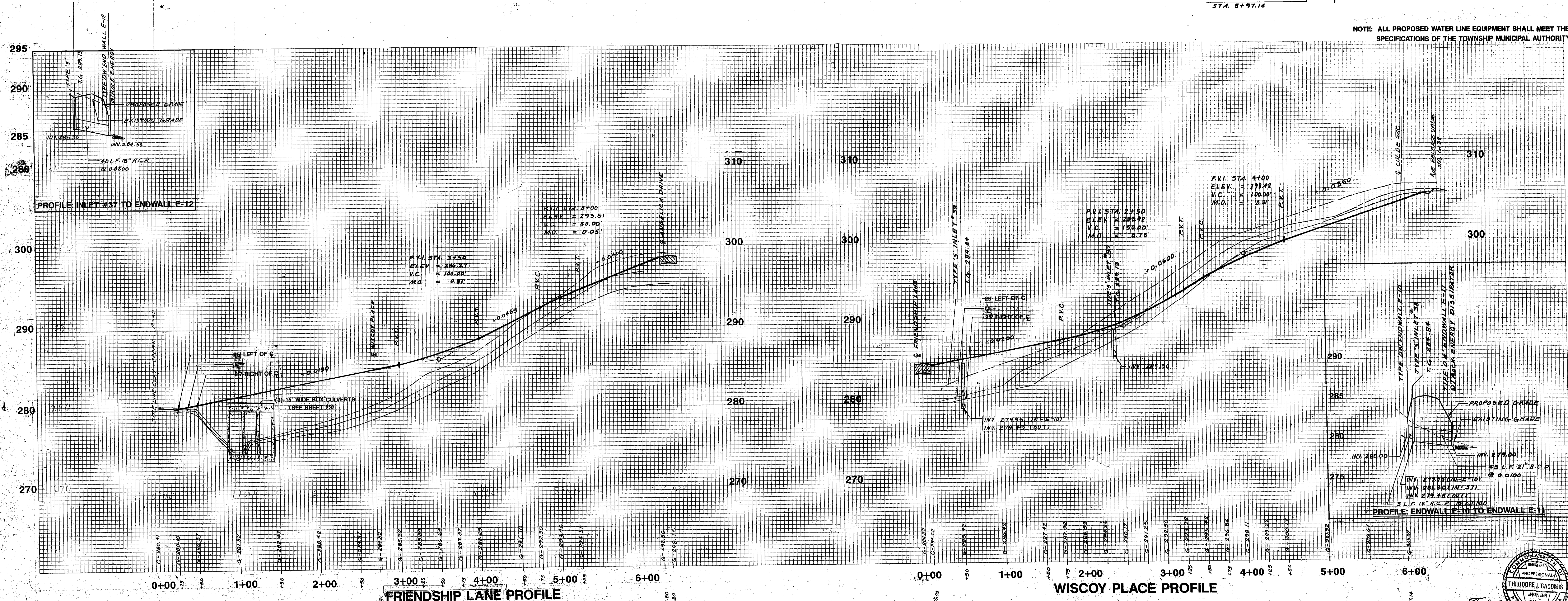
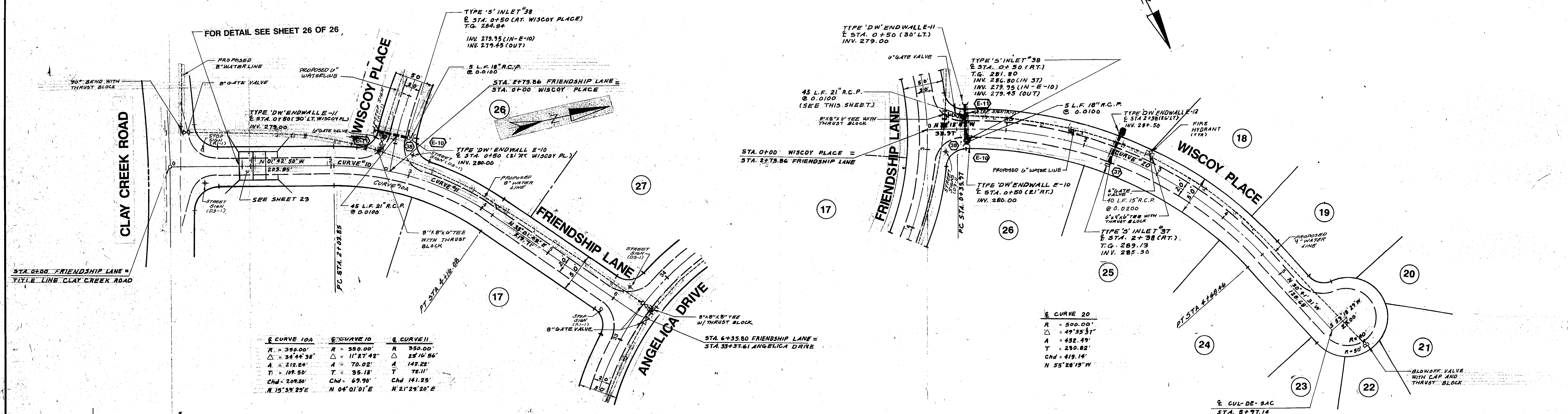
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PROJECT NO. 1315	
DESIGNED BY	DRAWN DJG
F.R.	CHECKED T.G.
SCALE: H 1"=50' V 1"=5'	
DATE: 2-8-93	
SHEET NO. 19 OF 3	
DWG. NO.	





NOTE: ALL PROPOSED WATER LINE EQUIPMENT SHALL MEET THE SPECIFICATIONS OF THE TOWNSHIP MUNICIPAL AUTHORITY

FINAL
PLAN OF SUBDIVISION
THE HILLS OF SULLIVAN
FOR
THE WILKINSON GROUP


THE
TY

2-18-84	REVISED PER LONDON GROVE MUNICIPAL AUTHORITY VERBAL REQUESTS.
	REVISIONS
6-18-93	REV. 7-1-03 PER MEETING WITH TWP. ENGR 6-18-93
9-12-93	NOT THIS SHEET.
9-30-93	REVISED PER TWP. ENGR REVIEW LETTER DATED 9-30-93
11-12-93	REVISED PER THE FOLLOWING RAINIER REVIEW LETTERS: DIA DATED 10-27-93, 11-12-93, 11-18-93, 11-22-93, 11-23-93, 11-24-93, 11-25-93, 11-26-93, 11-29-93, 11-30-93, 12-1-93, 12-2-93, 12-3-93, 12-6-93, 12-7-93, 12-8-93, 12-9-93, 12-10-93, 12-13-93, 12-14-93, 12-15-93, 12-16-93, 12-17-93, 12-18-93, 12-19-93, 12-20-93, 12-21-93, 12-22-93, 12-23-93, 12-24-93, 12-25-93, 12-26-93, 12-27-93, 12-28-93, 12-29-93, 12-30-93, 1-1-94, 1-2-94, 1-3-94, 1-4-94, 1-5-94, 1-6-94, 1-7-94, 1-8-94, 1-9-94, 1-10-94, 1-11-94, 1-12-94, 1-13-94, 1-14-94, 1-15-94, 1-16-94, 1-17-94, 1-18-94, 1-19-94, 1-20-94, 1-21-94, 1-22-94, 1-23-94, 1-24-94, 1-25-94, 1-26-94, 1-27-94, 1-28-94, 1-29-94, 1-30-94, 1-31-94, 2-1-94, 2-2-94, 2-3-94, 2-4-94, 2-5-94, 2-6-94, 2-7-94, 2-8-94, 2-9-94, 2-10-94, 2-11-94, 2-12-94, 2-13-94, 2-14-94, 2-15-94, 2-16-94, 2-17-94, 2-18-94, 2-19-94, 2-20-94, 2-21-94, 2-22-94, 2-23-94, 2-24-94, 2-25-94, 2-26-94, 2-27-94, 2-28-94, 2-29-94, 2-30-94, 3-1-94, 3-2-94, 3-3-94, 3-4-94, 3-5-94, 3-6-94, 3-7-94, 3-8-94, 3-9-94, 3-10-94, 3-11-94, 3-12-94, 3-13-94, 3-14-94, 3-15-94, 3-16-94, 3-17-94, 3-18-94, 3-19-94, 3-20-94, 3-21-94, 3-22-94, 3-23-94, 3-24-94, 3-25-94, 3-26-94, 3-27-94, 3-28-94, 3-29-94, 3-30-94, 3-31-94, 4-1-94, 4-2-94, 4-3-94, 4-4-94, 4-5-94, 4-6-94, 4-7-94, 4-8-94, 4-9-94, 4-10-94, 4-11-94, 4-12-94, 4-13-94, 4-14-94, 4-15-94, 4-16-94, 4-17-94, 4-18-94, 4-19-94, 4-20-94, 4-21-94, 4-22-94, 4-23-94, 4-24-94, 4-25-94, 4-26-94, 4-27-94, 4-28-94, 4-29-94, 4-30-94, 5-1-94, 5-2-94, 5-3-94, 5-4-94, 5-5-94, 5-6-94, 5-7-94, 5-8-94, 5-9-94, 5-10-94, 5-11-94, 5-12-94, 5-13-94, 5-14-94, 5-15-94, 5-16-94, 5-17-94, 5-18-94, 5-19-94, 5-20-94, 5-21-94, 5-22-94, 5-23-94, 5-24-94, 5-25-94, 5-26-94, 5-27-94, 5-28-94, 5-29-94, 5-30-94, 5-31-94, 6-1-94, 6-2-94, 6-3-94, 6-4-94, 6-5-94, 6-6-94, 6-7-94, 6-8-94, 6-9-94, 6-10-94, 6-11-94, 6-12-94, 6-13-94, 6-14-94, 6-15-94, 6-16-94, 6-17-94, 6-18-94, 6-19-94, 6-20-94, 6-21-94, 6-22-94, 6-23-94, 6-24-94, 6-25-94, 6-26-94, 6-27-94, 6-28-94, 6-29-94, 6-30-94, 7-1-94, 7-2-94, 7-3-94, 7-4-94, 7-5-94, 7-6-94, 7-7-94, 7-8-94, 7-9-94, 7-10-94, 7-11-94, 7-12-94, 7-13-94, 7-14-94, 7-15-94, 7-16-94, 7-17-94, 7-18-94, 7-19-94, 7-20-94, 7-21-94, 7-22-94, 7-23-94, 7-24-94, 7-25-94, 7-26-94, 7-27-94, 7-28-94, 7-29-94, 7-30-94, 7-31-94, 8-1-94, 8-2-94, 8-3-94, 8-4-94, 8-5-94, 8-6-94, 8-7-94, 8-8-94, 8-9-94, 8-10-94, 8-11-94, 8-12-94, 8-13-94, 8-14-94, 8-15-94, 8-16-94, 8-17-94, 8-18-94, 8-19-94, 8-20-94, 8-21-94, 8-22-94, 8-23-94, 8-24-94, 8-25-94, 8-26-94, 8-27-94, 8-28-94, 8-29-94, 8-30-94, 8-31-94, 9-1-94, 9-2-94, 9-3-94, 9-4-94, 9-5-94, 9-6-94, 9-7-94, 9-8-94, 9-9-94, 9-10-94, 9-11-94, 9-12-94, 9-13-94, 9-14-94, 9-15-94, 9-16-94, 9-17-94, 9-18-94, 9-19-94, 9-20-94, 9-21-94, 9-22-94, 9-23-94, 9-24-94, 9-25-94, 9-26-94, 9-27-94, 9-28-94, 9-29-94, 9-30-94, 10-1-94, 10-2-94, 10-3-94, 10-4-94, 10-5-94, 10-6-94, 10-7-94, 10-8-94, 10-9-94, 10-10-94, 10-11-94, 10-12-94, 10-13-94, 10-14-94, 10-15-94, 10-16-94, 10-17-94, 10-18-94, 10-19-94, 10-20-94, 10-21-94, 10-22-94, 10-23-94, 10-24-94, 10-25-94, 10-26-94, 10-27-94, 10-28-94, 10-29-94, 10-30-94, 10-31-94, 11-1-94, 11-2-94, 11-3-94, 11-4-94, 11-5-94, 11-6-94, 11-7-94, 11-8-94, 11-9-94, 11-10-94, 11-11-94, 11-12-94, 11-13-94, 11-14-94, 11-15-94, 11-16-94, 11-17-94, 11-18-94, 11-19-94, 11-20-94, 11-21-94, 11-22-94, 11-23-94, 11-24-94, 11-25-94, 11-26-94, 11-27-94, 11-28-94, 11-29-94, 11-30-94, 12-1-94, 12-2-94, 12-3-94, 12-4-94, 12-5-94, 12-6-94, 12-7-94, 12-8-94, 12-9-94, 12-10-94, 12-11-94, 12-12-94, 12-13-94, 12-14-94, 12-15-94, 12-16-94, 12-17-94, 12-18-94, 12-19-94, 12-20-94, 12-21-94, 12-22-94, 12-23-94, 12-24-94, 12-25-94, 12-26-94, 12-27-94, 12-28-94, 12-29-94, 12-30-94, 1-1-95, 1-2-95, 1-3-95, 1-4-95, 1-5-95, 1-6-95, 1-7-95, 1-8-95, 1-9-95, 1-10-95, 1-11-95, 1-12-95, 1-13-95, 1-14-95, 1-15-95, 1-16-95, 1-17-95, 1-18-95, 1-19-95, 1-20-95, 1-21-95, 1-22-95, 1-23-95, 1-24-95, 1-25-95, 1-26-95,

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Edward B. Walsh & Associates, Inc.

CIVIL ENGINEERS

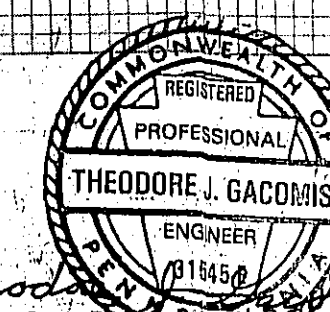


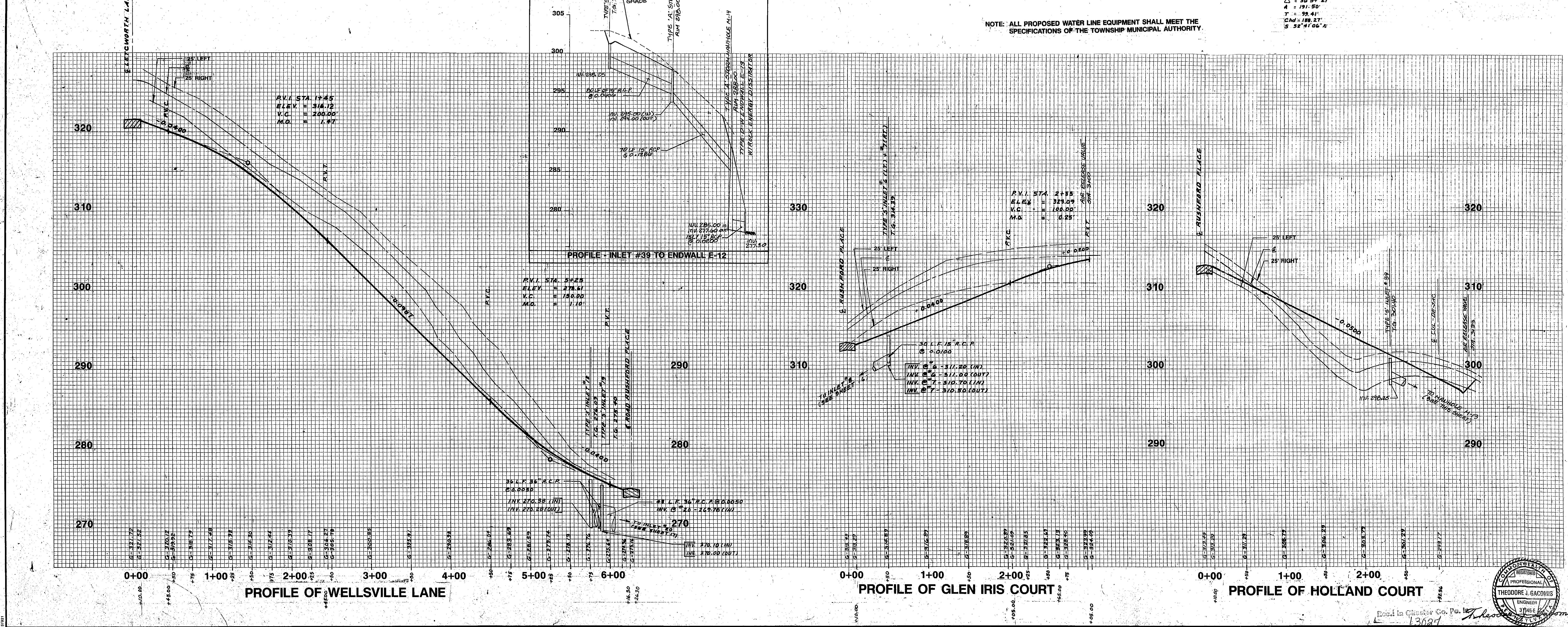
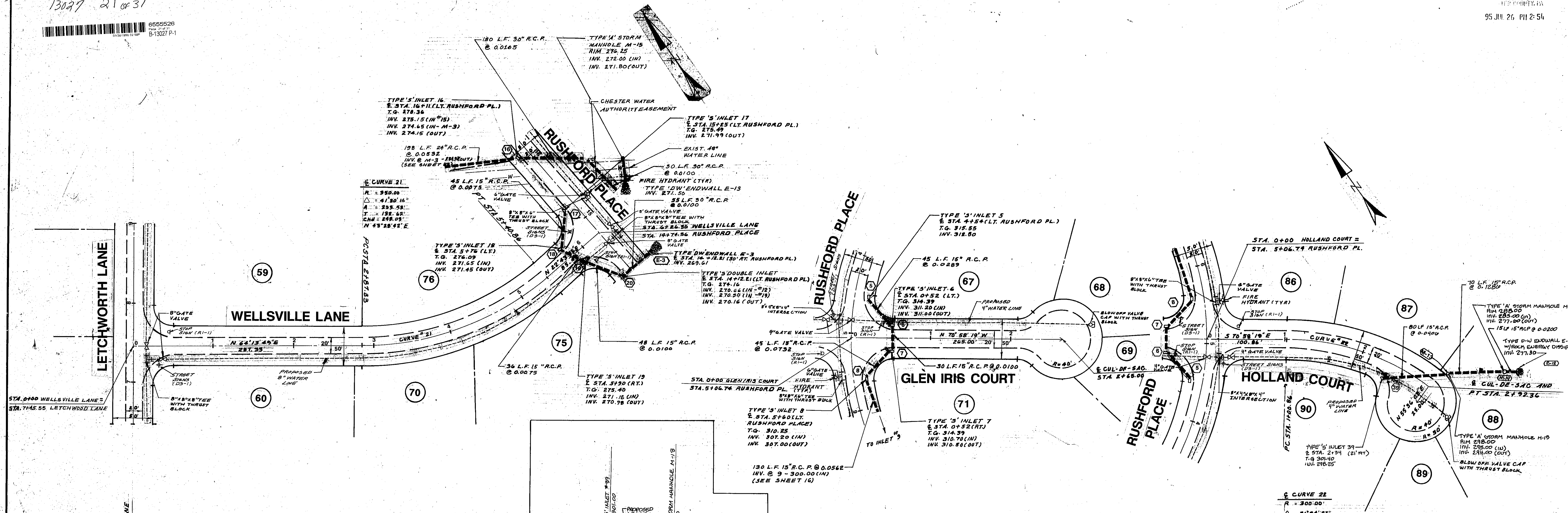
19341

750 Springdale Drive
 Exton, Pennsylvania

19341

PROJECT NO. 1315	
DESIGNED BY	DR. L. CHE
F.B.	CHE
SCALE:	H 1" = V 1" =
DATE:	2-8-9
SHEET NO.	20 OF
DWG. NO.	





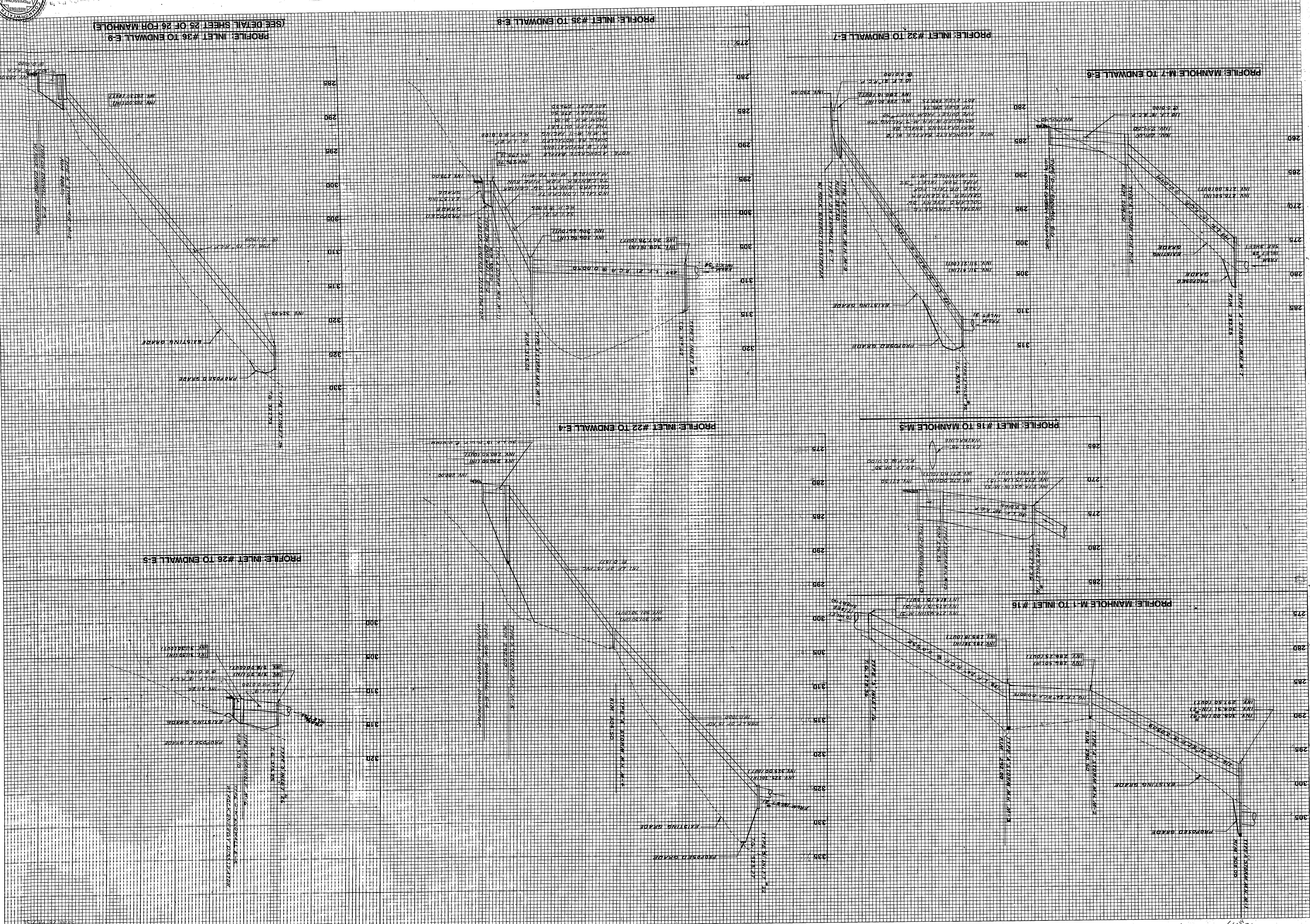
PLAN OF SUBDIVISION
FOR
THE HILLS OF SULLIVAN
FOR
THE WILKINSON GROUP
LONDON GROVE TOWNSHIP

FINAL

EDWARD B. WALSH & ASSOCIATES, INC.
CIVIL ENGINEERS
750 Springdale Drive
East Troy, Wisconsin 53120
(262) 765-1000

PROJECT NO. 1315
DESIGNED BY: EWB
CHECKED BY: EWB
DATE: 11-1-00
SCALE: 1"=50'
SHEET NO. 21 OF 31
DWG. NO.

13027 22.031



FINAL

PLAN OF SUBDIVISION
THE HILLS OF SULLIVAN
FOR
THE WILKINSON GROUP

STORM SEWER PROFILES

CHESTER COUNTY, PA

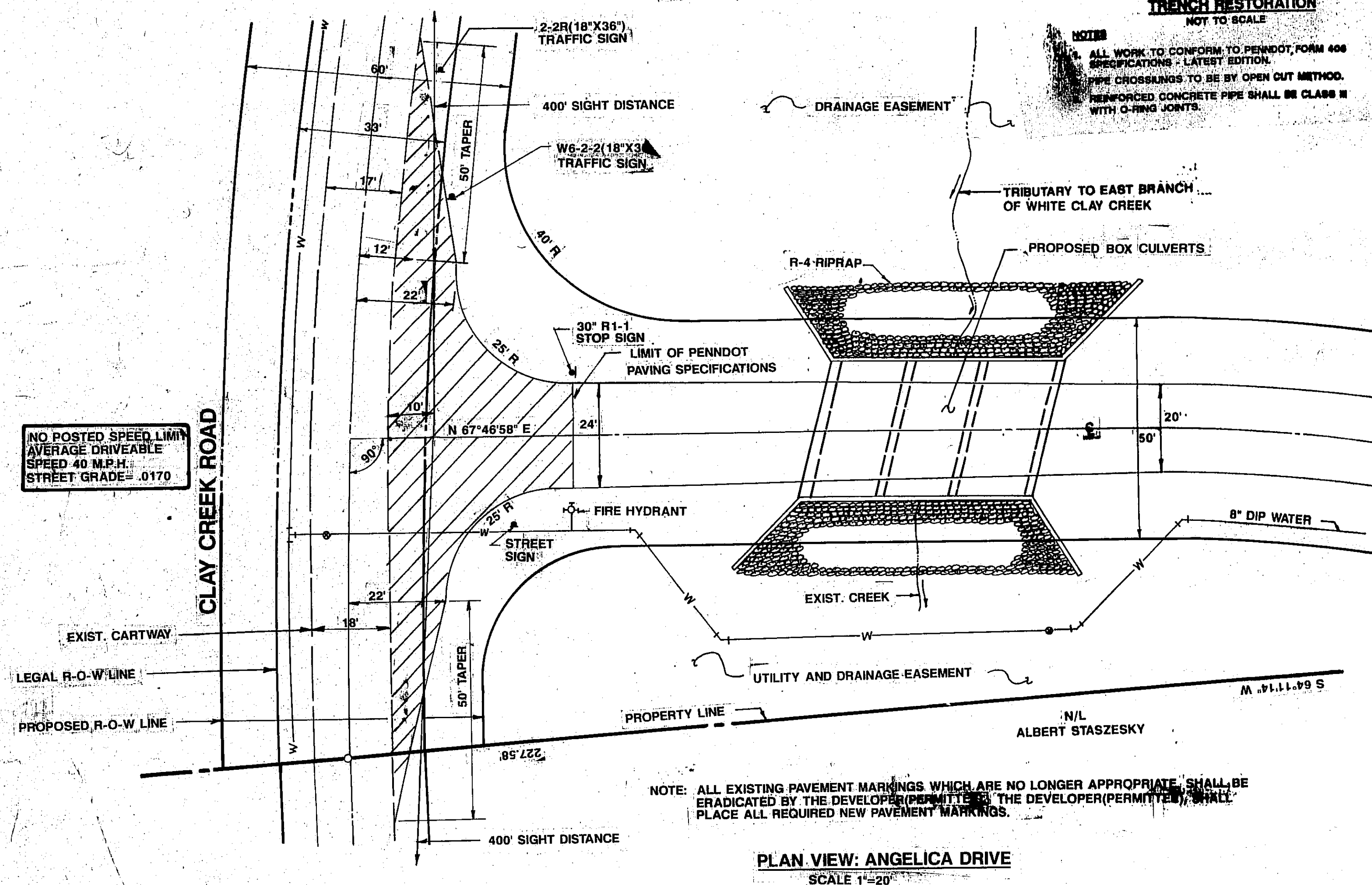
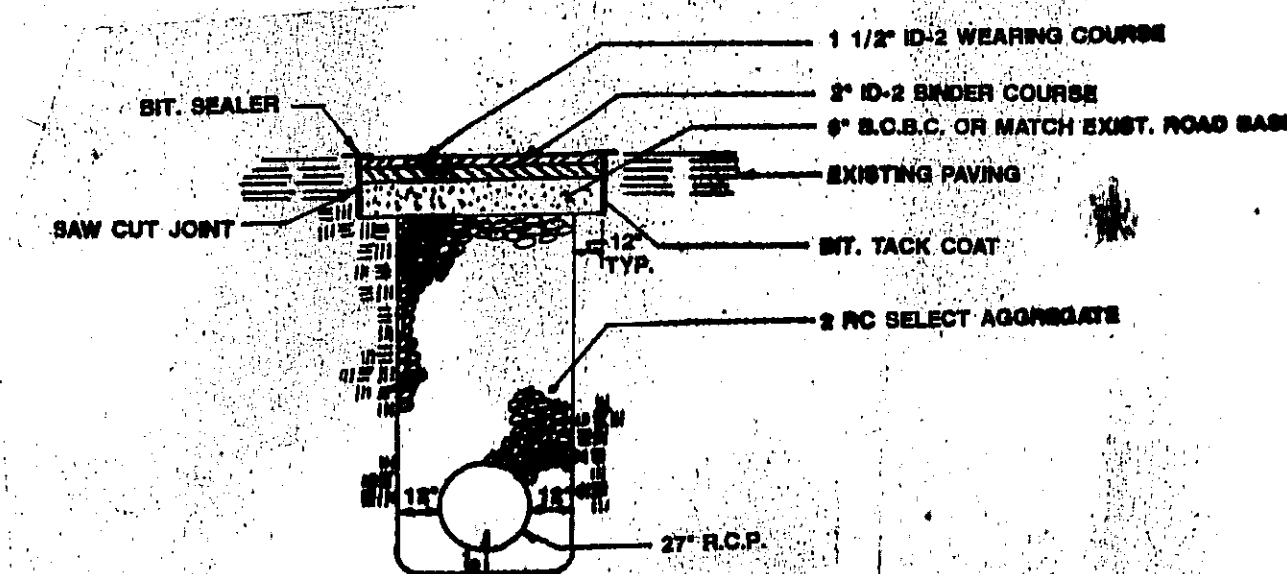
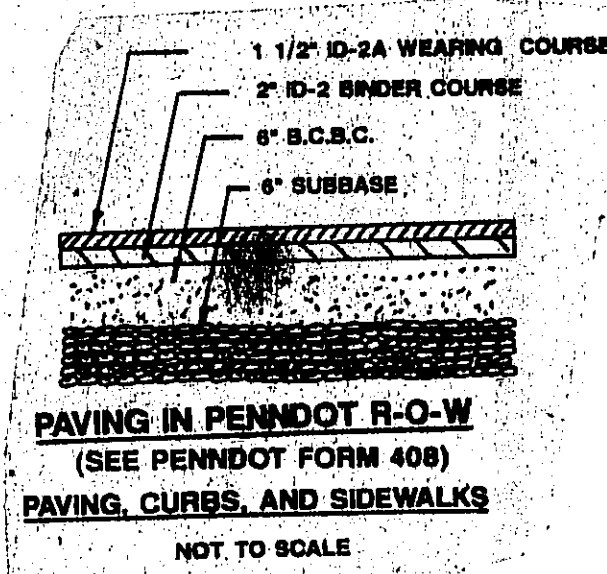
Edward B. Welch & Associates, Inc.
700 Springdale Drive
Eaton, Pennsylvania 15841
(717) 865-1595



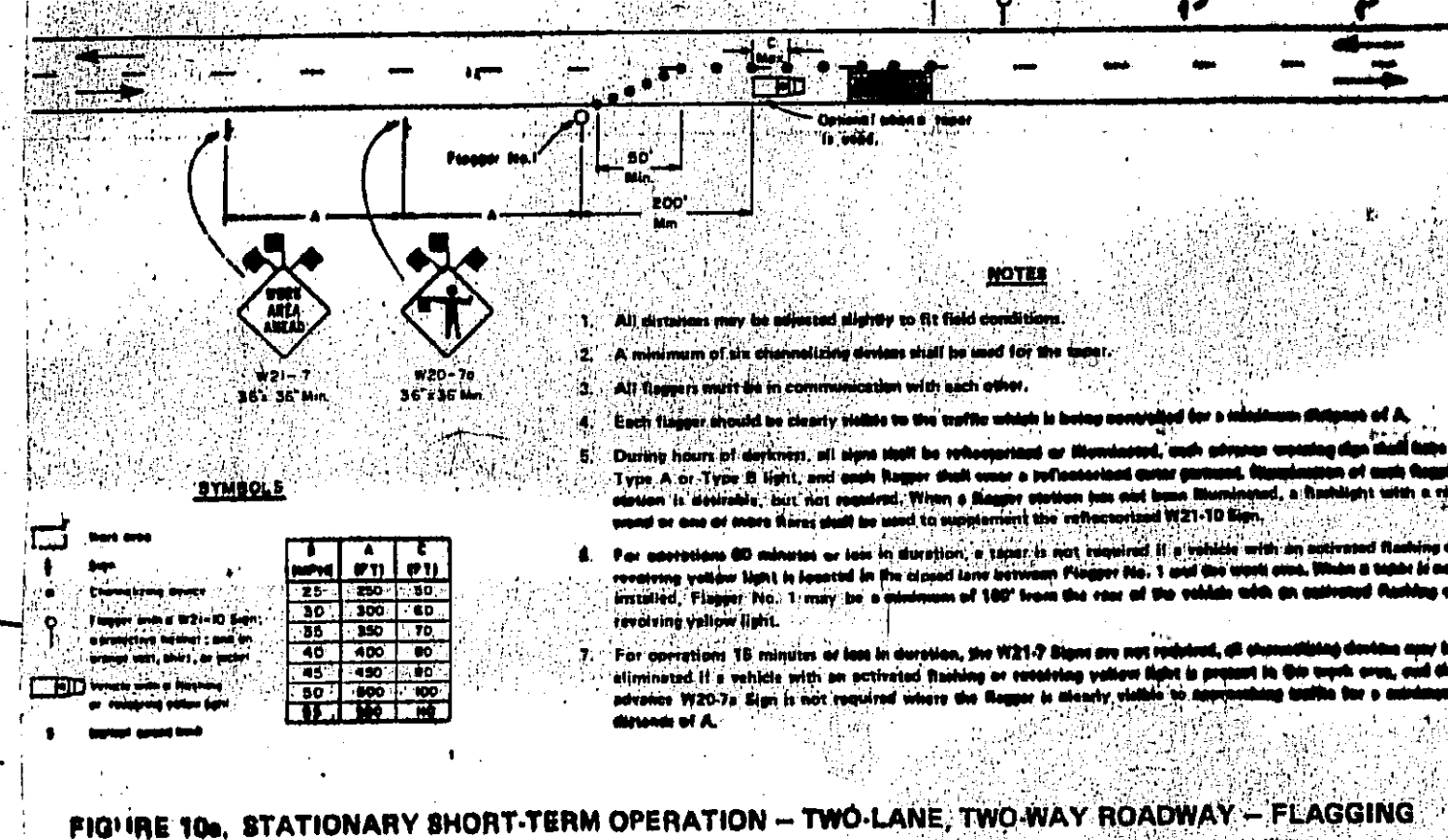
PROJECT NO. 1315
DESIGNED BY D.J.D.
CHECKED BY
DATE 2-8-93
SCALE 1"=50'
SHEET NO. 22 OF 31

NO.	DATE	REVISION
1	2-8-93	REV. 1-1-93 PER MEETING WITH TWP. ENGR. 1-1-93
2	2-8-93	NOT THIS SHEET
3	2-8-93	REVISIONS TO PROFILE: INLET #26 TO ENDWALL E-5
4	2-8-93	REVISIONS TO PROFILE: INLET #22 TO ENDWALL E-4
5	2-8-93	REVISIONS TO PROFILE: INLET #32 TO ENDWALL E-7
6	2-8-93	REVISIONS TO PROFILE: INLET #35 TO ENDWALL E-8
7	2-8-93	REVISIONS TO PROFILE: MANHOLE M-7 TO ENDWALL E-6

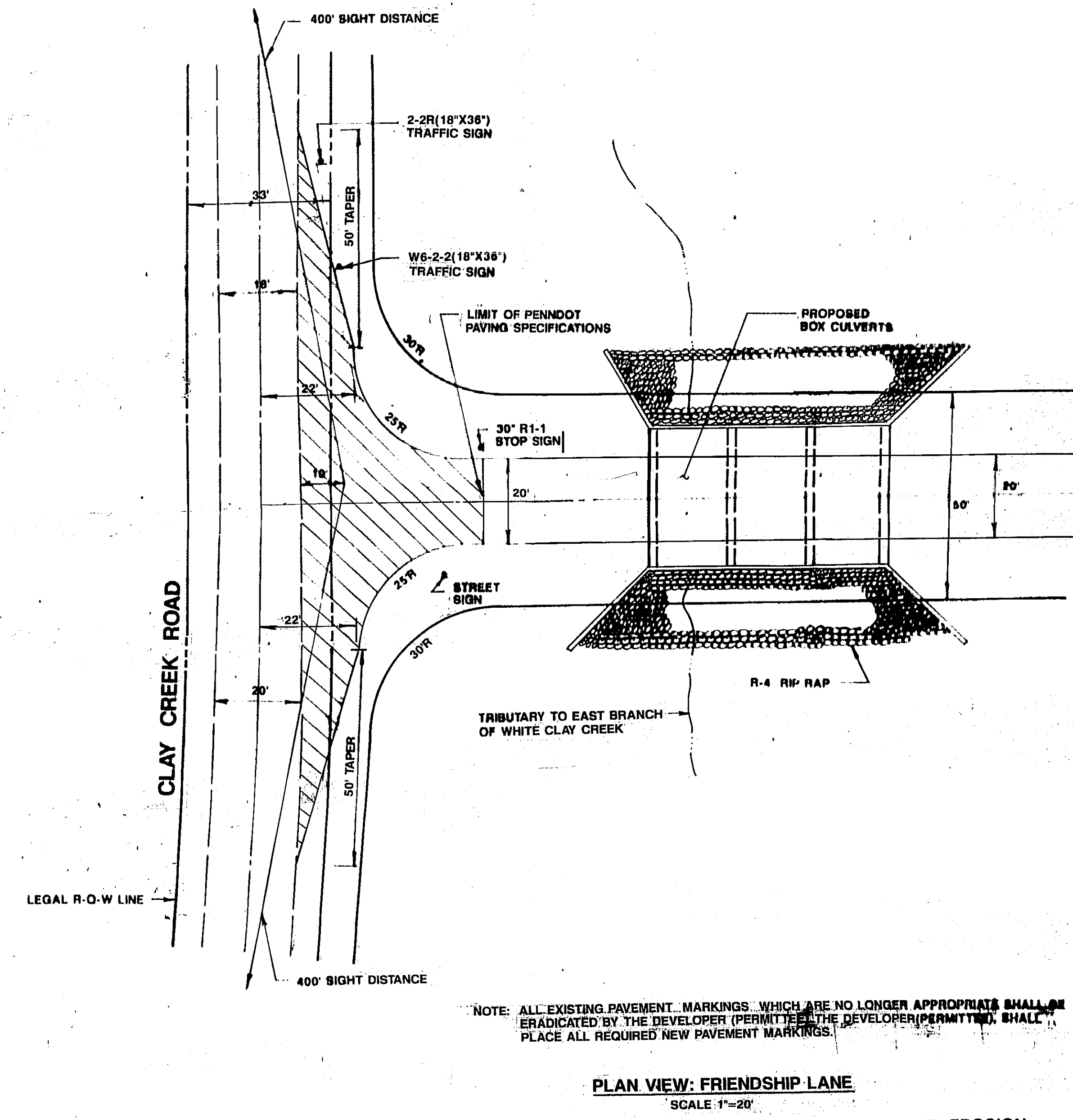




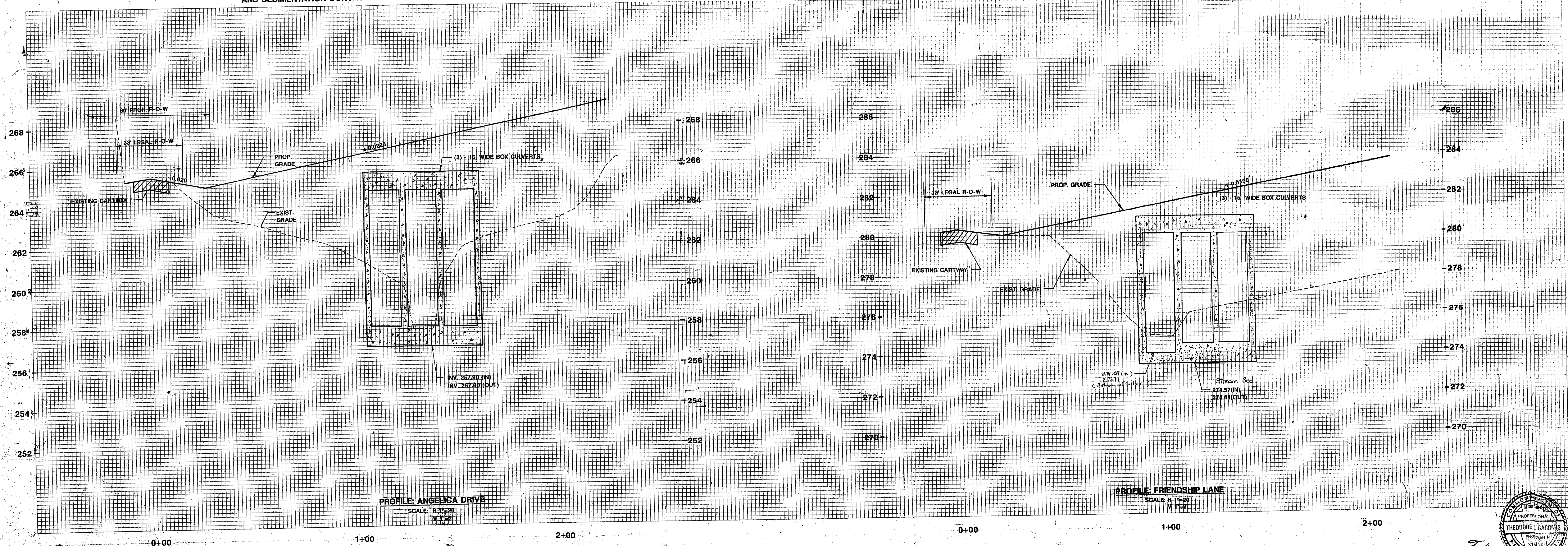
*NOTE: SEE SHEETS 8 AND 24 FOR SEQUENCE OF CONSTRUCTION AND EROSION AND SEDIMENTATION CONTROL FACILITIES INSTALLATION.



NOTE: This sight distance obstruction (including but not limited to embankments and vegetation) shall be removed by the developer (permittee) to provide a minimum of 400 feet of sight distance to the left and 400 feet of sight distance to the right for a driver exiting the proposed intersection onto the through highway. The driver must be considered to be positioned 10 feet from the near edge of road at an eye height of three feet six inches (3'-6") above the pavement surface. The point sighted by the exiting driver shall be three feet six inches (3'-6") above the pavement surface located in the center of the closest highway travel lane designated for use by approaching traffic. This sight distance shall be maintained by the permittee.



*NOTE: SEE SHEETS 10 AND 24 FOR SEQUENCE OF CONSTRUCTION AND EROSION AND SEDIMENTATION CONTROL FACILITIES INSTALLATION.



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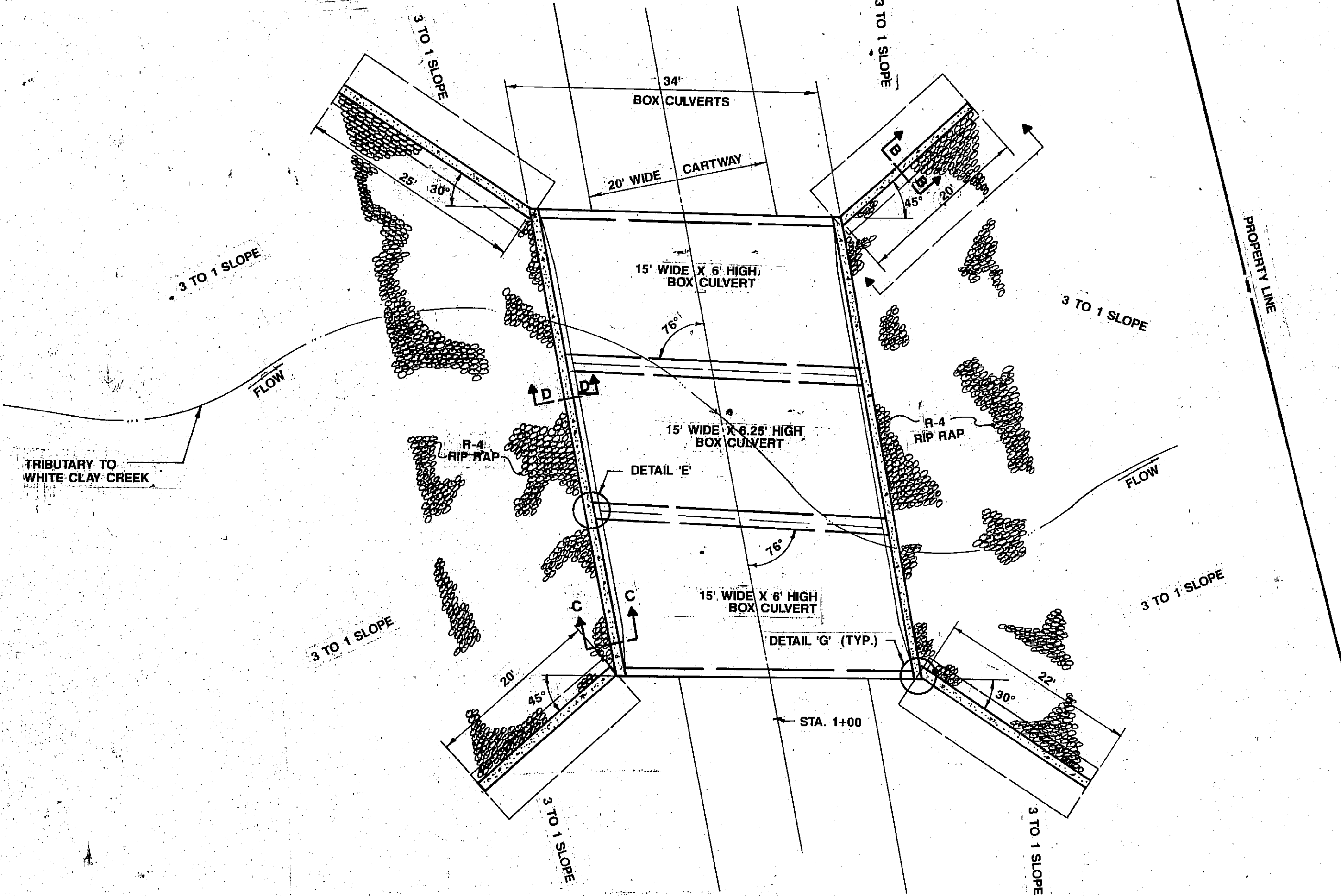
1. State Status of Information - Contains a summary of the status of the information, including a description of the information, the source of the information, and the date of the information.
2. Comments - Contains a summary of the comments received from the public, including a description of the comments, the source of the comments, and the date of the comments.
3. Comments not Requested for the Agency Data Review - Contains a summary of the comments received from the public, including a description of the comments, the source of the comments, and the date of the comments.
4. Agency's Response to Comments - Contains a summary of the agency's response to the comments, including a description of the response, the source of the response, and the date of the response.
5. Comments - Contains a summary of the comments received from the public, including a description of the comments, the source of the comments, and the date of the comments.

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26 of 31 / 13027

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B-13027 P-1

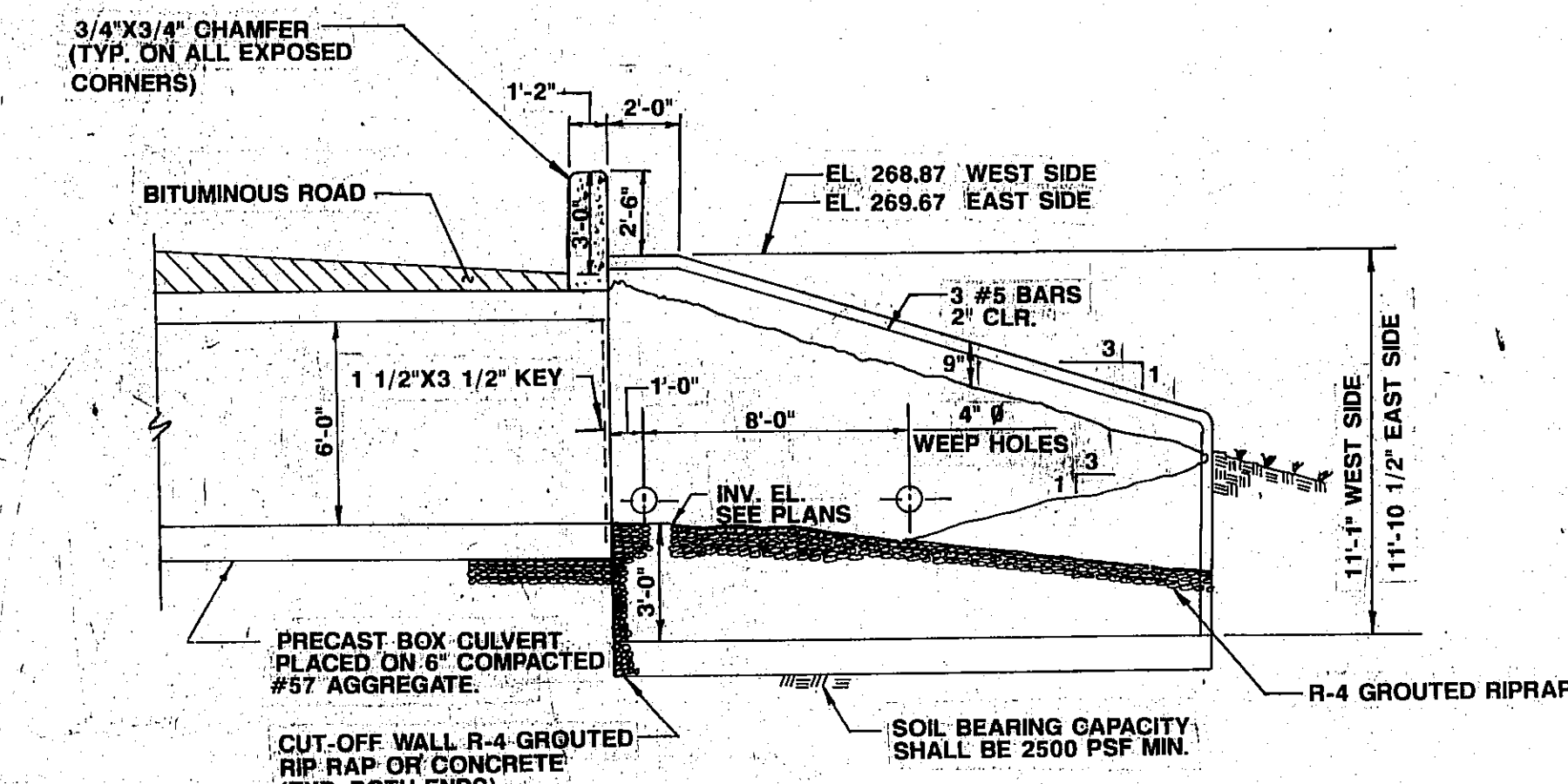
95 JUL 26 PM 2:55



ANGELICA DRIVE
BOX CULVERT DETAIL

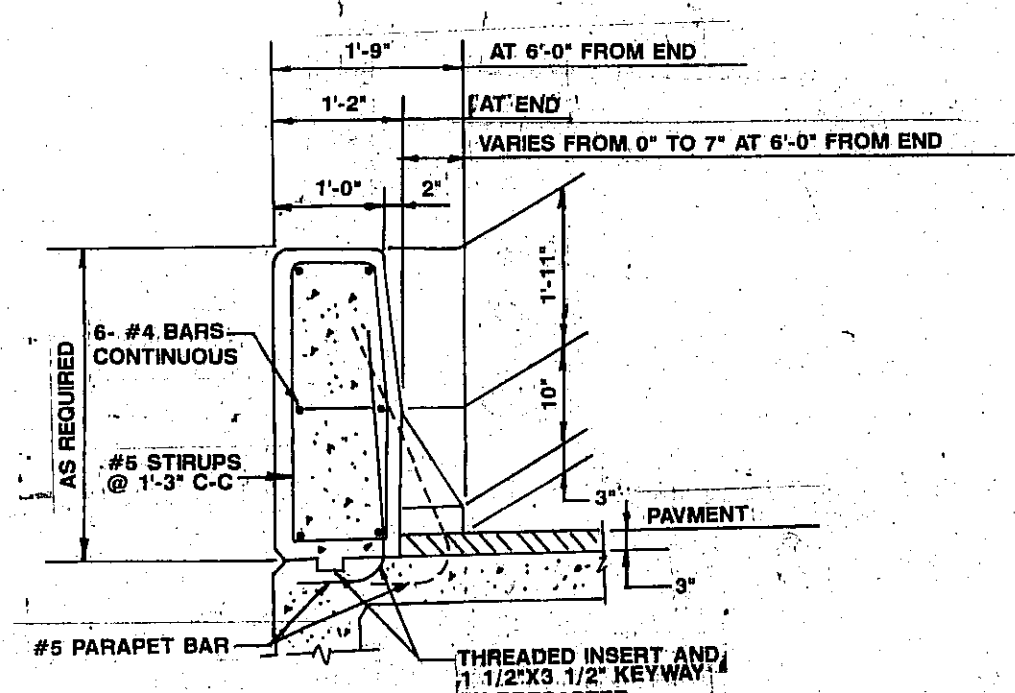
SCALE: 1"=10'

- GENERAL NOTES
1. ALL CONCRETE SHALL BE A MINIMUM STRENGTH OF 4000 PSI @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED $\pm 4\%$ (TYPE AA CONCRETE).
 2. ALL REINFORCING STEEL SHALL BE ASTM 615 GR. 60.
 3. PRECAST CONCRETE BOX CULVERT PER ASTM C-850 AND ALL APPLICABLE PENNDOT SPECS. PLACE CULVERT ON 6" COMPACTED #57 AGGREGATE.
 4. BACKFILL SHALL BE IN ACCORDANCE WITH PENNDOT PUB. 408 SEC. 208.



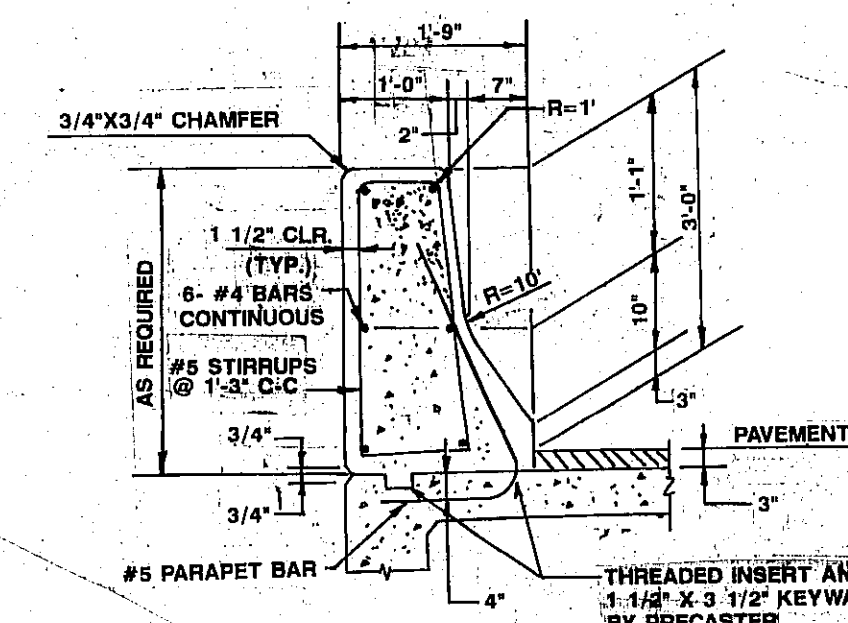
SECTION A-A

SCALE: 1"=8'-0"



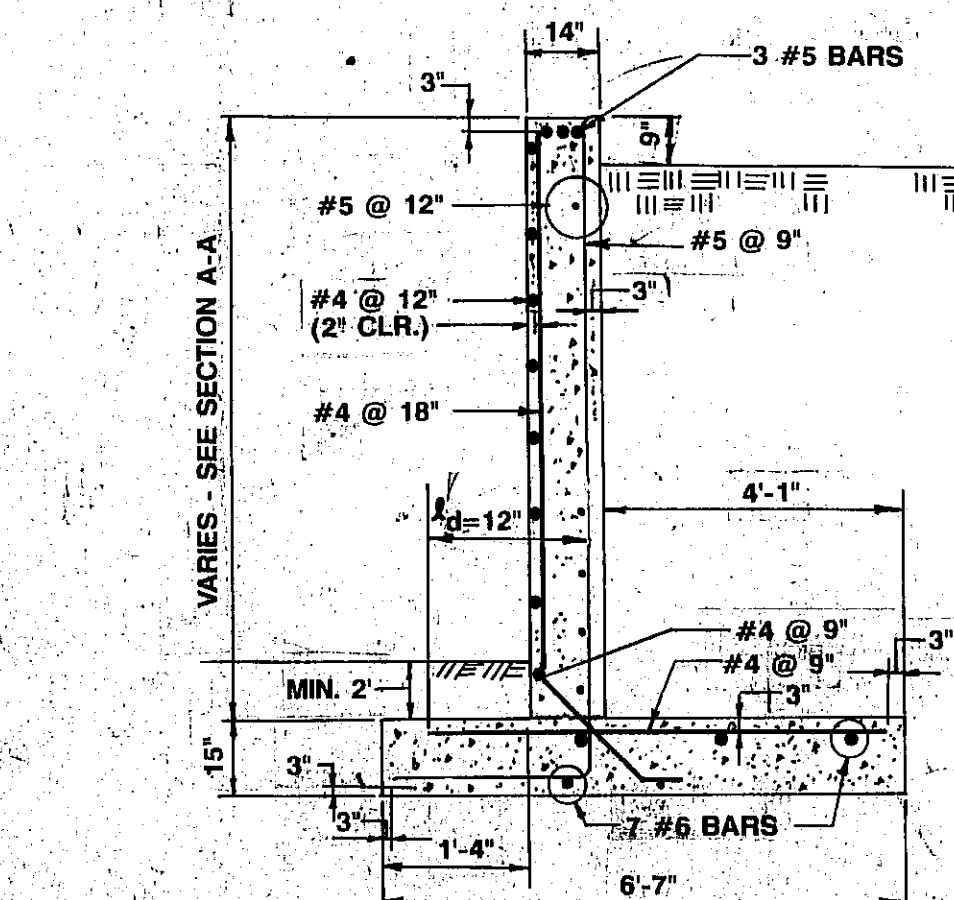
SECTION C-C (END 6'-0" PORTIONS)

NOT TO SCALE



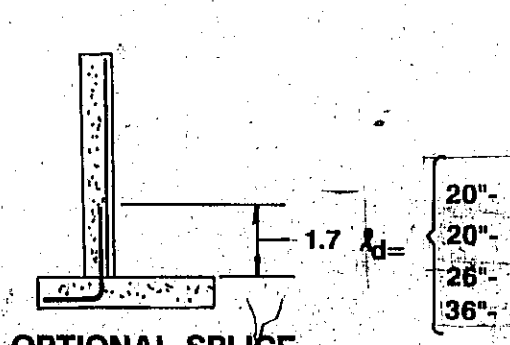
SECTION D-D (CENTER PORTION)

NOT TO SCALE

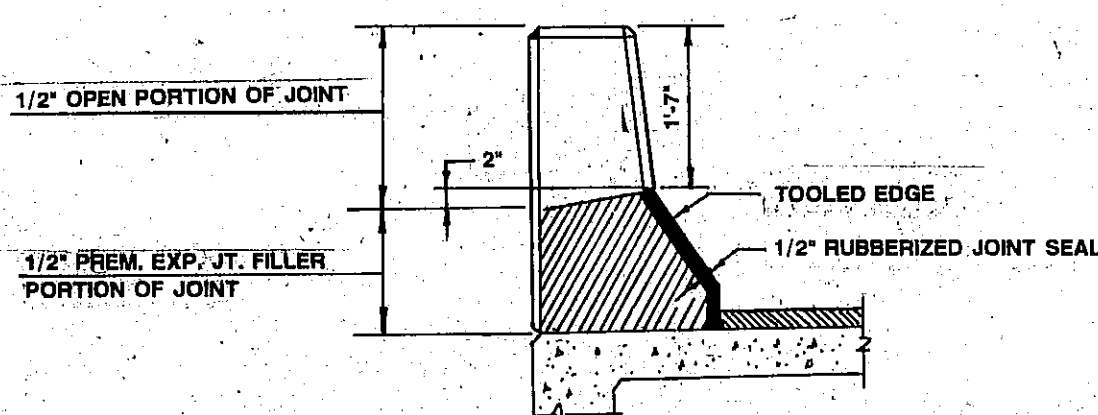


SECTION B-B

NOT TO SCALE

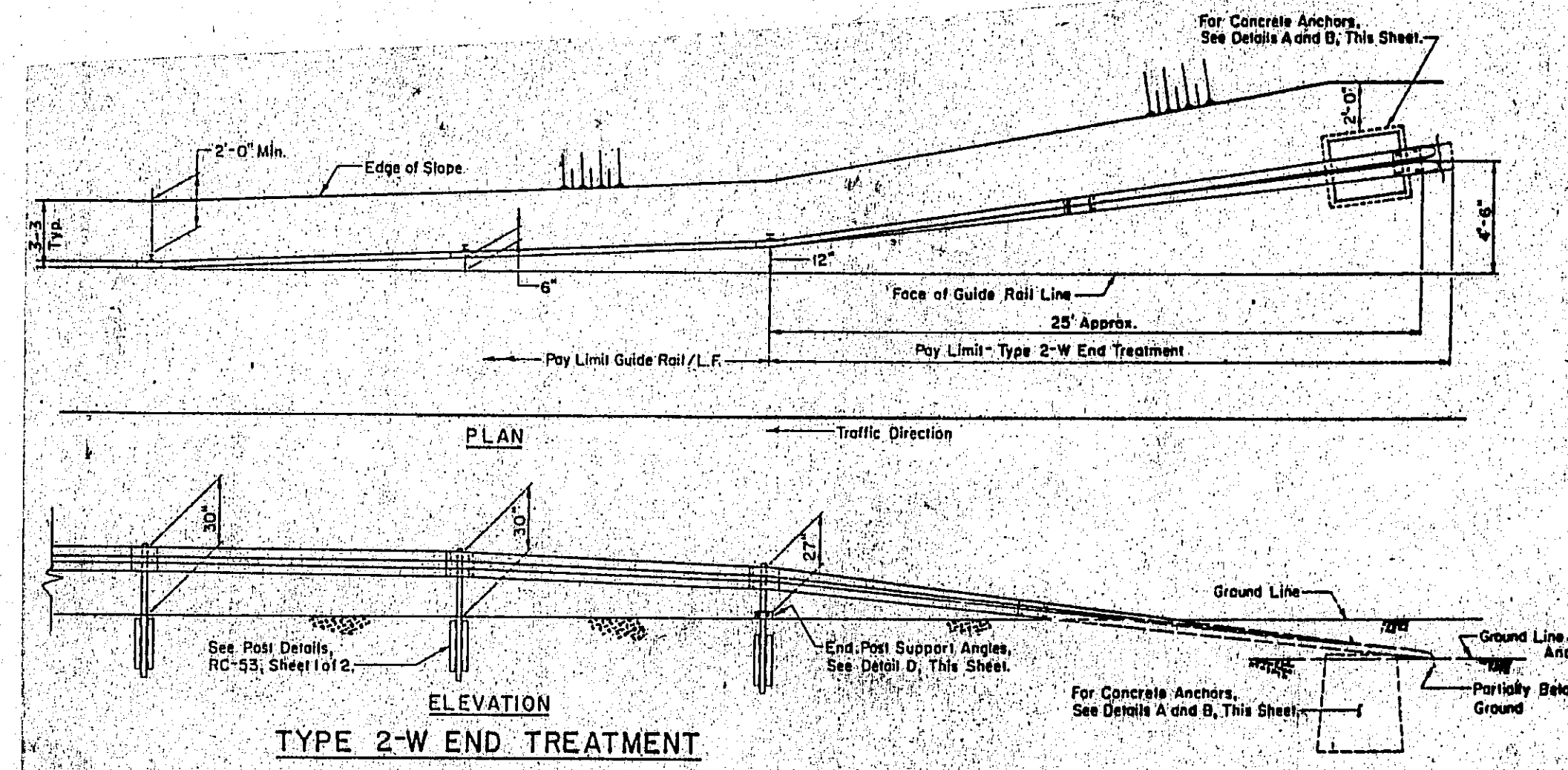


OPTIONAL SPLICE

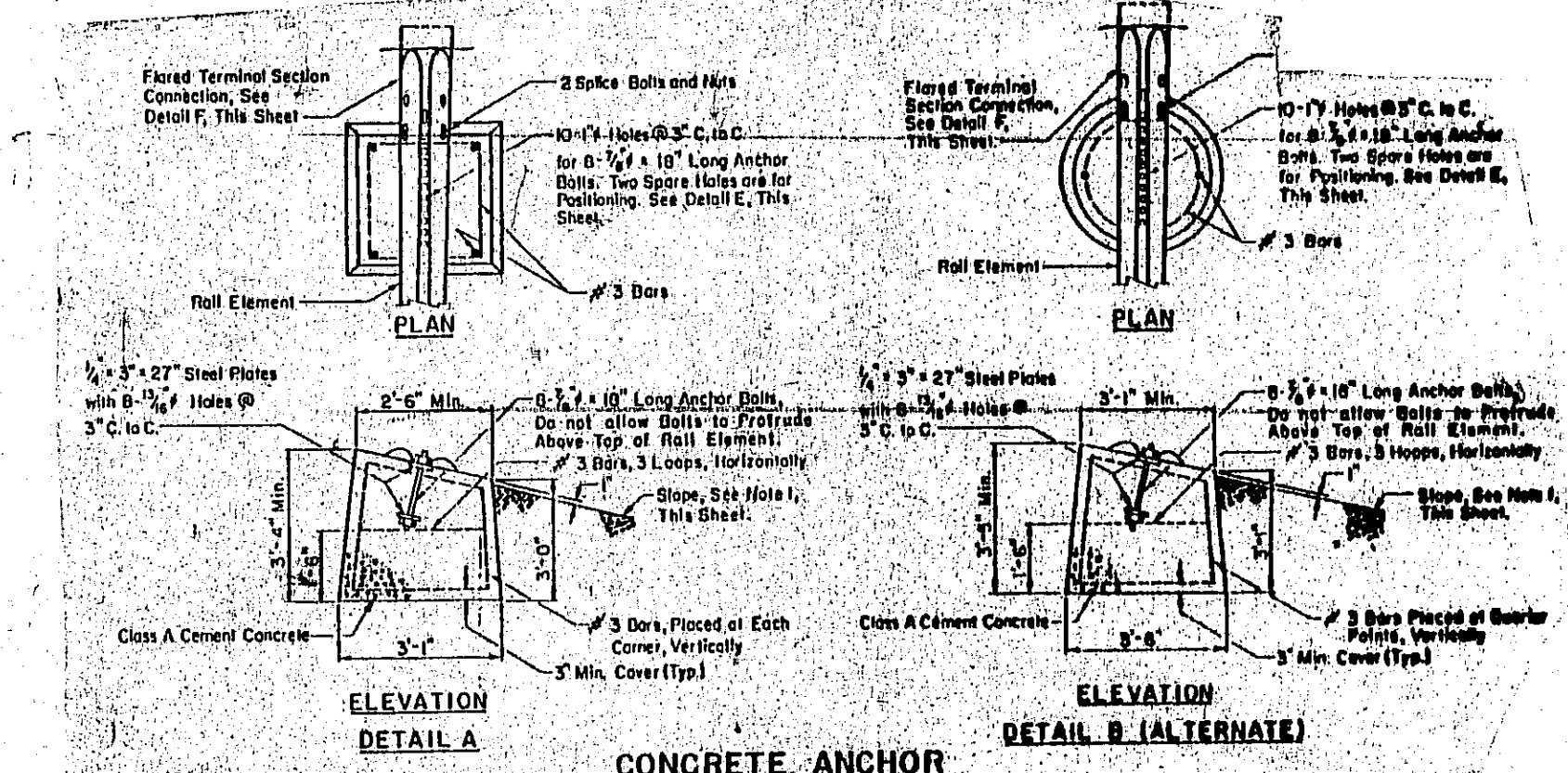


1/2" OPEN JOINT DETAIL

NOT TO SCALE

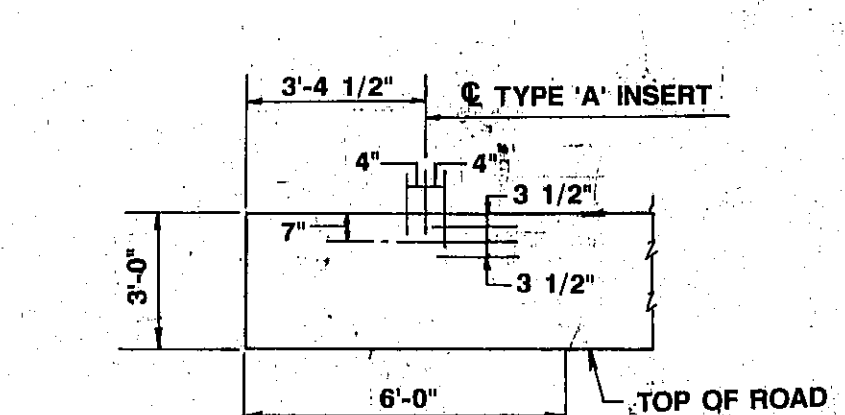


ELEVATION
TYPE 2-W END TREATMENT



CONCRETE ANCHOR

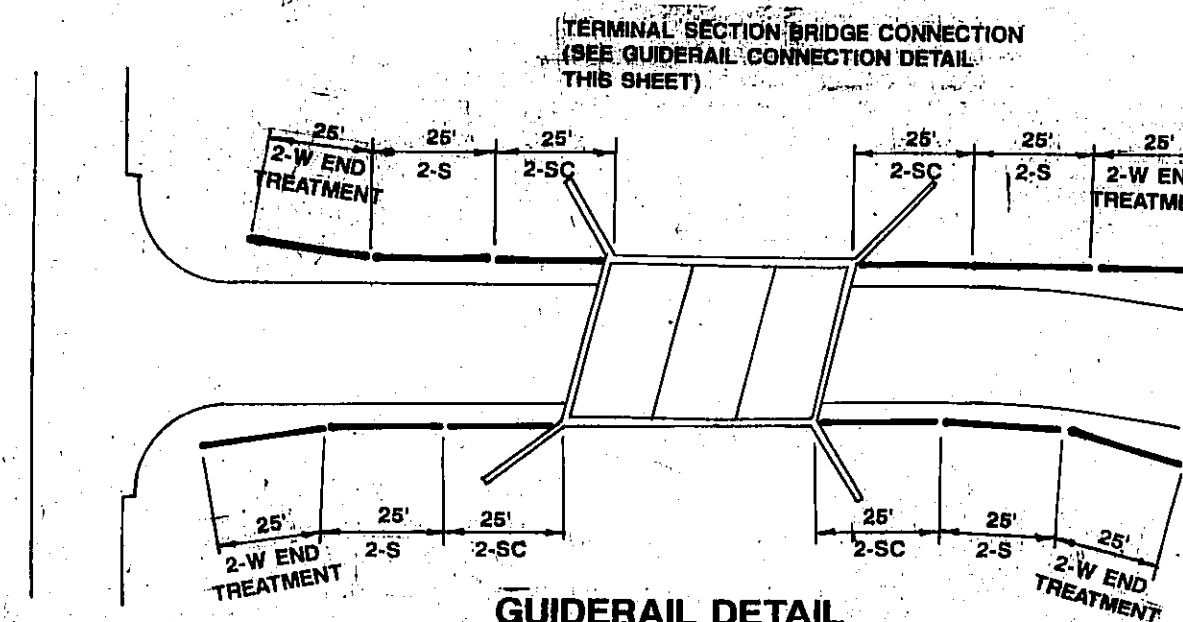
NOT TO SCALE



GUIDE RAIL CONNECTION DETAIL @ PARAPET

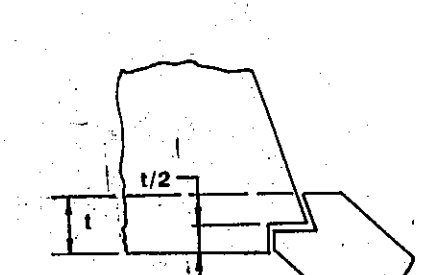
NOT TO SCALE

NOTE: ALL GUIDE RAILS SHALL BE PROVIDED AND INSTALLED, IN ACCORDANCE WITH PENNDOT PUBLICATION 408 AND APPLICABLE R.C. STANDARDS.

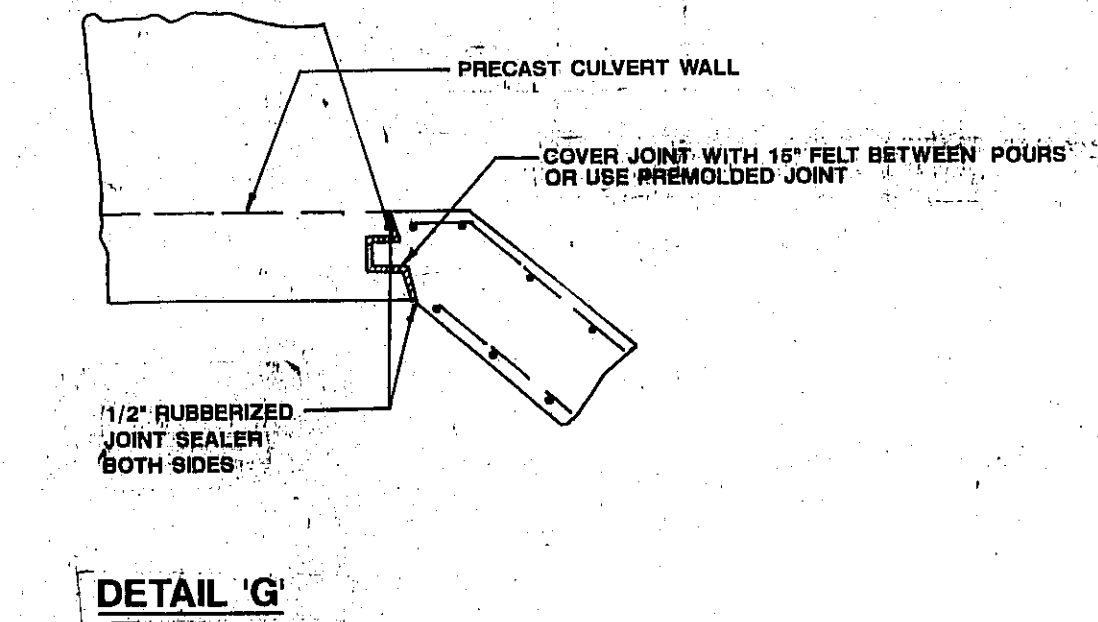


GUIDETAIL DETAIL

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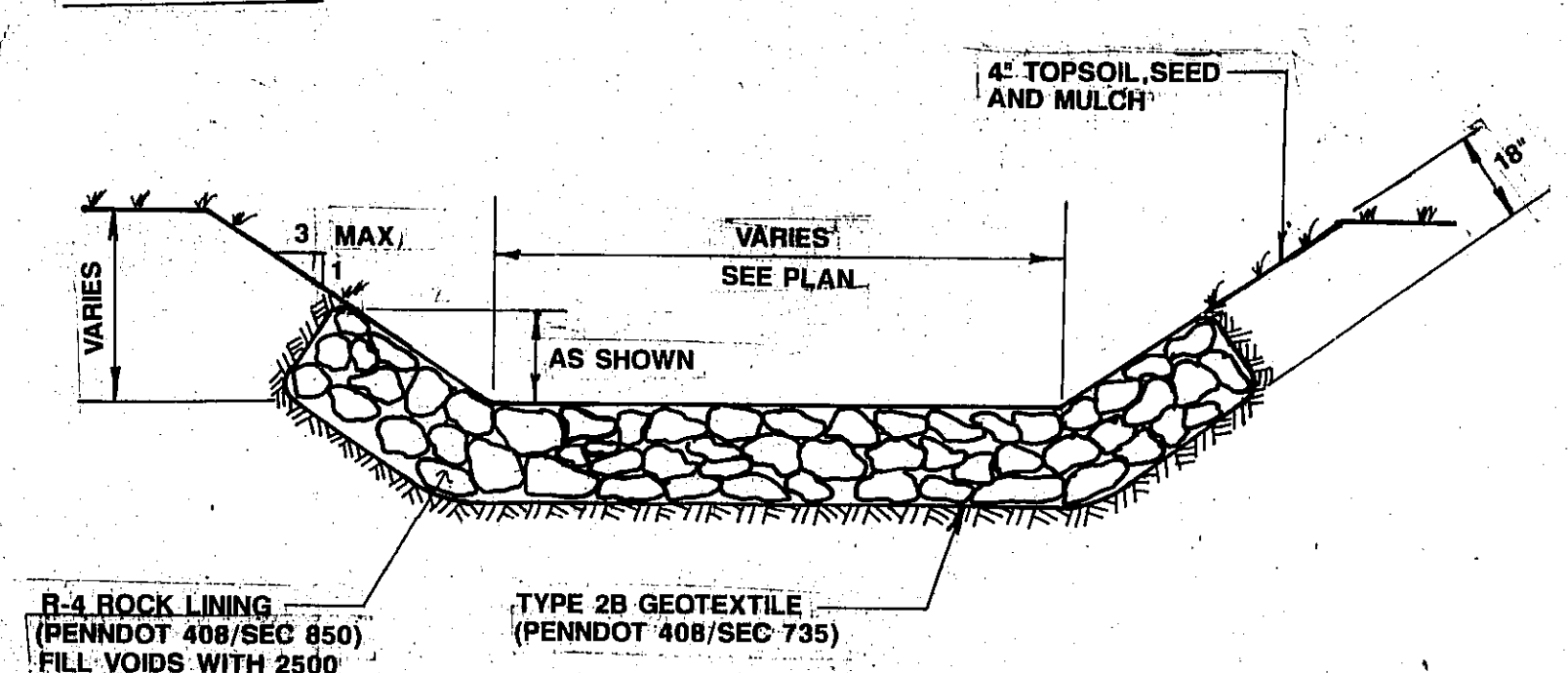


ALTERNATE KEY



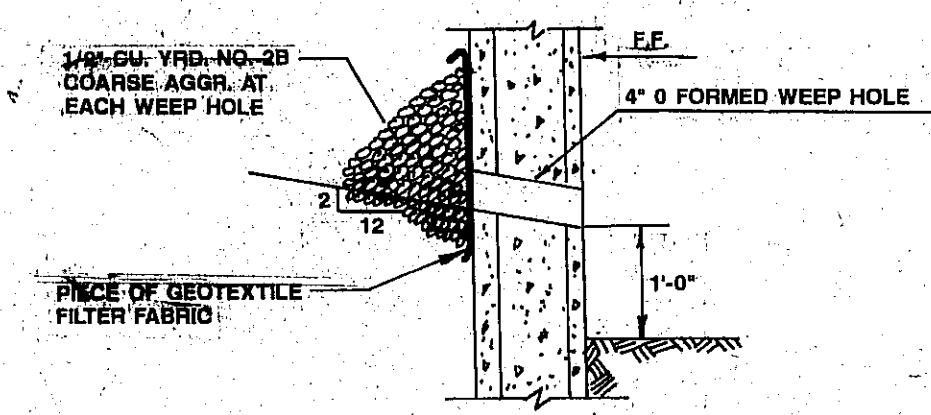
DETAIL G

NOT TO SCALE



ROUTED RIPRAP APRON

NOT TO SCALE

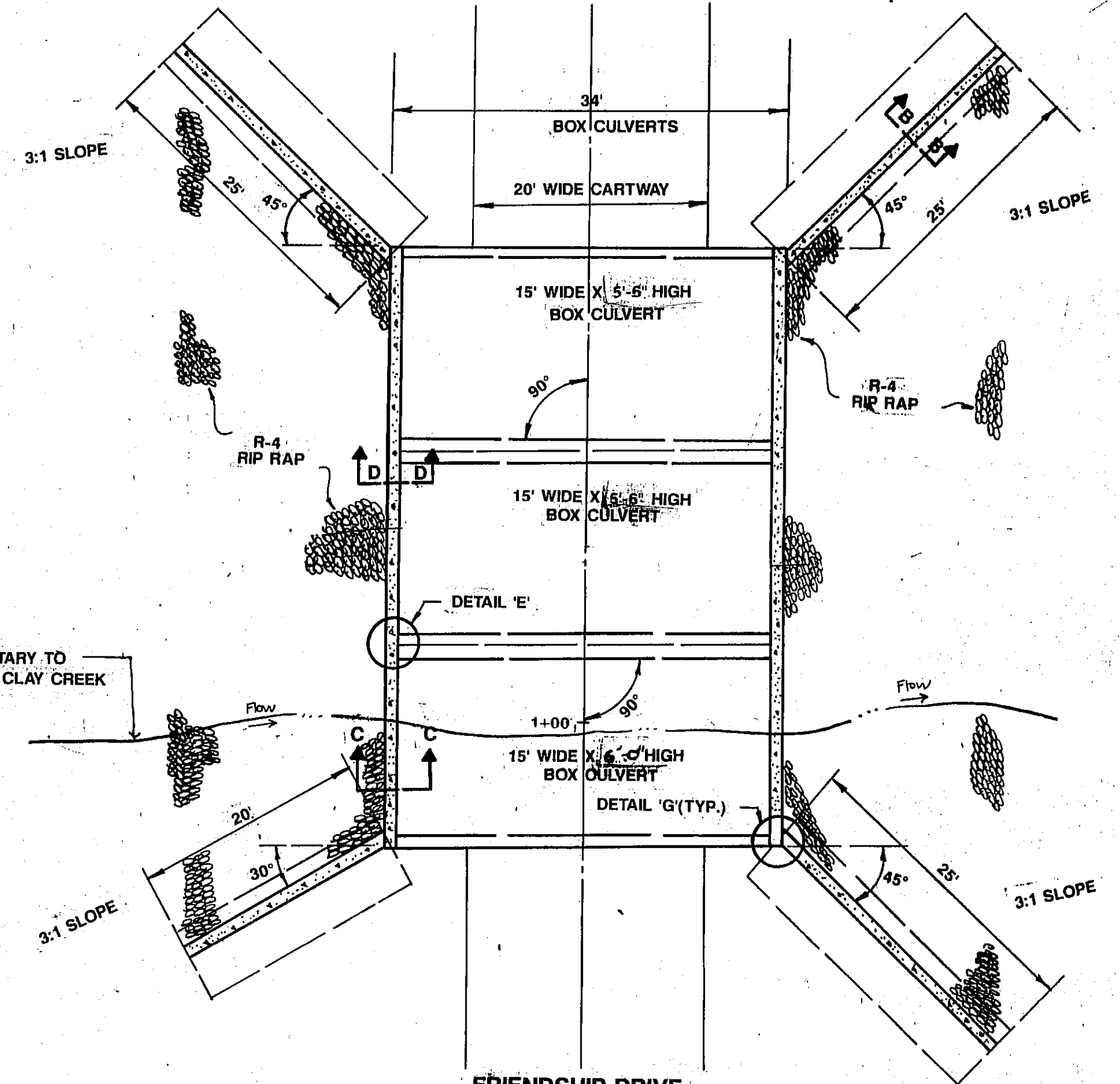


WEEP HOLE DETAIL

(TYPICAL FOR ABUTMENTS AND WINGS)

NOT TO SCALE

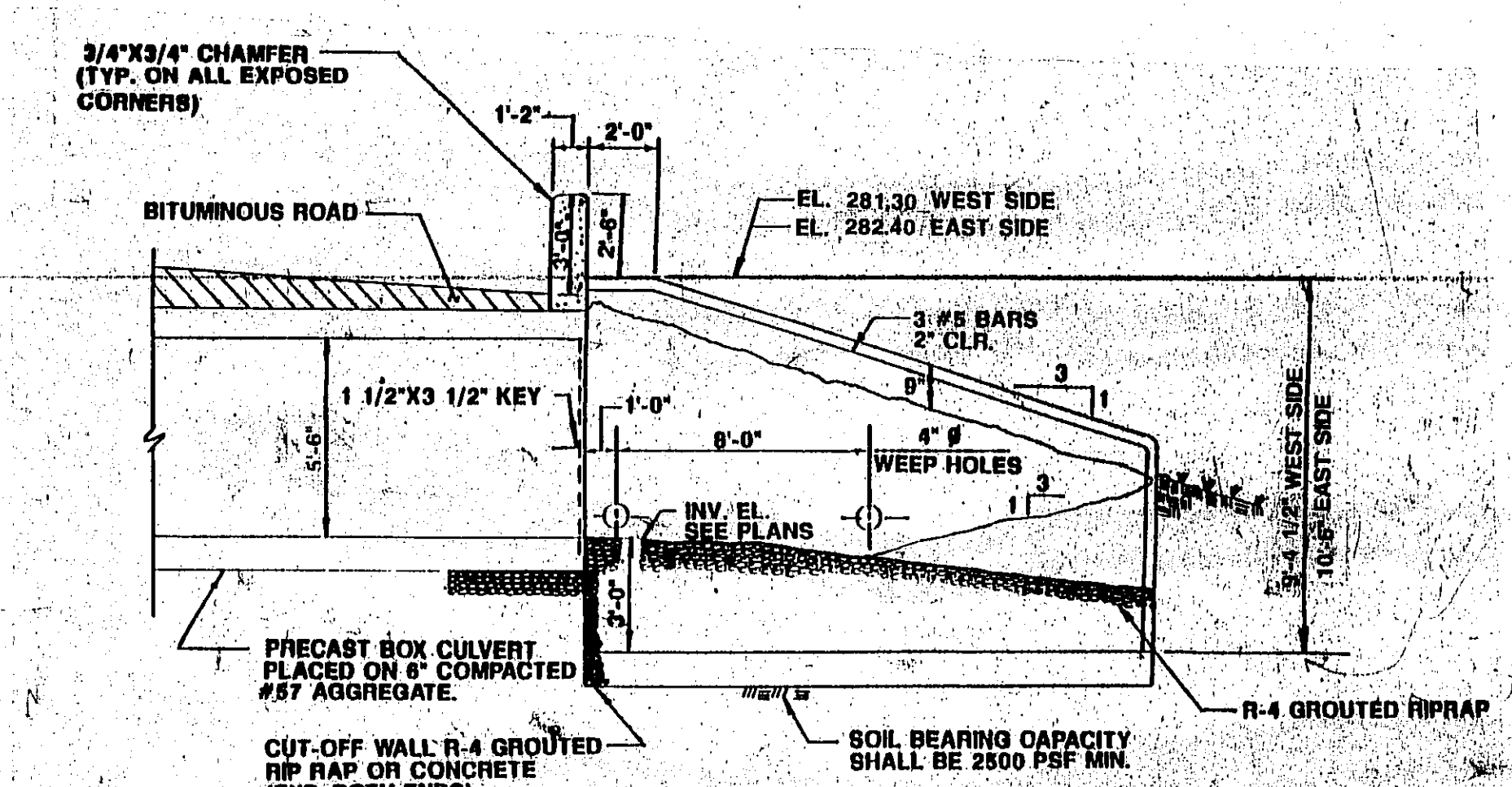
FINAL
BOX CULVERT DETAILS



FRIENDSHIP DRIVE
BOX CULVERT DETAIL

SCALE: 1"=10'

- GENERAL NOTES
1. ALL CONCRETE SHALL BE A MINIMUM STRENGTH OF 4000 PSI @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED $\pm 4\%$ (TYPE AA CONCRETE).
 2. ALL REINFORCING STEEL SHALL BE ASTM 615 GR. 60.
 3. PRECAST CONCRETE BOX CULVERT PER ASTM C-850 AND ALL APPLICABLE PENNDOT SPECS. PLACE CULVERT ON 6" COMPACTED #57 AGGREGATE.
 4. BACKFILL SHALL BE IN ACCORDANCE WITH PENNDOT PUB. 408 SEC. 208.
 5. SHOP DRAWINGS SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR CULVERT CONSTRUCTION 15 DAYS PRIOR TO THE START OF WORK.

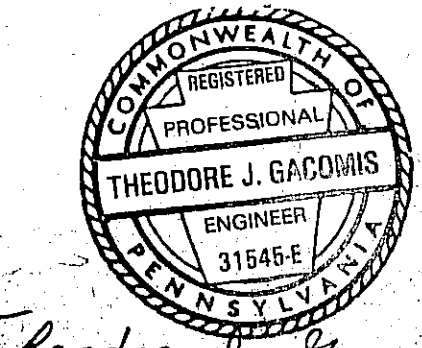


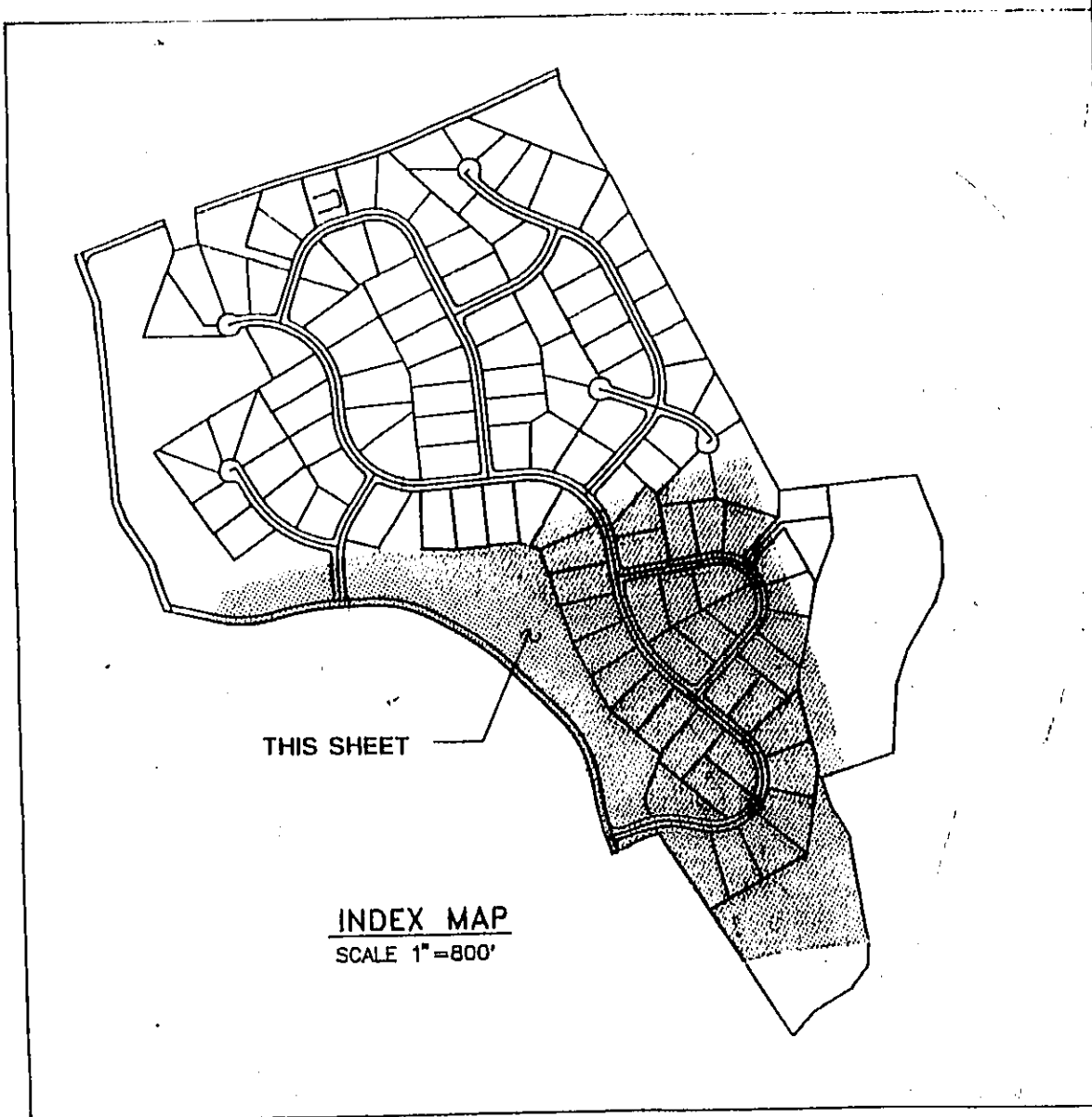
SECTION A-A

SCALE: 1"=8'-0"

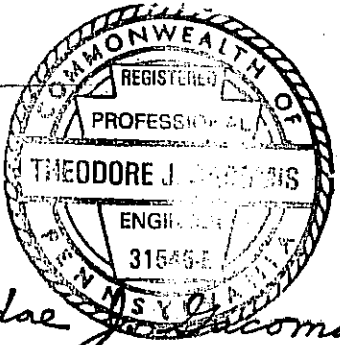
REVISIONS		
NO.	DATE	REVISIONS
1	1-24-94	REV. PER COMMENTS DISCUSSED IN PHONE CONVERSATION WITH TWP. ENG. ON 1-24-94.
2	1-31-94	REV. PER COMMENTS DISCUSSED AT BOARD OF SUPERVISORS MEETING ON 12-5-93 AND PER CDD REVIEW LETTER DATED 12-15-93.
3	11-12-93	REVISED PER THE FOLLOWING AGENCY REVIEW LETTERS: CWA DATED 10-28-93, CDD DATED 10-18-93, AND TWP. ENGR. DATED 11-1-93.
4	9-30-93	REVISED PER TWP. ENGR. REVIEW LETTER DATED 9-25-93.
5	9-13-93	NOT THIS SHEET.
6	6-18-93	REV. 7-1-93 PER MEETING WITH TWP. ENGR. 6-18-93.


PLAN OF SUBDIVISION
THE HILLS OF SULLIVAN
THE WILKINSON GROUP
Edward B. Walsh & Associates, Inc.
CIVIL ENGINEERS
750 Springdale Drive
Eaton, Pennsylvania 15021
(215) 363-1360

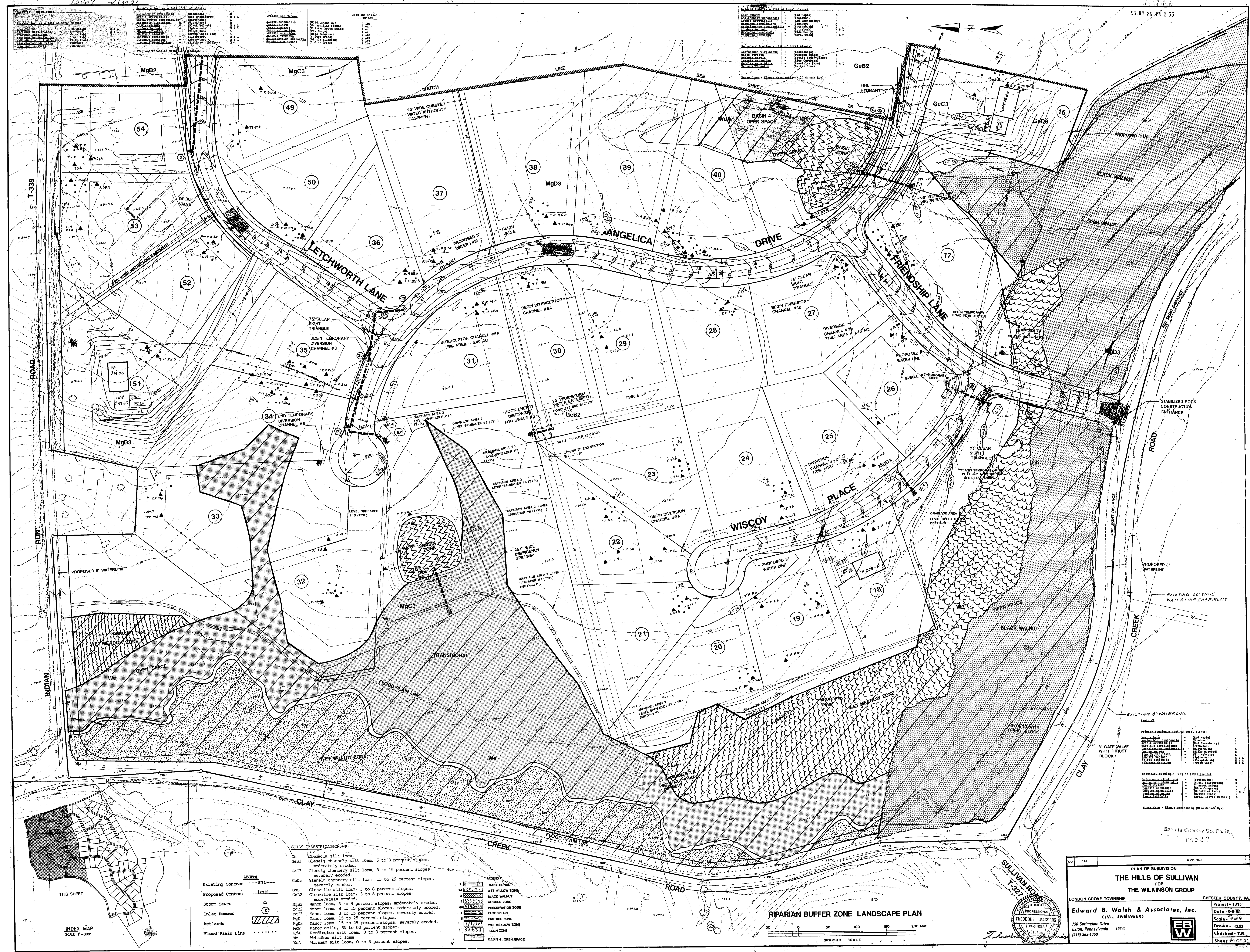


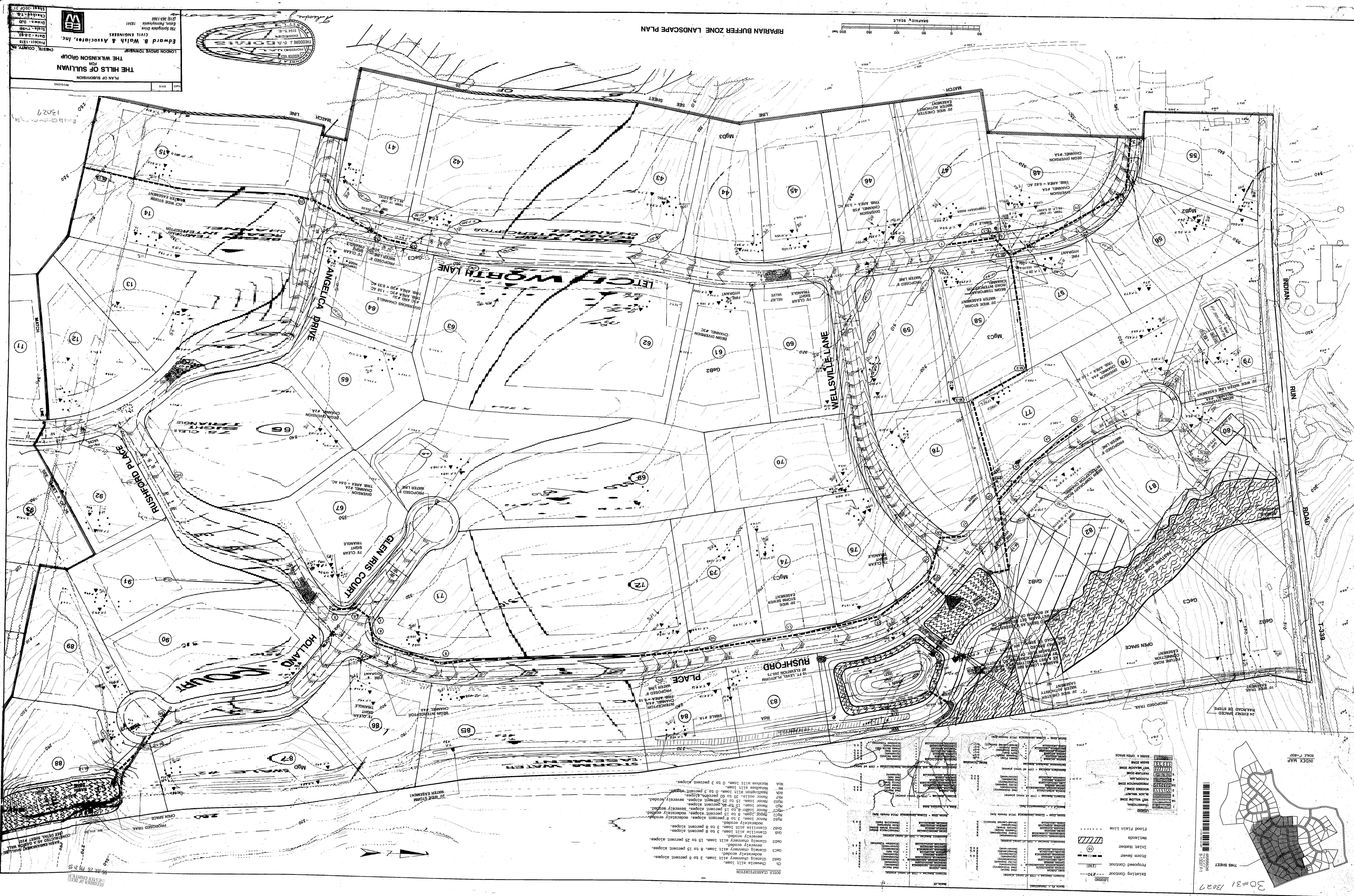


Recd. in Charter Co. Pa. in
13027



NO.	DATE	REVISIONS
<p>PLAN OF SUBDIVISION</p> <p>FOR THE HILLS OF SULLIVAN</p> <p>FOR THE WILKINSON GROUP</p>		
LONDON GROVE TOWNSHIP		CHESTER COUNTY, PA.
<p>Edward B. Walsh & Associates, Inc.</p> <p>CIVIL ENGINEERS</p> <p>750 Springdale Drive Exton, Pennsylvania 19341 (215) 363-1260</p>		<p>Project - 1315</p> <p>Date - 2-8-93</p> <p>Scale - 1"=50'</p> <p>Drawn - DJD</p> <p>Checked - T.G.</p> <p>Sheet - 27 OF 31</p>
		





I. Riparian Forest Buffer

Purpose: To remove nutrients, sediment, organic matter and pesticides from surface runoff, subsurface flow and near-surface ground water by deposition, absorption, plant uptake, denitrification and other processes, thereby reducing pollution and protecting surface water and ground water - David J. Welch, *Riparian Forest Buffer*.

Goal: To plan for and manage a streamside forest which is compatible with the surrounding landscape and that which protects the quality of water resources.

Challenge: The control of invasive exotic weeds such as Multiflora Rose, Oriental Bittersweet and Japanese Honey-suckle.

Zone 1 - Transitional Zone

Site Preparation: Mow area prior to planting. Spray invasive exotic weeds with the herbicide "Rodeo". A seedbed should be performed with a backpack sprayer by a qualified person or Field Botanist. For best results, spray in late summer.

Planting Recommendations: This zone has the greatest potential for species diversity due to the combination of upland and lowland conditions. It is of utmost importance that the trees be sorted into the following categories prior to planting:

1. Lowland species - L
2. Adaptable species for high and low ground - H & L
3. High ground species - H

These species and soil types should be clearly defined for those planning the planting. The trees will be required to make adjustments as to which plant is best suited to the area in which they are planting. The trees are to be planted in 9 foot centers in the form of a grid. The grid should be maintained by moving between the rows. There are areas within this zone that are heavily vegetated with cattails. Planting is not recommended within these pockets of vegetation. The planting area extends 75 feet from the north bank of the White Oak Creek.

Maintenance: Maintenance of this zone will require moving only as needed to reduce competition for the tree seedlings. Moving should be performed in late spring and late summer. Continue as needed or until canopy closure (approximately six to seven years). A bi-annual herbicide application ("Rodeo") should be performed in late spring and late summer. The herbicide application may be needed only once a year and should continue on an as needed basis.

Zone 2 - Black Walnut Zone

Site Preparation: Site preparation for this zone will require the use of a chainsaw. Initially, the perimeter should be manually cut to the ground. Subsequently, a weed eater may be used (before the trees mature) to shear foliage to the ground. A herbicide application of "Rodeo" may be used as an alternative. With the practice of shearing foliage to ground should ultimately eliminate this invasive species.

Planting Recommendations: The three species recommended for planting in this area are to be planted in naturalistic drifts. One species should be planted in these areas that are not currently vegetated with cattails and Skunk Cabbage. The drifts of black walnuts are to be planted on 12 to 15 foot centers, depending on the size of the area. The planting area extends from 4 to 6 feet and the planting area should be maintained on 2 to 6 foot centers.

Maintenance: A bi-annual herbicide application ("Rodeo") in spring and late summer should be performed with a backpack sprayer by a qualified person or Field Botanist to eliminate invasive species. Insects should be controlled and eliminated as described above.

Zone 3 - Black Walnut Zone

This zone displays the most disturbance and the greatest challenge. The recommendation is to release the entire wooded area from invasive exotic species. Leave the area unplanted for at least one year to allow for continued control. When the area is relatively free from weedy exotics, interplant for species diversity.

Site Preparation and Maintenance: It must be understood that more damage will be done to an already beleaguered ecosystem if a large herbicide application is used for clearing the exotic understory. It is recommended that a small horsepower tractor and brushhog be used to clear the Multiflora Rose, preferably. When the ground is frozen, in areas where the existing Black Walnuts are too close to clear between, a Gravelly Walk-behind could be used. Extreme care must be taken to prevent scarring the existing trees with the equipment. After the Multiflora Rose has been cut down, the raspberries should be sprayed with an herbicide ("Rodeo") in late summer. The spraying should be performed by a qualified person or Field Botanist. A combination of small horsepower tractor with tank sprayer and a backpack sprayer may be used to apply herbicide. Any tree tubes should be removed at this time. Once the understory is free from exotics, natural regeneration should occur. It is, therefore, recommended that this zone be annually inspected by a qualified person. The "volunteer" tree seedlings should be flagged with brightly colored tree tape (particularly in the first few years) to protect them from the on-going herbicide applications. The proliferation of any past species such as Norway Maple should be noted on these inspections and later removed. The herbicide application of "Rodeo" should be performed on a bi-annual basis in spring and late summer for as long as is needed to control the exotic understory.

Planting Recommendations: Following the control of the exotic understory, the area is to be planted for species diversity. The species are to be planted prior to planting into three categories. Those species best suited to lowland (L) conditions, those species best suited to high ground (H) or upland conditions and those species adapted to both low and high ground (H & L). These species are to be planted in a naturalistic manner according to soil type, in the more open canopy.

Zone 4 - Floodplain Zone

Site Preparation and Maintenance: In this zone, the woods edge should be cleared with Multiflora Rose, Japanese Honey-suckle and Oriental Bittersweet. It is recommended the entire edge to the stream be released from the exotic understory. A Gravelly Walk-behind combined with hand labor is recommended for the initial clearing. Extreme care must be taken to prevent scarring the existing trees. A herbicide ("Rodeo") application to control raspberries should be performed in late summer with a backpack sprayer by a qualified person or Field Botanist. Any Norway Maples should be removed.

Following the control of the exotic understory, this zone should be monitored for natural regeneration. The site should be walked by a qualified person and "volunteer" seedlings should be flagged with brightly colored tree tape (particularly in the first few years) to protect them from the on-going herbicide applications. During these inspections, the proliferation of any past species such as Norway Maple should be noted and later removed. A bi-annual herbicide application of "Rodeo" should be performed in spring and late summer for as long as is needed to control the invasive exotic species. After three years, the herbicide application may only be needed once a year (in late summer).

Planting Recommendations: There are no planting recommendations for this zone.

Zone 5 - Preservation Zone

This area is unique because of its ecological health. Due to the steep slope, this area has not been disturbed. As a result, there exists a climax forest type that is actively free from invasive exotics. As a symbol of what this forest once was and of its restoration potential, it is recommended that this area be preserved and valued for its health in an otherwise beleaguered ecosystem.

Zone 6 - Floodplain Zone

Site Preparation: Invasive exotics are not a problem in this zone, therefore, there are no site preparations recommended.

Planting Recommendations: The planting extends 75 feet from the existing tree line into a field which is currently planted with a covercrop. Prior to planting, the species should be sorted into three categories: those species best suited to lowland conditions (L), those best suited to high ground (H), and those species adapted to both soil types (H & L). The trees are to be planted according to soil type. A sough exists on the edge of and within the planting area. It is recommended that the sough be planted with those species adapted to lowland (L) conditions. The first row of trees are to be planted 15 feet from the existing tree line. They are to be planted on 9 foot centers in grid fashion to allow for the maintenance of moving between the rows.

Maintenance: The area will require moving, as infrequently as possible, and not to exceed three times a season. This practice should continue for as long as needed or until canopy closure (approximately 6 to 7 years).

Zone 7 - Pasture Zone

Site Preparation: The stream edges are to be released from the existing Multiflora Rose. This clearing may be performed by a small horsepower tractor and brushhog combined with hand labor, preferably when the ground is frozen. Both sides of the stream should be cleared to aid in eliminating the Multiflora Rose seed source. The stream area is to be treated with an herbicide ("Rodeo") in late summer with a backpack sprayer by a qualified person or Field Botanist.

Planting Recommendations: Prior to planting, the species should be sorted into three categories: lowland (L), high ground (H), and adaptable species (H & L). They should be planted according to soil type on 9 foot centers in grid fashion to allow for moving between the rows. The planting area extends from the north bank of the stream. The trees are to be planted only on the north bank of the stream.

Maintenance: Moving between the planted rows will be required, as infrequently as is needed, and not to exceed three times a season. This practice should continue for, as long as necessary, or until canopy closure (approximately six to seven years).

PLANTING METHODS & SPECIFICATIONS

The sizes of plant material recommended are bareroot seedlings and/or liners (bareroot), or container plants available from private nursery sources and, in some cases, the state. The disadvantages to bareroot plants as opposed to container plants are the following: bareroot plants must be handled properly by both the sender and the receiver. The trees must be shipped promptly and planted promptly. If weather conditions are not ideal, the plants must be stored properly - either packed in a moist medium with cool-air storage, or temporarily "heeled-in" to prepared soil. The use of container material is significantly preferable. Container material allows more latitude for planting schedules. Bareroot material is generally for spring planting. Usually, bareroot plants would extend to late spring or early summer. A possible fall planting, if survival of potted material would be superior to that of bareroot seedlings as the roots are already established.

The physical planting of bareroot seedlings is performed with a planting bar. This method expedites the planting process. It is important that the tree not be planted too deeply. Planting depth is singularly the most important factor when planting.

Deep bowing of tree seedlings is a problem that cannot be underestimated. It is, therefore, recommended that tree tubes or "tubex" be used to protect the seedlings from deer and rodents. The tubes also provide the seedling shade which replicates the light conditions of a woodland, in addition to creating a sort of greenhouse effect which significantly increases growth rates. Opaque tubes are for use in open conditions such as those found in Zones 1 and 4. Clear tubes are to be used in the understory such as that found in Zone 2. Tree tubes are not recommended for those species to be planted in Zone 3, nor are they recommended for use on tulip poplar and Ash trees. Both these trees grow rapidly, thereby outgrowing their protection within the second season. The initial investment for the tree tube does not seem justified in these cases. Furthermore, deer do not seem to favor tulip poplar. The remaining trees should be protected with a 4 foot tree tube and secured to a stake. A mesh cover should be installed over the tree tube to protect cavity nesting birds. Those trees and shrubs not protected with a tree tube should be tagged with a 4 foot stake so they will be visible to those performing the maintenance.

GENERAL MAINTENANCE PROCEDURES AND AGREEMENTS

Maintenance of the Riparian Forest Buffer is the most important factor for ensuring survivorship. A commitment to maintain these areas as described herein and continuing for ten years is important. It is understood that the Hanks/Wilkinson Partnership is responsible for the maintenance of the Riparian Forest Buffer and Meadow areas for as long as they are active on the site. Following this time frame, London Grove Township will assume responsibility for the maintenance procedures up to and including the tenth year of the committed time frame.

For the first few years following planting, the seedlings and their tree shelters should be inspected. The stakes should be secure and the tubes upright to prevent wind damage to the seedling. The mesh covers for the shelters should be observed. They should be replaced and secured as is necessary. At this time, any dead seedlings should be noted to determine the percentage of overall survivorship. Toward the end of the Hanks/Wilkinson Partnership, the planting should be evaluated. If the percentage of survivorship is less than 75 percent, re-planting may be considered.

It is important to note that the stewardship of the Riparian Forest Buffer would benefit from the consistent supervision of a qualified person to assist in making some of the many challenging decisions necessary when managing a landscape restoration project.

III. Wet Meadows

Purpose: To provide an additional buffer between the turr grasses on private property and the streamside forest; to aid in "sealing" the woodland edge from invasive exotic species.

Goal: A self-sustaining plant community consisting of grasses, sedges and forbs native to Chester County to be managed as an early successional stage through its evolution to an early growth forest.

Challenge: To establish a meadow of native species relatively free from invasive exotics on a site that has recently been cultivated. No commercial seed source is known for some of the primary eastern meadow grasses.

Wet Meadow - Zones 1 and 2

Planting Recommendations: Due to the lack of agricultural disturbance, it appears that most, if not all, of this zone is currently vegetated with native meadow species. Therefore, there are no planting recommendations for those areas that have not been cultivated. If there is a small area within this zone that is currently cultivated, the same species and procedures should be used as described below for Wet Meadow - Zone 4.

Maintenance: The meadow will require an annual mowing best performed in March. A bi-annual herbicide ("Rodeo") application performed in late spring and late summer with a backpack sprayer by a qualified person or Field Botanist for control of exotic species, particularly Multiflora Rose, this practice should continue. As long as is necessary for control of this pest species. The ecological succession of the Wet Meadow should be monitored annually. "Volunteer" tree seedlings should be marked with a stake and protected from the subsequent maintenance procedures.

Wet Meadow - Zone 4

This area is currently under agricultural use. Therefore, it will require seeding with native meadow species. Due to the prohibitive cost of many of the seed sources, it is recommended that this zone be planted primarily with a mixture of grasses and sedges. Some of the most important flowering species will be introduced in limited quantities, thereby ensuring their seed source for natural processes of regeneration. An additional possibility exists that if used in combination with the above practice, the plants may be diverse. The existing meadow in Zones 1 and 2 should be cut and stacked in the fall (mid-September to the third week in October). The meadow should be cut with the stems of the grasses and sedges most desired. In this case, the stems of the meadow should be spread as much as the newly seeded meadow in Zone 4. For best results, this practice should continue for two to three seasons.

Site Preparation and Planting Recommendations: As the grasses to be planted are "warm season" plants, they require warm soil temperatures for germination and growth. Therefore, a late spring or early summer seeding is recommended (late May to mid-June). Due to limited seed availability, it would be wise to plant the seed order early (January). When selecting the seed, seed that retains some of its perianth and awns is desirable as it makes for better soil contact, as well as being less expensive. After crop removal, the site is to be cultivated (disk or disk) followed by dragging or raking. Plant immediately with nurse crop and meadow species. Immediate planting is not possible and weeds germinate on the prepared site, a very light disking is recommended prior to seeding. A Brillion alfalfa grass seed is recommended as it broadcasts the seed rather than drilling it into rows. When seeding, the use of a nurse crop is helpful for suppressing the growth of annual weeds. After the seeds have been planted, the site should be rolled using a cultipacker to ensure seed to soil contact. The area should then be mulched with clean straw, not field hay. Because the meadow is seeded with perennials, it will require a minimum of two to three years to mature.

Caution: It has been determined that grain rye produces chemicals in its roots that suppress the germination of other plants. These chemicals persist in the soil even after crop removal. If the site is currently planted with grain rye or has been treated with the chemical Atrazine within the last two years, planting should be postponed. In either case, the site should be planted with a cover crop of oats for a season to allow for these chemicals to dissipate.

Maintenance:

First Year: In the first year, it is likely that weeds will grow faster than the desired species. If weeds become thick by mid-summer and have reached a height of 8 to 12 inches, the site should be mowed. The weeds should not be allowed to exceed 12 inches as they will shade out the seedlings, in addition to smothering them when cut down. A flail-type mower is recommended as the use of rotary mowers and sickle bars may also smother the seedlings. Mow to a height of 6 inches. In the fall, the site may be mulched with the "meadow hay" harvested from Zones 1 and 2.

Second Year: In early spring, mow the meadow to the ground. As biennial weeds may be a problem during this season, the meadow may require an additional mowing in early summer. In the fall, the site may be mulched with the "meadow hay" harvested from Zones 1 and 2.

Successive Years: An annual mowing in March is to be a standard maintenance procedure. The meadow should be annually monitored for the natural processes of ecological succession. "Volunteer" tree seedlings should be staked and made visible in order to protect them from the on-going maintenance. During these inspections, any past species should be noted and plans made for their removal.

III. Basins - Wetland Vegetation

Purpose: To promote water quality and filtration through the absorption of sediments; reduce erosion through stabilization; provide wildlife habitat and species diversity; to aesthetically integrate the hydrologic function of the basins with the surrounding landscape; to reduce maintenance.

Goal: A simulation of nature that will move toward a more stabilized plant community; to aid in restoring the hydrologic conditions through natural processes.

Challenge: To establish plants in exposed sub-soil conditions where the moisture levels will fluctuate between extreme dryness and periods of inundation (the key being to allow the planting to establish some roots prior to flooding); to prevent erosion through the stabilization of the slopes.

Site Preparation: There are no recommendations for site preparations.

Planting Specifications and Recommendations: It is important to note that the survivorship of herbaceous plant material is at high risk versus that of woody plant material due to the frequency of flooding prior to root establishment. Therefore, the primary species recommended are woody. The herbaceous layer should be minimal on the basin floor and primarily used on the slopes. The species have been divided into four categories. (H) indicates those species best adapted to higher ground conditions, therefore, they are to be confined to the slopes and tops of berms. (L) indicates those species adapted to wetland conditions. The woody species designated (L) are to be used on the basin floors. The exception being in Basin #1 where they should be used at waters edge. The herbaceous species designated (L) are to be used at waters edge or just above the anticipated water level. (H & L) indicates those species adapted to both soil types. These species may weave through the slopes to the basin floor or waters edge (herbaceous). Finally, because Basin #1 is the only basin to be permanently wet, the herbaceous emergent species chosen are to be planted at waters edge. Their water tolerance is indicated. They should be planted so the depth of water will not exceed their tolerance.

All species are to be planted in naturalistic drifts. The drifts should not be planted in blocks but weaved together. One species should be planted in blocks but weaved together. Varying heights of the same species is important to portray the natural process of succession.

The woody plant material recommended is preferably 3 to 5 B. The recommended minimum height is 24 inches. The trees should be 1.5 to 2 inch caliper size. These species are to be planted in blocks. The herbaceous material recommended for the herbaceous plant material. Trees and shrubs may either be planted in spring or fall. Planting with the top of the tree 3 to 4 inches above the soil line is important in wet areas. The herbaceous material should be planted between May and early September to allow for root establishment before winter. The slopes are to be planted at a greater density to deter soil erosion. Shrubs are to be planted on centers ranging from three to six feet. Trees are to be planted in numbers of three to six, depending on the center or singly. Herbaceous plants are to be planted on 12 to 24 inch centers.

The plant material on the slopes is to be mulched with hard wood mulch. The mulch is not to exceed 2 inches around the plant. The woody plants are to be mulched individually. The herbaceous plants are to be mulched in blocks. Any trees that require staking should be staked with two (4 to 6 inch) stakes. The stakes are to be placed from the girdling through the use of a rubber hose or plastic tie. The stakes should remain no longer than one year.

The area between the mulched plants on the slopes and the basin is to be raked and seeded with Wild Canada Rye in late spring or early summer. The plant is to act as a relatively high competitive nurse crop to aid in suppressing the growth of weeds. If necessary, the slope may be further stabilized through the use of erosion control bio-degradable netting.

Maintenance: The basins are to be inspected bi-annually. At this time, the overall health of the plants should be noted. If there have been any losses, replacements should be considered. If there have been substantial losses incurred with a particular species, then an alternate plant should be chosen when considering replacement. Any past species should be noted and plans made for their removal either through herbicide ("Rodeo") use or hand weeding. During the first few years, some maintenance may be necessary. Ultimately these basins should be self-sustaining.

Basin #3 - Open Space

Site Preparation: This area is currently vegetated primarily with Multiflora Rose. If the Multiflora Rose has not been cleared during construction, it should be cleared using a small horsepower tractor and brushhog. Raspberries are to be sprayed with herbicide ("Rodeo"). A backpack sprayer should be used. The application is to be performed by a qualified person or Field Botanist.

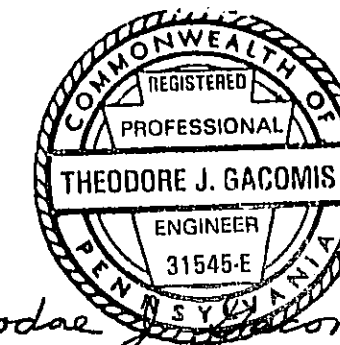
Planting Recommendations: The trees are to be planted according to soil type (H, L, and H & L) on 9 foot centers in grid fashion. They are to be protected by a 4 foot tree tube and mesh. (Tulip poplar and Ash excluded). The trees are to be planted in the center of this pie-shaped open space and mixed into a shrub layer on the outside slopes of Basin #4. The shrubs are to be planted at the edges of the open space to the tree line and in masses on the outer slopes of the basin. They are to be planted on 5 to 12 foot centers in irregular drifts. The area between all plants is to be raked and seeded with a blend of native grasses and sedges. Seeding is best performed in late spring to early summer. The seed is to be broadcasted then rolled. Finally, the seed is to be mulched with clean straw (not field hay).

The trees are to be either bareroot seedling or containerized. The shrubs preferably 3 to 5 B or if not available, containerized. If possible, all trees and shrubs, particularly those on the berm, would benefit from a layer of mulch.

Maintenance: Due to the existence of Multiflora Rose, this area will require monitoring on a bi-annual basis. Tree tubes and their netting should be inspected. Any weeds are to be sprayed in late summer with an herbicide ("Rodeo") as described above. During the first two years in order to suppress weeds, it may be necessary in early summer to mow to a height of 6 inches. In successive years, this area need only be mowed in March. The processes of natural succession should be observed. Any "volunteer" tree seedlings should be marked with a stake and made visible to protect them from the maintenance procedures. In the interior of the open space, the grasses will eventually be shaded out. This zone is to be managed for ecological succession from open field to canopy cover.

SUPPLY AND SUBSTITUTIONS

All plants except where noted are commercially available. Substitutions of non-native (to Chester County) plant material is not permitted.



PLAN OF SUBDIVISION
THE HILLS OF SULLIVAN
 FOR
THE WILKINSON GROUP
 LONDON GROVE TOWNSHIP
 CHESTER COUNTY, PA.
Edward B. Walsh & Associates, Inc.
 CIVIL ENGINEERS
 789 Springdale Drive
 Exton, Pennsylvania 19341
 (215) 383-1350
 Project - 1315
 Date - 1-19-94
 Scale - N.A.
 Drawn - SLM
 Checked - T.G.
 Sheet - 31 OF 31

W-21233

THIS INDENTURE, made this 24th day of May A.D. 1990,
between HANKIN-LONDON GROVE, INC., a corporation organized and existing
under the laws of the Commonwealth of Pennsylvania, (hereinafter called the
Grantor), of the one part, and PHILADELPHIA ELECTRIC COMPANY, a corporation
organized and existing under the laws of the Commonwealth of Pennsylvania,
(hereinafter called the Grantee), of the other part:

WHEREAS, the Grantor(s) is the owner(s) of premises situate on the
north side of New Garden Station Road in the Township of London Grove,
County of Chester, Commonwealth of Pennsylvania as more particularly
described in a Deed dated February 26, 1990 and Recorded in the Office for
the Recording of Deeds in the aforesaid County in Deed Book 1900 Page 526
&c.,

NOW, THEREFORE, THIS INDENTURE WITNESSETH: That the said Grantor(s)
for and in consideration of the sum of ONE DOLLAR (\$1.00), lawful money
unto it well and truly paid by the Grantee at and before the sealing and
delivery of this Indenture, the receipt whereof is hereby acknowledged,
do(es) hereby give and grant to the said Grantee, and its successors and
assigns, the perpetual right, liberty, privilege and authority to locate,
relocate, construct, erect, install, renew, replace, add to, operate and
maintain on, over, under, along, across and within said premises such
communication, gas and electric transmission and distribution facilities as
from time to time the Grantee, its successors or assigns, shall determine
are necessary or proper to supply said premises and those adjacent thereto
with communication service and gas and electricity, for the service of
light, heat and power (hereinafter referred to as facilities), together
with the right of ingress and egress and the right to trim and keep
trimmed, cut down and remove, in a workmanlike manner, all trees, roots and
branches of trees to the extent determined necessary by said Grantee, its
successors and Assigns, to provide sufficient clearance for the protection
of the aforesaid facilities; together with the right to attach said
facilities to the buildings erected or to be erected on said premises.

BK 2049 PG 005

The aforesaid rights are granted under and subject to the following conditions:

(1) The Grantee may install and construct said facilities inside and within three (3) feet outside the right of way limits of all roads as now existing or as may be subsequently established within the premises, also the right to install outside said three (3) feet of said roads, such anchors and guys as may be necessary to stabilize any poles. In addition Grantee may also construct, install and maintain electric transformers, pads, enclosures, wires, cables and other appurtenances within an area not to exceed 15 feet of either side of all common lot lines and up to but not exceeding 15 feet outside of the right of way limits of any existing or future roads. The location of any other facilities to be constructed, installed and maintained by virtue of this agreement shall be shown and delineated on plans prepared by Grantee, copies of which will be in possession of the parties hereto having been approved by them, which approval shall not be unreasonably withheld;

(2) The final grades of all locations where the facilities are to be constructed on said premises are to be established by Grantor(s) prior to the construction of said facilities;

(3) Grantor(s) agree(s) to establish and stake property lines as needed before said facilities are constructed;

(4) Grantor(s) agree(s) to reimburse the Grantee for any excess cost incurred due to changes deemed feasible in the opinion of Grantee and made in facilities constructed hereunder to accommodate Grantor(s) in accordance with the then effective provisions of its tariff;

(5) Grantor(s) agree(s) to keep the area where underground facilities are located clear of trees, shrubs, buildings or any other permanent structure which could, in the opinion of Grantee, interfere with the construction, maintenance or use of the said facilities as provided for under the terms of this agreement;

(6) Grantor(s) agree(s) that the initial exercise of any of the powers and rights herein granted shall not be construed as limiting Grantee's rights and privileges hereunder;

(7) Any utility easement shown on the developers' recorded plan shall not be construed as limiting the Grantee's rights hereunder.

(8) Grantor reserves the right to approve plans as set forth in Paragraph (1) herein on all lots sold out of the herein described premises until all such facilities initially required to provide service to the premises have been installed.

The conditions herein contained shall enure to and bind the respective heirs, executors, administrators, successors and assigns of the parties hereto.

BK2049PG006

IN WITNESS WHEREOF, the said Grantor(s) to these presents has hereunto set its hand and seal. Dated the day and year first above written.

EXECUTED THIS

24th

DAY OF

May

A.D. 1990,

ATTEST:


SECRETARY

HANKIN-LONDON GROVE, INC.

BY:

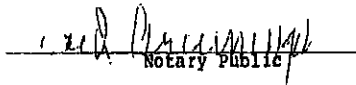

PRESIDENT

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF

On this, the 24th day of May AD, 1990, before me, a Notary Public, the undersigned officer, personally appeared
BERNARD HANKIN, who acknowledged himself to be the President of HANKIN-LONDON GROVE, INC., a corporation, and that he as such President, being authorized to do so executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


Notary Public



BK2049PG007

35-22071

THIS INDENTURE, made this ^{26th} day of *October* A.D. 1995, between HANKIN-LONDON GROVE, INC. a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, (hereinafter called the Grantor), of the one part, and PHILADELPHIA ELECTRIC COMPANY, a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, (hereinafter called the Grantee), of the other part: RETURN TO

WHEREAS, The Grantor(s) is the owner(s) of premises situate on the east side of Clay Creek Road, Township of New London, County of Chester, Commonwealth of Pennsylvania, as more particularly described in Deed Dated February 2, 1990, and recorded in the Office of the Recorder of Deeds, in the aforesaid County, in Deed Book 1900, Page 526 &c.,

NOW, THEREFORE, THIS INDENTURE WITNESSETH: That the said Grantor(s) for and in consideration of the sum of ONE DOLLAR (\$1.00), lawful money unto it well and truly paid by the Grantee at and before the sealing and delivery of this Indenture, the receipt whereof is hereby acknowledged, do(es) hereby give and grant to the said Grantee, and its successors the perpetual right, liberty, privilege and authority to locate, relocate, construct, erect, install, renew, replace, add to, operate and maintain on, over, under, along, across and within said premises such communication, gas and electric transmission and distribution facilities as from time to time the Grantee, its successors or assigns, shall determine are necessary or proper to supply said premises and those adjacent thereto with communication service and gas and electricity, for the service of light, heat and power (hereinafter referred to as facilities), together with the right of ingress and egress and the right to trim and keep trimmed, cut down and remove, in a workmanlike manner, all trees, roots and branches of trees to the extent determined necessary by said Grantee, its successors and assigns, to provide sufficient clearance for the protection of the aforesaid facilities; together with the right to attach said facilities to the buildings erected or to be erected on said premises.

1365460485

The aforesaid rights are granted under and subject to the following conditions:

(1) The Grantee may install and construct said facilities inside and within three (3) feet outside the right of way limits of all roads as now existing or as may be subsequently established within the premises, also the right to install outside said three (3) feet of said roads, such anchors and guy as may be necessary to stabilize any poles. In addition Grantee may also construct, install and maintain electric transformers, pads enclosures, wires, cables and other appurtenances within an area not to exceed 15 feet of either side of all common lot lines and up to but not exceeding 15 feet outside of the right of way limits of any existing or future roads. The location of any other facilities to be constructed, installed and maintained by virtue of this agreement shall be shown and delineated on plans prepared by Grantee, copies of which will be in possession of the parties hereto having been approved by them, which approval shall not be unreasonably withheld;

(2) The final grades of all locations where the facilities are to be constructed on said premises are to be established by Grantor(s) prior to the construction of said facilities;

(3) Grantor(s) agrees(s) to establish and stake property lines as needed before said facilities are constructed;

(4) Grantor(s) agrees(s) to reimburse the Grantee for any excess cost incurred due to changes deemed feasible in the opinion of Grantee and made in facilities constructed hereunder to accommodate Grantor(s) in accordance with the then effective provisions of its tariff;

(5) Grantor(s) agrees(s) to keep the area where underground facilities are located clear of trees, shrubs, buildings or any other permanent structure which could, in the opinion of Grantee, interfere with the construction, maintenance or use of the said facilities as provide for under the terms of this agreement;

(6) Grantor(s) agrees(s) that the initial exercise of any of the powers and rights herein granted shall not be construed as limiting Grantee's rights and privileges hereunder;

(7) Any utility easement shown on the developers' recorded plan shall not be construed as limiting the Grantee's right hereunder.

(8) Grantor reserves the right to approve plans as set forth in Paragraph (1) herein on all lots sold out of the herein described premises until all such facilities initially required to provide service to the premises have been installed.

The conditions herein contained shall enure to and bind the respective heirs, executors, administrators, successors and assigns of the parties hereto.

73654 PG0486

IN WITNESS WHEREOF, the said Grantor(s) to these presents has hereunto set its hand and seal. Dated the day and year first above written.

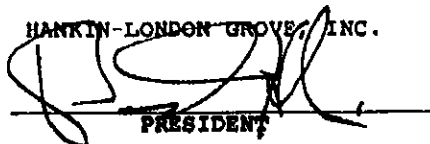
EXECUTED THIS 26th DAY OF October

A.D. 1993.

ATTEST:


SECRETARY

HANKIN-LONDON GROVE, INC.



PRESIDENT

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF CHESTER

On this, the 26th day of October, 1993, before me,
a Notary Public, the undersigned officer, personally appeared
RICHARD GUARINI, who acknowledged himself to
be the President of Hankin-London Grove Inc., a corporation,
and that he as such President, being authorized to be so
executed the foregoing instrument for the purposes therein contained
by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


NOTARY PUBLIC
My commission expires:

Notarial Seal
Charles M. Christy III, Notary Public
Cain Twp., Chester County
My Commission Expires Aug. 11, 1997
Member, Pennsylvania Association of Notaries

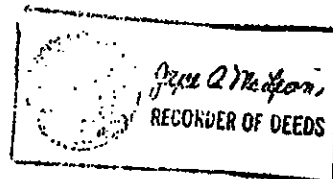
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DATE: 11/06/1993 TIME: 12:43P INST NO.: 88170

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 012915	TYPE DOC :	MISC
REC FEE	:	13.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50



35-22071

THIS INDENTURE, made this ^{26th} day of *October* A.D. 1995, between HANKIN-LONDON GROVE, INC. a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, (hereinafter called the Grantor), of the one part, and PHILADELPHIA ELECTRIC COMPANY, a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, (hereinafter called the Grantee), of the other part: RETURN TO

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NOW, THEREFORE, THIS INDENTURE WITNESSETH: That the said Grantor(s) for and in consideration of the sum of ONE DOLLAR (\$1.00), lawful money unto it well and truly paid by the Grantee at and before the sealing and delivery of this Indenture, the receipt whereof is hereby acknowledged, do(es) hereby give and grant to the said Grantee, and its successors the perpetual right, liberty, privilege and authority to locate, relocate, construct, erect, install, renew, replace, add to, operate and maintain on, over, under, along, across and within said premises such communication, gas and electric transmission and distribution facilities as from time to time the Grantee, its successors or assigns, shall determine are necessary or proper to supply said premises and those adjacent thereto with communication service and gas and electricity, for the service of light, heat and power (hereinafter referred to as facilities), together with the right of ingress and egress and the right to trim and keep trimmed, cut down and remove, in a workmanlike manner, all trees, roots and branches of trees to the extent determined necessary by said Grantee, its successors and assigns, to provide sufficient clearance for the protection of the aforesaid facilities; together with the right to attach said facilities to the buildings erected or to be erected on said premises.

1365460485

The aforesaid rights are granted under and subject to the following conditions:

(1) The Grantee may install and construct said facilities inside and within three (3) feet outside the right of way limits of all roads as now existing or as may be subsequently established within the premises, also the right to install outside said three (3) feet of said roads, such anchors and guy as may be necessary to stabilize any poles. In addition Grantee may also construct, install and maintain electric transformers, pads enclosures, wires, cables and other appurtenances within an area not to exceed 15 feet of either side of all common lot lines and up to but not exceeding 15 feet outside of the right of way limits of any existing or future roads. The location of any other facilities to be constructed, installed and maintained by virtue of this agreement shall be shown and delineated on plans prepared by Grantee, copies of which will be in possession of the parties hereto having been approved by them, which approval shall not be unreasonably withheld;

(2) The final grades of all locations where the facilities are to be constructed on said premises are to be established by Grantor(s) prior to the construction of said facilities;

(3) Grantor(s) agrees(s) to establish and stake property lines as needed before said facilities are constructed;

(4) Grantor(s) agrees(s) to reimburse the Grantee for any excess cost incurred due to changes deemed feasible in the opinion of Grantee and made in facilities constructed hereunder to accommodate Grantor(s) in accordance with the then effective provisions of its tariff;

(5) Grantor(s) agrees(s) to keep the area where underground facilities are located clear of trees, shrubs, buildings or any other permanent structure which could, in the opinion of Grantee, interfere with the construction, maintenance or use of the said facilities as provide for under the terms of this agreement;

(6) Grantor(s) agrees(s) that the initial exercise of any of the powers and rights herein granted shall not be construed as limiting Grantee's rights and privileges hereunder;

(7) Any utility easement shown on the developers' recorded plan shall not be construed as limiting the Grantee's right hereunder.

(8) Grantor reserves the right to approve plans as set forth in Paragraph (1) herein on all lots sold out of the herein described premises until all such facilities initially required to provide service to the premises have been installed.

The conditions herein contained shall enure to and bind the respective heirs, executors, administrators, successors and assigns of the parties hereto.

73654 PG0486

IN WITNESS WHEREOF, the said Grantor(s) to these presents has hereunto set its hand and seal. Dated the day and year first above written.

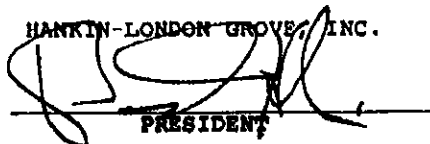
EXECUTED THIS 26th DAY OF October

A.D. 1993.

ATTEST:


SECRETARY

HANKIN-LONDON GROVE, INC.



PRESIDENT

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF CHESTER

On this, the 26th day of October, 1993, before me,
a Notary Public, the undersigned officer, personally appeared
RICHARD GUARINI, who acknowledged himself to
be the President of Hankin-London Grove Inc., a corporation,
and that he as such President, being authorized to be so
executed the foregoing instrument for the purposes therein contained
by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.


NOTARY PUBLIC
My commission expires:

Notarial Seal
Charles M. Christy III, Notary Public
Cain Twp., Chester County
My Commission Expires Aug. 11, 1997
Member, Pennsylvania Association of Notaries

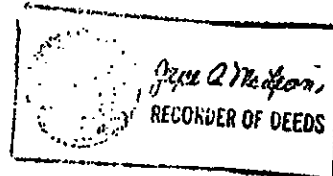
K3654P50487

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DATE: 11/06/1993 TIME: 12:43P INST NO.: 88178

CHESTER COUNTY, PA
OFFICE OF THE RECORDER OF DEEDS

RECEIPT NO : 012915	TYPE DOC :	MISC
REC FEE	:	13.00
LOC RTT	:	0.00
ST RTT	:	0.00
WRIT TAX	:	0.50



Prepared By:

Vicki L. Kushto, Esquire

Return To:

Vicki L. Kushto, Esquire
Beatty Lincke
200 Old Forge Road, Suite 202
Kennett Square, PA 19348



UPI#

59-9-72 ✓

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS

DEVELOPMENT GRANTS

THIS DECLARATION, made this 18th day of June, 20 10, by the Township of London Grove, Chester County, Pennsylvania, (hereinafter "Declarant" and "Municipality").

BACKGROUND

Municipality, is the owner of or holds an easement on a certain parcel of land containing 12.6 acres identified as Tax Parcel Number(s) 59-9-72 located in London Grove Township, more particularly described in Article II, Section I hereof and further being more particularly described in Exhibit "A", attached hereto and incorporated herein by reference (hereinafter the "Property").

The Commissioners of Chester County have designated a portion of the proceeds from a County bond issue for grants to municipalities within Chester County for the improvement of land for open space, recreation, public access parkland, and natural resources conservation.

Pursuant to the guidelines and criteria of the Chester County Landscapes 21st Century Fund Grant program, Municipality has received such a grant and has used the proceeds from said grant for the improvement of the Property.

As a specific condition of the aforesaid Chester County Landscapes 21st Century Fund Grant Program, any Municipality obtaining such a grant and utilizing the funds for the improvement of park land or open space land agrees that a *covenant requiring the continuous use of said land for public physically accessible, recreation, public trail, public access park land, and natural resources conservation shall be recorded as a restriction running with the land*. No additional or future restrictions may be placed on this land without the express written consent of the Commissioners of Chester County.

Municipality desires to place a Declaration of Covenants, Conditions and Restrictions declaring that the Property *shall be utilized perpetually for Public Park, public trail, recreational, and natural resources conservation purposes only and shall be physically available to all County*



residents. Further, Municipality desires that this Declaration shall be recorded as a covenant running with the land and shall bind the Property in perpetuity.

NOW, THEREFORE, intending to be legally bound hereby, Declarant hereby declares that the Property shall be utilized perpetually for Public Park, public trail, recreational, and natural resources conservation purposes only subject to further restrictions of use more particularly described below in Article III. The Property shall be held subject to the restrictions set forth in this Declaration, which are for the purpose of insuring a continuous use of the Property for the purposes indicated and which restrictions or covenants shall run with the Property. The municipality shall manage and develop the property for recreation, public trail and public access parkland in a manner that preserves the integrity of natural resources such as stream corridors, steep slopes, wetlands, and state or globally rare species.

ARTICLE I - DEFINITIONS

The following words and terms which, are used in this Declaration shall have the following meanings:

1. "DECLARATION" shall mean and refer to this instrument, as amended from time to time.
2. "DECLARANT" shall mean and refer to Municipality.
3. "SUCCESSOR DECLARANT" shall mean each entity to which Declarant shall have specifically, by writing, assigned or conveyed any or all of Declarant's rights in and to the Property.
4. "PROPERTY" shall mean the existing property or parcel of real estate referenced above and more particularly described in Exhibit "A" attached hereto. In the event of any additions to the existing property, which shall be made subject to this Declaration pursuant to the provisions of Article II hereof, then, from and after the recording of an appropriate Supplementary Declaration, the term "Property" shall mean the existing property and any such additions.

ARTICLE II - EXISTING PROPERTY; ADDITIONS

1. Existing Property. The existing property is all that certain tract of ground identified as Tax Parcel Number(s) 59-9-72E situated in London Grove Township Chester County, Pennsylvania, containing 12.6 acres, more or less, more particularly identified in Exhibit "A" hereto.

ARTICLE III - RESTRICTIONS

The use of the Property as defined in this Agreement shall be restricted to open space/park land/recreational/natural resources conservation purposes. The Property shall be utilized perpetually for public physically accessible park, recreational, public trail, and natural resources conservation purposes only and shall be available to all County residents. If, when and as it is deemed inappropriate to utilize said real estate for active park, public trail, recreational and natural resources conservation purposes, it is agreed, understood and hereby declared as a declaration, restriction and covenant running with the land that the utilization of the Property shall be for passive recreation or open space. No additional or future restrictions may be placed on this land without the express written consent of the Commissioners of Chester County. The



municipality shall manage and develop the property for recreation, public trail and public access parkland in a manner that preserves the integrity of natural resources such as stream corridors, steep slopes, wetlands and state or globally rare species.

Use of the ground subject to this Declaration of Covenants, Conditions and Restrictions for purposes that are not park, recreation or open space uses, such as cellular towers and disposal of sewage effluent generated off-site and conveyance of surface or subsurface water for commercial or consumptive purposes (including public or private companies or authorities) is specifically prohibited. This includes disposal of off site-generated sewage at any stage of treatment or post-treatment using any technology including but not limited to spray or drip irrigation. Any composting materials, waste products or any other items that are generated off site may not be placed on site for any reason including disposal or processing. These uses (cellular telecommunication towers, disposal of sewage generated off site, composting, and water transfers) are specifically included as examples and do not represent the full extent of uses that are inconsistent with the provisions of this Declaration of Covenants, Conditions and Restrictions.

Property preserved through this Declaration shall not be available to count toward satisfying any open space or preserved land requirements as stipulated under applicable municipal land use laws, ordinances, or codes. Furthermore, owners may not transfer for use outside the Property (whether or not for compensation) any development rights allocated to the Property under Applicable Law. The terms of this restriction shall be perpetual and it shall be a covenant running with the land.

ARTICLE IV - ENFORCEMENT

1. The County of Chester shall have the right and power to enforce this covenant and restriction, by any proceedings at law or in equity, against the Declarant or any person or persons violating or attempting to violate any provision of this Declaration of Covenants, Conditions and Restrictions; to restrain violations; to require specific performance and/or to recover damages.

2. If the County determines that Declarant is in violation of the terms of this Declaration or that a violation is threatened, the County shall give written notice to Declarant of such violation and demand corrective actions sufficient to cure the violation, and, where the violation involves injury to the Property resulting from any use or activity inconsistent with the permitted uses of this Declaration, to restore that portion of the Property so injured. If Declarant fails to cure the violation within thirty (30) days after receipt of notice thereof from the County, or under circumstances where the violation cannot reasonably be cured within a thirty day period, fails to begin curing such violation within the thirty (30) day period, or fails to continue diligently to cure such violation until finally cured, the County may bring an action at law or equity in a Court of competent jurisdiction to enforce the terms of this Declaration, to enjoin the violation, ex parte as necessary, by temporary or permanent injunction to recover any damages to which it may be entitled for violation of the terms of this Declaration or injury to any public interest protected by this Declaration, and to require the restoration of the Property to the condition that existed prior to such injury.

3. Without limiting Declarant's liability therefore, the County, in its sole discretion, may apply any damages recovered to the cost of undertaking any corrective action on the Property. The County's rights under this paragraph apply equally in the event of either actual or threatened violations of the terms of this Declaration and Declarant agrees that the County's remedies at law for any violation of the terms of this Declaration are inadequate and that the County shall be entitled to the injunctive relief described in this Article, both prohibitive and mandatory in addition



to such other relief to which the County may be entitled including specific performance of the terms of this Declaration, without necessity or proving either actual damages or the inadequacy of otherwise available legal remedies. The County's remedies described in this Article shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity.

4. Cost of enforcement. Any costs incurred by the County in enforcing the terms of this Declaration against Declarant, including, without limitation, costs of suit and attorneys' fees, and any costs of restoration necessitated by Declarant's violation of the terms of this Declaration shall be borne by Declarant.

5. The failure by the County to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do thereafter.

ARTICLE V - MISCELLANEOUS

1. The covenants and restrictions of this Declaration shall run with the land and bind the Property in perpetuity.

2. The provisions of this Declaration shall, pursuant to its terms, inure to the benefit of Chester County, Pennsylvania, and bind the Property, Declarant and its successors and assigns.

3. Recording. This Declaration, and any future changes duly authorized in writing by the Commissioners of Chester County, shall forthwith be recorded in the Office of the Recorder of Deeds in and for the County of Chester, Pennsylvania.

IN WITNESS WHEREOF, Declarant has executed this Declaration the day and year first above written.

ATTEST:

Marilyn Venegas

MUNICIPALITY OF LONDON GROVE TOWNSHIP

By: [Signature]

COMMONWEALTH OF PENNSYLVANIA :

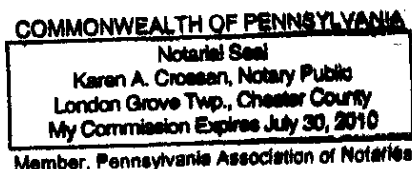
: SS

COUNTY OF CHESTER :

On this 18th day of JUNE, 2010, before me, the undersigned officer, personally appeared STEVEN C. BROWN who acknowledged himself to be the ~~Chairman~~ MANAGER ~~of the Board of Supervisors~~ of LONDON GROVE Township, and that he, as such ~~Chairman~~ MANAGER, being authorized to do so, executed the foregoing instrument, for the purposes therein contained, by signing the name of LONDON GROVE Township by himself as ~~Chairman~~ MANAGER.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

[Signature]
Notary Public



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EXHIBIT A

Description of Open Space "A", situate in London Grove Township, Chester County, Pa, as shown on a Plan of Subdivision of the Hills of Sullivan dated 2/8/93 last revised 3/1/94, prepared by Edward B. Walsh & Associates, Inc., said being more fully described to wit:

Beginning at a concrete monument marking the easterly right of way line of Clay Creek Road (30 feet from title line of road) and the southerly right of way line of Friendship Lane (50 feet wide); thence along the southerly right of way line of Friendship Lane the three (3) following courses and distances:

1. On the arc of a circle curving to the right having a radius of 30.00 feet an arc length of 47.12 feet and a chord bearing of North 46 degrees 42 minutes 50 seconds West 42.43 feet to concrete monument of tangency.
2. North 01 degrees 42 minutes 50 seconds West 145.85 feet to a concrete monument a point of curvature.
3. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 99.24 feet and a chord bearing of North 07 degrees 02 minutes 01 seconds East 98.85 feet to a point a corner of Lot 17; thence along lot 17 the two (2) following courses and distances:
 1. South 74 degrees 13 minutes 09 seconds East 150.00 feet to a point.
 2. North 32 degrees 40 minutes 36 seconds East 293.22 feet to a point on the right of way line of Angelica Drive; thence along the right of way line of Angelica Drive on the arc of a circle curving to the left having a radius of 375.00 feet an arc length of 35.63 feet and a chord bearing of South 88 degrees 33 minutes 45 seconds East 35.62 feet to a point a corner of Lot 16; thence leaving said right of way line and along Lot 16 South 01 degrees 17 minutes 05 seconds East 250.00 feet to a point the rear corner of Lot 16; thence along the rear property line of Lots 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4 and 1 the eleven (11) following courses and distances:
 1. South 87 degrees 10 minutes 38 seconds East 149.81 feet to a point.
 2. North 84 degrees 32 minutes 57 seconds East 276.00 feet to a point.
 3. South 69 degrees 07 minutes 56 seconds East 93.18 feet to a point.
 4. South 20 degrees 54 minutes 29 seconds East 112.67 feet to a point.
 5. South 15 degrees 03 minutes 34 seconds East 149.72 feet to a point.
 6. South 17 degrees 08 minutes 36 seconds East 175.18 feet to a point.
 7. South 26 degrees 55 minutes 56 seconds East 175.09 feet to a point.
 8. South 27 degrees 04 minutes 52 seconds East 173.60 feet to a point.
 9. South 48 degrees 38 minutes 03 seconds East 300.12 feet to a point.
 10. South 21 degrees 46 minutes 41 seconds West 225.31 feet to a point.
 11. South 14 degrees 03 minutes 02 seconds East 100.00 feet to a point on the right of way line of Angelica Drive; thence along the right of way line of Angelica Drive the three (3) following courses and distances:
 1. On the arc of a circle curving to the right having a radius of 325.00 feet an arc length of 29.64 feet and a chord bearing of South 73 degrees 20 minutes 13 seconds West 29.63 feet to a point of tangency.



2. South 70 degrees 43 minutes 28 seconds West 121.02 feet to a point of curvature.
3. On the arc of a circle curving to the right having a radius of 40.00 feet an arc length of 67.57 and a chord bearing of North 60 degrees 52 minutes 55 seconds West 59.82 feet to a concrete monument a point of compound curvature on the easterly right of way line of Clay Creek Road; thence along the easterly right of way line of Clay Creek Road the eight (8) following courses and distances:
 1. On the arc of a circle curving to the right having a radius of 590.00 feet an arc length of 31.29 and a chord bearing of North 10 degrees 58 minutes 09 seconds West 31.28 feet to a concrete monument a point of tangency.
 2. North 09 degrees 27 minutes 00 seconds West 176.00 feet to a concrete monument a point of curvature.
 3. On the arc of a circle curving to the left having a radius of 560.00 feet an arc length of 348.06 feet and a chord bearing of North 27 degrees 15 minutes 20 seconds West 342.48 feet to a concrete monument a point of tangency.
 4. North 45 degrees 03 minutes 40 seconds West 355.50 feet to a concrete monument a point of curvature.
 5. On the arc of a circle curving to the left having a radius of 750.00 feet an arc length of 197.04 feet and a chord bearing of North 52 degrees 35 minutes 15 seconds West 196.47 feet to a concrete monument a point of tangency.
 6. North 60 degrees 06 minutes 50 seconds East 125.00 feet to a concrete monument a point of curvature.
 7. On the arc of a circle curving to the left having a radius of 610.00 feet an arc length of 336.43 feet and a chord bearing of North 75 degrees 54 minutes 50 seconds West 332.18 feet to a concrete monument a point of tangency.
 8. South 88 degrees 17 minutes 10 seconds West 70.30 feet to the first mentioned point and place of beginning.

Containing 12.662 acres.



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Appendix E. Existing Conditions Data

Part 1. Invasive Vegetation Survey Report

Part 2. Aquatic Resource Delineation Report

Part 3. Baseline Aquatic Biological Assessment

Part 4. Baseline Data

Part 5. Phase I ESA

Part 1. Invasive Vegetation Survey Report



August 14, 2023

Amber Snavley
Senior Project Manager
Water & Land Solutions, LLC
PO BOX 98116
Pittsburgh, PA 15227

Sent Via Email (08/14/23)

**RE: Clay Creek Mitigation Bank
Invasive Vegetation Survey Report
London Grove Township, Chester County, Pennsylvania**

Thompson Environmental Surveys & Permitting, LLC. (TES&P) has prepared this Invasive Vegetation Survey Report to document studies conducted for the Clay Creek Mitigation Bank Project (Project). A baseline vegetation survey was completed to demonstrate the existing vegetative communities, specifically related to the presence of invasive species, within an area surrounding an Unnamed Tributary (UNT) to East Branch White Clay Creek. The Study Area for the Project consists of a portion of the watershed associated with this UNT to East Branch White Clay Creek which broadly parallels Clay Creek Road in London Grove Township, Chester County, Pennsylvania (**Appendix A: Figure 1 - Project Location Map**). The coordinates for the approximate Project center are 39.808203° and -75.792668°. This report documents the methodology and results of the vegetation survey performed by TES&P on June 27th and July 12th, 2023.

INTRODUCTION

The Project is located within the United States Geological Survey (USGS) West Grove, PA 7.5-minute series topographical quadrangle (USGS, 2013). Land cover within the Project area consists of maintained road rights-of-way, early to mid-successional forest, open meadow, residential developments, golf courses, wetlands, watercourses, and floodplain/riparian areas. Existing land use beyond the riparian corridor of the UNT to East Branch White Clay Creek is primarily residential development. The Project area drains southeast via the UNT to East Branch White Clay Creek which is located in the White Clay Creek Watershed within the Delaware River Basin.

As part of the permitting process for the Clay Creek Mitigation Bank, a vegetation survey was requested to document the baseline conditions, specifically related to the presence and relative abundance of invasive plant species. Field surveys were conducted on June 27th and July 12th, 2023, by TES&P qualified botanist Mr. Andrew Nevin (Wild Plant Management Permit #23-576) to document the presence/absence of all tree, shrub, vine, and herbaceous plants which the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) recognizes as invasive within the Commonwealth. Data collected during these field surveys was utilized to produce a comprehensive list of invasive plant species and to map the areas where these species were considered dominant within the Study Area

METHODOLOGY

The PA DCNR defines an invasive plant species as one that, “is not native to an area, spreads quickly, and causes economic or environmental harm; or harm to human health (2023).” Invasive plant species which have been deemed to meet these criteria and therefore actively managed by PA DCNR staff are listed below in **Table 1**. The presence or absence of these species was assessed within the Study Area for the Project during field surveys.

Table 1. PA DCNR List of Invasive Plants

Functional Group	Common Name	Scientific Name	Present (Y/N)
Trees	Amur maple	<i>Acer ginnala</i>	N
	Norway maple	<i>Acer platanoides</i>	Y
	Sycamore maple	<i>Acer pseudoplatanus</i>	N
	European black alder	<i>Alnus glutinosa</i>	N
	Tree-of-heaven	<i>Ailanthus altissima</i>	N
	Mimosa	<i>Albizia julibrissin</i>	N
	Japanese angelica tree	<i>Aralia elata</i>	N
	Paper mulberry	<i>Broussonetia papyfera</i>	N
	White mulberry	<i>Morus alba</i>	Y
	Princess-tree	<i>Paulownia tomentosa</i>	N
	Cork tree	<i>Phellodendron spp.</i>	N
	Callery pear	<i>Pyrus calleryana</i>	Y
	Bee-bee tree	<i>Tetra dium daniellii</i>	N
	Siberian elm	<i>Ulmus pumila</i>	N

Table 1. PA DCNR List of Invasive Plants

Functional Group	Common Name	Scientific Name	Present (Y/N)
Shrubs	Japanese barberry	<i>Berberis thunbergii</i>	N
	European barberry	<i>Berberis vulgaris</i>	N
	Butterfly bush	<i>Buddleja davidii</i>	N
	Russian olive	<i>Elaeagnus angustifolia</i>	N
	Autumn olive	<i>Elaeagnus umbellata</i>	Y
	Winged euonymus	<i>Euonymus alatus</i>	N
	Chinese bush-clover	<i>Lespedeza cuneata</i>	N
	Shrubby bush-clover	<i>Lespedeza bicolor</i>	N
	Privet	<i>Ligustrum spp.</i>	N
	Amur honeysuckle	<i>Lonicera mackii</i>	Y
	Morrow's honeysuckle	<i>Lonicera morrowii</i>	N
	Bell's honeysuckle	<i>Lonicera x bella</i>	N
	Standish honeysuckle	<i>Lonicera standishii</i>	N
	Tartarian honeysuckle	<i>Lonicera tatarica</i>	N
	Common buckthorn	<i>Rhamnus cathartica</i>	N
	Glossy buckthorn	<i>Rhamnus frangula</i>	N
	Jetbead	<i>Rhodotypos scandens</i>	N
	Multiflora rose	<i>Rosa multiflora</i>	Y
	Wineberry	<i>Rubus phoenicolasius</i>	Y
	Japanese spirea	<i>Spiraea japonica</i>	N
	Double-file viburnum	<i>Viburnum plicatum</i>	N
	Linden viburnum	<i>Viburnum dilataum</i>	N
	Siebold viburnum	<i>Viburnum sieboldii</i>	N
	Guelder rose	<i>Viburnum opulus</i>	N
Vines	Chocolate vine	<i>Akebia quinata</i>	N
	Porcelain-berry	<i>Ampelopsis brevipedunculata</i>	Y
	Oriental bittersweet	<i>Celastrus orbiculatus</i>	Y
	Winter creeper	<i>Euonymus fortunei</i>	N
	English ivy	<i>Hedera helix</i>	N

Table 1. PA DCNR List of Invasive Plants

Functional Group	Common Name	Scientific Name	Present (Y/N)
	Japanese hops	<i>Humulus japonicus</i>	Y
	Japanese honeysuckle	<i>Lonicera japonica</i>	Y
	Mile-a-minute	<i>Persicaria perfoliata</i>	Y
	Kudzu	<i>Pueraria lobata</i>	N
	Bigleaf periwinkle	<i>Vinca major</i>	N
	Common periwinkle	<i>Vinca minor</i>	N
	Black swallow-wort	<i>Vincetoxicum nigrum</i>	N
	Pale swallow-wort	<i>Vincetoxicum rossicum</i>	N
	Japanese wisteria	<i>Wisteria floribunda</i>	N
	Chinese wisteria	<i>Wisteria sinensis</i>	N
Grasses	Carpet-grass	<i>Arthraxon hispidus</i>	N
	Poverty brome	<i>Bromus sterilis</i>	N
	Cheatgrass	<i>Bromus tectorum</i>	N
	Common velvet grass	<i>Holcus lanatus</i>	N
	Japanese stilt-grass	<i>Microstegium vimineum</i>	Y
	Chinese silver-grass	<i>Miscanthus sinensis</i>	N
	Wavyleaf basket-grass	<i>Oplismenus undulatifolius</i>	N
	Reed canary grass	<i>Phalaris arundinacea</i>	Y
	Common reed	<i>Phragmites australis</i>	Y
	Bamboo	<i>Phyllostachys aurea</i>	N
	Rough bluegrass	<i>Poa trivialis</i>	N
	Ravenna grass	<i>Saccharum ravennae</i>	N
	Tall fescue	<i>Schedonorus arundinaceus</i>	N
	Shatter-cane	<i>Sorghum bicolor</i>	N
	Johnson-grass	<i>Sorghum halepense</i>	N
Herbs	Goutweed	<i>Aegopodium podagraria</i>	N
	Garlic mustard	<i>Alliaria petiolata</i>	Y
	Wild chervil	<i>Anthriscus sylvestris</i>	N
	Narrowleaf bittercress	<i>Cardamine impatiens</i>	N

Table 1. PA DCNR List of Invasive Plants

Functional Group	Common Name	Scientific Name	Present (Y/N)
	Musk thistle	<i>Carduus nutans</i>	N
	Spotted knapweed	<i>Centaurea spp.</i>	N
	Greater celandine	<i>Chelidonium majus</i>	N
	Canada thistle	<i>Cirsium arvense</i>	Y
	Bull thistle	<i>Cirsium vulgare</i>	N
	Spiny plumeless thistle	<i>Carduus acanthoides</i>	N
	Poison hemlock	<i>Conium maculatum</i>	Y
	Crown-vetch	<i>Coronilla varia</i>	N
	Jimsonweed	<i>Datura stramonium</i>	N
	Hairy willow-herb	<i>Epilobium hirsutum</i>	N
	Goats rue	<i>Galega officinalis</i>	N
	Orange day-lily	<i>Hemerocallis fulva</i>	N
	Giant hogweed	<i>Heracleum mantegazzianum</i>	N
	Dame's rocket	<i>Hesperis matronalis</i>	N
	Yellow flag iris	<i>Iris pseudacorus</i>	N
	Moneywort	<i>Lysimachia nummularia</i>	Y
	Purple loosestrife	<i>Lythrum salicaria</i>	N
	Star-of-Bethlehem	<i>Ornithogalum nutans</i>	N
	Japanese pachysandra	<i>Pachysandra terminalis</i>	N
	Wild parsnip	<i>Pastinaca sativa</i>	N
	Beefsteak plant	<i>Perilla frutescens</i>	N
	Bristled knotweed	<i>Persicaria longiseta</i>	N
	Japanese knotweed	<i>Fallopia japonica</i>	Y
	Lesser celandine	<i>Ranunculus ficaria</i>	N

As previously mentioned, the Study Area encompassed the extent of the polygon outlined on the enclosed Invasive Vegetation Survey mapping (**Figure 2**) which corresponds to the study area related to a previously conducted wetland and watercourse investigation for the Project. During the survey, the Study Area was traversed in a meander-style approach for evidence of the target species listed within **Table 1**. Random belt transects were established in the field to document, characterize, and map differential vegetative communities occurring within the Study Area.

A high-precision handheld global positioning system (GPS) receiver was used to record the boundaries of areas with high concentrations of invasive species and isolated occurrences of species which were not dominant within the Study Area. Documentation of representative vegetative communities identified within the Study Area included detailed notes and photographs. Photographs were taken for each distinct habitat type observed within the Study Area and are attached to this report.

Botanical references utilized in the field included *The Plants of Pennsylvania, 2nd Edition* (Rhoads & Block 2007); *Manual of Vascular Plants, 2nd Edition* (Gleason & Cronquist 1991); *The Illustrated Book of Wildflowers and Shrubs* (Grimm 1993); *Newcomb's Wildflower Guide* (Newcomb 1977); *Field Guide to Grasses of the Mid-Atlantic* (Chamberlain 2018), and DCNR Website Fact Sheets.

RESULTS

The Project falls within the Piedmont Uplands Level IV Ecoregion. This ecoregion, which is a subset of the Piedmont Ecoregion (Level III), is characterized by rolling hills with broad ridges that are irregularly and frequently dissected by drainages. Existing vegetative habitats encountered within the Study Area included palustrine emergent and scrub-shrub wetlands, riparian corridors, early to mid-successional forested elevated floodplain dominated by black walnut (*Juglans nigra*), northeast-facing wooded slopes dominated by tulip-poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), and black locust (*Robinia pseudoacacia*), hedgerows, open mesic meadows, and maintained road rights-of-way.

A total of nineteen invasive plant species were encountered within the Study Area. The approximate locations of these populations within the confines of the Study Area are identified, to the best extent practicable, on the attached **Figure 2: Invasive Vegetation Survey Mapping**. These results are also summarized below within **Table 2**.

Table 2. Clay Creek Mitigation Bank Invasive Plant Species Inventory

Functional Group	Common Name	Scientific Name	Occurrence within Study Area	Distribution within Study Area
Trees	Norway maple	<i>Acer platanoides</i>	Uncommon	Scattered
	White mulberry	<i>Morus alba</i>	Uncommon	Scattered
	Callery pear	<i>Pyrus calleryana</i>	Uncommon	Isolated
Shrubs	Autumn olive	<i>Elaeagnus umbellata</i>	Common	Scattered
	Amur honeysuckle	<i>Lonicera mackii</i>	Uncommon	Isolated
	Multiflora rose	<i>Rosa multiflora</i>	Common	Scattered
	Wineberry	<i>Rubus phoenicolasius</i>	Common	Scattered
Vines	Porcelain-berry	<i>Ampelopsis brevipedunculata</i>	Common	Scattered
	Oriental bittersweet	<i>Celastrus orbiculatus</i>	Common	Scattered
	Japanese hops	<i>Humulus japonicus</i>	Common	Scattered
	Mile-a-minute	<i>Persicaria perfoliata</i>	Common	Scattered
Grasses	Japanese stilt-grass	<i>Microstegium vimineum</i>	Very Common	Throughout
	Reed canary grass	<i>Phalaris arundinacea</i>	Very Common	Throughout
	Common reed	<i>Phragmites australis</i>	Common	Scattered
Herbs	Garlic mustard	<i>Alliaria petiolata</i>	Common	Scattered
	Canada thistle	<i>Cirsium arvense</i>	Common	Scattered
	Poison hemlock	<i>Conium maculatum</i>	Uncommon	Scattered
	Moneywort	<i>Lysimachia nummularia</i>	Uncommon	Scattered
	Japanese knotweed	<i>Fallopia japonica</i>	Uncommon	Isolated

The most common vegetative community type documented throughout the Study Area was early-mid successional mesic elevated floodplain forest dominated by black walnut in the canopy and Japanese stiltgrass in the herbaceous layer. Invasive species such as multiflora rose, wineberry, and poison hemlock were also found to be scattered throughout this community type but were not called out specifically on the attached mapping since they overlapped exclusively with the Japanese stiltgrass dominated polygons.

A large portion of the Study Area was also found to be dominated by reed canary grass (*Phalaris arundinacea*) along the riparian corridor of the UNT to East Branch White Clay Creek and its associated wetland complexes. Some areas, specifically towards the southern end of the Study

Area were also dominated by this species which were not considered to maintain the characteristics of emergent wetland habitats along the elevated floodplain. Common reed (*Phragmites australis*) dominated a few sections of wetland habitat where a monoculture has become established, primarily along the Clay Creek Road roadway corridor. These areas are delineated on the attached mapping (see **Figure 2**).

Within the steeper northeast-facing wooded slopes occurring within the Study Area, a more mature forested community dominated by tulip-poplar, black cherry, and black locust was documented. Shade tolerant invasive species such as garlic mustard (*Alliaria petiolata*) and oriental bittersweet (*Celastrus orbiculatus*) dominated these areas, which are also delineated on the attached mapping (see **Figure 2**).

A few populations of Canada thistle (*Cirsium arvense*) and porcelain-berry (*Ampelopsis brevipedunculata*) dominated areas along maintained roadside habitats. Japanese hops (*Humulus japonicus*) was found to dominate areas within the riparian corridor, primarily within the active floodplain of the UNT to East Branch Clay Creek where it was found to be outcompeting native species. Mile-a-minute (*Persicaria perfoliata*) was also located in several areas along the elevated floodplain within the mesic black walnut groves where Japanese stiltgrass is also dominant.

An isolated occurrence of Japanese knotweed (*Fallopia japonica*) was mapped within the northern section of the Study Area. Two small Callery pear (*Pyrus calleryana*) saplings were located and mapped, adjacent to a residential area at the crossing of Friendship Lane. Only a few isolated occurrences of Norway maple (*Acer platanoides*) and white mulberry (*Morus alba*) were located and mapped within the Study Area. Within the shrub layer, Autumn olive (*Elaeagnus umbellata*) was found to be scattered in relatively low densities throughout the Study Area. A few Amur honeysuckle (*Lonicera mackii*) individuals were also located. These areas were mapped in the field and are identified on the attached mapping (**Figure 2**).

SUMMARY

As previously mentioned, nineteen invasive plant species were documented and mapped within the Study Area associated with the Clay Creek Mitigation Bank during the field investigations. The approximate locations of these populations within the confines of the Study Area are

identified, to the best extent practicable, on the attached mapping. Representative photographs are also attached for your review.

Thank you in advance for your attention to this matter. Please feel free to contact me with any questions you may have regarding the contents of this report or should you require any additional information.

Sincerely,

Thompson Environmental Surveys & Permitting, LLC.

A handwritten signature in black ink, appearing to read "Andrew Nevin". The signature is written in a cursive, flowing style.

Andrew Nevin
Senior Biologist / Botanist
anevin@thompsonesp.com
(717) 599-1024

Enclosures (3)

Figures: Location Map, Invasive Vegetation Survey Mapping
Appendix A: Photographic Log

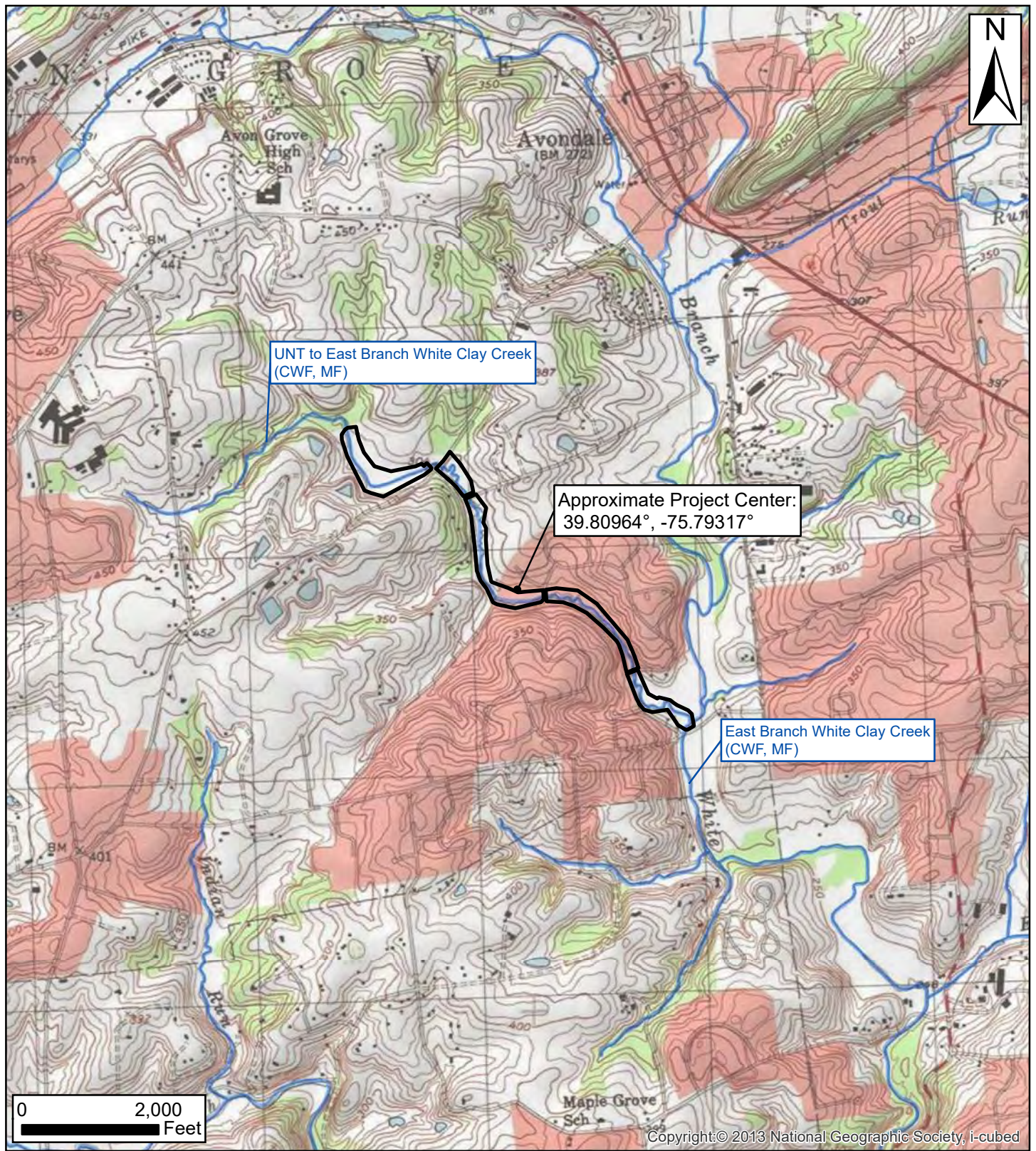
Figures

Figure 1
Location Map

Figure 2
Invasive Vegetation Survey Mapping

CLAY CREEK MITIGATION BANK

Figure 1: Location Map



CLAY CREEK MITIGATION BANK

Figure 2: Invasive Vegetation Survey Mapping

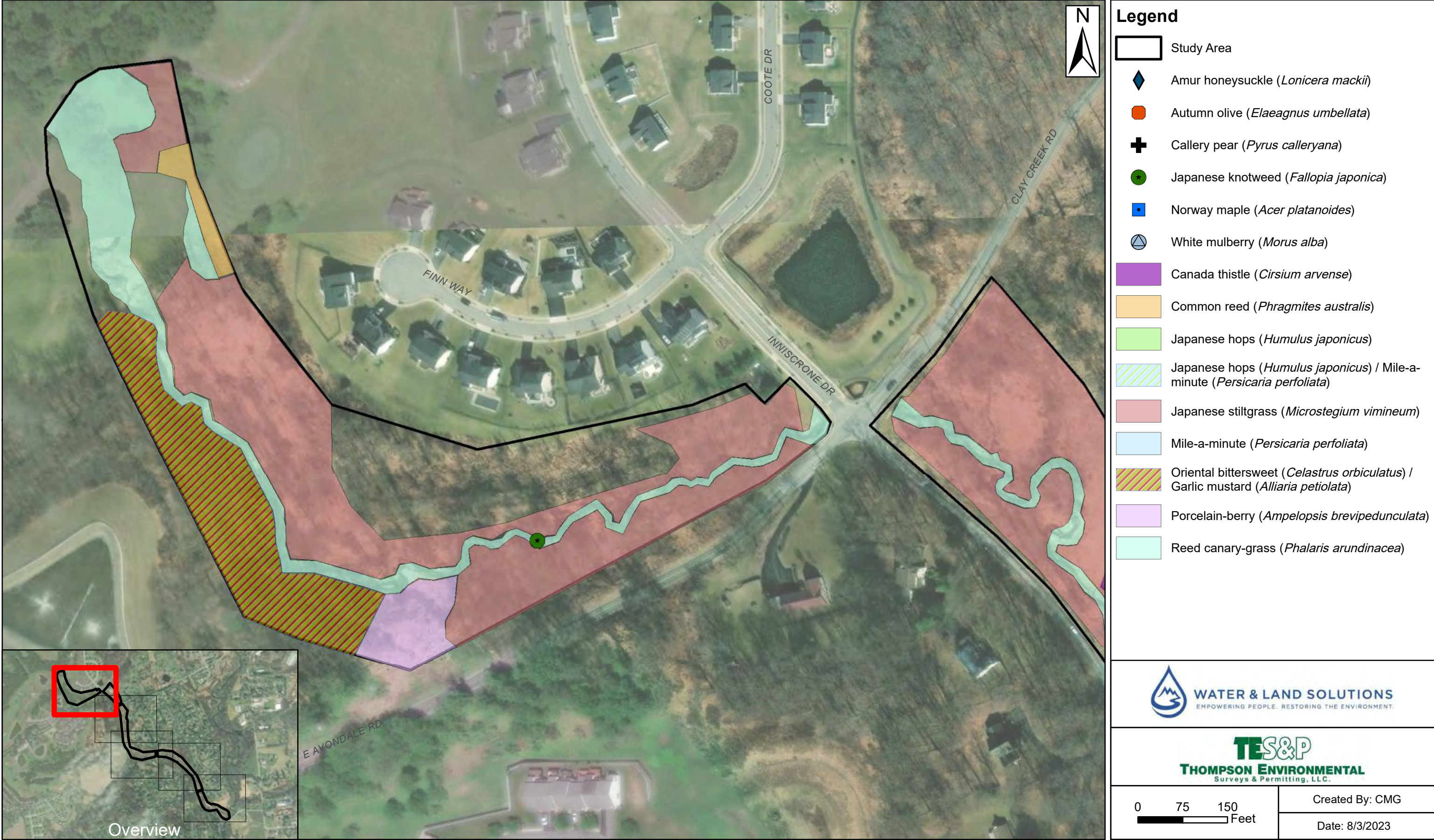


Figure 2: Invasive Vegetation Survey Mapping



Legend

Study Area

◆

Amur honeysuckle (*Lonicera mackii*)

■

Autumn olive (*Elaeagnus umbellata*)

+

Callery pear (*Pyrus calleryana*)

●

Japanese knotweed (*Fallopia japonica*)

■

Norway maple (*Acer platanoides*)

⊙

White mulberry (*Morus alba*)

Canada thistle (*Cirsium arvense*)

Common reed (*Phragmites australis*)

Japanese hops (*Humulus japonicus*)

Japanese hops (*Humulus japonicus*) / Mile-a-minute (*Persicaria perfoliata*)


Japanese stiltgrass (*Microstegium vimineum*)

Mile-a-minute (*Persicaria perfoliata*)


Oriental bittersweet (*Celastrus orbiculatus*) / Garlic mustard (*Alliaria petiolata*)

Porcelain-berry (*Ampelopsis brevipedunculata*)

Reed canary-grass (*Phalaris arundinacea*)



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075150

Feet

Created By: CMG

Date: 8/3/2023

Figure 2: Invasive Vegetation Survey Mapping

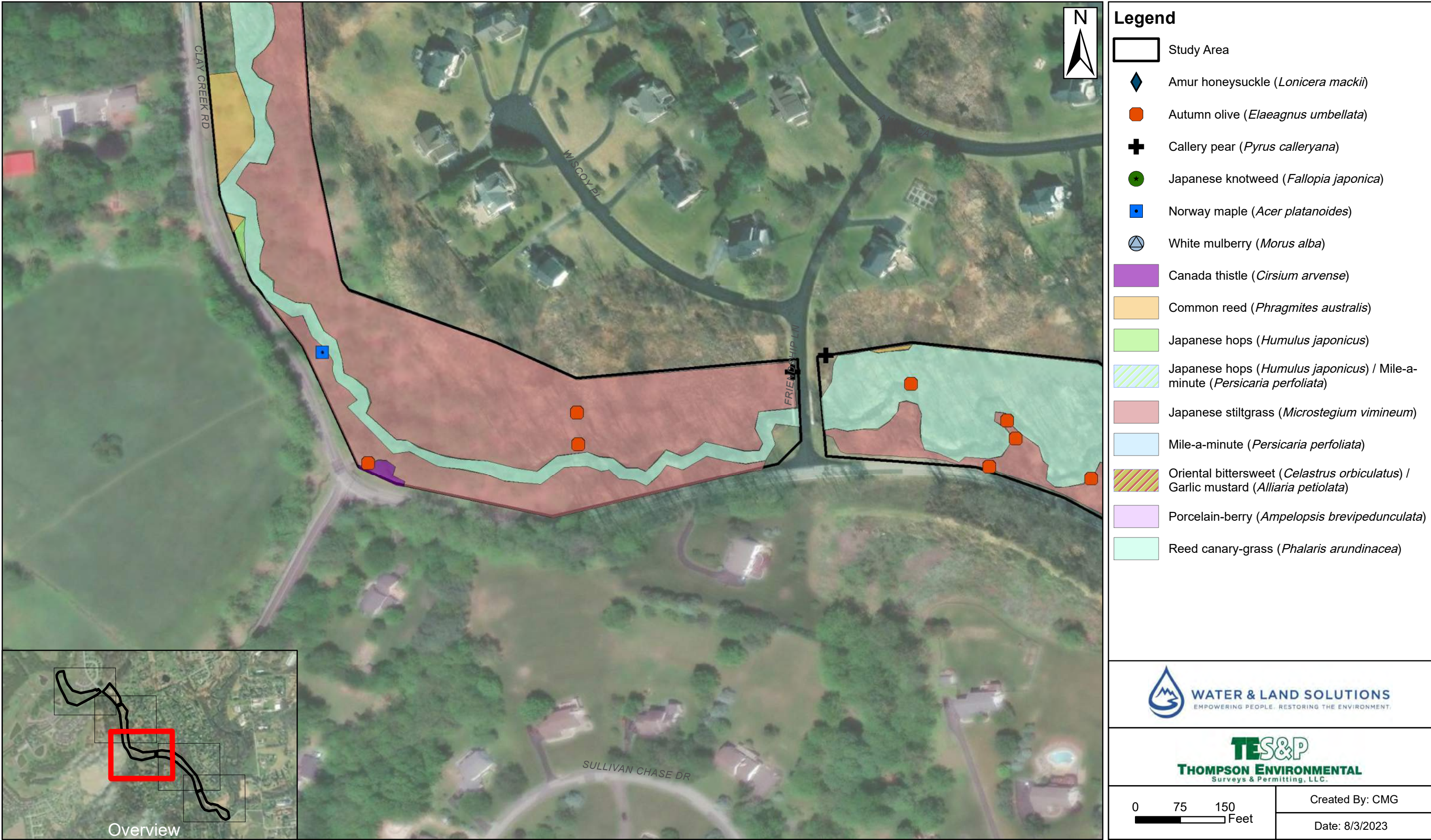


Figure 2: Invasive Vegetation Survey Mapping

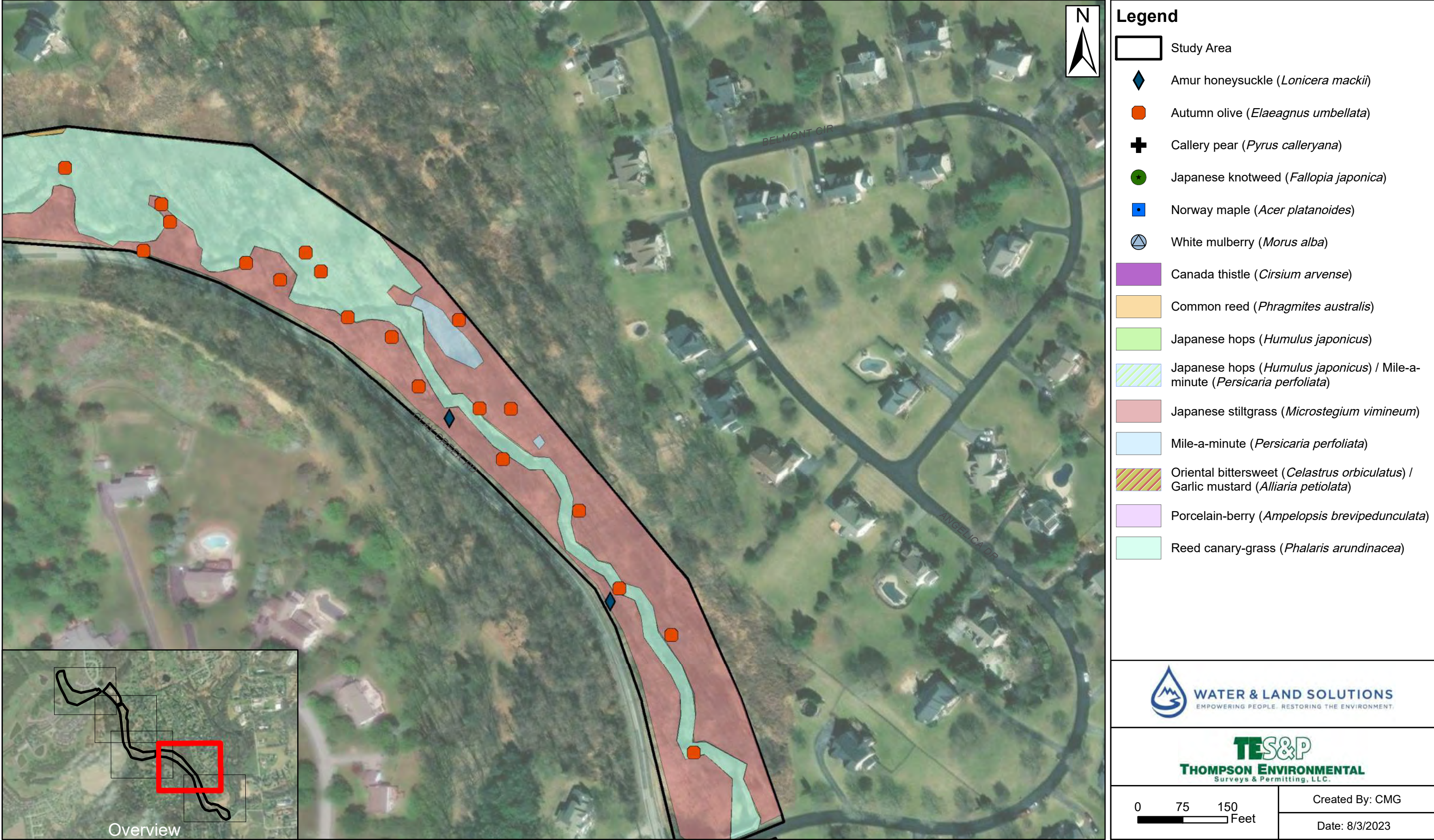
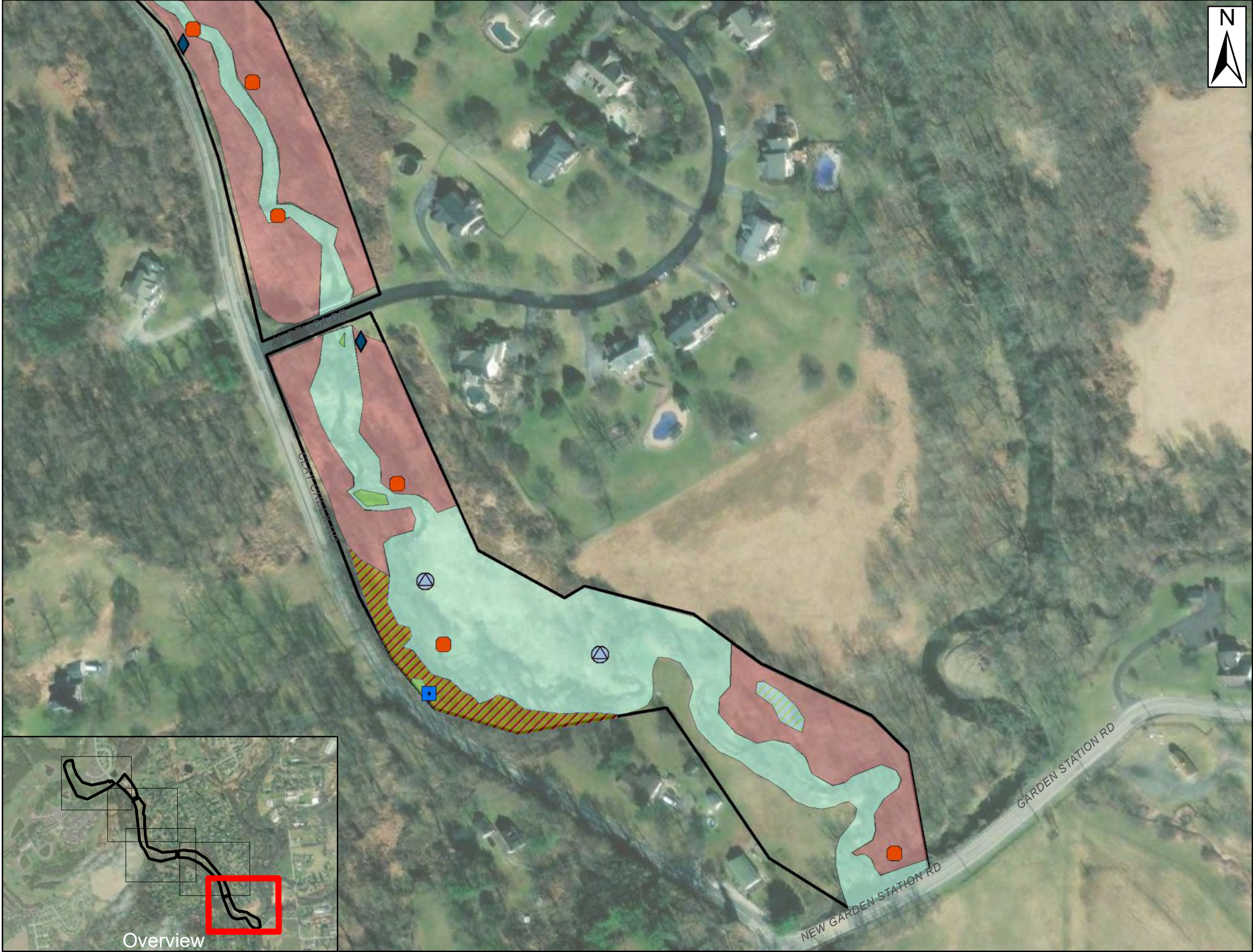


Figure 2: Invasive Vegetation Survey Mapping



Legend

Study Area

◆

Amur honeysuckle (*Lonicera mackii*)

■

Autumn olive (*Elaeagnus umbellata*)

+

Callery pear (*Pyrus calleryana*)

●

Japanese knotweed (*Fallopia japonica*)

■

Norway maple (*Acer platanoides*)

⊙

White mulberry (*Morus alba*)

Canada thistle (*Cirsium arvense*)

Common reed (*Phragmites australis*)

Japanese hops (*Humulus japonicus*)

Japanese hops (*Humulus japonicus*) / Mile-a-minute (*Persicaria perfoliata*)


Japanese stiltgrass (*Microstegium vimineum*)

Mile-a-minute (*Persicaria perfoliata*)


Oriental bittersweet (*Celastrus orbiculatus*) / Garlic mustard (*Alliaria petiolata*)

Porcelain-berry (*Ampelopsis brevipedunculata*)

Reed canary-grass (*Phalaris arundinacea*)



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Date: 8/3/2023


Appendix A

Photographic Log

Photograph: 1	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: Southeast		
Description: Representative mesic elevated floodplain community dominated by black walnut in the canopy and heavily dominated by Japanese stiltgrass in the herbaceous layer.		

Photograph: 2	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: South		
Description: Showing riparian corridor of UNT to East Branch Clay Creek within golf course at northern terminus of Study Area; dominated by reed canary grass and Phragmites.		


Photograph: 3	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: N/A		
Description: Garlic mustard, co-dominant with oriental bittersweet, was abundant within steeply sloped woodlots dominated by black locust and tulip poplar in the canopy.		

Photograph: 4	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: East		
Description: Oriental bittersweet; dominant vine within wooded areas along steeper slopes.		

Photograph: 5	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: Northeast		
Description: Canada thistle population delineated just north of Indian Run Road.		


Photograph: 6	Date: 06/27/23
Feature ID: Existing Conditions	
Direction: North	
Description: Population of Phragmites along Clay Creek Road.	





Photograph: 7	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: Northwest		
Description: Japanese hops and Phragmites along Clay Creek Road.		

Photograph: 8	Date: 06/14/23
Feature ID: Existing Conditions	
Direction: West	
Description: Reed canary grass dominating wetland habitats throughout the Study Area.	

A photograph showing a dense thicket of Reed canary grass dominating wetland habitats throughout the Study Area. The vegetation is lush green and overgrown, with a road visible in the background.

Photograph: 9	Date: 07/12/23	
Feature ID: Existing Conditions		
Direction: N/A		
Description: Amur honeysuckle encountered in a few isolated areas within Study Area.		

Photograph: 10	Date: 07/12/23	
Feature ID: Existing Conditions		
Direction: East		
Description: Japanese knotweed encountered within isolated area along UNT to East Branch Clay Creek.		

Photograph: 11	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: N/A		
Description: Multiflora rose scattered throughout Study Area but not a dominant shrub species.		

Photograph: 12	Date: 06/27/23	
Feature ID: Existing Conditions		
Direction: N/A		
Description: Wineberry scattered throughout Study Area but not considered a dominant species.		

Part 2. Aquatic Resource Delineation Report

CLAY CREEK MITIGATION BANK PROJECT

Aquatic Resource Delineation Report



Prepared by:

Thompson Environmental Surveys & Permitting, LLC.

Prepared For:

Water & Land Solutions

June 2023 (*Revised January 2024*)

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Appendices

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Figure 1 – Project Location Map

Figure 2 – NWI Wetlands and Soils Map

Figure 3 – Delineated Aquatic Resource Maps

Appendix B USACE Regional Supplement Wetland Determination Data Forms

Appendix C Site and Resource Photographs

1 Introduction

Thompson Environmental Surveys & Permitting, LLC. (TES&P) has prepared this Aquatic Resource Delineation Report to document studies conducted for Water & Land Solutions (WLS) at the Clay Creek Mitigation Bank Project (Project). The Project is intended to preserve and restore existing riparian conditions and provide self-sustaining, functional waterways, wetlands, and riparian corridors within the watershed. The aquatic resource studies were performed to identify the existing wetlands and watercourses within the Project area to provide baseline information for the restoration activities. The Project Study Area consists of an approximately 34.7-acre site located along Clay Creek and tributaries thereto, in London Grove Township, Chester County, Pennsylvania (**Appendix A: Figure 1 - Project Location Map**). The coordinates for the approximate Project center are 39.80964°, -75.79317°. This report documents the methodology and results of the aquatic resource investigations performed by TES&P in June of 2023.

2 Background

The Project is located within the United States Geological Survey (USGS) West Grove, PA 7.5-minute series topographical quadrangle (USGS, 2013). Land cover within the Study Area consists of open land, forested, developed land, wetlands, watercourses, and floodplain/riparian areas. Land uses in the vicinity of the Project consisted of agricultural, recreational, residential, and secondary roadways. The Project area drains south via an Unnamed Tributary (UNT) to East Branch White Clay Creek which is located in the White Clay Creek Watershed within the Delaware River Basin.

East Branch White Clay Creek and its associated tributaries have a PA Code, Title 25, Chapter 93 designated protected aquatic life use of Cold-Water Fishes, Migratory Fishes (CWF, MF) (Commonwealth of PA, 2023a). The Pennsylvania Department of Environmental Protection (PADEP) does not list East Branch White Clay Creek as having an Existing Use Classification within the vicinity of the Project (PADEP, 2023).

The Pennsylvania Fish and Boat Commission (PFBC) does not list East Branch White Clay Creek as a Natural Trout Reproduction stream (Wild Trout Waters) (PFBC, 2023a and 2023b). Under Chapter 105 [105.17(iii)], wetlands located in or along the floodplain (or tributary thereto) of Wild Trout Waters are considered Exceptional Value (Commonwealth of PA, 2023b). East Branch White Clay Creek is listed by the PFBC as a Stocked Trout Stream within the vicinity of the project (PFBC, 2023a and 2023b).

According to the 2022 *Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, East Branch White Clay Creek is listed as an aquatic life impaired waterbody from organic enrichment (PADEP, 2022).

Several resources were identified by the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) within the vicinity of the Project Study Area. The watercourses were classified as riverine, unknown perennial, unconsolidated bottom, permanently flooded (R5UBH) and riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH). The wetlands are classified as palustrine scrub-shrub broad-leaved deciduous, emergent, *Phragmites australis*, temporary flooded (PSS1/EM5A), and palustrine, scrub-shrub, broad-leaved deciduous, temporary flooded (PSS1A) (**Appendix A: Figure 2 – Soil and NWI Map**).

Eight soil map units are located within the Project Study Area. Each soil map unit has a hydric soil rating given by the Natural Resources Conservation Service (NRCS 2018) (**Table 1**)

Table 1. Study Area Soils

Soil Map Unit	Description	Hydric Rating
Co	Codorus silt loam	11
Ha	Hatboro silt loam	95
GgB	Glenelg silt loam, 3 to 8 percent slopes	0
GgC	Glenelg silt loam, 8 to 15 percent slopes	0
GaD	Galla silt loam, 15 to 25 percent slopes	0
MaB	Manor silt loam, 3 to 8 percent slopes	0
MaC	Manor silt loam, 8 to 15 percent slopes	0
MaD	Manor silt loam, 15 to 25 percent slopes	0

3 Methodology

TES&P identified and delineated wetlands and watercourses within the Study Areas on June 14 and June 15, 2023. The resources identified by TES&P are potentially regulated under the Clean Water Act of 1972 as *Waters of the United States* and under PA Code, Title 25, Chapter 105 as *Regulated Waters of the Commonwealth* (Clean Water Act of 1972; Commonwealth of PA, 2009b). During field investigations, all wetlands and watercourses located within the Study Area were identified and delineated. The location of each identified resource was recorded using a high-precision, handheld global positioning system (GPS) receiver with sub-meter accuracy.

Prior to initiating the field delineation efforts, TES&P conducted a detailed desktop review of the Project Study Area. The existing sources used for the desktop investigation included: United States Geological Survey (USGS), PA 7.5-minute series topographical quadrangle, (USGS, 2013), USGS Pennsylvania StreamStats (USGS 2015), the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS, 2018) Soil Survey Geographic (SSURGO) Database for Chester County, Pennsylvania, the United States Fish and Wildlife Service (USFWS, 2018) National Wetland Inventory (NWI) polygon for Pennsylvania, Pennsylvania Department of Conservation and Natural Resources (PA DCNR), Bureau of Topographic and Geologic Survey (2010), PAMAP Program Land Cover for Pennsylvania (PSU 2007), and aerial imagery.

During field investigations, wetlands were identified and delineated using the Modified Routine Wetland Delineation Method described in the United States Army Corps of Engineers' (USACE) Wetland Delineation Manual, Technical Report Y-87-1, using criteria described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: *Eastern Mountains and Piedmont Region (Version 2.0)* (Environmental Laboratory, 1987a, 1987b; USACE 2012). During field investigations, data was collected for each delineated wetland and an adjacent upland sample point including dominant vegetation, soil characteristics, hydrology, and other information necessary to complete USACE (2012) Wetland Determination Data Forms.

Wetlands within the Study Area were classified according to the USFWS Classification of Wetlands and Deepwater Habitats for the United States. Wetland classifications were based upon vegetation type and dominance: palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), and palustrine unconsolidated bottom (PUB). Dominant vegetation was evaluated on percent aerial cover for each stratum: tree, sapling/shrub, herbaceous, and woody vine (Cowardin et al., 1979).

Each plant species was assigned an indicator status based on the National Wetland Plant List (Lichvar et al., 2016). The following indicator statuses were assigned: obligate (OBL), facultative wet (FACW), facultative

(FAC), facultative upland (FACU), upland (UPL), no status (NS), or not indicated (NI). The Munsell Soil-Color Chart (Munsell, 2009) was utilized to assess soils.

Once TES&P biologists determined that an area met the criteria to be considered a wetland, data and photos were collected and the resource boundary was surveyed. A high-precision, handheld, GPS receiver (model GeoXH handheld, Trimble, Sunnyvale, CA) was used to record the boundaries of each wetland.

To identify and delineate watercourses, TES&P performed an on-site evaluation based on typical watercourse characteristics such as defined streambed and streambanks, exclusion of terrestrial vegetation, hydrologically sorted substrate material, and the presence of an ordinary high-water mark (OHWM). If a watercourse was delineated, information was collected for each resource including but not limited to approximate top of bank width, approximate channel depth, flow depth, channel substrate, and channel morphology. The extent of each watercourse was recorded with a GPS unit. For the purposes of this project, only the centerline or thalweg of each watercourse was surveyed.

4 Results

Fourteen (14) wetlands and twelve (12) watercourses were identified and delineated within the Study Area. The locations of the identified resources are depicted on **Figure 3**. A description of the typical delineated wetland conditions for the Project is presented below and summarized in **Table 2**. A description of the typical delineated watercourse conditions for the Project is presented below and summarized in **Table 3**. Data forms for the wetlands are included in **Appendix B**. Photographs of the resources are included in **Appendix C**.

Wetlands

A total of fourteen (14) wetlands were located and delineated within the Study Area. Two of these wetlands (CLA-W-011 and CLA-W-013) had a palustrine scrub-shrub (PSS) component and one had a palustrine forested (PFO) component; CLA-W-007. All the remaining wetlands were classified as palustrine emergent (PEM) resources. The total area of the wetlands identified within the Study Area was 7.275 acres. These resources occur primarily within the northern section of the Study Area along the elevated floodplain of the left-descending bank of the UNT to East Branch White Clay Creek (CLA-S-001). These areas appear to be supported by seasonally high groundwater and surface water collection and are similarly situated just beyond residentially developed areas. A few wetlands also occur between Clay Creek Road and CLA-S-001 where topographically defined depressional areas are fueled primarily by surface water collection.

During the field investigations, it was noted that CLA-S-001 was heavily incised, resulting in a lack of connectivity to the floodplain. It is likely that more wetlands occurred within this area historically when the stream bed and water table were higher in elevation and had more of a direct connection to the floodplain. Refer to **Table 2** for classifications and sizes of the field-identified wetlands. Detailed wetland information is provided on the wetland data forms in **Appendix B**. Photographs of the wetlands can be found in **Appendix C**. Typical wetland vegetation, soil characteristics, and hydrology identified within the identified wetlands are discussed below.

Wetlands in the Project Study Area displayed a relatively limited vegetative diversity which is common for wetlands within the more developed areas of southeastern Pennsylvania. The most common herbaceous plant species observed in wetlands were reed canary grass (*Phalaris arundinacea*), Japanese stiltgrass (*Microstegium vimineum*), skunk cabbage (*Symplocarpus foetidus*), and sensitive fern (*Onoclea sensibilis*). A few wetlands were also dominated by the invasive common reed (*Phragmites australis*), particularly within portions of CLA-W-011 and CLA-W-014. The most common shrub species observed in wetlands were spicebush (*Lindera benzoin*), and buttonbush (*Cephalanthus occidentalis*) and the common wetland adapted tree species were swamp white oak (*Quercus bicolor*) and black willow (*Salix nigra*).

Characteristic upland habitats consisted primarily of mesic elevated floodplain communities dominated by black walnut (*Juglans nigra*) in the canopy and Japanese stiltgrass in the herbaceous stratum. Some of these elevated

floodplain communities were found to be dominated by hydrophytic vegetation such as reed canary grass. These areas were not found to maintain hydric soil characteristics or sufficient hydrology indicators, however, to be deemed potentially jurisdictional wetlands. These areas were likely wetland habitats at some point historically prior to the watercourse becoming disconnected from the floodplain.

The most common matrix hue for soils sampled within the Study Area was 10YR with low chroma (≤ 2) and values between 4 and 6 with redox concentrations. Depleted Matrix (F3) was the most common hydric soil indicator observed. The most common soil texture was sandy silt loam from historic alluvial deposits along the floodplain of the UNT to East Branch White Clay Creek (CLA-S-001).

The most common primary indicators of hydrology observed within the Project Study Area wetlands were Surface Water (A1), High Water Table (A2), and Saturation (A3). The most common secondary indicators observed were Microtopographic Relief (D4) and Drainage Patterns (B10). The primary sources of hydrology differed between wetland types. Seasonal high groundwater, groundwater discharge, and surface water runoff collection were the primary sources of hydrology observed.

Table 2. Field Identified Wetlands

Wetland ID	Classification	Delineated Size (ac)	Total Delineated Size in Study Area (ac)
CLA-W-001	PEM	0.093	0.093
CLA-W-002	PEM	0.012	0.012
CLA-W-003	PEM	0.005	0.005
CLA-W-004	PEM	0.013	0.013
CLA-W-005	PEM	0.020	0.020
CLA-W-006	PEM	0.008	0.008
CLA-W-007*	PEM	0.710	1.197
	PFO	0.487	
CLA-W-008	PEM	0.009	0.009
CLA-W-009*	PEM	0.723	0.723
CLA-W-010*	PEM	0.863	0.863
CLA-W-011	PEM	0.711	1.279
	PSS	0.568	
CLA-W-012*	PEM	0.469	0.469
CLA-W-013*	PEM	0.749	1.026
	PSS	0.277	
CLA-W-014*	PEM	1.558	1.558
Total Wetlands:	14		

Wetland ID	Classification	Delineated Size (ac)	Total Delineated Size in Study Area (ac)
* Wetlands extend outside the Study Area PEM – Palustrine Emergent PFO – Palustrine Forested PSS – Palustrine Scrub-Shrub PUB – Palustrine Unconsolidated Bottom		PEM	5.943
		PSS	0.845
		PFO	0.487
		Total Wetland Area (ac)	7.275

Watercourses

TES&P delineated two (2) perennial (PER) watercourses, nine (9) intermittent (INT) watercourses, and one (1) ephemeral (EPH) watercourse within the Study Area (**Figure 3**). A summary of the delineated watercourses is provided in **Table 3**. Photographs of the watercourses can be found in **Appendix C**.

The watercourses identified within the Study Area convey groundwater hydrology or surface runoff originating from the surrounding landscape and upstream tributaries. Generally a watercourse that only conveys surface water from precipitation events was considered EPH, watercourses that originate in wetlands or at the discharge of seasonal groundwater seeps were classified as INT, and watercourses that contained a persistent surface flow associated with connection to the groundwater table were classified as PER. PER watercourses also typically contained species of aquatic organisms including fish and macroinvertebrate species that require persistent surface water to complete their life cycle.

Table 3. Watercourse Identification and Classification

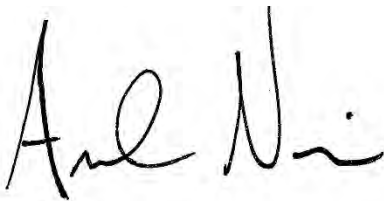
Resource Name	Class. 1	Chap 93 ²	Width at OHWM ³	Depth at OHWM ³	STW ⁴	WTW ⁴	Watershed Size (mi ²)
CLA-S-001	PER	CWF, MF	6'	3"	No	No	1.92
CLA-S-002	PER	CWF, MF	25'	6"	Yes*	No	22.2
CLA-S-003	INT	CWF, MF	1'	2"	No	No	0.045
CLA-S-004	INT	CWF, MF	1'	1"	No	No	<0.01
CLA-S-005	INT	CWF, MF	3'	2"	No	No	0.27
CLA-S-006	INT	CWF, MF	1'	1"	No	No	<0.01
CLA-S-007	INT	CWF, MF	3'	2"	No	No	0.19
CLA-S-008	INT	CWF, MF	1'	1"	No	No	<0.01
CLA-S-009	INT	CWF, MF	2'	1"	No	No	<0.01
CLA-S-010	INT	CWF, MF	2'	2"	No	No	0.16

Resource Name	Class. ¹	Chap 93 ²	Width at OHWM ³	Depth at OHWM ³	STW ⁴	WTW ⁴	Watershed Size (mi ²)
CLA-S-011	INT	CWF, MF	2'	1"	No	No	0.05
CLA-S-012	EPH	CWF, MF	1'	0	No	No	<0.01
¹ Classification, PER = Perennial, INT= Intermittent, EPH = Ephemeral ² PA Code, Title 25, Chapter 93 Designated Use or Existing Use Designation, whichever is more protective ³ OHWM=Ordinary High-Water Mark, feet ⁴ STW = PFBC Stocked Trout Waters (Yes, No). *Stocked within Main Stem East Branch White Clay Creek ⁵ WTW = PFBC Wild Trout Waters (Yes, No).							

5 Summary

TES&P conducted aquatic resource delineations on multiple dates in June of 2023 within the approximately 34.7-acre Study Area for the Clay Creek Mitigation Bank Project in London Grove Township, Chester County, Pennsylvania. This field effort resulted in the delineation of fourteen (14) wetlands and twelve (12) watercourses.

This report was prepared by:
Thompson Environmental Surveys & Permitting, LLC.



Andrew Nevin
Senior Biologist

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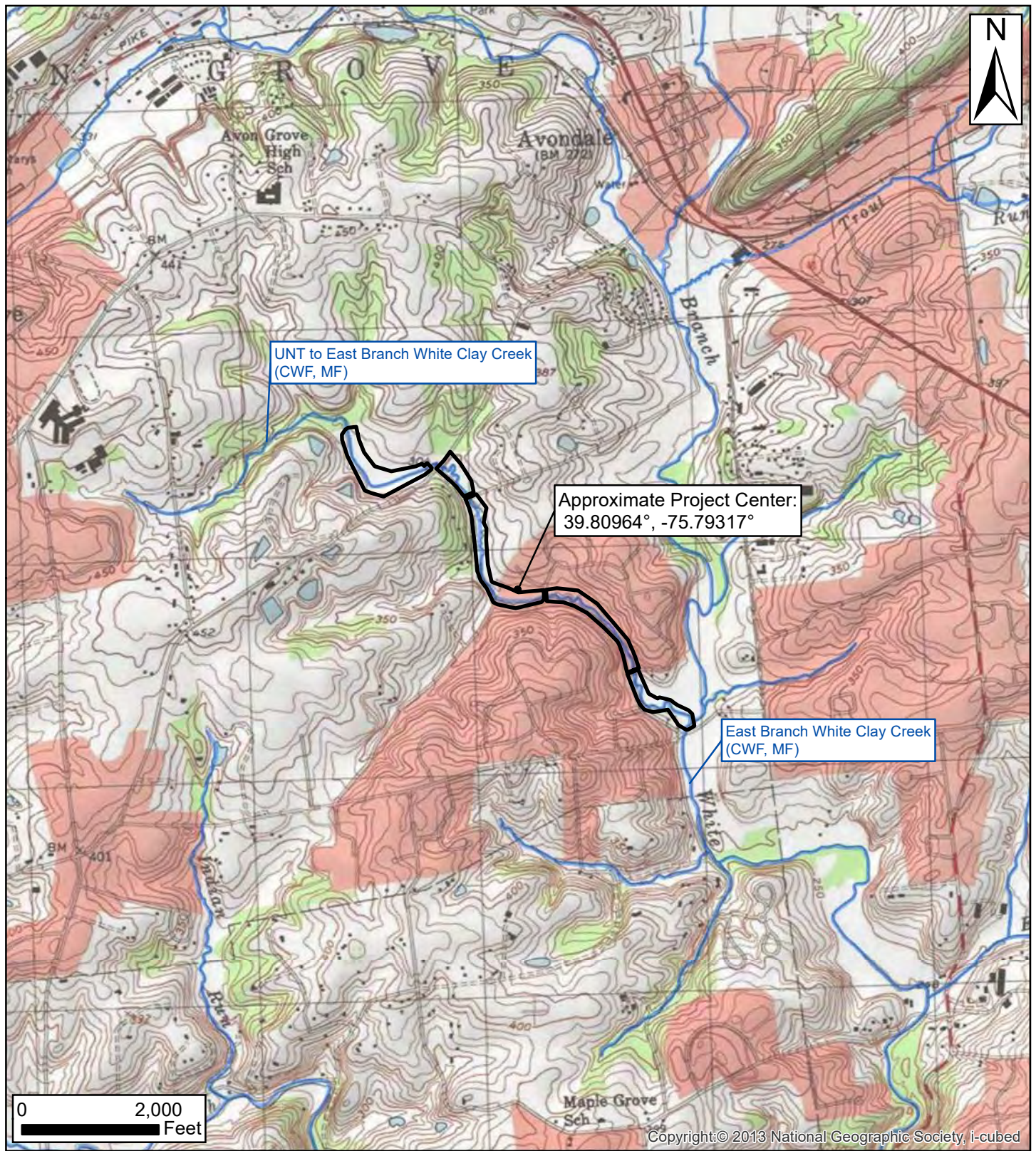
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Appendix A

Figures

CLAY CREEK MITIGATION BANK

Figure 1: Location Map



CLAY CREEK MITIGATION BANK

Figure 2: National Wetlands Inventory (NWI) Wetlands and Soil Map Units Page 1 of 1

CLAY CREEK MITIGATION BANK

Figure 2: National Wetlands Inventory (NWI) Wetlands and Soil Map Units Page 1 of 1



Figure 3: Delineated Aquatic Resources



Legend

- Upland Sample Point
- Wetland Sample Point
- Open End
- Delineated Watercourse

Delineated Wetland Cowardin Classification

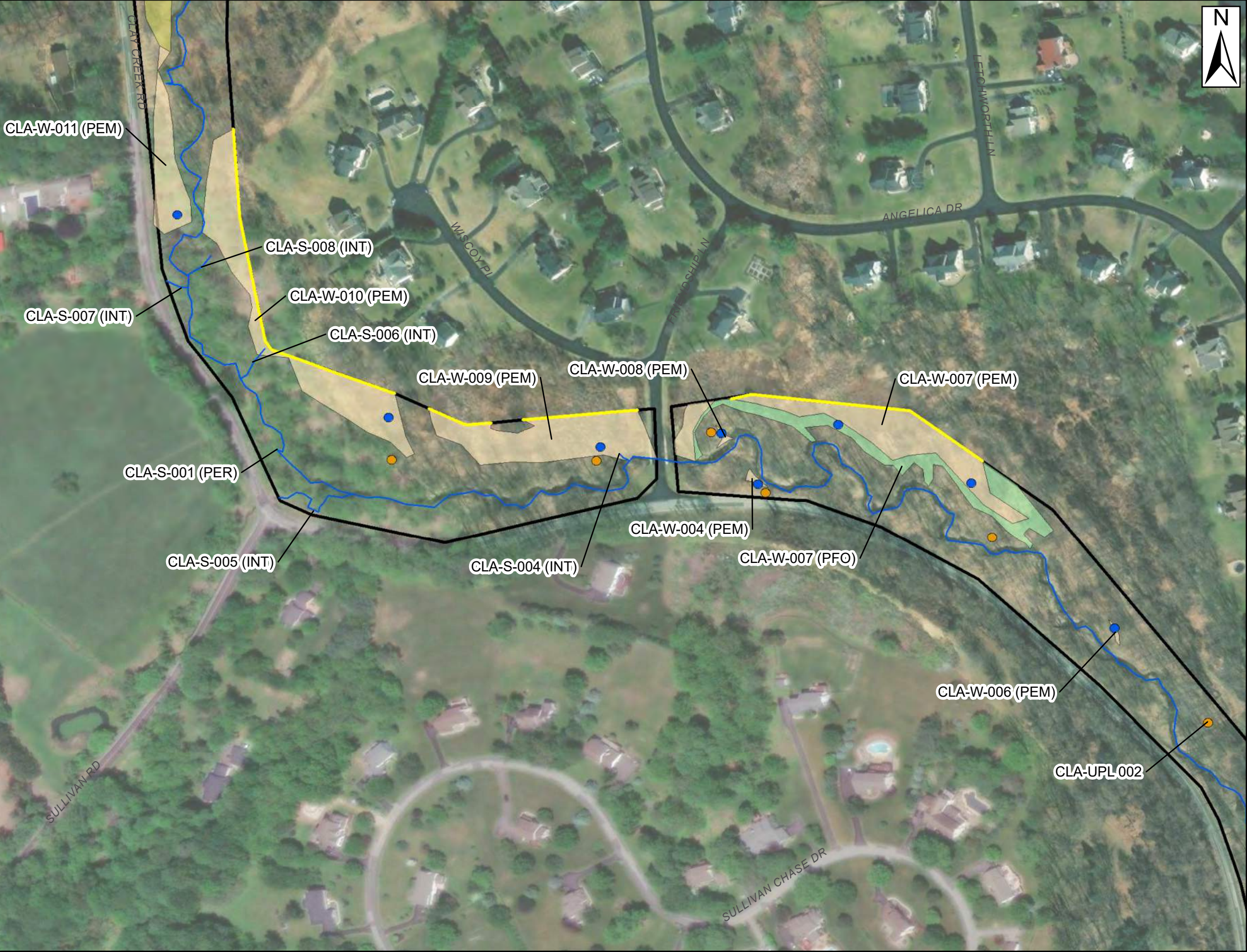
- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Scrub-Shrub (PSS)
- Study Area

0 100 200 Feet

Created By: CMG

Date: 6/22/2023

Figure 3: Delineated Aquatic Resources



Legend

- Upland Sample Point
- Wetland Sample Point
- Open End
- Delineated Watercourse

Delineated Wetland Cowardin Classification

- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Scrub-Shrub (PSS)
- Study Area

0 100 200 Feet

Created By: CMG

Date: 6/22/2023

Figure 3: Delineated Aquatic Resources



Legend

- Upland Sample Point
- Wetland Sample Point
- Open End
- Delineated Watercourse

Delineated Wetland Cowardin Classification

- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Scrub-Shrub (PSS)
- Study Area

0 100 200 Feet

Created By: CMG

Date: 6/22/2023

Appendix B

USACE Regional Supplement Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-001 (PEM)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.804477 Long: -75.786052 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
<u>Primary Indicators (minimum of one is required; check all that apply)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>			
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-001 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Glyceria striata</u>	<u>10</u>		<u>OBL</u>	
3. <u>Urtica dioica</u>	<u>5</u>		<u>FACU</u>	
4. <u>Impatiens capensis</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
5. <u>Lysimachia nummularia</u>	<u>5</u>		<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: CLA-W-001 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-001 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.804837 Long: -75.786086 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
<u>Primary Indicators (minimum of one is required; check all that apply)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Upland Plot			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-001 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
6. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
7. _____	_____	_____	_____	
$\frac{0}{0} = \text{Total Cover}$ 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
$\frac{0}{0} = \text{Total Cover}$ 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. Phalaris arundinacea	35	✓	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. Humulus japonicus	20	✓	FACU	
3. Urtica dioica	20	✓	FACU	
4. Galium aparine	20	✓	FACU	
5. Calystegia sepium	5		FAC	
6. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
$\frac{100}{50} = \text{Total Cover}$ 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
$\frac{0}{0} = \text{Total Cover}$ 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				
Upland Plot				

SOIL

Sampling Point: CLA-W-001 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-002 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.803471 Long: -75.783281 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-002 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Urtica dioica</u>	<u>10</u>		<u>FACU</u>	
4. <u>Impatiens capensis</u>	<u>10</u>		<u>FACW</u>	
5. <u>Lysimachia nummularia</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
6. <u>Boehmeria cylindrica</u>	<u>10</u>		<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>55</u>		20% of total cover: <u>22</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-002 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-002 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.803463 Long: -75.783254 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-002 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer saccharinum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. <u>Juglans nigra</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
$\frac{100}{50} = \text{Total Cover}$ 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Acer negundo</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
$\frac{10}{10} = \text{Total Cover}$ 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Elymus riparius</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Humulus japonicus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Urtica dioica</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
4. _____				
5. _____				
$\frac{100}{50} = \text{Total Cover}$ 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
$\frac{0}{0} = \text{Total Cover}$ 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				

SOIL

Sampling Point: CLA-W-002 (UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)

- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ___ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ___ Umbritic Surface (F13) (**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ___ Red Parent Material (F21) (**MLRA 127, 147**)

- ☐ 2 cm Muck (A10) **(MLRA 147)**
☐ Coast Prairie Redox (A16)
(MLRA 147, 148)
☐ Piedmont Floodplain Soils (F19)
(MLRA 136, 147)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Upland Plot

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-003 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.805148 Long: -75.785971 Datum: NAD83
 Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-003 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>10</u>	_____	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Glyceria striata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
4. <u>Impatiens capensis</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

SOIL

Sampling Point: CLA-W-003 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-004 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.808142 Long: -75.789958 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-004 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>10</u>		<u>OBL</u>	
2. <u>Phalaris arundinacea</u>	<u>80</u>	<u>✓</u>	<u>FACW</u>	
3. <u>Impatiens capensis</u>	<u>10</u>		<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <u>✓</u> No _____

SOIL

Sampling Point: CLA-W-004 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-004 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.808075 Long: -75.789899 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-004 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Woody Vine Stratum (Plot size: <u>15'</u>)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Rubus phoenoclasius</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
2. <u>Allium vineale</u>	<u>10</u>		<u>FACU</u>	
3. <u>Ampelopsis brevipedunculata</u>	<u>20</u>	<u>✓</u>	<u>N/S</u>	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. <u>Dactylis glomerata</u>	<u>30</u>	<u>✓</u>	<u>FACU</u>	
5. <u>Microstegium vimineum</u>	<u>20</u>	<u>✓</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____			

SOIL

Sampling Point: CLA-W-004 (UPL)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-005 (PEM)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.805299 Long: -75.786112 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
<u>Primary Indicators (minimum of one is required; check all that apply)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>		
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-005 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Schoenoplectus tabernaemontani</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Phalaris arundinacea</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Impatiens capensis</u>	<u>5</u>		<u>FACW</u>	
4. <u>Eupatorium perfoliatum</u>	<u>10</u>		<u>FACW</u>	
5. <u>Carex lurida</u>	<u>10</u>		<u>OBL</u>	
6. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
7. <u>Persicaria arifolia</u>	<u>5</u>		<u>OBL</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-005 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-003/5 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.805410 Long: -75.786191 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-003/5 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Juglans nigra</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____				
6. _____				
7. _____				
8. _____				
50% of total cover: <u>15</u> 20% of total cover: <u>6</u> Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____				
2. _____				
3. _____				
4. _____				
50% of total cover: <u>0</u> 20% of total cover: <u>0</u> Herb Stratum (Plot size: <u>5'</u>)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. <u>Ampelopsis brevipedunculata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>N/S</u>	
2. <u>Microstegium vimineum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Persicaria perfoliata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Phalaris arundinacea</u>	<u>5</u>		<u>FACW</u>	
5. <u>Calystegia sepium</u>	<u>5</u>		<u>FAC</u>	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
6. _____				
7. _____				
8. _____				
9. _____				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u> Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				

Remarks: (Include photo numbers here or on a separate sheet.)
 Upland Plot
 N/S = Not Specified

SOIL

Sampling Point: CLA-W-003/5 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-006 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.807242 Long: -75.787459 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-006 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Persicaria sagittata</u>	<u>10</u>		<u>OBL</u>	
3. <u>Microstegium vimineum</u>	<u>10</u>		<u>FAC</u>	
4. <u>Urtica dioica</u>	<u>5</u>		<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: CLA-W-006 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-006 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.807300 Long: -75.787475 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-006 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Prunus serotina</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. <u>Juglans nigra</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
80 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Lindera benzoin</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
25 = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>65</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Persicaria perfoliata</u>	<u>10</u>		<u>FAC</u>	
3. <u>Persicaria virginiana</u>	<u>10</u>		<u>FAC</u>	
4. <u>Symplocarpus foetidus</u>	<u>10</u>		<u>OBL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
95 = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
0 = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				

Remarks: (Include photo numbers here or on a separate sheet.)
 Upland Plot

SOIL

Sampling Point: CLA-W-006 (UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)

- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ___ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ___ Umbritic Surface (F13) (**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ___ Red Parent Material (F21) (**MLRA 127, 147**)

- ☐ 2 cm Muck (A10) **(MLRA 147)**
☐ Coast Prairie Redox (A16)
(MLRA 147, 148)
☐ Piedmont Floodplain Soils (F19)
(MLRA 136, 147)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Upland Plot

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-007(PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.807956 Long: -75.788231 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-007 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Persicaria sagittata</u>	<u>10</u>	_____	<u>OBL</u>	
3. <u>Microstegium vimineum</u>	<u>5</u>	_____	<u>FAC</u>	
4. <u>Typha latifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
5. <u>Onoclea sensibilis</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
6. <u>Acorus calamus</u>	<u>10</u>	_____	<u>OBL</u>	
7. <u>Carex lurida</u>	<u>10</u>	_____	<u>OBL</u>	
8. <u>Carex squarrosa</u>	<u>5</u>	_____	<u>FACW</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: CLA-W-007 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-007(PFO)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.808008 Long: -75.788149 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: PFO Plot	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Microtopographic Relief (D4)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-007 (PFO)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus bicolor</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>Salix nigra</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Juglans nigra</u>	<u>10</u>		<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
<u>60</u> = Total Cover 50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Lindera benzoin</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>15</u> = Total Cover 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Symplocarpus foetidus</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Persicaria arifolia</u>	<u>15</u>		<u>OBL</u>	
3. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Glyceria striata</u>	<u>10</u>		<u>OBL</u>	
5. <u>Onoclea sensibilis</u>	<u>10</u>		<u>FACW</u>	
6. <u>Acorus calamus</u>	<u>15</u>		<u>OBL</u>	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-007 (PFO)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (**LRR N**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)

- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- ___ Thin Dark Surface (S9) (**MLRA 147, 148**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- ___ Umbritic Surface (F13) (**MLRA 136, 122**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 148**)
- ___ Red Parent Material (F21) (**MLRA 127, 147**)

- ☐ 2 cm Muck (A10) **(MLRA 147)**
☐ Coast Prairie Redox (A16)
(MLRA 147, 148)
☐ Piedmont Floodplain Soils (F19)
(MLRA 136, 147)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-008 (PEM)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.808372 Long: -75.790169 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-008 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Phalaris arundinacea</u>	<u>10</u>	_____	<u>FACW</u>	
3. <u>Microstegium vimineum</u>	<u>10</u>	_____	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>47.5</u>		20% of total cover: <u>19</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-008 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/14/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-007/8 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.807807 Long: -75.788319 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-007/8 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Juglans nigra</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>75</u> = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Lindera benzoin</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Elaeagnus angustifolia</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
<u>30</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Capsella bursa-pastoris</u>	<u>10</u>		<u>FACU</u>	
2. <u>Microstegium vimineum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Persicaria virginiana</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Allium vineale</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				

SOIL

Sampling Point: CLA-W-007/8 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-009 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.808363 Long: -75.791126 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-009 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>5</u>	_____	<u>OBL</u>	
2. <u>Solidago gigantea</u>	<u>10</u>	_____	<u>FACW</u>	
3. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Typha latifolia</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
5. <u>Persicaria arifolia</u>	<u>5</u>	_____	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: CLA-W-009 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-009 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.808269 Long: -75.791079 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-009 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Juglans nigra</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>30</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Persicaria longiseta</u>	<u>10</u>		<u>FAC</u>	
3. <u>Conium maculatum</u>	<u>10</u>		<u>FACW</u>	
4. <u>Urtica dioica</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. <u>Persicaria perfoliata</u>	<u>10</u>		<u>FAC</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>90</u> = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

SOIL

Sampling Point: CLA-W-009 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-010 (PEM)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.808696 Long: -75.792972 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>		
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>		
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)		
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-010 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Acorus calamus</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Juncus effusus</u>	<u>10</u>		<u>FACW</u>	
3. <u>Microstegium vimineum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Onoclea sensibilis</u>	<u>10</u>		<u>FACW</u>	
5. <u>Galium palustre</u>	<u>5</u>		<u>OBL</u>	
6. <u>Solidago gigantea</u>	<u>5</u>		<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-010 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-010 (UPL)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.808299 Long: -75.792511 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-010 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Juglans nigra</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>30</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Solidago rugosa</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>Capsella bursa-pastoris</u>	<u>5</u>		<u>FACU</u>	
4. <u>Urtica dioica</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. <u>Persicaria perfoliata</u>	<u>5</u>		<u>FAC</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

SOIL

Sampling Point: CLA-W-010 (UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					Sandy Silt Loam	Alluvial
3-20	10YR 4/4	100					Sandy Silt Loam	Alluvial

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)						
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)						
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)						
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)						
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)						
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)						
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)						
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N,	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,							
MLRA 147, 148)	MLRA 136)							
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)							
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)							
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)							

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:
Upland Plot

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-011 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.809682 Long: -75.793998 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-011 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Phragmites australis</u>	<u>75</u>	<u>✓</u>	<u>FACW</u>	
2. <u>Symplocarpus foetidus</u>	<u>15</u>	_____	<u>OBL</u>	
3. <u>Impatiens capensis</u>	<u>5</u>	_____	<u>FACW</u>	
4. <u>Cardamine impatiens</u>	<u>5</u>	_____	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes <u>✓</u> No _____
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-011 (PEM)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-011 (PSS)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.810866 Long: -75.794060 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: PSS Plot	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-011 (PSS)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Cephalanthus occidentalis</u>	<u>30</u>	<u>✓</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>30</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Phalaris arundinacea</u>	<u>25</u>	<u>✓</u>	<u>FACW</u>	
2. <u>Symplocarpus foetidus</u>	<u>20</u>	<u>✓</u>	<u>OBL</u>	
3. <u>Impatiens capensis</u>	<u>20</u>	<u>✓</u>	<u>FACW</u>	
4. <u>Carex lurida</u>	<u>15</u>	_____	<u>OBL</u>	
5. <u>Glyceria striata</u>	<u>20</u>	<u>✓</u>	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes <u>✓</u> No _____
Remarks: (Include photo numbers here or on a separate sheet.)				

PSS Plot

SOIL

Sampling Point: CLA-W-011 (PSS)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-011 (UPL)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.811524 Long: -75.794326 Datum: NAD83
 Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-011 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Elaeagnus angustifolia</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>20</u> = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Lonicera japonica</u>	<u>10</u>	_____	<u>FAC</u>	
2. <u>Solidago gigantea</u>	<u>10</u>	_____	<u>FACW</u>	
3. <u>Rumex obtusifolius</u>	<u>25</u>	<u>✓</u>	<u>FACU</u>	
4. <u>Urtica dioica</u>	<u>25</u>	<u>✓</u>	<u>FACU</u>	
5. <u>Persicaria perfoliata</u>	<u>10</u>	_____	<u>FAC</u>	
6. <u>Potentilla indica</u>	<u>10</u>	_____	<u>FACU</u>	
7. <u>Erigeron philadelphicus</u>	<u>10</u>	_____	<u>FACU</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				

SOIL

Sampling Point: CLA-W-011 (UPL)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-012 (PEM)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.811947 Long: -75.793812 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
<u>Primary Indicators (minimum of one is required; check all that apply)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>			
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-012 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>✓</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Typha latifolia</u>	<u>20</u>	<u>✓</u>	<u>OBL</u>	
3. <u>Impatiens capensis</u>	<u>20</u>	<u>✓</u>	<u>FACW</u>	
4. <u>Urtica dioica</u>	<u>10</u>	_____	<u>FACU</u>	
5. <u>Acorus calamus</u>	<u>10</u>	_____	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Hydrophytic Vegetation Present? Yes <u>✓</u> No _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-012 (PEM)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-012 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.812003 Long: -75.793954 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>	Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-012 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Juglans nigra</u>	<u>15</u>	<u>✓</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>15</u> = Total Cover 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>40</u>	<u>✓</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>✓</u>	<u>FACW</u>	
3. <u>Persicaria longiseta</u>	<u>10</u>	_____	<u>FAC</u>	
4. <u>Cardamine impatiens</u>	<u>10</u>	_____	<u>FAC</u>	
5. <u>Capsella bursa-pastoris</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>

SOIL

Sampling Point: CLA-W-012 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-013 (PEM)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.812601 Long: -75.794492 Datum: NAD83
 Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-013 (PEM)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Typha latifolia</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Persicaria arifolia</u>	<u>10</u>		<u>OBL</u>	
4. <u>Microstegium vimineum</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
5. <u>Acorus calamus</u>	<u>10</u>		<u>OBL</u>	
6. <u>Cirsium arvense</u>	<u>5</u>		<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: CLA-W-013 (PEM)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2						Sandy Silt Loam	
3-20	10YR 4/1	75	10YR 4/4	25	C	M	Sandy Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:						Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)					
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)					
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)						
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N,	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,						
<input type="checkbox"/> MLRA 147, 148)	<input type="checkbox"/> MLRA 136)						
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)						
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)						
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)						

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-013 (PSS)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.813939 Long: -75.795341 Datum: NAD83
 Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
PSS Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-013 (PSS)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Cornus amomum</u>	<u>20</u>	<u>✓</u>	<u>FACW</u>	
2. <u>Lindera benzoin</u>	<u>10</u>	<u>✓</u>	<u>FAC</u>	
3. <u>Viburnum recognitum</u>	<u>20</u>	<u>✓</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Symplocarpus foetidus</u>	<u>40</u>	<u>✓</u>	<u>OBL</u>	
2. <u>Carex lurida</u>	<u>10</u>	_____	<u>OBL</u>	
3. <u>Persicaria arifolia</u>	<u>30</u>	<u>✓</u>	<u>OBL</u>	
4. <u>Microstegium vimineum</u>	<u>10</u>	_____	<u>FAC</u>	
5. <u>Boehemeria cylindrica</u>	<u>10</u>	_____	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Hydrophytic Vegetation Present? Yes <u>✓</u> No _____
Remarks: (Include photo numbers here or on a separate sheet.)				

PSS Plot

SOIL

Sampling Point: CLA-W-013 (PSS)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-013 (UPL)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.812856 Long: -75.794744 Datum: NAD83
Soil Map Unit Name: Hatboro Silt Loam (Ha) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Upland Plot	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-013 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Cirsium arvense</u>	<u>50</u>	<u>✓</u>	<u>FACU</u>	
2. <u>Urtica dioica</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
3. <u>Phalaris arundinacea</u>	<u>10</u>		<u>FACW</u>	
4. <u>Alliaria petiolata</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft in height. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) Upland Plot				

SOIL

Sampling Point: CLA-W-013 (UPL)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-014 (PEM1)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.813483 Long: -75.797545 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u>		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>			
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
PEM Plot 1			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-014 (PEM1)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Alnus serrulata</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Cephalanthus occidentalis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>50</u> = Total Cover 50% of total cover: <u>25</u> 20% of total cover: <u>10</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Glyceria striata</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Leersia oryzoides</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Pilea pumila</u>	<u>10</u>		<u>FACW</u>	
4. <u>Juncus effusus</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>75</u> = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Remarks: (Include photo numbers here or on a separate sheet.) PEM Plot 1				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

SOIL

Sampling Point: CLA-W-014 (PEM1)

[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
Applicant/Owner: WLS State: PA Sampling Point: CLA-W-014 (PEM2)
Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 253 Lat: 39.814314 Long: -75.799961 Datum: NAD83
Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: PEM Plot 2	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u> </u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: PEM Plot 2		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-014 (PEM2)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Lindera benzoin</u>	<u>10</u>	<u>✓</u>	<u>FAC</u>	
2. <u>Salix nigra</u>	<u>10</u>	<u>✓</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>20</u> = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phragmites australis</u>	<u>30</u>	<u>✓</u>	<u>FACW</u>	
2. <u>Leersia oryzoides</u>	<u>20</u>	<u>✓</u>	<u>OBL</u>	
3. <u>Symplocarpus foetidus</u>	<u>10</u>	_____	<u>OBL</u>	
4. <u>Migrostegium vimineum</u>	<u>25</u>	<u>✓</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>85</u> = Total Cover 50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <u>✓</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>0</u> = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				

Remarks: (Include photo numbers here or on a separate sheet.)
PEM Plot 2

SOIL

Sampling Point: CLA-W-014 (PEM2)[illegible]

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Clay Creek Mitigation Bank City/County: Chester County Sampling Date: 6/15/2023
 Applicant/Owner: WLS State: PA Sampling Point: CLA-W-014 (UPL)
 Investigator(s): Andrew Nevin Section, Township, Range: London Grove Township
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0%
 Subregion (LRR or MLRA): MLRA 253 Lat: 39.813939 Long: -75.799978 Datum: NAD83
 Soil Map Unit Name: Codorus Silt Loam (Co) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Upland Plot	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Upland Plot		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: CLA-W-014 (UPL)

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Microstegium vimineum</u>	<u>40</u>	<u>✓</u>	<u>FAC</u>	
2. <u>Urtica dioica</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
3. <u>Erechtites hieraciifolius</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
4. <u>Alliaria petiolata</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
Woody Vine Stratum (Plot size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				

Remarks: (Include photo numbers here or on a separate sheet.)
 Upland Plot

SOIL

Sampling Point: CLA-W-014 (UPL)

[illegible]

Appendix C

Photo Log

Photograph: 1	Date: 06/14/23	
Feature ID: CLA-UPL-001		
Direction: North		
Description: Representative elevated floodplain upland plot along the UNT to East Branch White Clay Creek (CLA-S-001).		

Photograph: 2	Date: 06/14/23	
Feature ID: CLA-W-001 (PEM)		
Direction: Southeast		
Description: Wetland Plot associated with CLA-W-001 (PEM).		


Photograph: 3	Date: 06/14/23	
Feature ID: CLA-W-002 (PEM)		
Direction: South		
Description: Wetland Plot associated with CLA-W-002 (PEM) facing confluence with CLA-S-001 along topographically defined drainage pattern.		

Photograph: 4	Date: 06/14/23	
Feature ID: CLA-W-002 (UPL)		
Direction: North		
Description: Upland plot associated with CLA-W-002 along elevated forested floodplain with some relict hydrophytic tree species such as silver maple (<i>Acer saccharinum</i>) remaining.		

Photograph: 5	Date: 06/14/23
Feature ID: CLA-W-003 (PEM)	
Direction: West	
Description: CLA-W-003 (PEM) along culvert crossing of Angelica Drive.	




Photograph: 6	Date: 06/14/23
Feature ID: CLA-S-001 (PER)	
Direction: South	
Description: CLA-S-001 facing downstream near residential area.	




Photograph: 7	Date: 06/14/23
Feature ID: CLA-S-001 (PER)	
Direction: Northwest	
Description: CLA-S-001 facing upstream within northern section of Project Study Area near golf course.	

A photograph showing a narrow, shallow stream or ditch flowing through a lush, green environment. The water is dark brown and appears slightly murky. Both sides of the stream are heavily overgrown with tall, green grasses and various leafy plants. In the background, there is a dense forest of green trees and foliage. The scene is captured from a slightly elevated perspective, looking down the length of the stream.

Photograph: 8	Date: 06/14/23
Feature ID: CLA-S-002 (PER)	
Direction: Northeast	
Description: Main stem of East Branch White Clay Creek at southern edge of Project Study Area, facing upstream along New Garden Station Road.	




Photograph: 9	Date: 06/14/23	
Feature ID: CLA-S-002 (PER)		
Direction: Southwest		
Description: Main stem of East Branch White Clay Creek at southern edge of Project Study Area, facing downstream at confluence with CLA-S-001 along New Garden Station Road.		

Photograph: 10	Date: 06/14/23
Feature ID: CLA-S-003 (INT)	
Direction: West	
Description: CLA-S-003 (INT) facing upstream towards Clay Creek Road culvert crossing.	

A photograph of a small stream flowing through a wooded area. The water is brownish and rippled. The banks are covered with green grass and trees. A metal guardrail is visible on the left bank.

Photograph: 11	Date: 06/14/23	
Feature ID: CLA-W-004 (PEM)		
Direction: North		
Description: Wetland CLA-W-004 at floodplain of CLA-S-001.		

Photograph: 12	Date: 06/14/23	
Feature ID: CLA-W-005 (PEM)		
Direction: East		
Description: CLA-W-005 (PEM) along culvert crossing of Angelica Drive.		

Photograph: 13	Date: 06/14/23	
Feature ID: CLA-W-006 (PEM)		
Direction: Southeast		
Description: Wetland Plot associated with CLA-W-006 (PEM) along topographically defined drainage pattern.		

Photograph: 14	Date: 06/14/23	
Feature ID: CLA-W-007 (PEM)		
Direction: Northeast		
Description: Wetland CLA-W-007 at border between PEM and PFO habitats.		

Photograph: 15	Date: 06/14/23	
Feature ID: CLA-W-008 (PEM)		
Direction: Southeast		
Description: Wetland CLA-W-008 along topographically defined drainage corridor.		

Photograph: 16	Date: 06/15/23
Feature ID: CLA-W-009 (PEM)	
Direction: Northwest	
Description: Wetland Plot associated with CLA-W-009 (PEM) open-ended outside of Project Study Area.	

A photograph of a wetland plot. The foreground and middle ground are filled with dense, tall green plants with long, narrow leaves, possibly Iridaceae. The plants are growing in a field. In the background, there are trees and a white house. The sky is blue.

Photograph: 17	Date: 06/15/23	
Feature ID: CLA-W-0010 (PEM)		
Direction: West		
Description: Wetland Plot associated with CLA-W-010 (PEM) open-ended outside of Project Study Area.		

Photograph: 18	Date: 06/14/23	
Feature ID: CLA-S-006 (INT)		
Direction: North		
Description: CLA-S-006 facing upstream towards CLA-W-010 (PEM).		

Photograph: 19	Date: 06/14/23	
Feature ID: CLA-S-005 (INT)		
Direction: East		
Description: CLA-S-005 facing downstream towards CLA-S-001 confluence.		


Photograph: 20	Date: 06/14/23	
Feature ID: CLA-S-004 (INT)		
Direction: Northwest		
Description: CLA-S-004 facing upstream.		

Photograph: 21	Date: 06/14/23	
Feature ID: CLA-S-007 (INT)		
Direction: West		
Description: CLA-S-007 facing upstream towards Clay Creek Road culvert crossing.		

Photograph: 22	Date: 06/14/23
Feature ID: CLA-S-008 (INT)	
Direction: Northeast	
Description: CLA-S-008 (INT) facing upstream towards source; CLA-W-010 (PEM).	



Photograph: 23	Date: 06/15/23
Feature ID: CLA-W-011 (PEM)	
Direction: North	
Description: CLA-W-011 (PEM) showing dominance of common reed (<i>Phragmites australis</i>) along Clay Creek Road.	



Photograph: 24	Date: 06/15/23	
Feature ID: CLA-W-011 (PSS)		
Direction: East		
Description: PSS plot for CLA-W-011.		

Photograph: 25	Date: 06/15/23	
Feature ID: CLA-W-012 (PEM)		
Direction: North		
Description: Wetland Plot associated with CLA-W-012 (PEM) open-ended outside of Project Study Area.		


Photograph: 26	Date: 06/15/23	
Feature ID: CLA-W-013 (PEM)		
Direction: East		
Description: Wetland CLA-W-013 (PEM) open-ended outside of Project Study Area; ending at residential lawn.		

Photograph: 27	Date: 06/15/23
Feature ID: CLA-W-013 (PSS)	
Direction: East	
Description: PSS plot for CLA-W-013.	

A photograph of a dense, green thicket of vegetation. In the foreground, a black shovel with a pink ribbon tied to its handle is stuck in the ground. The background is filled with various green plants and trees.

Photograph: 28	Date: 06/15/23
Feature ID: CLA-S-010 (INT)	
Direction: Northeast	
Description: CLA-S-010 (INT) facing upstream.	

A photograph showing a narrow, shallow stream or ditch flowing through a dense, overgrown area. The water is brown and murky. The banks are covered in thick green vegetation, including various leafy plants and grasses. A black shovel is stuck upright in the ground on the left bank. In the background, there are more trees and a glimpse of a paved area or road.

Photograph: 29	Date: 06/14/23	
Feature ID: CLA-S-009 (INT)		
Direction: Southwest		
Description: CLA-S-009 facing upstream towards NPDES outfall of sewage treatment facility.		

Photograph: 30	Date: 06/15/23
Feature ID: CLA-S-011 (INT)	
Direction: Southwest	
Description: CLA-S-011 (INT) facing upstream.	

A photograph of a small, rocky stream flowing through a dense, green forest. The water is clear and shallow, surrounded by lush vegetation and trees. The stream is narrow and appears to be in a natural, undisturbed state. The surrounding forest is thick with various types of green plants and trees, creating a vibrant and natural setting. The water flows over a bed of small rocks and pebbles, and the banks are covered in dense green grass and foliage. The overall scene is a peaceful and scenic view of a forest stream.

Photograph: 31	Date: 06/15/23	
Feature ID: CLA-S-012 (EPH)		
Direction: Northeast		
Description: CLA-S-012 (EPH) facing downstream towards confluence with CLA-S-001.		

Photograph: 32	Date: 06/15/23	
Feature ID: CLA-W-014 (PEM)		
Direction: Southwest		
Description: Wetland Plot associated with CLA-W-014 (PEM) open-ended outside of Project Study Area.		

Photograph: 33	Date: 06/15/23	
Feature ID: CLA-W-014 (UPL)		
Direction: West		
Description: Upland plot within elevated floodplain; west of CLA-W-014.		

Photograph: 34	Date: 06/15/23	
Feature ID: Existing Conditions		
Direction: Northwest		
Description: Representative upland elevated floodplain within northern section of Project Study Area near golf course.		

Part 3. Baseline Aquatic Biological Assessment

Clay Creek Mitigation Bank

Baseline Aquatic Biological Assessment



Prepared by:

Thompson Environmental Surveys & Permitting, LLC.

June 2023

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Appendix B Benthic Macroinvertebrate Taxa List

Appendix C PA DEP Physical Habitat Evaluation Form for Riffle/Run Prevalence

Appendix D Fish Sampling Data Form

Appendix E Photographs

1 Introduction

Thompson Environmental Surveys & Permitting, LLC. (TES&P) has prepared this Baseline Aquatic Biological Assessment Report to document studies conducted for the Clay Creek Mitigation Bank Project (Project). A baseline biological assessment was conducted to demonstrate the existing conditions of the aquatic biota within an Unnamed Tributary (UNT) to East Branch White Clay Creek for the purpose of comparing this data to future post-mitigation conditions. The Project area consists of a portion of the watershed associated with a UNT to East Branch White Clay Creek which broadly parallels Clay Creek Road in London Grove Township, Chester County, Pennsylvania (**Appendix A: Figure 1 - Project Location Map**). The coordinates for the approximate Project center are 39.808203° and -75.792668°. This report documents the methodology and results of the aquatic biological assessment performed by TES&P on May 31st, 2023.

2 Background

The Project is located within the United States Geological Survey (USGS) West Grove, PA 7.5-minute series topographical quadrangle (USGS, 2013). Land cover within the Project area consists of maintained road rights-of-way, early to mid-successional forest, open meadow, residential developments, golf courses, wetlands, watercourses, and floodplain/riparian areas. Existing land use beyond the riparian corridor of the UNT to East Branch White Clay Creek is primarily residential development. The Project area drains southeast via the UNT to East Branch White Clay Creek which is located in the White Clay Creek Watershed within the Delaware River Basin.

East Branch White Clay Creek has a PA Code, Title 25, Chapter 93 designated protected aquatic life use of Cold-Water Fishery, Migratory Fishes (CWF, MF) (Commonwealth of PA, 2023a). The PA DEP does not list East Branch White Clay Creek as having an Existing Use Classification within the vicinity of the Project (PA DEP, 2023).

The Pennsylvania Fish and Boat Commission (PFBC) does not list this UNT to East Branch White Clay Creek as a stream that supports Natural Trout Reproduction (Wild Trout Waters) (PFBC, 2023a and 2023b). Under Chapter 105 [105.17(iii)], wetlands located in or along the floodplain (or tributary thereto) of Wild Trout Waters are considered Exceptional Value (Commonwealth of PA, 2023b). East Branch White Clay Creek is not listed by the PFBC as a Stocked Trout Stream (PFBC, 2023a and 2023b). According to the 2022 *Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, this UNT to East Branch White Clay Creek is listed as an aquatic life impaired waterbody from organic enrichment from agricultural sources (PA DEP, 2022).

3 Methodology

Since this tributary was found to contain relatively homogenous physical habitat throughout Project area, benthic macroinvertebrate sampling occurred within one (1) 100-meter representative sample reach which was established in the UNT to East Branch White Clay Creek near the crossing of Friendship Lane, identified on **Figure 2 (Appendix A)**. One (1) 100-meter fish sampling reach was also established near the center of the Project area and is also identified on **Figure 2 (Appendix A)**. The fish sampling reach was established within a section where flow was deemed sufficient for seine net sampling methods.

The macroinvertebrate sampling field collection and laboratory processing was conducted in accordance with the PA DEP Office of Water Programs Bureau of Clean Water – Water Quality Monitoring Protocols for Streams and Rivers (PA DEP, updated 2021). Index of Biotic Integrity (IBI) calculation and attainment threshold criteria was evaluated using the methods outlined in the PA DEP Office of Water Programs Bureau of

Clean Water – Assessment Methodology for Rivers and Streams; Wadeable Freestone Riffle-Run Stream Macroinvertebrate Assessment Method (PA DEP, updated 2021).

In accordance with the aforementioned protocols, a 100-meter reach was established for the baseline benthic macroinvertebrate monitoring. The downstream and upstream limit of this 100-meter reach was temporarily flagged with survey ribbon during the field investigation in order to accurately sample the best available habitat within the reach.

During the sampling, a field chemistry evaluation was also performed for the following parameters using the listed instrumentation/techniques: pH, water temperature, specific conductance, dissolved oxygen (YSI Pro Quatro Multiparameter Instrument). All field measurements and descriptions were documented at the time of the investigation. Field chemistry measurements were collected at the most downstream location associated with this sample reach prior to substrate aggravation.

Biological monitoring was conducted to utilize the inhabitant benthic macroinvertebrate communities as indicators of short-term and long-term water quality conditions. Benthic macroinvertebrate sampling was conducted in late-May which coincides with the most annually abundant and diverse communities as well as optimal taxonomic resolution and identification capabilities.

As previously mentioned, benthic macroinvertebrate surveys were completed according to methodologies from PA DEP's Office of Water Programs Bureau of Clean Water – Water Quality Monitoring Protocols for Streams and Rivers (PA DEP, updated 2021). Sampling protocols utilized for freestone riffle/run streams during the macroinvertebrate monitoring efforts are described below.

- Benthic macroinvertebrate sampling was conducted during the appropriate seasonal index period for Pennsylvania (November 1 through May 31). The sampling was conducted along a 100-meter reach representative of the overall Project area.
- Macroinvertebrate sampling was completed using a D-frame kick-net (500 micron). Six subsamples were collected and composited at each station within riffle habitat. Each subsample consisted of a standardized sampling effort by performing each kick sample over a one-minute period. Each subsample was collected by kicking/aggravating the substrate immediately upstream of the D-frame kick-net for the one-minute period. Each of the six subsamples was composited, preserved using 95% denatured ethanol, and returned to the laboratory for processing and taxonomic identification.
- Processing of each composited macroinvertebrate sample involved sorting, enumeration, and taxonomic identification in the laboratory. Each sample was homogenized and placed into a pan marked with 28 2x2-inch grids. Each grid was randomly picked until the target number was reached. All composite samples were sub-sorted to a 200 count ($\pm 20\%$). Tiered subsorting was employed as necessary based on the relative abundance of each sample.
- All organisms in the subsample were enumerated and taxonomically identified to genus level, when possible, using references such as "An Introduction to the Aquatic Insects of North America 5th Edition" (Merritt and Cummins, 2019). Midges, worms, mites, and taxa or instars with insufficient characters remained at the family identification level. In addition, each taxon was classified according to its functional feeding group and genus level Hilsenhoff tolerance value for Pennsylvania.
- Six metrics associated with macroinvertebrate community, population, and functional structure were evaluated to assess the biological conditions at each station. These biometrics were calculated at the genus identification level and used to determine the Index of Biotic Integrity (IBI). This multi-metric approach is used to assess the relative degree of water quality based on the macroinvertebrate community observed.

Additionally, an assessment of the existing physical habitat conditions for riffle/run streams was completed and documented during the field effort where benthic macroinvertebrate sampling occurred utilizing the format

contained within the PA DEP Physical Habitat Evaluation Data Forms (PA DEP, 2021). The evaluation included an available habitat rating for instream cover, epifaunal substrate, embeddedness, velocity/depth regime, sediment deposition, channel flow status, channel alteration, frequency of riffles, bank stability, vegetative protection, and riparian vegetative zone width. Habitat assessment field data sheets were completed for this station and are included in **Appendix D**. Representative photographs were also taken to document these habitat conditions and are included in **Appendix E**.

Due to the relatively small size of the UNT to East Branch White Clay Creek, seine nets were deemed sufficient to broadly characterize the inhabitant fish community. Electroshocking was not utilized due to the limitations of this assessment method within smaller streams. Fish sampling was conducted with seine nets on May 31st, 2023, within a 100-meter stream reach, established downstream of the Friendship Lane crossing structure. Sampling occurred within the best available habitat within the stream reach. Fish were netted, identified to species, counted, and released during the field investigation to provide a qualitative assessment of the baseline inhabitant fish community. Sampling data forms were completed for this fish sampling reach and are included as **Appendix C**. Representative photographs were also taken of each fish species identified and are included in **Appendix E**.

4 **Results**

The benthic macroinvertebrate community within the UNT to East Branch White Clay Creek was sampled in order to assess the existing biotic integrity of the proposed mitigation bank. This report presents the results from the baseline monitoring event for comparison to future conditions after the stream restoration has been completed.

Field chemistry results are presented within the attached Benthic Macroinvertebrate Taxa List (**Appendix B**). pH levels were found to be slightly alkaline (7.77) within the watercourse and conductivity readings came in at 337.8 $\mu\text{S}/\text{cm}^3$. As a general rule of thumb, conductivity readings greater than 300 $\mu\text{S}/\text{cm}^3$ may indicate an existing impairment. Dissolved oxygen did not appear to be a limiting factor in the established reach and was measured at 11.14 mg/L.

The PA DEP Index of Biotic Integrity (IBI) for Benthic Macroinvertebrate Communities in Pennsylvania's Wadeable, Freestone, Riffle-Run Streams was utilized to assess attainment benchmarks related to relative macroinvertebrate community health. PA DEP currently implements a "multi-tiered benchmark decision process for wadeable, freestone, riffle-run streams in Pennsylvania that incorporates stream size and sampling season as factors for determining aquatic life use attainment and impairment" (PA DEP, updated 2021).

The IBI is a standardized average of six individual metrics related to benthic macroinvertebrate community structure and relative integrity. Within the benthic reach sampled along the UNT to East Branch White Clay Creek (CC-B1) the IBI score was just below the attainment threshold of 50 for an CWF watershed at 45.2.

This relatively low IBI score can be mostly attributed to a high proportional distribution of pollution tolerant taxa such as *Chironomidae* sp. (midges), *Simuliidae* (blackflies), and *Hydropsyche* caddisflies within the subsample. It is likely that the residentially developed areas along the periphery of the riparian corridor and the Inniscrone Golf Course facility at the headwaters of the watershed are at least partially responsible for the impaired macroinvertebrate communities documented within these sample reaches. The full results of the benthic macroinvertebrate monitoring are provided in **Appendix B** and summarized below in Table 1.

Table 1. Index of Biotic Integrity (IBI) Summary

Benthic Macroinvertebrate Sampling Reach		Index of Biotic Integrity (IBI)
UNT East Branch White Clay Creek (CWF, MF)	CC-B1	45.2 "Non-Attaining"

PA DEP Physical Habitat Evaluation Data Forms were utilized to describe physical habitat conditions for the benthic macroinvertebrate sample reach investigated on May 31st, 2023. Existing baseline physical habitat conditions documented during this investigation were found to be suboptimal, primarily due to the lack of connectivity to the floodplain and the subsequent condition of the stream banks. Habitat assessment field data sheets were completed at this station and are included in **Appendix C** and summarized below in Table 2.

Table 2. Physical Habitat Summary

Sampling Reach		Habitat Score
UNT East Branch White Clay Creek (CWF, MF)	CC-B1	156

The inhabitant fish community within the UNT to East Branch White Clay Creek was also sampled in order to gain a cursory understanding of the relative species diversity and community composition of fish within the proposed mitigation bank. Currently, no recognized IBI or attainment thresholds are recognized by the PADEP for fish sampling within the state of Pennsylvania. However, based on our best professional judgement, results of this fish sampling indicated moderate diversity (1.05) and evenness (0.58) scores with a species richness (6) and a percent tolerant (61.2) which could be considered "marginal" for a stream with a designated use of CWF, MF. The results from the baseline monitoring event conducted on May 31, 2023 are provided within **Appendix D** and summarized below in Table 3.

Table 3. Fish Sampling Summary


Species	Trophic Guild	Tolerance	CC-F1
Common Shiner (<i>Luxilus cornutus</i>)	Insectivore	Intermediate	3
Common Creek Chub (<i>Semotilus atromaculatus</i>)	Generalist	Tolerant	3
Eastern Blacknose Dace (<i>Rhinichthys atratulus</i>)	Generalist	Tolerant	57
Longnose Dace (<i>Rhinichthys cataractae</i>)	Insectivore	Intolerant	1
Rosyside Dace (<i>Clinostomus funduloides</i>)	Insectivore	Intolerant	31
Tessellated Darter (<i>Etheostoma olmstedii</i>)	Insectivore	Intermediate	3
Total Individuals:			98
Species Richness:			6 (Marginal)
Shannon Diversity:			1.05 (Moderately Diverse)
Shannon Evenness			0.58 (Moderately Even)
Percent Tolerant:			61.2 (Marginal)

5 Summary

The results of the Clay Creek Mitigation Bank Baseline Aquatic Biological Assessment indicate that the UNT to East Branch White Clay Creek is biologically impaired within the Project area. Specific stressors causing the

biological impairment cannot be definitively isolated from this assessment; however, based on PA DEP's 2022 *Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, organic enrichment from agricultural sources is listed as the source and cause of the existing impairment. It is expected that future post-construction monitoring events reveal a net functional lift to the biotic community from the proposed restoration efforts associated with the Project.

This report was prepared by:
Thompson Environmental Surveys & Permitting, LLC.

A handwritten signature in black ink, appearing to read "Andrew Nevin". The signature is written in a cursive, flowing style with a large initial "A" and "N".

Andrew Nevin
Aquatic Biologist, SFS Certified Macroinvertebrate Taxonomist

6 References

- Commonwealth of Pennsylvania, 2018 (updated 2021). An Index of Biotic Integrity for Benthic Macroinvertebrate Communities in Pennsylvania's Wadeable Freestone Riffle-Run Streams. Pennsylvania Department of Environmental Protection: Bureau of Clean Water
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- Pennsylvania Fish and Boat Commission (PFBC). 2023b. Pennsylvania Wild Trout Waters (Natural Reproduction). Accessed at http://fishandboat.com/trout_repro.pdf in May 2023.
- United State Geological Survey (USGS). 2023. Kirkwood, Pennsylvania 7.5-Minute Series Topographic Quadrangle Maps.

Appendix A

Figures

CLAY CREEK MITIGATION BANK

Figure 1: Location Map

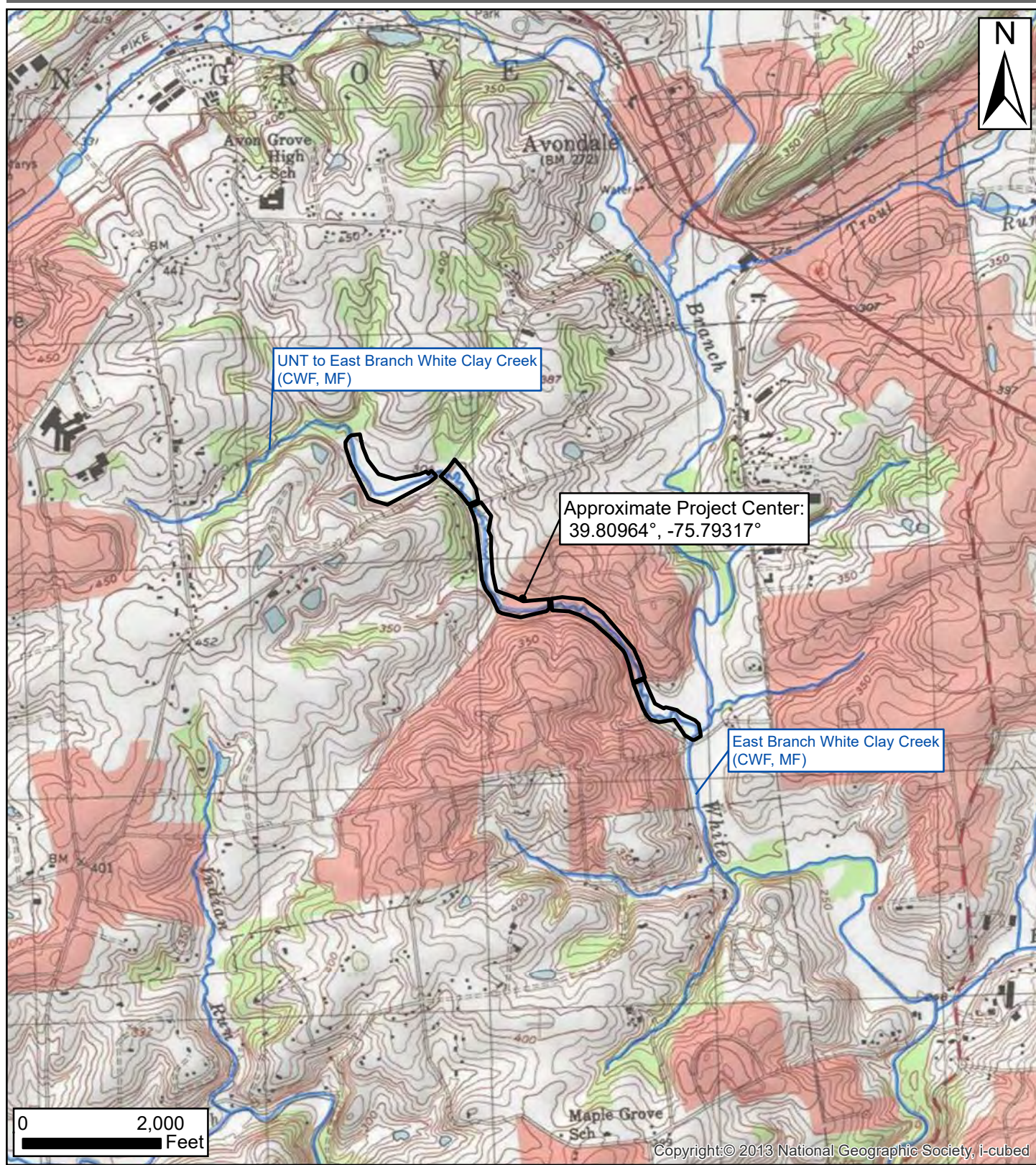
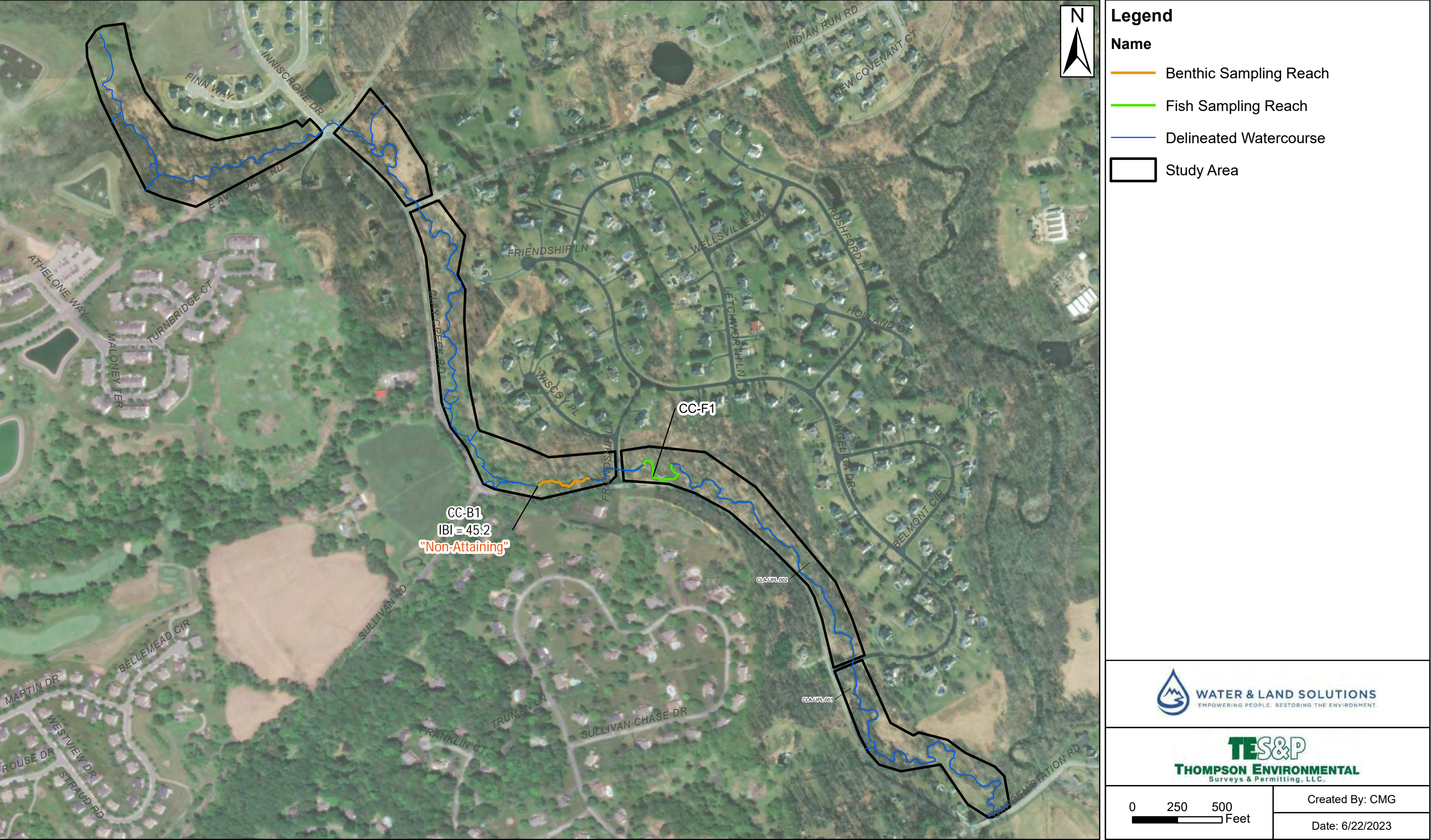


Figure 2: Baseline Aquatic Biological Assessment – Benthic Macroinvertebrate and Fish Sampling Map



Appendix B

Benthic Macroinvertebrate Taxa List

**Clay Creek Mitigation Bank
Baseline Aquatic Biological Assessment
London Grove Township, Chester County, Pennsylvania**

**CC-B1
May 31, 2023**

Class: Order	Family	Genus	Tolerance Value	Trophic Guild	CC-B1
Insecta: Coleoptera (beetles)	Elmidae	<i>Optioservus</i>	4	SC	11
		<i>Oulimnius</i>	5	SC	1
		<i>Stenelmis</i>	5	SC	1
	Psephenidae	<i>Psephenus</i>	4	SC	1
Diptera (true flies)	Chironomidae sp.		6	CG	60
	Simuliidae	<i>Simulium</i>	6	FC	43
	Tipulidae	<i>Antocha</i>	3	CG	2
<i>Tipula</i>		4	SH	3	
Ephemeroptera (mayflies)	Baetidae	<i>Acentrella</i>	4	SC	3
		<i>Baetis</i>	6	CG	2
Plecoptera (stoneflies)	Leuctridae	<i>Leuctra</i>	0	SH	1
	Perlidae	<i>Eccoptura</i>	2	PR	1
		<i>Perlesta</i>	4	PR	10
Trichoptera (caddisflies)	Hydropsychidae	<i>Cheumatopsyche</i>	6	FC	22
		<i>Diplectrona</i>	0	FC	2
		<i>Hydropsyche</i>	5	FC	48
	Glossosomatidae	<i>Glossosoma</i>	0	SC	4
	Philopotamidae	<i>Chimarra</i>	4	FC	1
<i>Dolophilodes</i>		0	FC	2	
Total Specimens					218

Metric	Observed (X)	Standardization Value	Standardization Equation	Standardized Metric Score
Total Taxa Richness	19	33	$X / 33$	0.576
EPT Taxa Richness (TV 0-4)	8	19	$X / 19$	0.421
Beck3 Index	13	38	$X / 38$	0.342
Hilsenhoff Biotic Index	5.21	1.89	$(10 - X) / (10 - 1.89)$	0.591
Shannon Diversity	2.04	2.86	$X / 2.86$	0.715
Percent Sensitive Individuals (TV 0-3)	5.5	84.5	$X / 84.5$	0.065
Average of Adjusted Standardized Core Metric Scores * 100 = IBI Score =				45.152

Field Water Chemistry and Physical Habitat Score	
Field pH (S.U.)	7.77
Field Specific Conductivity (µS/cm)	337.8
Field Temperature (°C)	14.6
Dissolved Oxygen (mg/L)	11.14
Stream Flow (cfs)	N/A
PA DEP Habitat Assessment Score	156

Index of Biotic Integrity (IBI)
45.2
Aquatic Life Use Status
"Non-Attaining"

Notes:

Benthic field collection, laboratory processing, and metric calculation utilized methods outlined within the *PA DEP Index of Biotic Integrity for Benthic Macroinvertebrate Communities in Pennsylvania's Wadeable, Freestone, Riffle-Run Streams* (updated 2021)
Metric scores calculated using "small stream" standardization values for a drainage area less than 25 square miles
Trophic Guild: CG = Collector-Gatherer, FC = Filter-Collector, PI = Piercer, PR = Predator, SC = Scraper, SH = Shredder, UK = Unknown
Field measurements taken using YSI Quatro Pro Series Multiparameter Instrument

Appendix C
PA DEP Physical Habitat Evaluation Form

Physical Habitat Evaluation Form for Riffle/Run Prevalence

Waterbody Name: <u>Clay Creek</u>		GIS Key (YYYYMMDD-hhmm-User): <u>20230531-1215-anevin</u>		
Location: <u>CC-B1</u>				
Investigators: <u>Andrew Nevin, Bridger Thompson</u>		Completed By: <u>A. Nevin</u>		
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, submerged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
<u>11</u>	20 19 18 17 16	15 14 13 12 <u>11</u>	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well-developed riffle and run; riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lacking; riffle not as wide as stream and its length is less than 2 times the stream width; gravel or large boulders and bedrock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
<u>15</u>	20 19 18 17 16	<u>15</u> 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
<u>13</u>	20 19 18 17 16	15 14 <u>13</u> 12 11	10 9 8 7 6	5 4 3 2 1
4. Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow shallow, fast-deep, fast shallow)	Only 3 of the 4 regimes present if fast-shallow is missing, score lower than if missing other regimes.)	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow-deep).
<u>15</u>	20 19 18 17 16	<u>15</u> 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e. dredging (greater than 20 yr.) may be present, but recent channelization is not present.	New embankments present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement over 80% of the stream reach channelized and disrupted.
<u>19</u>	20 <u>19</u> 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar information, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, construction and bends, moderate depositions of pools prevalent.	Heavy deposits of fine material increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
<u>14</u>	20 19 18 17 16	15 <u>14</u> 13 12 11	10 9 8 7 6	5 4 3 2 1

Parameter	Optimal	Suboptimal	Marginal	Poor
7. Riffle Frequency 9	Occurrence of riffles relatively frequent;; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is >25.
	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1
8. Channel Flow Status 12	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks 8	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars.
	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1
10. Bank Vegetative Protection 8	More than 90% of the stream bank surfaces covered by vegetation.	70-90% of the stream bank surfaces covered by vegetation.	50-70% of the stream bank surfaces covered by vegetation.	Less than 50% of the stream bank surfaces covered by vegetation.
	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure 18	Vegetative disruption through grazing or mowing is minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of stream bank vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
12. Riparian Vegetative Zone 14	Width of riparian zone >18 meters; human activities (i.e. parking lots, roadbeds, clear-cuts, lawns or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1

TOTAL 156

Appendix D


Fish Sampling Data Form

Fish Sampling Field Data Form

Site: Clay Creek Mitigation Bank: CC-F1						
Location: 39.808071°, -75.789716° (Approximate Centerpoint of Reach)			Sample Date: 05/31/2023		Sample Time: 11:00	
Species	0-2"	2"-4"	4"-6"	6"-10"	>10"	Total
Common Shiner (<i>Luxilus cornutus</i>)	2	1				3
Common Creek Chub (<i>Semotilus atromaculatus</i>)	2	1				3
Eastern Blacknose Dace (<i>Rhinichthys atratulus</i>)	55	2				57
Longnose Dace (<i>Rhinichthys cataractae</i>)	1					1
Rosyside Dace (<i>Clinostomus funduloides</i>)	18	13				31
Tessellated Darter (<i>Etheostoma olmstedii</i>)	3					3
Notes: Siene net utilized due to relatively small size of channel. Six passes within best available habitat including riffle, pool, run, undercut bank, and large woody debris microhabitats.						98

Appendix E

Photographs

Photograph: 1	Date: 05/31/23	
Feature ID: CC-B1		
Direction: North		
Description: Clay Creek Benthic Sampling Reach CC-B1 facing upstream at approximate mid-point.		

Photograph: 2	Date: 05/31/23	
Feature ID: CC-B1		
Direction: South		
Description: Clay Creek Benthic Sampling Reach CC-B1 facing downstream at approximate mid-point.		


Photograph: 3	Date: 05/31/23
Feature ID: CC-F1	
Direction: North	
Description: Clay Creek Fish Sampling Reach CC-F1 facing upstream at northern terminus of reach; Friendship Lane crossing structure.	

A photograph of a small stream flowing under a bridge. The stream is surrounded by tall green grass and trees. The water is clear and flows over rocks. The bridge is made of concrete and has a dark metal railing. The scene is captured from a low angle, looking upstream towards the bridge.

Photograph: 4	Date: 05/31/23
Feature ID: CC-F1	
Direction: South	
Description: Clay Creek Fish Sampling Reach CC-F1 facing downstream at approximate mid-point.	

A photograph of a small stream flowing through a wooded area. The stream is surrounded by tall green grass and dense foliage. The water is brownish and reflects the surrounding greenery. A fallen log is visible in the stream. The background shows a dense forest with many trees.


Photograph: 5	Date: 05/31/23
Feature ID: Common Creek Chub (<i>Semotilus atromaculatus</i>)	
Direction: N/A	
Description: Representative creek chub photographed and released during fish sampling.	




Photograph: 6	Date: 05/31/23
Feature ID: Eastern Blacknose Dace (<i>Rhinichthys atratulus</i>)	
Direction: N/A	
Description: Representative blacknose dace photographed and released during fish sampling.	




Photograph: 7	Date: 05/31/23
Feature ID: Rosy-side Dace (<i>Clinostomus funduloides</i>)	
Direction: N/A	
Description: Representative rosy-side dace photographed and released during fish sampling.	

A photograph of a Rosy-side Dace (Clinostomus funduloides) fish, showing its characteristic red and yellow sides and greenish back, resting on a white plastic surface. The fish is positioned horizontally, facing right. Its body is slender with a prominent red stripe along the side, a yellowish-orange belly, and a greenish-blue dorsal area. The background is a white, textured plastic surface, possibly a bucket or container, with some faint, illegible markings.


Photograph: 8	Date: 05/31/23
Feature ID: Longnose Dace (<i>Rhinichthys cataractae</i>)	
Direction: N/A	
Description: Representative longnose dace photographed and released during fish sampling.	

A photograph of a Longnose Dace (Rhinichthys cataractae) fish, showing its elongated body and light brown coloration, resting on a white plastic surface. The fish is oriented horizontally, facing right. It has a slender, slightly curved body with a light brown or tan coloration. The dorsal fin is visible along the top of its back, and the pectoral fins are visible on its side. The tail is slightly forked. The fish is resting on a white, textured plastic surface, possibly a container or a bag. The background is a light blue or greyish-blue, suggesting a water body or a container. The lighting is bright, casting a slight shadow of the fish onto the surface below it.

Photograph: 9	Date: 05/31/23
Feature ID: Tessellated Darter (<i>Etheostoma olmstedii</i>)	
Direction: N/A	
Description: Representative tessellated darter photographed and released during fish sampling.	

A photograph of a Tessellated Darter (Etheostoma olmstedii) resting on a light blue plastic surface. The fish is small, with a yellowish-brown body and dark, irregular spots. It is positioned horizontally, facing right. The background is a light blue plastic surface with some faint, embossed text and circular patterns.

Photograph: 10	Date: 05/31/23
Feature ID: Common Shiner (<i>Luxilus cornutus</i>)	
Direction: N/A	
Description: Representative common shiner photographed and released during fish sampling.	



Part 4. Baseline Data (Placeholder)

Part 5. Phase I ESA (Placeholder)



Clay Creek – Parcel 58-8-191.16,
London Grove Township, Chester
County, Pennsylvania,
Phase I Environmental Site
Assessment

May 29, 2024

Prepared for:

Water and Land Solutions, LLC
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Prepared by:

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Project No.: 203402183.177.3

Sign-off Sheet and Signatures of Environmental Professionals

This document entitled *Clay Creek – Parcel 59-8-191.16, London Grove Township, Chester County, Pennsylvania, Phase I Environmental Site Assessment (Report)* was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of Water and Land Solutions (the “Client”). The conclusions in the Report are Stantec’s professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient’s own risk.

Stantec has assumed all information received from the “Client” and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec’s contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec’s discretion.

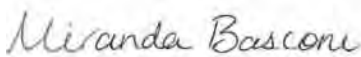
I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of Title 40 of the Code of Federal Regulations, Part 312, (40 CFR 312). I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Author: _____



George Robertson, PG
Senior Project Manager

Quality Reviewer: _____



Miranda Basconi
Geologist

Independent Reviewer: _____



Vince Alaimo
Principal, Business Practice Center Practice Leader



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Abbreviations

AAI	All Appropriate Inquiries
AST	Aboveground Storage Tank
ASTM	ASTM International
AUL	Activity Use Limitation
BER	Business Environmental Risk
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulation
CREC	Controlled Recognized Environmental Conditions
EP	Environmental Professional
EPA	Environmental Protection Agency
ERIS	Environmental Risk Information Services
ESA	Environmental Site Assessment
ft amsl	Feet above mean sea level
FOIA	Freedom of Information Act
HREC	Historical Recognized Environmental Conditions
LST	Leaking Storage Tank
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NPL	National Priority List
PC	Pollution Complaint
PCBs	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
RR	Rural Residential
SVOC	Semi-volatile Organic Compound
SWF/LF	Solid Waste Landfill
USGS	United States Geological Survey



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UST	Underground Storage Tank
VDEQ	Virginia Department of Environmental Quality
VEC	Vapor Encroachment Condition
VOC	Volatile Organic Compound



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Executive Summary
May 29, 2024

1.0 EXECUTIVE SUMMARY

Stantec Consulting Services Inc. (Stantec) has completed a Phase I Environmental Site Assessment (ESA) report of the 16.9-acre property on the east side of Clay Creek Road, south of Indian River Road and north of Angelica Drive in London Grove Township, Chester County, Pennsylvania (the “Subject Property”), on behalf of Water and Land Solutions, LLC (the “Client”). The work was performed according to Stantec’s e-mail proposal utilizing existing terms and conditions dated May 24, 2023, and accepted by the Client on May 24, 2023. Water and Land Solutions, LLC (the “User”) has been designated as the User of this report. The intended use of this Phase I ESA is for due diligence in support of acquisition for Tributary to East Branch White Clay Creek – Stream and Wetland Mitigation Bank.

The Phase I ESA was conducted in conformance with the requirements of ASTM International (ASTM) Designation E1527-21, and All Appropriate Inquiries (AAI) as defined by the United States Environmental Protection Agency (EPA) in Title 40 of the Code of Federal Regulations, Part 312 (40 CFR 312), except as may have been modified by the scope of work, and terms and conditions, requested by the Client. Any exceptions to, or deletions from, the ASTM or AAI practice are described in Section 2.3.

The Subject Property consists of an approximately 16.9-acre parcel (Parcel ID 59-8-191.16) that is zoned Residential Rural (RR) and is owned by London Grove Township. The Subject Property consists of undeveloped, largely wooded land along Clay Creek. A Subject Property Location Map is illustrated on Figure 1. A Subject Property Vicinity Map illustrating the main features of the Subject Property is provided as Figure 2. Photographs recorded during the site reconnaissance visit are provided in Appendix A.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-21 of the 16.9-acre property on the east side of Clay Creek Road, south of Indian River Road and north of Angelica Drive in London Grove Township, Chester County, Pennsylvania, or the “Subject Property.” Any exceptions to, or deletions from, this practice are described Section 2.3 of this report. This assessment has revealed no recognized environmental conditions (RECs), Controlled RECs (CRECs), or significant data gaps in connection with the Subject Property. No further investigation appears to be warranted at this time.

The preceding summary is intended for informational purposes only. Reading of the full body of this report is recommended.



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Introduction
May 29, 2024

2.0 INTRODUCTION

The objective of this Phase I ESA was to perform AAI into the past ownership and uses of the Subject Property consistent with good commercial or customary practice as outlined by ASTM International (ASTM) in “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,” Designation E1527-21. “All Appropriate Inquiries” is the process for evaluating a property’s environmental conditions for the purpose of qualifying for landowner liability protections under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) following final rule of Part 312 of Title 40, Code of Federal Regulations (40 CFR Part 312). The purpose of this Phase I ESA was to identify, to the extent feasible, adverse environmental conditions including recognized environmental conditions (“RECs”) of the Subject Property.

The ASTM E1527-21 standard indicates that the goal of the Phase I ESA is to identify RECs, as well as historical recognized environmental conditions (“HRECs”) and controlled recognized environmental conditions (“CRECs”) that may exist at a property. The term “recognized environmental conditions” is defined as:

- 1) the presence of hazardous substances or petroleum products in, on, or at the Subject Property due to a release to the environment;
- 2) the likely presence of hazardous substances or petroleum products in, on, or at the Subject Property due to a release or likely release to the environment; or
- 3) the presence of hazardous substances or petroleum products in, on, or at the Subject Property under conditions that pose a material threat of a future release to the environment.

ASTM defines a “HREC” as a previous release of hazardous substances or petroleum products affecting the Subject Property that has been addressed to the satisfaction of the applicable regulatory authority and meets current unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., activity and use limitations or other property use limitations). A HREC is not considered a REC.

ASTM defines a “CREC” as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), but with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., activity and use limitations, institutional controls, or engineering controls).

As defined by ASTM, RECs can include hazardous substances or petroleum products present under conditions in compliance with laws if that presence represents a material threat of future release. The release of hazardous substances or petroleum products is, however, not a REC if that presence is a *de minimis* condition. *De minimis* conditions are minor releases that generally do not present a material risk



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to human health and would not likely be subject to enforcement action if brought to the attention of governmental agencies. ASTM also considers the potential for a business environmental risk (BER), defined as a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of the Subject Property, not necessarily limited to those environmental issues required to be investigated by the ASTM standard. Consideration of BERs may involve addressing one or more ASTM non-scope considerations.

This Phase I ESA was conducted in accordance with our e-mail proposal utilizing existing terms and conditions dated May 24, 2023, and accepted by the Client on May 24, 2023. The scope of work conducted during this Phase I ESA consisted of a visual reconnaissance of the Subject Property, interviews with key individuals, and review of reasonably ascertainable documents. The scope of work did not include an assessment for environmental regulatory compliance of any facility ever operated at the Subject Property (past or present), or sampling and analyzing of environmental media. Stantec was not contracted to perform an independent evaluation of the purchase or lease price of the Subject Property and its relationship to current fair market value. The conclusions presented in this Phase I ESA report are professional opinions based on data described herein. The opinions are subject to the limitations described in Section 2.3.

ASTM E1527-21 notes that the availability of record information varies from source to source. The User or Environmental Professional (EP) is not obligated to identify, obtain, or review every possible source that might exist with respect to a property. Instead, ASTM identifies record information that is reasonably ascertainable from standard sources. “Reasonably ascertainable” means:

1. Information that is publicly available;
2. Information that is obtainable from its source within reasonable time and cost constraints; and
3. Information that is practicably reviewable.

2.1 SUBJECT PROPERTY DESCRIPTION

The Subject Property consists of an approximately 16.9-acre parcel (Parcel ID 59-8-191.16) that is zoned Residential Rural (RR) and is owned by London Grove Township. The Subject Property consists of undeveloped, largely wooded land along the east side of Clay Creek Road, south of Indian River Road and north of Angelica Drive in London Grove Township, Chester County, Pennsylvania.

The Subject Property is bordered in all directions by residential areas.

A Subject Property Location Map is illustrated on Figure 1. A Subject Property Vicinity Map illustrating the main features of the Subject Property is provided as Figure 2. Photographs recorded during the site reconnaissance visit are provided in Appendix A.



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2.2 SPECIAL TERMS, CONDITIONS, AND ADDITIONAL ASSUMPTIONS

There were no special terms, conditions, or additional assumptions associated with this Phase I ESA.

2.3 EXCEPTIONS AND LIMITING CONDITIONS

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided and given the schedule and budget constraints established by the client. No other representations, warranties, or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential and actual liabilities and conditions associated with the Subject Property.

This report provides an evaluation of selected environmental conditions associated with the Subject Property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available, and the results of the work. They are not a certification of the Subject Property's environmental condition.

The following data gaps were identified during this Phase I ESA: Historical records that document the property history in 5-year intervals were not available; no occupants, owners or adjacent neighbors were available for interviews; and, at the time of this report, a User Questionnaire has not been completed. Although this represents data gaps, these data gaps are not considered to impact the EPs ability to identify RECs unless stated as such. Based on the information obtained during the course of this ESA and general knowledge of development at and near the Subject Property, the absence of this information did not affect the ability of the EPs to identify RECs, HRECs, CRECs, or *de minimis* conditions.

This report has been prepared for the exclusive use of the client identified herein and any use of or reliance on this report by any third party is prohibited, except as may be consented to in writing by Stantec or as required by law. The provision of any such consent is at Stantec's sole and unfettered discretion and will only be authorized pursuant to the conditions of Stantec's standard form reliance letter. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report.

Project Specific limiting conditions are provided in Section 2.2.

The conclusions are based on the conditions encountered at the Subject Property by Stantec at the time the work was conducted.



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As the purpose of this report is to identify Subject Property conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the Subject Property is beyond the scope of this assessment.

The findings, observations, and conclusions expressed by Stantec in this report are not an opinion concerning the compliance of any past or present owner or operator of the Subject Property which is the subject of this report with any Federal, state, provincial or local law or regulation.

This report presents professional opinions and findings of a scientific and technical nature. It does not and shall not be construed to offer a legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of Federal, state, provincial or local governmental agencies.

Stantec specifically disclaims any responsibility to update the conclusions in this report if new or different information later becomes available or if the conditions or activities on the property subsequently change.

2.4 PERSONNEL QUALIFICATIONS

This Phase I ESA was conducted by, or under the supervision of, an individual that meets the ASTM definition of an EP. The credentials of the EP and other key Stantec personnel involved in conducting this Phase I ESA are provided in Appendix B.



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3.0 USER-PROVIDED INFORMATION

ASTM E1527-21 describe responsibilities of the User to complete certain tasks in connection with the performance of “All Appropriate Inquiries” into the Subject Property. The ASTM standard requires that the EP request information from the User on the results of those tasks because that information can assist in the identification of RECs, CRECs, HRECs, or *de minimis* conditions in connection with the Subject Property. Towards that end, Stantec requested that the User provide the following documents and information:

Description of Information	Provided (Yes / No)	Description and/or Key Findings
User Questionnaire and/or Interview	No	At the time of this report, a User Questionnaire has not been returned. A blank User Questionnaire is included in Appendix C.
Environmental Liens or Activity and Use Limitations (AUL)	No	The User did not provide or contract Stantec to obtain documentation regarding Environmental Liens or AULs.
Previous Environmental Permits or Reports Provided by User	No	None
Purpose of the Phase I ESA	Yes	The intended use of this Phase I ESA is for due diligence in support of acquisition for Tributary to East Branch White Clay Creek – Stream and Wetland Mitigation Bank.



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4.0 RECORDS REVIEW

The objective of consulting historical sources of information is to develop the history of the Subject Property and surrounding area and evaluate if past uses may have resulted in RECs. Physical setting records are evaluated to determine if the physical setting may have contributed to adverse environmental conditions in connection with the Subject Property. During the review of historical records, Stantec attempted to identify uses of the Subject Property from the present to the first developed use of the Subject Property. Stantec's research included the reasonably ascertainable and useful records described in this section.

4.1 PHYSICAL SETTING

A summary of the physical setting of the Subject Property is provided in the table below with additional details in the following subsections.

Topography:	According to the 2019 West Grove Pennsylvania 7.5-minute United States Geological Survey (USGS) topographic map, elevations at the Subject Property range from approximately 319 feet above mean sea level (ft asml) along hill slopes east of Clay Creek to approximately 270 ft asml at the Angelica Lane Bridge to the south. The natural surface topography follows the south-southeast sloping Clay Creek. The Subject Property is comprised of the Clay Creek flood plain and generally moderately southwest sloping hillsides east of Clay Creek.
Soil/Bedrock Data:	According to a soil survey prepared by the Soil Survey Geographic Database and National Soil Conservation Service, flood plains along Clay Creek are underlain by poorly drained Hatboro silt loam in the northern area of the Subject Property, and by Codorus silt loam in the southern area. Hat soils develop on 0-3% slopes. Glenelg silt loam soils are developed on the 15-25%, moderately sloping hill sides along the east side of the Subject Property. According to USGS information, bedrock at the Subject Property consists of the probably lower Paleozoic, white to light bluish gray, finely to coarsely crystalline marble.
Estimated Depth to Groundwater/ Estimated Direction of Gradient:	The Environmental Risk Information Service (ERIS) Physical Settings Report did not identify any wells on or within 1,000 feet of the Subject Property. Based on the local surface topography, local shallow groundwater is expected to flow south-southeast on the floodplain and southwest on the moderate slopes, east of the Clay Creek floodplain.
NOTE:	



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Site-specific groundwater flow direction and depth can only be determined by conducting site-specific testing, which Stantec has not conducted.

4.1.1 Subject Property Topography and Surface Water Flow

According to the 2019 West Grove Pennsylvania 7.5-minute USGS topographic map, elevations at the Subject Property range from approximately 320 ft asml along hill slopes east of Clay Creek to approximately 272 ft asml at its south boundary. The natural surface topography follows the south-southeast sloping Clay Creek. Clay Creek flows south-southeast to its confluence with the East Branch of White Clay Creek. The Subject Property is comprised of the Clay Creek flood plain and generally southwest sloping hillsides east of Clay Creek.

4.1.2 Regional and Subject Property Geology

According to a soil survey prepared by the Soil Survey Geographic Database and National Soil Conservation Service, flood plains along Clay Creek are underlain by poorly drained Hatboro silt loam in the northern area of the Subject Property, and by Codorus silt loam in the southern area. Hat soils develop on 0-3% slopes. Glenelg silt loam soils are developed on the 15-25%, moderately sloping hill sides along the east side of the Subject Property. According USGS information, bedrock at the Subject Property consists of the probably lower Paleozoic, white to light bluish gray, finely to coarsely crystalline marble.

4.1.3 Regional and Subject Property Hydrogeology

The shallow water table is often a subdued expression of surface topography. Shallow groundwater generally flows from areas of groundwater recharge, such as hills and broad uplands, to areas of groundwater discharge, such as wetlands, rivers, and lakes. Based on the local surface topography, local shallow groundwater is expected to flow south-southeast on the floodplain and southwest on the moderate slopes, east of the Clay Creek floodplain. According to Soil Survey Geographic Database and National Soil Conservation Service, the water table along Clay Creek varies seasonally from approximately 0.2 feet to four feet below ground surface. Man-made features such as wells, roads, filled areas, buried utility lines and sewers, and drainage ditches may alter the natural shallow groundwater flow direction.

4.2 FEDERAL, STATE AND TRIBAL ENVIRONMENTAL RECORDS

A regulatory agency database search report was obtained from ERIS, a third-party environmental database search firm. A complete copy of the database search report, including the date the report was prepared, the date the information was last updated, and the definition of databases searched, is provided in Appendix D.

Stantec evaluated the information listed within the database relative to potential impact to the Subject Property, assessing the potential for impacts based in part on the physical setting. As part of this process,



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inferences have been made regarding the likely groundwater flow direction at or near the Subject Property. As described in 4.1.3, the inferred shallow groundwater flow direction is likely to be southwest. Observations about the Subject Property and adjoining properties made during the Subject Property reconnaissance are provided in more detail in Section 5.

4.2.1 Listings for Subject Property

The Subject Property was not identified in the environmental database report.

4.2.2 Listings for Adjoining and Nearby Sites with Potential to Impact Subject Property

No adjoining sites were identified. Stantec assessed data presented in the environmental agency database search report to evaluate the potential for conditions on nearby sites to pose a REC, CREC, or HREC for the Subject Property. The evaluation included an opinion of the potential for contamination by hazardous substances or petroleum products to migrate to the Subject Property from an adjoining or nearby site, including by vapor migration or encroachment (i.e., potential for a vapor encroachment condition [VEC]. ASTM E2600-22 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions (ASTM, 2022) was used as the basis for a Tier I Vapor Encroachment Screen (VES) for the Subject Property. This included evaluation of release sites within 1/10 mile for Petroleum Hydrocarbon releases, and 1/3 mile for volatile and semi-volatile organic compound (VOC, SVOC), plus other potential vapor phase contaminants (such as mercury).

Based on this evaluation, the following two facilities were identified near the Subject Property.

Listed Facility Name/Address	Database Listing(s)	Distance/Direction from Subject Property
Stroud Water Research Center/ Rural Route 1 Box 512-E, Avondale, PA	Resource Conservation and Recovery Act (RCRA) Very Small Quantity Generator(VSQG)	1,188 feet / west-northwest
According to the information provided by ERIS, there are no violation records associated with this facility (PAD075490870). Based the nature of the facility, absence of violations and its distance from the Subject Property, it is not considered a REC.		
Toto Property / 232 Ellicott Road, Avondale, PA	State Cleanup E-Facts	2,244 feet / east-northeast
According to the information provided by ERIS, this facility (ID 634261) was identified as an inactive environmental cleanup and Brownfields site. Based on its distance from the Subject Property and the intervening topography (located in a separate drainage basin downstream), it is not considered a REC.		

Orphan/Unlocated Sites were not identified in the agency database search provided by ERIS.



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4.3 LOCAL/REGIONAL ENVIRONMENTAL RECORDS

Stantec checked the following sources to obtain information pertaining to Subject Property use and/or indications of RECs in connection with the Subject Property:

4.3.1 Chester County GIS

Agency Name, Contact Information, Date	Finding
Chester County GIS Chester County's GIS HUB (arcgis.com) May 21, 2024	Chester County GIS has several data layers reviewed by Stantec in conjunction with this Phase I ESA. The following findings were identified from the mapper: <ul style="list-style-type: none">• According to the Subject Property's information, the Subject Property is open land.• The Subject Property is zoned Residential Rural (RR).

4.3.2 West Grove Fire Company

Agency Name, Contact Information, Date	Finding
West Grove Fire Company Reports@wgfc.org May 21, 2024	West Grove Fire Company has no records regarding the Subject Property.

4.3.3 Chester County Health Department

Agency Name, Contact Information, Date	Finding
Chester County Health Department [County of Chester] Request to Examine Records (seamlessdocs.com) May 21, 2024	On May 22, 2024, Crista of the Chester County Health Department called and stated that the County has no records regarding the Subject Property.

4.3.4 West Grove Borough, Chester County Department of Public Utilities

Agency Name, Contact Information, Date	Findings
West Grove Borough, Chester County Public Utilities – Water & Sewer	According to the West Grove Borough, drinking water is obtained from three groundwater wells and meets Federal and State requirements. The most recent consumer



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Agency Name, Contact Information, Date	Findings
2018-Consumer-Confidence-Report.pdf (westgroveborough.org) May 21, 2024	confidence report (CCR) was provided and is included in the appendices. Stormwater runoff is managed by the Borough.

4.3.5 London Grove Township Open Space Committee

Agency Name, Contact Information, Date	Findings
London Grove Township Committee for Protected Lands Protected-Lands-in-the-Township.pdf (londongrove.org) May 21, 2024	The London Grove Township Open Space Committee identifies the Subject Property as Protected Land.

4.3.6 Pennsylvania Department of Environmental Protection

Agency Name, Contact Information, Date	Findings
Pennsylvania Department of Environmental Protection (PDEP) Environmental Data Mapper ESA Search Viewer (pa.gov) May 21, 2024	The PDEP Environmental Data Mapper is an interactive geospatial mapping tool, that provides access, interaction and visualization into DEP's GIS datasets. No layers or data points of interest were identified on the Subject Property.

4.4 HISTORICAL RECORDS REVIEW

4.4.1 Land Title Records/Deeds

Land title records, deeds, environmental liens, and activity and use limitation documentation was not provided by the User, and other public records were not searched by Stantec.

4.4.2 Aerial Photographs

Stantec reviewed historical aerial photographs provided by ERIS. The general type of activity on a property and land use changes can often be discerned from the type and layout of structures visible in the photographs. However, specific elements of a facility's operation usually cannot be discerned from aerial photographs alone. The following table summarizes Stantec's observations of the reviewed historical aerial photographs. Copies of the historical aerial photographs are provided in Appendix E.



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Year	Scale	Observations of Subject Property and Adjoining/Nearby Properties
1937	1" = 500'	Photo quality is fair. The Subject Property appears as undeveloped, open land with minor woods along Clay Creek. Surrounding areas appear as wooded or agricultural land.
1946	1" = 500'	Photo quality is very poor. Compared to the previous photograph, no changes are noted.
1957	1" = 500'	Photo quality is very fair. Compared to the previous photograph, no changes are noted.
1968	1" = 500'	Photo quality is good. Compared to the previous photograph, scrub vegetation covers large areas of the Subject Property east of Clay Creek.
1973	1" = 500'	Photo quality is poor. Compared to the previous photograph, no changes are noted.
1982	1" = 500'	Photo quality is poor. Compared to the previous photograph, no changes are noted.
1993	1" = 500'	Photo quality is fair. A housing development has been constructed southwest of the Subject Property. Evenly spaced surface disturbances, appearing to be new home construction sites are seen across the former agricultural fields east of the Subject Property.
1999	1" = 500'	Photo quality is fair. A housing development is being constructed across the former agricultural fields east of the Subject Property. Two small retention ponds have been constructed at the northeast edge of the Subject Property. Friendship Lane was constructed across the center and Angelica Drive along the south boundary of the Subject Property.
2004	1" = 500'	Infrared photo quality is good. Compared to the previous photograph, no changes are noted.
2005	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2008	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2010	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2013	1" = 500'	Photo quality is good. Retention ponds on the northeast edge of the Subject Property appear to be overgrown.
2015	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2017	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2019	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.
2023	1" = 500'	Photo quality is good. Compared to the previous photograph, no changes are noted.



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Source: ERIS Historical Aerials

No RECs were noted during the review of the historical aerial photographs.

4.4.3 City Directories

Stantec retained ERIS to research available city directories for the Subject Property and adjoining and nearby properties, in approximately five-year intervals between 1975 and 2022. Copies of the city directory listings are provided in Appendix E.

No streets were listed in the 1975 through 1990 directories. Distant residences only were listed in the 1995 directory for Indian Run and Clay Creek Roads. Naamans Creek Company (Earth Science Services) was identified in the 2000-2003 directories at a residence at 353 Indian Run Road, approximately 1,140 feet northeast of the Subject Property. Residences were identified in the 2008-2022 directories along Indian Run Road, northeast of the Subject Property. Residences were identified in the 2008-2022 directories along Clay Creek Road, adjacent to the west Subject Property boundary. The Subject Property was not identified in city directories, as it has been historically vacant with no associated addresses. No RECs were noted during the review of the City Directories.

4.4.4 Historical Fire Insurance Maps

Fire insurance maps were developed for use by insurance companies to depict facilities, properties, and their uses for many locations throughout the United States. These maps provide information on the history of prior land use and are useful in assessing whether there may be potential environmental contamination on or near the Subject Property. These maps, which have been periodically updated since the late 19th century, often provide valuable insight into historical Subject Property and adjoining and nearby property uses.

Stantec requested fire insurance maps from ERIS; however, no coverage exists for the Subject Property. The ERIS Fire Insurance Maps Report indicating no coverage is presented in Appendix E.

4.4.5 Historical Topographic Maps

Stantec reviewed historical USGS 7.5-minute (scale 1:24,000) Topographic Maps of the West Grove and historical USGS 15-minute (scale 1:62,500) Topographic Maps of the Coatesville, Pennsylvania quadrangles to help identify past Subject Property and adjoining and nearby property usage and areas of potential environmental concern. Copies of the historical maps are provided in Appendix E.



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The following table summarizes the maps reviewed and our observations.

Year	Scale	Observations of Subject Property and Adjoining/Nearby Properties
1904	1:62,500	The Subject Property is an undeveloped area along Clay Creek. Clay Creek and Indian Run Roads are already established as paved streets along the west and north Subject Property borders, respectively. An adjacent residence appears at the northeast boundary of the Subject Property along Indian Run Road. A church is adjacent to the west boundary, across Clay Creek Road. An unimproved residential driveway is adjacent to the south border of the Subject Property.
1906	1:62,500	Compared to the previous map, no changes are noted.
1918	1:62,500	Compared to the previous map, no changes are noted.
1943	1:62,500	Compared to the previous map, no changes are noted.
1953	1:24,000	Compared to the previous map, no changes are noted.
1968	1:24,000	The church formerly adjacent to the west boundary of the Subject Property, along Clay Creek Road, appears to be converted to residential.
1973	1:24,000	Compared to the previous map, no changes are noted.
1997	1:24,000	Compared to the previous map, no changes are noted.
1999	1:24,000	Residential developments were constructed east and southwest of the Subject Property. Friendship Lane was constructed across the center and Angelica Drive along the south boundary of the Subject Property.
2013	1:24,000	Less cultural detail is shown and compared to the previous map, no changes are noted.
2016	1:24,000	Marsh areas are shown along Clay Creek in the north segment of the Subject Property.
2019	1:24,000	Blue stipple patterns (possible intermittent ponding) are shown along Clay Creek as well as other streams on this map.

Source: ERIS Topographic Maps

No RECs were noted during the review of the topographic maps.

4.4.6 Other Historical Sources

No other historical sources were researched.



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Site Reconnaissance
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5.0 SITE RECONNAISSANCE

A visit to the Subject Property and its vicinity was conducted by Mr. Mark Onesky of Stantec on May 1, 2024. Access to the Subject Property was coordinated with the Client and Stantec was unaccompanied during the Subject Property visit. Figure 2 provides information about the Subject Property and adjoining sites and the location of potential areas of environmental concern. Photographs collected during the site reconnaissance are included in Appendix A.

5.1 SITE RECONNAISSANCE METHODOLOGY

The site reconnaissance focused on observation of current conditions and observable indications of past uses and conditions of the Subject Property that may indicate the presence of RECs. The reconnaissance of the Property was conducted on foot and Stantec utilized the following methodology to observe the Property:

- Traverse the outer Subject Property boundary
- Traverse transects across the Subject Property
- Traverse the periphery of all structures on the Subject Property

Weather conditions during the visit to the Subject Property were clear and sunny. There were no weather-related Subject Property access restrictions encountered during the reconnaissance visit.

5.2 GENERAL DESCRIPTION

Subject Property and Area Description:	The Subject Property consists of undeveloped, largely wooded land along the east side of Clay Creek Road, south of Indian River Road and north of Angelica Drive in London Grove Township, Chester County, Pennsylvania.
Subject Property Operations:	Unoccupied.
Structures, Roads, Other Improvements:	The Subject Property is bordered to the east by Clay Creek Road, to the north by Indian Run Road, and to the south by Angelica Drive. Friendship Lane crosses near the center of the Subject Property. Bridges for these three streets cross Clay Creek at the Subject Property.
Subject Property Size (acres):	16.9
Estimated % of Subject Property Covered by Buildings and/or Pavement:	<1%



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Observed Current Subject Property Use/Operations:	Unoccupied.
Observed Evidence of Past Subject Property Use(s):	None observed.
Sewage Disposal Method (and age):	None observed.
Potable Water Source:	None observed.
Electric and Natural Gas Utilities:	Overhead electric lines extend along Clay Creek Road. A natural gas pipeline is along the east side of Friendship Lane.

5.3 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The following table summarizes Stantec's observations during the Subject Property reconnaissance.

Observations	Description/Location
Hazardous Substances and Petroleum Products as Defined by CERCLA 42 U.S.C. § 9601(14) with identified uses:	None observed.
Drums/Totes/Intermediate Bulk Containers (≥ 5 gallons):	None observed.
Strong, Pungent, or Noxious Odors:	None detected.
Pools of Liquid:	None observed.
Unidentified Substance Containers:	None observed.
Polychlorinated biphenyl (PCB)-Containing Equipment:	None observed.
Other Observed Evidence of Hazardous Substances or Petroleum Products:	None observed.

5.4 INTERIOR OBSERVATIONS

No buildings or structures are present on the Subject Property.

5.5 EXTERIOR OBSERVATIONS

Stantec made the following observations during the site reconnaissance of exterior areas of the Subject Property and/or identified the following information during the interview or records review portions of the assessment:



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Observations	Description
On-site Pits, Ponds, or Lagoons:	None observed.
Stained Soil or Pavement:	None observed.
Stressed Vegetation:	None observed.
Waste Streams and Waste Collection Areas:	None observed.
Solid Waste Disposal:	Except for two bags of leaves and a piece of concrete encased pipe debris, no area indicative of solid waste disposal was observed.
Potential Areas of Fill Placement:	No mounds, piles, or depressions suggesting the placement of fill material were observed on the Subject Property.
Wastewater:	No exterior wastewater discharge was observed.
Stormwater:	No man-made stormwater facilities were observed at the Subject Property. Except for Clay Creek, no indication of potential off-site sources of stormwater flowing onto the Subject Property or locations of contamination were identified.
Wells:	No wells were observed.
Septic Systems:	No visible evidence of the existence of a septic system was observed.
Other Exterior Observations:	None.

5.6 UNDERGROUND STORAGE TANKS/STRUCTURES

Existing USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), which would indicate the presence of USTs, was discovered during the site reconnaissance.
Former USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), reports, or other evidence of the former presence of USTs was discovered during this Phase I ESA.
Other Underground Structures:	None observed

5.7 ABOVEGROUND STORAGE TANKS

Existing ASTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface stains), which would indicate the presence of ASTs, was discovered during the site reconnaissance.
Former ASTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface stains), reports, or other evidence of the former presence of ASTs was discovered during this Phase I ESA.



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5.8 ADJOINING PROPERTIES

5.8.1 Current Uses of Adjoining Properties

As viewed from the Subject Property and/or from public rights-of-way, Stantec made the following observations about use and activities on adjoining sites:

NORTH	Residential and undeveloped woods along Clay Creek
EAST	Residential and minor undeveloped woods along west facing slopes, east of Clay Creek Road
SOUTH	Undeveloped woods along Clay Creek.
WEST	Residential and undeveloped woods along east facing slopes, west of Clay Creek Road.

5.8.2 Observed Evidence of Past Uses of Adjoining Properties

Observations of adjoining sites providing indications of past use and activities, if any, are described below.

NORTH	None observed
EAST	None observed
SOUTH	None observed
WEST	None observed

5.8.3 Pits, Ponds, or Lagoons on Adjoining Properties

As viewed from the Subject Property and/or from public rights-of-way, Stantec made the following observations about the presence of pits, ponds, and lagoons on adjoining sites:

NORTH	None observed
EAST	None observed
SOUTH	None observed
WEST	None observed

5.9 OBSERVED PHYSICAL SETTING

Topography of the Subject Property and Surrounding Area:	The Subject Property appears to be comprised of the generally south-southeast gently sloping Clay Creek flood plain and moderately southwest sloping hillsides east of Clay Creek.
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Interviews
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6.0 INTERVIEWS

No occupants, owners or adjacent neighbors were available for interviews. While lack of interviews is considered a data gap for the Subject Property, site reconnaissance and historical information obtained throughout this assessment provides corroborating information that allows an understanding of historical Subject Property use. Stantec does not consider this data gap to interfere with the ability of the EPs to identify RECs, HRECs, CRECs, or *de minimis* conditions.



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Evaluation
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7.0 EVALUATION

This section provides a summary overview of or Findings, Opinions, and Conclusions.

7.1 FINDINGS AND OPINIONS

Information gathered from reviews of existing data, and an inspection was evaluated to determine if RECs are present in connection with the Subject Property. Based on this information, Stantec made the following findings and developed the following opinions.

- The majority of the Subject Property has historically been vacant/undeveloped land along Clay Creek.

Historic vacant/undeveloped use is not considered to represent a REC, as there is no indication of a release or a material threat of release of petroleum products or potentially hazardous substances at the Subject Property.

- An environmental records search was performed and identified sites within their respective ASTM E1527-21 search radii of the Subject Property that may represent RECs, CRECs, HRECs, or *de minimis* conditions.

Based on one or more of the following reasons: distance from the Subject Property, position of sites with respect to assumed groundwater flow direction, or regulatory status, sites identified in the environmental records search report are not expected to impact soil or groundwater quality at the Subject Property. The environmental records search identified no RECs, CRECs, HRECs or *de minimis* conditions at or near the Subject Property.



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7.2 DATA GAPS

The federal AAI final rule [40 CFR 312.10(a)] and ASTM E1527-21 identify a “data gap” as the lack or inability to obtain information required by the standards and practices of the rule despite good faith efforts by the EP or the User.

Any data gaps resulting from the Phase I ESA described in this report are listed and discussed below.

Gap	Discussion
Deletions or Exceptions from Scope of Work::	None
Weather-Related Restrictions to Site Reconnaissance:	None
Facility Access Restrictions to Site Reconnaissance:	None
Other Site Reconnaissance Restrictions:	None
Data Gaps from Environmental Records Review:	None
Data Gaps from Historical Records Review:	Historical documentation was not available in 5-year intervals for the Subject Property. Based on the information obtained during the course of this ESA and general knowledge of development at and near the Subject Property, the absence of this information did not affect the ability of the EPs to identify RECs, HRECs, CRECs, or <i>de minimis</i> conditions.
Data Gaps from Interviews:	No occupants, owners or adjacent neighbors were available for interviews. While lack of interviews is considered a data gap for the Subject Property, site reconnaissance and historical information obtained throughout this assessment provides corroborating information that allows an understanding of historical Subject Property use. Stantec does not consider this data gap to interfere with the ability of the EPs to identify RECs, HRECs, CRECs, or <i>de minimis</i> conditions.
Other Data Gaps:	At the time of this report, a User Questionnaire has not been completed. While lack of a completed User Questionnaire is considered a data gap for the Subject Property, site reconnaissance and historical information obtained throughout this assessment provides corroborating information that allows an understanding of historical Subject Property use. Stantec does not consider this data gap to interfere with the ability of the EPs to identify RECs, HRECs, CRECs, or <i>de minimis</i> conditions.



**CLAY CREEK – PARCEL 58-8-191.16, LONDON GROVE TOWNSHIP,
CHESTER COUNTY, PENNSYLVANIA,
PHASE I ENVIRONMENTAL SITE ASSESSMENT**

Evaluation
May 29, 2024

7.3 CONCLUSIONS

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-21 of the approximately 16.9-acre parcel (Parcel ID 59-8-191.16) consisting of undeveloped, largely wooded land along the east side of Clay Creek Road, south of Indian River Road and north of Angelica Drive in London Grove Township, Chester County, Pennsylvania, the Subject Property. Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report. This assessment has revealed no evidence of RECs in connection with the Subject Property.



PHASE I ENVIRONMENTAL SITE ASSESSMENT

Non-Scope Considerations
May 29, 2024

8.0 NON-SCOPE CONSIDERATIONS

The scope of work completed was limited solely to those items in the ASTM E1527-21 standard. No ASTM E1527-21 defined “Non-Scope Considerations” were performed as part of this Phase I ESA.



PHASE I ENVIRONMENTAL SITE ASSESSMENT

References
May 29, 2024

9.0 REFERENCES

ASTM International, 2021, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process, Designation: E 1527-21.

ASTM International, 2022, Standard Guide for Vapor Encroachment Screening on Subject Property Involved in Real Estate Transactions, Designation E 2600-22.

West Grove Borough, Chester County Public Utilities – Water & Sewer, [2022 Consumer-Confidence-Report.pdf \(westgroveborough.org\)](#).

Chester County, 2024, GIS. [Chester County's GIS HUB \(arcgis.com\)](#).

Environmental Risk Information Services (ERIS), May 1, 2024, ERIS City Directories Order Number 24042400518.

ERIS, April 26, 2024, ERIS Database Report, Order Number 24042400518.

ERIS, April 25, 2024, ERIS Fire Insurance Maps, Order Number 24042400518.

ERIS, May 1, 2024, ERIS Historical Aerials, Order Number 24042400518.

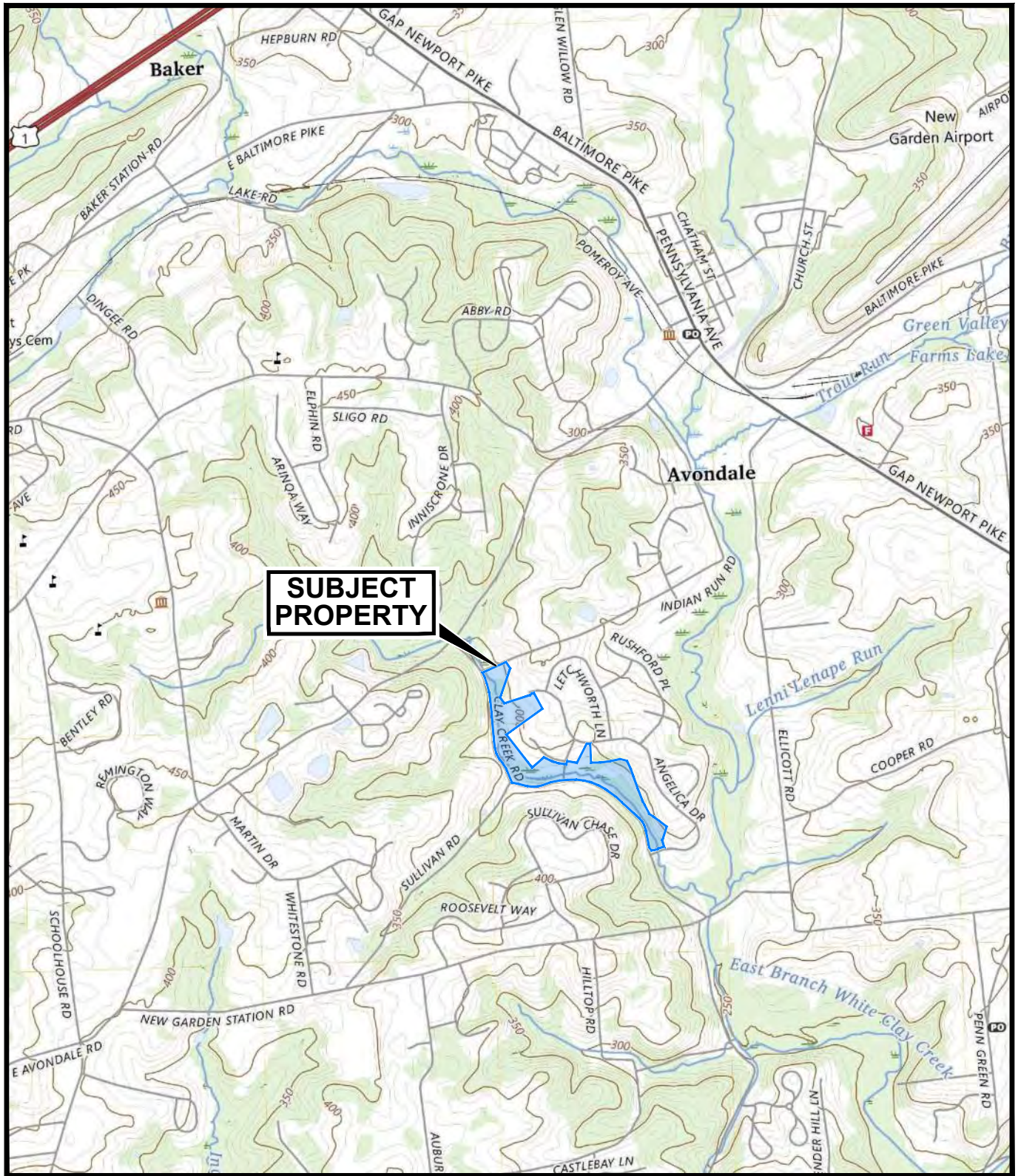
ERIS, April 25, ERIS Topographic Maps, Order Number 24042400518.

ERIS, April 25, ERIS Physical Settings Report, Order Number 24042400518.

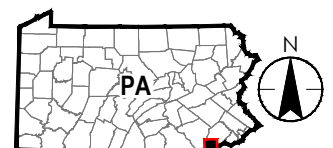
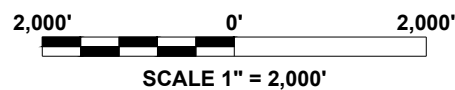
Pennsylvania Department of Environmental Protection, 2024, Environmental Data Mapper. [ESA Search Viewer \(pa.gov\)](#)



FIGURES



**WATER AND LAND SOLUTIONS, LLC
CLAY CREEK PARCEL 58-8-191.16
CHESTER COUNTY, PENNSYLVANIA**



QUADRANGLE LOCATION

USGS 7.5' WEST GROVE, PA-DE QUADRANGLE-2023

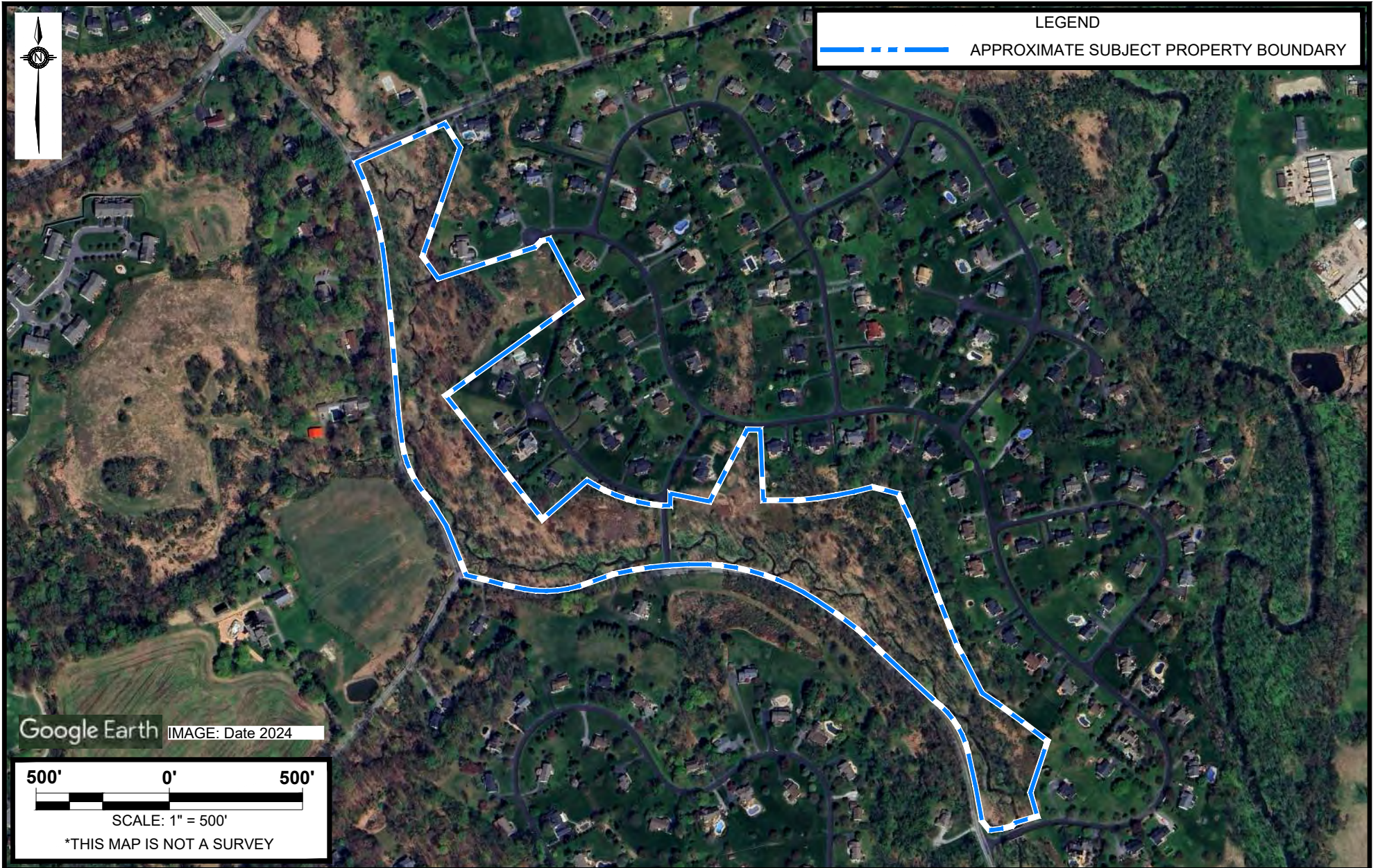
Subject Property Location Map

FIGURE 1



LEGEND

--- APPROXIMATE SUBJECT PROPERTY BOUNDARY



Google Earth IMAGE: Date 2024



SCALE: 1" = 500'

*THIS MAP IS NOT A SURVEY




Drawn:	DJD
Checked:	GR
Date:	5/24/2024
Scale:	1"=500'
Project No.:	203402183 177.3
File No.	



**WATER AND LAND SOLUTIONS, LLC
CLAY CREEK PARCEL 58-8-191.16
CHESTER COUNTY, PENNSYLVANIA**



**Figure 2
SUBJECT PROPERTY
VICINITY MAP**

APPENDICES



**APPENDIX A
PHOTOGRAPHS OF THE
PROPERTY AND VICINITY**



Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 1			
Photo Location: Clay Creek at Friendship Lane			
Direction: North			
Survey Date: 5/8/2024			
Comments: Natural gas pipeline along east side of bridge.			
Photograph ID: 2			
Photo Location: Clay Creek at Angelica Drive			
Direction: Southeast			
Survey Date: 5/8/2024			
Comments: Flood plain on north side of bridge.			



Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 3			
Photo Location: Clay Creek at Angelica Drive			
Direction: East			
Survey Date: 5/8/2024			
Comments: East bank of Clay Creek with residence in background.			
Photograph ID: 4			
Photo Location: Clay Creek			
Direction: North			
Survey Date: 5/8/2024			
Comments: Remnant silt fence along bank of Clay Creek.			

Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 5			
Photo Location: Clay Creek			
Direction: North			
Survey Date: 5/8/2024			
Comments: Woods along creek with residence in background.			
Photograph ID: 6			
Photo Location: Clay Creek Road			
Direction: North			
Survey Date: 5/8/2024			
Comments: Abandoned yard waste near shoulder of Clay Creek Road			

Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 7			
Photo Location: Clay Creek east of Friendship Lane			
Direction: North			
Survey Date: 5/8/2024			
Comments: Meandering Clay Creek.			
Photograph ID: 8			
Photo Location: Clay Creek Road			
Direction: Southwest			
Survey Date: 5/8/2024			
Comments: Culvert beneath Clay Creek Road and adjacent fire hydrant.			

Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 9			
Photo Location: East of Clay Creek Road			
Direction: West			
Survey Date: 5/8/2024			
Comments: Concrete and steel pipe debris.			
Photograph ID: 10			
Photo Location: Clay Creek near intersection of Clay Creek and Sullivan Roads			
Direction: North			
Survey Date: 5/8/2024			
Comments: Clay Creek flood plain.			

Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 11			
Photo Location: Clay Creek, north of intersection of Clay Creek and Sullivan Roads			
Direction: Northwest			
Survey Date: 5/8/2024			
Comments: Clay Creek impinging along east side of Clay Creek Road.			
Photograph ID: 12			
Photo Location: Intersection of Clay Creek and Indian Run Roads			
Direction: Northeast			
Survey Date: 5/8/2024			
Comments: Bridge over Clay Creek.			

Client:	Water and Land Solutions, LLC	Project:	203402183
Site Name:	Clay Creek	Site Location:	Chester County, PA
Photograph ID: 13			
Photo Location: Intersection of Clay Creek and Indian Run Roads			
Direction: Northeast			
Survey Date: 5/8/2024			
Comments: Pole mounted transformer			
Photograph ID: 14			
Photo Location: Clay Creek south of Indian Run Road			
Direction: Southeast			
Survey Date: 5/8/2024			
Comments: Clay Creek with residence in background.			

APPENDIX B

STANTEC RESUMES

George Robertson PG

Senior Geologist
35 years of experience · Bluefield, Virginia

George Robertson has extensive success performing all phases of environmental investigation and remediation at industrial and commercial sites including pipeline, transportation, bulk storage, retail, mine, chemical and manufacturing facilities. He has planned, managed, and performed numerous Phase I and Phase II environmental site assessments including due diligence investigations for potential property acquisitions.

George has extensive experience developing human health and ecological risk assessments, site assessments, and corrective action plans. His experience encompasses the remediation of volatiles, semi-volatiles, metals, polychlorinated biphenyls (PCBs), pesticides, and herbicides. His expertise includes fate and transport modeling of impacted groundwater, vapor, and leachate. George has extensive experience working within and navigating through regulatory programs.

EDUCATION

M.S., Geomorphology, Louisiana State University,
Baton Rouge, Louisiana, United States, 1981

B.S., Geology, James Madison University,
Harrisonburg, Virginia, United States, 1978

CERTIFICATIONS & TRAINING

Licensed Professional Geologist, #764, Exp. 8/2023,
Virginia Department of Professional and
Occupational Regulation, Richmond, Virginia, 1990

Licensed Professional Geologist, #147, exp. 6/2023,
North Carolina Board for Licensing of Geologists,
Raleigh, North Carolina, 1986

Licensed Professional Geologist, #2061, exp.
12/2023, Kentucky Board of Registration for
Professional Geologists, Frankfort, Kentucky, 1994

Licensed Remediation Specialist, #62, exp. 3/2025,
West Virginia Department of Environmental
Protection, Charleston, West Virginia, 2021

Licensed Class B UST #B276, exp. 12/2025, West
Virginia Department of Environmental Protection,
Charleston, West Virginia, 2021

Certified Monitoring Well Driller #268, exp. 12/2023,
West Virginia Department of Environmental
Protection, Charleston, West Virginia, 2021

PROJECT EXPERIENCE

HAZARDOUS WASTE

VDOT Rt. 58 Business and Rt. 930 Improvements |
Virginia Dept of Transportation | Martinsville, Virginia |
Senior Geologist

George conducted operations and rehabilitation of dual phase extraction system at an operating gas station in Goochland County. Numerous CAP implementation and site characterization addenda for existing CAP were conducted at the site. The DPE system had been out of service for eight years. The system was overhauled and pilot study was conducted on pumping wells during the overhaul for the DEQ RP project. An alternate water supply for an adjacent LUST was found.

I-81 Emergency Response | Virginia Dept of
Transportation | Smyth County, Virginia | Senior
Scientist

Emergency response of a gasoline spill at an interstate accident conducted for VDOT with in-house personnel. Tasks included initial containment, coordination with emergency officials, Virginia Department of Emergency Management (VDEM), Virginia State Police (VSP), and local fire department, in-situ soil treatment with microbial remediation, and a release assessment to determine any impacts to the environment prior to case closure.

ENVIRONMENTAL SITE ASSESSMENTS

VDOT Rt. 29 Business (Main Street) Bridge | Virginia Dept of Transportation | Altavista, Virginia | Senior Geologist

George was responsible for Phase II Environmental Site Assessment (ESA) for the Rt. 29 Business (Main Street) Bridge replacement project over the Staunton River and Norfolk Southern Railway tracks at the Campbell/Pittsylvania County line in Altavista, Virginia. Extensive soil and groundwater characterization, which included testing of petroleum, metals, volatiles, and semi-volatiles. Project required railroad access and track protection through Norfolk Southern Railway. Final test results were used to calculate material handling procedures, as well as estimated disposal costs.

Route 1/123 ESA | Woodbridge, Virginia | Senior Scientist

George and team conducted assessments for a road/utility corridor improvement project. Tasks included non-intrusive determinations of recognized environmental conditions (RECs) on the 1.5-mile corridor, intrusive subsurface investigations to sample/test soil, groundwater, and vapors at over 20 sites including a dry cleaner voluntary remediation program release and preparing Senior Scientist for Phase I and Phase II Environmental Sites.

VDOT Rt. 103 & Rt. 645 Improvements | Virginia Dept of Transportation | Claudville, Virginia | Senior Geologist

George managed Phase II investigation for an intersection improvement project in Patrick County to characterize soil and groundwater conditions for the proposed road and utility project.

Route 277 Environmental Site Assessment | Virginia Dept of Transportation | Stephens City, Virginia | Senior Scientist

Phase I and Phase II Environmental Site Assessments for a road/utility corridor improvement project. Tasks included non-intrusive determinations of recognized environmental conditions (RECs) on the 2.5-mile corridor, intrusive subsurface investigations to sample/test soil, groundwater, and vapors at 14 sites including six petroleum facilities and preparing specifications for managing contaminated media.

Phase I and II Site Assessments | Bluefield, Virginia | Senior Scientist

Assisted with team planning and conducting field inspections and soil, groundwater and surface water assessments focusing on abandoned commercial and industrial properties including a large industrial scrap yard involving volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals.

Virginia Department of Environmental Quality Phase I and II Site Assessments | Virginia Department of Environmental Quality | Virginia | Senior Scientist

Assisted with team planning and conducting field inspections and records research focusing on abandoned commercial and industrial properties including a large furniture factory, textile mills, a hotel, a theater, and an office building. Planning and conducting soil, groundwater, and surface water assessments for former phosphate and hydrazine plants, former service stations and a former campground.

Phase I Environmental Site Assessments | Fredonia & Robards, Kentucky, and Yellowbud, Ohio | Hydrogeologist

George served as hydrogeologist completing field inspections, conducting regulatory research and preparing Phase I ESAs for Solar Sites totaling approximately 65,000-acres under Brownfields grants. Each Phase I ESA was performed in accordance with American Society for Testing & Materials (ASTM) Practice E-1527-13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" developed by ASTM Subcommittee E50.02 for Commercial Real Estate Transactions. Recognized environmental conditions (RECs), controlled RECs (CRECs) and historical RECs (HRECs) were identified as appropriate.

Chevron Eureka Pipeline, Phase II Environmental Assessments, Remediation | Chevron | West Virginia | Senior Scientist

George planned, managed, and supervised Phase I and Phase II environmental assessments for pumping stations and storage facilities along the Eureka Pipeline in West Virginia. He also supervised initial abatement actions for spills at two locations. Membrane interface probe technology was utilized to expedite Phase II assessments at two pumping and bulk storage stations. He prepared work plans and assessment reports. The primary project activities included comprehensive studies of previous site activities, preparation of site-specific health and safety plans, site visits with regulatory agents, delineation of source areas, preparation of sampling and remediation work plans, QA/QC planning, and reporting and liaison with the WVDEP.

ENVIRONMENTAL COMPLIANCE

VDOT Salem District Compliance Audits | Virginia Dept of Transportation | Virginia | Senior Scientist

George served as the senior scientist conducting environmental compliance audits for VDOT facilities in the Salem District. Tasks included inspecting for compliance with regulations and VDOT policies including spill prevention, control, and countermeasure (SPCC), municipal separate storm sewer system (MS4), Resource Conservation and Recovery Act (RCRA), salt handling/stormwater management, and UST compliance. George prepared reports with recommendations on pollution prevention compliance.

HYDROGEOLOGY

North Carolina DEP, Steam Power Facilities | Duke Energy | Belews Creek, Belmont, Buck, Cape Fear, Cliffside, and Mt. Holly, North Carolina | Project Manager/ Hydrogeologist

George served as hydrogeologist and project manager for investigation and management of storm water runoff, including sampling, discharge monitoring reporting, compliance, and best management practices. Assisted in tracking and reducing total suspended solids and dissolved metals to achieve compliance.

Risk Based and Non-Risk Based Closure of Leaking UST Sites | Virginia, West Virginia, and Kentucky | Project Manager/ Hydrogeologist

George completed the assessment and remediation of over 200 underground storage tank (UST) sites across Virginia, West Virginia, and Kentucky. He completed all phases of environmental compliance including UST closures, initial responses, initial abatement and site checks, free product removal, initial site characterizations, site characterizations, corrective action plans, and remedial implementations. He helped design and implement remediation systems utilizing soil excavation with off-site transportation and disposal/recycling for source removal, groundwater pump and treatment, air sparging, soil vapor extraction, dual-phase high vacuum extraction, bioremediation, and natural attenuation. He managed client relations and liaison with regulatory agencies. Mr. Robertson achieved site closures for numerous sites under VDEQ, WVDEP and KDEP.

REDEVELOPMENT / BROWNFIELDS

Field Inspections | City of Bluefield, West Virginia | Bluefield, West Virginia | Senior Scientist

Under Brownfields grants, George assisted as member of team planning and conducting field inspections and soil, groundwater, and surface water assessments focusing on abandoned commercial and industrial properties including a large industrial scrap yard involving VOCs, SVOCs, PCBs, and metals.

ENVIRONMENTAL SITE REMEDIATION

VDOT Explore Park Voluntary Remediation Program | Virginia Dept of Transportation | Roanoke, Virginia | Senior Scientist

George was a senior scientist for design and implementation of a cost-effective remedial action with in-house personnel for VDOT at a soil waste dump slope right-of-way site. Accomplishments included a quantitative risk assessment, remedial plan design with permit approvals, corrective action, such as solid waste removal and a cover placement, post-implementation monitoring, and preparation of Voluntary Remediation Program Certification of Satisfactory Completion of Remediation, including the Declaration of Restrictive Covenants.

Norfolk Southern Railway Company: PA DEP Act 2 Program, Transmodal Facility | Norfolk Southern Railway Company | Harrisburg, Pennsylvania | Project Manager/ Hydrogeologist

George served as hydrogeologist and project manager for the successful closure of a former locomotive fueling facility impacted with petroleum LNAPL, dissolved- and adsorbed-phases within PADEP's Act 2 Program. Using a combination of risk assessment and product mobility assessment, active remediation was limited to a short-term pilot test.

Norfolk Southern Railway Company: West Virginia DEP Voluntary Remediation Program, Lease Facility | Norfolk Southern Railway Company | West Virginia | Project Manager/ Hydrogeologist

George served as hydrogeologist and project manager for the successful closure of a former fueling facility impacted with petroleum light non-aqueous phase liquid (LNAPL), dissolved- and absorbed-phases within the West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP). Using a combination of risk assessment and sub-slab soil gas testing and active remediation to achieve certificate of completion.

West Virginia Voluntary Remediation Program, Bulk Oil Storage Facilities | Chevron Corporation | Huntington and Charleston, West Virginia | Project Manager/ Hydrogeologist/ Licensed Remediation Specialist

George served as licensed remediation specialist (LRS), hydrogeologist, and project manager on Voluntary remediation program (VRP) projects at Chevron Huntington and Etowah bulk storage facilities in West Virginia. He performed and reported a Phase I ESA for the Etowah Terminal. He prepared VRP applications, agreements, work plans and reports. The primary project activities included Phase II site assessments, risk assessment, remediation, and report preparation. Project tasks included comprehensive studies of previous site activities, site visits with regulatory agents, delineation of source areas, identification of contaminants of potential concern (COPC) and contaminants of concern (COC), evaluation of data gaps, preparation of sampling and remediation work plans, quality assurance/quality control (QA/QC) planning and reporting, sampling of sediment, surface water, soil and groundwater, preparation of human health and ecological risk assessments, groundwater modeling, preparation of information for public notice, and liaison with the regulatory agency. Mr. Robertson quickly achieved certificates-of-completion for both facilities.

Environmental Remediation Projects at Bulk Storage Facilities | Exxon | Huntington, Charleston, Boomer, Westover, and Parkersburg, West Virginia | Project Manager/ Hydrogeologist

George provided project management and hydrogeological support at five bulk storage facilities in West Virginia. He completed environmental site assessments and corrective action plans and implemented free product recovery and soil and groundwater remediation. Permits were obtained for discharges to publicly owned sewer systems and surface water. He maintained permit compliance and prepared appropriate regulatory reports to progress towards environmental closure.

Chemical Leaman West Virginia Voluntary Remediation Program, Chemical Lagoon | Scary Creek, West Virginia | Hydrogeologist/ Lead Remediation Specialist

George served as LRS and hydrogeologist on Voluntary remediation program (VRP) project at a chemical lagoon where rinsate from chemical tankers was disposed in Scary Creek, West Virginia. He prepared VRP application, agreement, work plan and reports. The primary project activities included Phase II site assessments, risk assessment, remediation, and report preparation. Project tasks included comprehensive studies of previous site activities, site visits with regulatory agents, delineation of source areas, identification of containment of potential ecological concern (COPC) and containments of concern (COC), evaluation of data gaps, preparation of sampling and remediation work plans, QA/QC planning and reporting, human health and ecological risk assessments, groundwater modeling, preparation of information for public notice and liaison with the regulatory agency. George planned and implemented near shore sediment sampling, surface water sampling and lagoon sludge sampling to verify COCs including dioxins and furans. George planned and implemented near shore



Miranda Basconi

Geologist

3 years of experience · Bluefield, Virginia

Miranda Basconi has three years of experience in the environmental services industry. She has conducted 50+ Phase I and Phase II Environmental Site Assessments, as well as underground storage tank (UST) closures, remediation system operation and maintenance (O&M), lead-based paint and asbestos-containing material assessments, and environmental compliance services.

EDUCATION

Bachelor of Science, Environmental Geosciences,
Concord University, Athens, WV

Bachelor of Science, Psychology, Concord University,
Athens, WV

CERTIFICATIONS & TRAINING

Responsible Land Disturber, Commonwealth of
Virginia, State Water Control Board, Richmond, VA,
2020

OSHA 40-Hour HAZWOPER, Nationwide, USA, 2020

PROJECT EXPERIENCE

BROWNFIELDS

Virginia Department of Environmental Quality
Brownfields Assessments Projects | Geologist

Stantec has been working with the Virginia Department of Environmental Quality as their Brownfields Project Manager since 2018. Stantec completed a \$400,000 brownfields assessment project focused on the six-county area of the Mt Rogers Planning District Commission, where over \$500,000 of additional funds were leveraged for cleanup and redevelopment. Stantec completed Phase I, II, and III environmental site assessments on several sites throughout the region. Our team also supported community engagement and redevelopment planning activities under the project. Stantec is currently supporting VDEQ with the implementation of a \$300,000 grant focused on the three-county area of the Southside Planning District Commission and a \$2 million statewide grant. Stantec is again providing support with community engagement, redevelopment planning, and environmental site assessments.

West Virginia Department of Environmental
Protection - Environmental Site Assessments |
Environmental Scientist, Geologist

Miranda completes technical report preparation, team planning, and field work for Phase I and II Environmental Site Assessment (ESA) for the West Virginia Department of Environmental Protection (WVDEP) under their Brownfield Assessment Grant. Sites have been located in industrial, commercial, and residential areas throughout West Virginia. Phase II ESAs have included soil, sediment, groundwater, and soil gas sampling.

Mt. Rogers Planning District Commission Brownfields
Assessment Project

Miranda is currently supporting the Mt. Rogers Planning District Commission Brownfields Assessment Project and is involved with programmatic support and community outreach efforts, in addition to serving as the Field Team Lead for site assessments. The project anticipates conducting 10 Phase I and 6 Phase II Environmental Assessments, and 7 asbestos and lead-based paint surveys. Work conducted under this project will serve to benefit six counties (Bland, Carroll, Grayson, Smyth, Wythe, and Washington) in Virginia.

Bluefield Economic Development Authority -
Brownfield Assessment Project | Environmental
Scientist

Miranda provided field and office support for the Bluefield Economic Development Authority's Brownfield Assessment Project. Specifically, she has assisted with Phase I Environmental Site Assessments, Cleanup Planning, the development of big specifications for asbestos abatement contractors, and the solicitation and review of the bids. Miranda will provide oversight and coordination support during abatement and demolition activities.

Bluefield Coalition - Regional Brownfields Grant
Project

Miranda conducted team planning and field inspections for Phase I and Phase II ESAs for the Bluefield Coalition Regional Brownfields Grant Project. Phase II work consisted of soil, groundwater, vapor, and surface water assessments focusing on abandoned commercial and industrial properties.

North Carolina - Brownfields Assessments | QAQC Manager

Miranda serves as the QAQC Manager for several EPA Region 4 Brownfield projects. She provides documentation audits and technical review to assist in promoting, implementing, and documenting QA compliance. Projects include several sites within the Town of Warrenton EPA Brownfields Grant Program and Triangle J Council of Governments EPA Brownfields Program.

City of Lincolnnton EPA Community Wide Assessment Grant

Stantec worked with the City of Lincolnnton to submit a winning grant proposal to EPA in FY2018 and was awarded a \$300,000 Community-wide Assessment grant that was completed in 2021. Miranda provided programmatic and field support for this grant. The former Willowbrook Mill was the focus of the grant, where a Phase II ESA was completed and included soil, groundwater, and vapor intrusion assessments.

City of Bristol - Brownfield Assessment

The City of Bristol, VA was awarded an EPA Community-Wide Assessment Grant in 2021. Miranda assisted with the planning and completion of Phase I Environmental Assessments, as well as asbestos-containing material and lead-based paint inspections.

Town of Tarboro EPA Community Wide Assessment

The Town of Tarboro was awarded an EPA Community-wide Assessment grant in 2021. Miranda provided programmatic support by completing inventories for several sites in the Town.

Guest River Coalition - Brownfield Assessment

The Guest River Coalition, a coalition of Wise County, City of Norton, Town of Wise, and Town of Coeburn, Virginia, received a Brownfields Coalition Assessment Cooperative Agreement for hazardous and petroleum substances. Miranda conducted Phase I and Phase II ESAs that included soil, groundwater, sediment, and vapor assessments.

ENVIRONMENTAL SITE ASSESSMENTS

Solar Projects

Miranda has supported multiple solar farm development projects by authoring Phase I Environmental Site Assessments on sites up to 4,500 acres.

Data Center Projects

Miranda has supported multiple data center development projects by authoring Phase I Environmental Site Assessments.

Knox Oil

Miranda assisted in the collection of confirmation soil sampling, groundwater monitoring and UST closure activities at a former bulk fueling facility. She also conducted health and safety planning, daily tailgate safety, and Covid-19 protocol meetings, along with maintaining required meeting documentation to ensure health and safety requirements were being met on the project.

ENVIRONMENT, HEALTH & SAFETY (ENVIRONMENTAL SERVICES)

Tazewell Hybrid Energy Center | Environmental Compliance Coordinator

Miranda conducts the coordination and completion of monthly Stormwater Pollution Prevention Protection Plan (SWPPP) inspections.

Southern California Edison (SCE) Environmental On-Call Contract

Miranda served as part of Stantec's team that provides environmental clearance services for utility pole replacement and vegetation management activities.

STORMWATER FACILITIES

Electrical Power Generation Plants, North Carolina

Miranda provides assistance with stormwater permit compliance planning, stormwater sampling, outfall inspections, data management, and reporting.

PUBLICATIONS & WHITEPAPERS

Basconi, M.T., Anderson, D.R., Deskins, L.R., Frye, J.K., Green, T.T., Hardman, J.H., Lilly, C.E., Ruhnke, M.R., Allen, J.L., and Kuehn, S.C. Geological Society of America Abstracts with Programs, v. 50, no. 6, doi: 10.1130/abs/2018AM-321258. *Field Relations and Titanium-In-Quartz Thermometry of Mylonitic Psuedotachylytes From the Slide Lake and Homestake Shear Zones, Sawatch Range, Colorado*, 2018.

Vince Alaimo

Principal, ES

33 years of experience · Ashland, Virginia

Vince has over 25 years of environmental/transportation experience involving regulatory compliance. Vince has been providing consulting and management services to the Virginia Department of Transportation (VDOT) and Virginia state agencies for 18 years. Prior to his work in Virginia, he managed air emissions testing and permitting projects across the United States and Canada for seven years. Currently, he provides environmental compliance consulting focusing on regulations promulgated under the Clean Water Act, Clean Air Act and the Oil Pollution Act. Vince is also well-versed in greenhouse gas (GHG) requirements for the coal, oil and gas, and other industry sectors. He has managed and conducted the following services:

--- Industrial Hygiene & Air Quality Evaluations: Completing more than 1,000 indoor air quality evaluations for industrial, commercial, and insurance clients

--- GHG Reporting: Completing more than 50 GHG evaluations for companies in the coal, oil and gas industries

--- Spill Prevention, Control, and Countermeasure (SPCC) Projects: Preparing more than 2,000 plans primarily for the transportation and energy industries

EDUCATION

BS, Chemistry, University of Western Ontario,
London, Ontario, Canada, 1990

CERTIFICATIONS & TRAINING

Certified Mold Assessor, Nationwide, USA, 2009

OSHA Hazardous Waste Operations & Emergency
Response (40-hour and annual 8-hour refreshers),
Nationwide, USA, 1994

PROJECT EXPERIENCE

ROADWAYS

VDOT - District Compliance Audits – Salem VDOT
District | VDOT Salem District | 2022 | Senior Scientist

Vince performed 32 facility environmental compliance audits for VDOT facilities in the Salem District. Tasks included inspecting for compliance with regulations and VDOT policies including SPCC, MS4, Resource Conservation and Recovery Act (RCRA), salt handling/stormwater management, and Underground Storage Tank (UST) compliance. The firm prepared reports with recommendations on pollution prevention compliance.

VDOT - Municipal Separate Stormwater Sewer
Systems (MS4) Audits, VDOT | Statewide Virginia |
2020 | Task Leader

Vince was the team leader for the MS4 inspections for 16 of VDOT's facilities and 14 rest areas. Compliance inspections involved evaluating discharge points, potential pollution sources, illegal discharges, and appropriate best management principles (BMPs). Tasks included inspecting for compliance with Clean Water Act, Clean Air Act, Solid Waste Regulations and VDOT policies including Spill Prevention, Control, and Countermeasure (SPCC), MS4, RCRA, salt handling, and stormwater management. The firm prepared reports with recommendations on pollution prevention compliance and any actions by VDOT were documented.

VDOT - District Compliance Audits – Bristol VDOT
District | Bristol District VDOT | 2021 | Senior Scientist

Vince performed environmental 35 facility compliance audits for VDOT facilities in the Bristol District. Tasks included inspecting for compliance with regulations and VDOT policies including Spill Prevention, Control, and Countermeasure (SPCC), MS4, RCRA, salt handling/stormwater management, and UST compliance. The firm prepared reports with recommendations on pollution prevention compliance.

VDOT - Spill Prevention, Control, and Countermeasure (SPCC) Assessment and Compliance, Virginia | Virginia | 2000-2014 | Program Manager

Vince worked as the Program Manager for the SPCC implementation for VDOT. He was responsible for the production and oversight of the initial survey of more than 320 VDOT facilities to determine SPCC compliance and the subsequent preparation of more than 90 SPCCs state-wide. Vince has also completed the regulatory training for the SPCC sites at more than 40 VDOT facilities state-wide. Vince aided VDOT personnel with the implementation of various upgrades that were completed at the VDOT SPCC sites to comply with regulations. Vince was the project manager for the compilation of the facility/petroleum storage database that was prepared during the SPCC investigation. This database includes georeferencing of all petroleum storage tanks within VDOT and will aid in the compliance assurance for the VDOT SPCC program as well as being used for other environmental compliance projects.

VDOT - VDOT Total Maximum Daily Load (TMDL) Implementation | Virginia | 2014 | Project Manager

Vince was the project manager for the implementation of BMPs at seven VDOT facilities to rectify issues identified during MS4 inspections. The firm completed the project in five days. The firm installed BMPs, repaired culverts, excavated and disposed of contaminated soil and did overall good housekeeping at the VDOT facilities.

FREIGHT AND GOODS MOVEMENT STUDIES

Clean Water Act Compliance, FedEx – Nationwide | 2008 | Project Manager

Vince managed the stormwater and Oil Pollution Act programs for more than 200 FedEx Freight facilities nationwide. The firm prepared both construction and industrial stormwater permits and plans for all of the facilities, managed the updates to the plans, and coordinated the sampling and analysis of the stormwater outfalls.

Clean Water Act Compliance, UPS – Virginia | 2006-2018 | Project Manager

Vince managed the stormwater and Oil Pollution Act programs for 21 UPS facilities in Virginia. The firm also provided UPS on-call Clean Water Act and Oil Pollution Act services.

RAILWAY

Northern Region of a Class I Railway - SPCC Training | 2000-2016 | Principal Trainer

Vince was the principal Spill Prevention, Control, and Countermeasure (SPCC) / Facility Response Plan (FRP) trainer for the Northern Region of a Class I Railway. Vince conducted training of more than 50 facilities to comply with the SPCC regulations. Vince also was an integral part in the SPCC updates that were completed by the firm. Vince also conducted FRP Emergency Response Drills at a number of the Railway's FRP sites.

FACILITY GREENHOUSE GAS (GHG) VERIFICATION

GHG Mandatory Reporting Requirements (MRR) – United States | 2008-2012 | Senior Scientist

Vince conducted the training, data capture, calculations and reporting for one of the largest energy companies in the United States. He provided comments to the U.S. Environmental Protection Agency based on the findings and opined regarding the discrepancies within the regulations.

DEFENSE / MILITARY

Virginia Department of Military Affairs Spill Prevention, Control, and Countermeasure (SPCC) Compliance | Virginia | 2006 | Senior Scientist

Vince completed Spill Prevention, Control, and Countermeasure (SPCC) Plans for a number of federal facilities including Fort Pickett. Fort Pickett has more than 300 above-ground and USTs that store more than 900,000 gallons of petroleum. Vince completed the initial inspections identifying any areas of the facility that may be out of compliance with the regulations and recommended methods to comply.

UNDERGROUND STORAGE TANKS

UST Removals – Department of Environmental Protection – West Virginia | West Virginia | 2014-2015 | Project Manager

Vince managed the removal of over 70 tanks at 32 locations in West Virginia for the West Virginia Department of Environmental Protection (DEQ). The USTs ranged in size from 125 to 30,000 gallons. As part of the remediation activities, more than 5,000 tons of contaminated soil was excavated.

VDOT UST Inspections on Behalf of Department of Environmental Quality (DEQ) – Virginia | Virginia | 2016-2017

In a new program, DEQ allowed VDOT to complete their own UST inspections mandated by the EPA. The firm received training from DEQ and inspected over 100 USTs for VDOT, prepared inspection briefings, and provided suggestions to ensure continued compliance with the program.

POWER THERMAL GENERATION, COAL

Longview Power 650MW Coal-Fired Power Plant |
Morgantown, West Virginia | 2000-2016 | Project
Manager

Vince served as project manager for the siting of a 650 megawatt coal-fired power plants in Morgantown, West Virginia. He was involved in initial siting, Phase 1 environmental study, and historical, cultural, and archaeological review in advance of construction. He conducted viewshed analysis and a rare, threatened, and endangered species evaluation. Vince completed the U.S. Army Corps of Engineers wetland delineation, and a Nationwide Permit application. He also evaluated potential transmission corridors and chose the most feasible and cost-effective routing between the site and nearest substation. Vince conducted a baseline noise survey and prepared a local noise ordinance for the new plant and provided expert testimony to the West Virginia Public Service Commission.

APPENDIX C

USER PROVIDED RECORDS

**ALL APPROPRIATE INQUIRY (AAI)
PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)
USER QUESTIONNAIRE**

**Clay Creek
Chester County
London Grove Township, Pennsylvania**

Completed By: _____
(Please Print)

Date: _____

Signature: _____

Representing: _____

ASTM Questions to Address User Responsibilities:

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments") the user should provide the following information (if available) to the environmental professional (EP). Failure to provide this information could result in a determination that All Appropriate Inquiry (AAI) is not complete.

1) Environmental cleanup liens that are file or recorded against the site (40 CFR 312.25).

Based on the results of a **chain of title and title restriction** review, are there any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

2) Activity and land use limitation (AUL) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26). Based on the results of a **chain of title and title restriction review**, are there any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? If yes, explain:

3) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28). As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? If yes, please explain:

4) The relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29). Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

5) Commonly known or reasonably ascertainable information about the property (40 CFR 312.30). Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases?

If yes, please answer the following questions:

- a) What were the past uses of the property?
- b) What chemicals are present or once were present at the property?
- c) What spills or other chemical releases that have taken place at the property?
- d) Explain any environmental cleanups that have taken place at the property.

6) The degree of obviousness of the presence of likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31). As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

Other Questions:

7) What is the purpose for this Phase I ESA?

8) As the user of this ESA, are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property? If so, explain:

9) As the user of this ESA, are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property? If yes, explain:

10) As the user of this ESA, are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability related to hazardous substances or petroleum products? If yes, explain:

11) As the user of this ESA, do you have any of the following reports in your possession. Please place an "X" next to each report that is available. Please provide copies of each report or make these reports available for inspection.

- _____ Environmental site assessment reports
- _____ Environmental compliance audit reports
- _____ Environmental permits
- _____ Underground storage tank notification forms
- _____ Registrations for underground injection systems
- _____ Material safety data sheets
- _____ Community right to know plans
- _____ Safety plans, preparedness and prevention plans, spill prevention, countermeasure and control plans
- _____ Reports regarding hydrogeologic conditions on the property or surrounding area
- _____ Notices or other correspondence from any governmental agency relating to past or current violations of environmental laws
- _____ Hazardous waste generator notices or reports
- _____ Geotechnical studies
- _____ Risk assessments
- _____ Activity and use restrictions

APPENDIX D
ENVIRONMENTAL AGENCY DATABASE
SEARCH REPORT



DATABASE REPORT

Project Property:	<i>Clay Creek Garden Station Rd London Grove PA</i>
Project No:	<i>203402183 Task 177.3</i>
Report Type:	<i>Database Report</i>
Order No:	<i>24042400518</i>
Requested by:	<i>Stantec Consulting Ltd.</i>
Date Completed:	<i>April 26, 2024</i>

Environmental Risk Information Services

A division of Glacier Media Inc.

1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property: *Clay Creek
Garden Station Rd London Grove PA*

Project No: *203402183 Task 177.3*

Coordinates:

Latitude:	<i>39.80893155</i>
Longitude:	<i>-75.79081719</i>
UTM Northing:	<i>4,406,789.49</i>
UTM Easting:	<i>432,369.07</i>
UTM Zone:	<i>UTM Zone 18S</i>

Elevation: *276 FT*

Order Information:

Order No: *24042400518*

Date Requested: *April 24, 2024*

Requested by: *Stantec Consulting Ltd.*

Report Type: *Database Report*

Historicals/Products:

Aerial Photographs	<i>Historical Aerials (with Project Boundaries)</i>
City Directory Search	<i>Smart CD Search</i>
ERIS Xplorer	<i><u>ERIS Xplorer</u></i>
Excel Add-On	<i>Excel Add-On</i>
Fire Insurance Maps	<i>US Fire Insurance Maps</i>
Physical Setting Report (PSR)	<i>Physical Setting Report (PSR)</i>
Product Summary	<i>Product Summary for Aerials, FIMs & Topos</i>
Topographic Map	<i>Topographic Maps</i>

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<u>Standard Environmental Records</u>								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	1	-	-	1
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
DOE FUSRAP	Y	1	0	0	0	0	0	0

State

SHWS	Y	1	0	0	0	0	0	0
DELISTED SHWS	Y	1	0	0	0	0	0	0
HSCA	Y	1	0	0	0	0	0	0
SWF	Y	0.5	0	0	0	0	-	0
LUST	Y	0.5	0	0	0	0	-	0
LST UNREG	Y	0.5	0	0	0	0	-	0
LAST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
TANKS	Y	0.25	0	0	0	-	-	0
UNREG TANK	Y	0.25	0	0	0	-	-	0
DEL TANK	Y	0.5	0	0	0	0	-	0
ENG	Y	0.5	0	0	0	0	-	0
INST	Y	0.5	0	0	0	0	-	0
AUL	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
BROWNF SUCCESS	Y	0.5	0	0	0	0	-	0
CLEANUP EFACTS	Y	0.5	0	0	0	1	-	1
DELISTED ECBF	Y	0.5	0	0	0	0	-	0

Tribal

INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
----------	----------	---------------	------------------	---------------	-------------------	------------------	------------------	-------

County **No County standard environmental record sources available for this State.**

Additional Environmental Records

Federal

PFAS GHG	Y	0.5	0	0	0	0	-	0
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
MRDS	Y	1	0	0	0	0	0	0
LM SITES	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
SPL	Y	0.125	0	0	-	-	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
PFAS	Y	0.5	0	0	0	0	-	0
AIR PERMITS	Y	0.25	0	0	0	-	-	0
UIC	Y	PO	0	-	-	-	-	0
Tribal								
No Tribal additional environmental record sources available for this State.								
County								
No County additional environmental record sources available for this State.								
Total:			0	0	1	1	0	2

* PO – Property Only

* 'Property and adjoining properties' database search radii are set at 0.25 miles.

Executive Summary: Site Report Summary - Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
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No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
1	RCRA VSQG	STROUD WATER RESEARCH CENTER	RR 1 BOX 512-E AVONDALE PA 19311-9801 <i>EPA Handler ID:</i> PAD075490870	WNW	0.22 / 1,187.88	71	16
2	CLEANUP EFACTS	TOTO PROP	232 ELLICOTT RD AVONDALE PA 19311-9106 <i>Facility ID:</i> 634261	ENE	0.43 / 2,244.34	13	18

Executive Summary: Summary by Data Source

Standard

Federal

RCRA VSQG - RCRA Very Small Quantity Generators List

A search of the RCRA VSQG database, dated Jan 1, 2024 has found that there are 1 RCRA VSQG site(s) within approximately 0.25 miles of the project property.

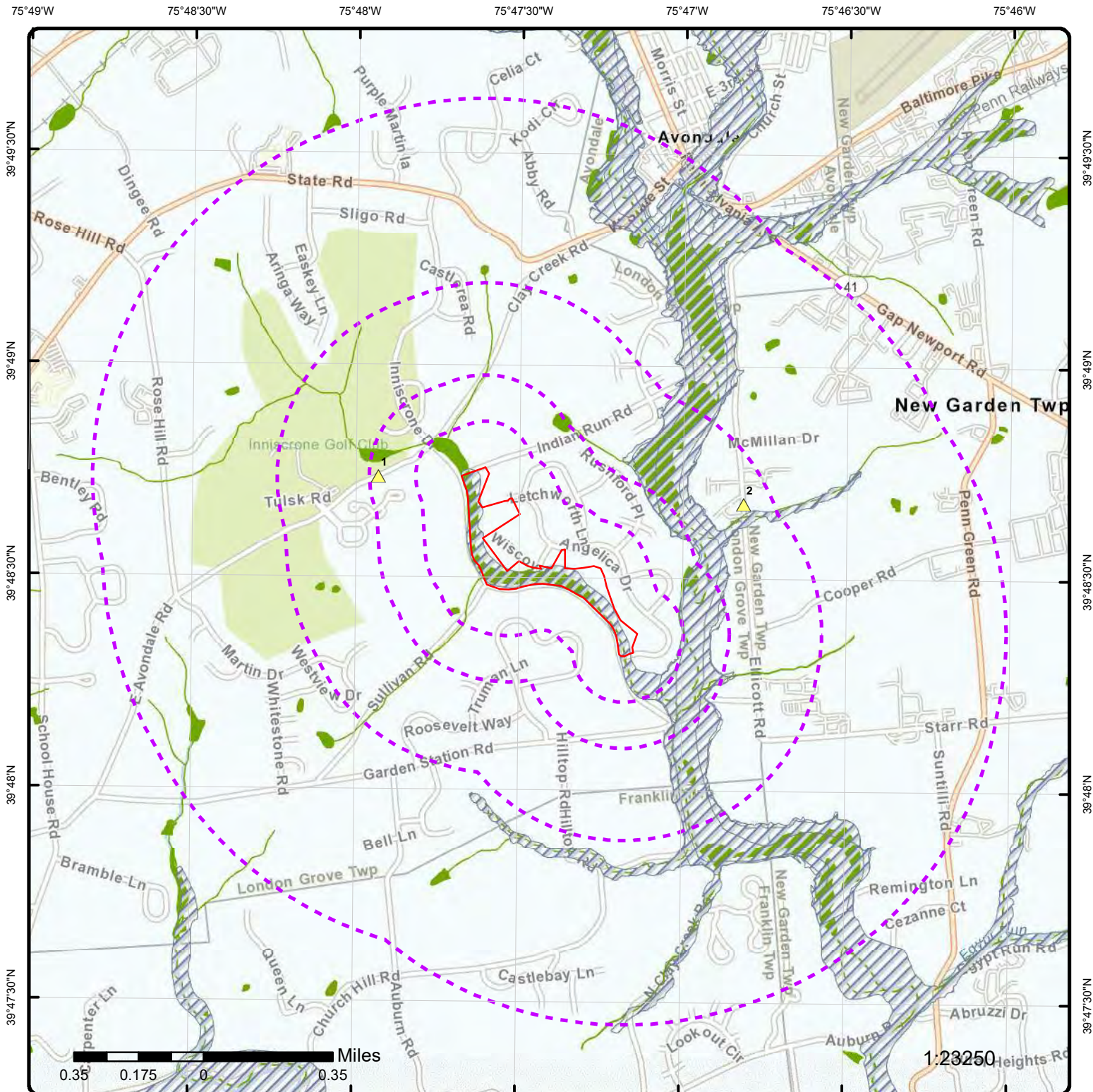
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (mi/ft)</u>	<u>Map Key</u>
STROUD WATER RESEARCH CENTER	RR 1 BOX 512-E AVONDALE PA 19311-9801 <i>EPA Handler ID: PAD075490870</i>	WNW	0.22 / 1,187.88	<u>1</u>

State

CLEANUP EFACTS - eFACTS Environmental Cleanup & Brownfields

A search of the CLEANUP EFACTS database, dated Nov 9, 2023 has found that there are 1 CLEANUP EFACTS site(s) within approximately 0.50miles of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (mi/ft)</u>	<u>Map Key</u>
TOTO PROP	232 ELLICOTT RD AVONDALE PA 19311-9106 <i>Facility ID: 634261</i>	ENE	0.43 / 2,244.34	<u>2</u>



Map: 1.0 Mile Radius

Order Number: 24042400518

Address: Garden Station Rd, London Grove, PA



Project Property

Buffer Outline

▲ Sites with Higher Elevation

■ Sites with Same Elevation

▼ Sites with Lower Elevation

○ Sites with Unknown Elevation

Areas with Higher Elevation

Areas with Same Elevation

Areas with Lower Elevation

Areas with Unknown Elevation

Freeways; Highways

Traffic Circle; Ramp

Major & Minor Arterial

Traffic Circle; Ramp

Local Road

Rail

State

Country

National Wetland

Indian Reserve Land

100 Year Flood Zone

500 Year Flood Zone

FWS Special Designation Areas

National Priorities List (Active, Delisted, Proposed, Institutional Control)

75°48'W

75°47'30"W

75°47'W

75°46'30"W

39°49'N

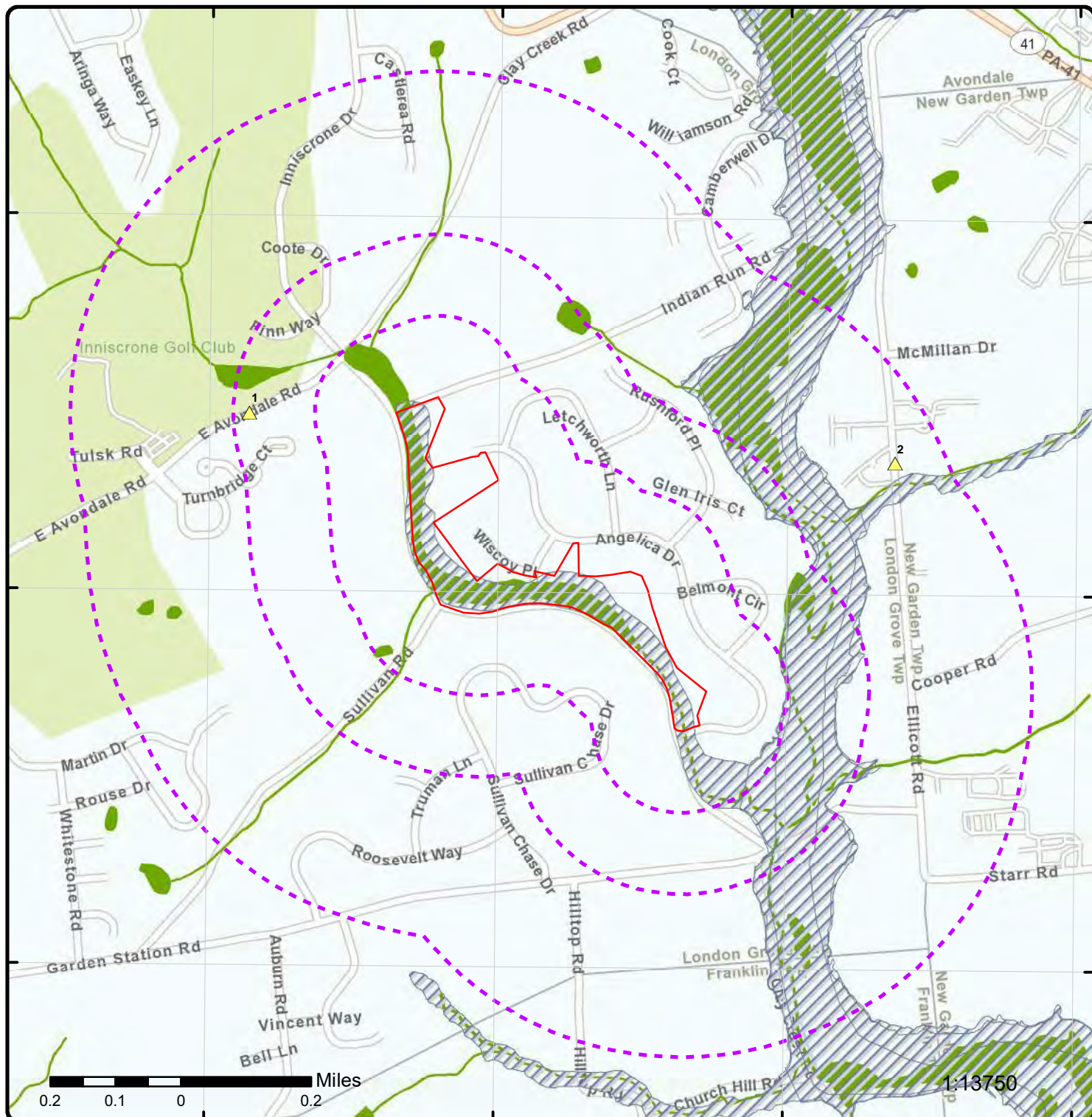
39°49'N

39°48'30"N

39°48'30"N

39°48'N

39°48'N



Map: 0.5 Mile Radius

Order Number: 24042400518

Address: Garden Station Rd, London Grove, PA



Project Property

Buffer Outline

▲ Sites with Higher Elevation

■ Sites with Same Elevation

▼ Sites with Lower Elevation

○ Sites with Unknown Elevation

Areas with Higher Elevation

Areas with Same Elevation

Areas with Lower Elevation

Areas with Unknown Elevation

Freeways; Highways

Traffic Circle; Ramp

Major & Minor Arterial

Traffic Circle; Ramp

Local Road

Rail

State

Country

National Wetland

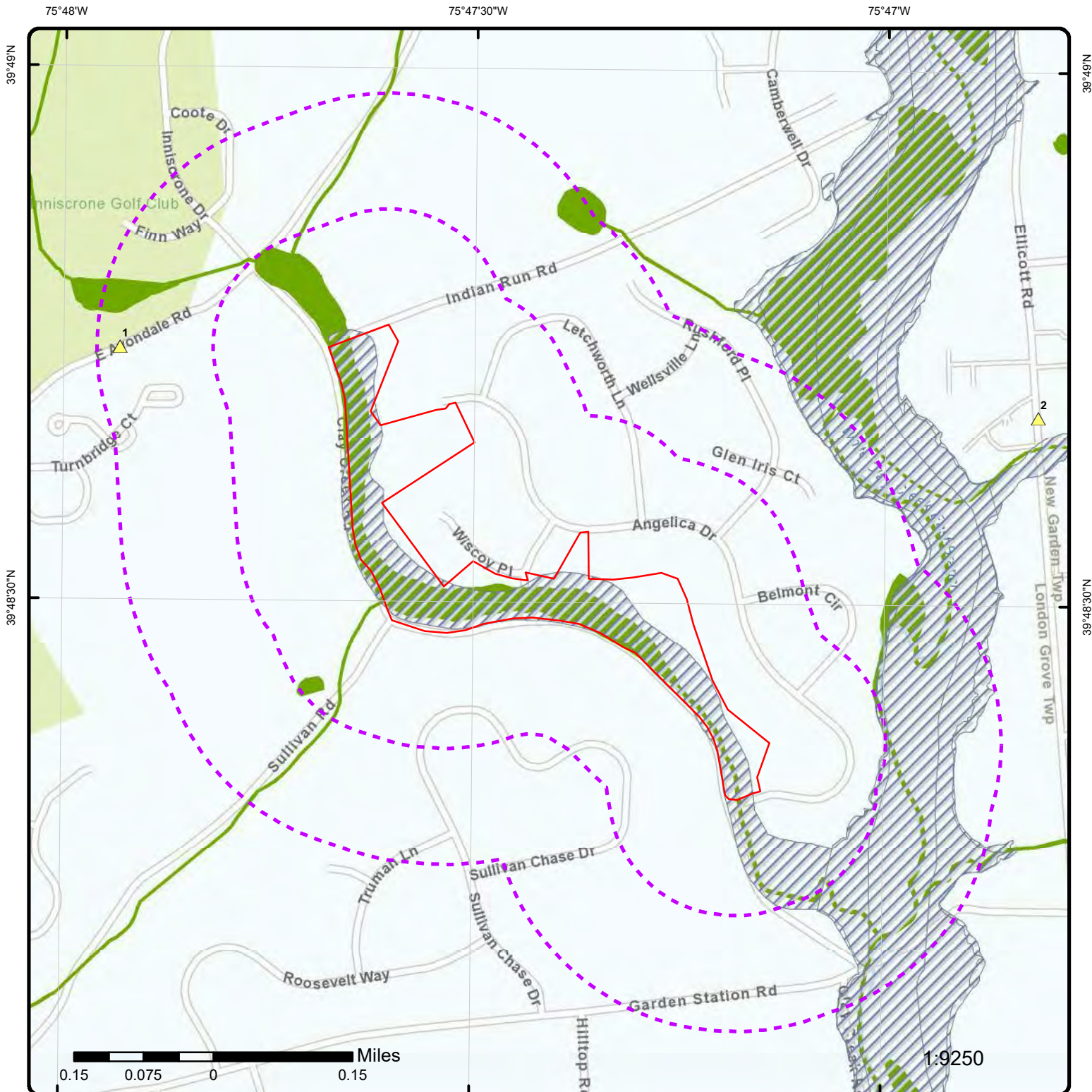
Indian Reserve Land

100 Year Flood Zone

500 Year Flood Zone

FWS Special Designation Areas

National Priorities List (Active, Delisted, Proposed, Institutional Control)



Map: 0.25 Mile Radius

Order Number: 24042400518

Address: Garden Station Rd, London Grove, PA



Project Property

Buffer Outline

▲ Sites with Higher Elevation

■ Sites with Same Elevation

▼ Sites with Lower Elevation

○ Sites with Unknown Elevation

Areas with Higher Elevation

Areas with Same Elevation

Areas with Lower Elevation

Areas with Unknown Elevation

Freeways; Highways

Traffic Circle; Ramp

Major & Minor Arterial

Traffic Circle; Ramp

Local Road

Rail

State

Country

National Wetland

Indian Reserve Land

100 Year Flood Zone

500 Year Flood Zone

FWS Special Designation Areas

National Priorities List (Active, Delisted, Proposed, Institutional Control)

75°48'W

75°47'30"W

75°47'W

39°49'N

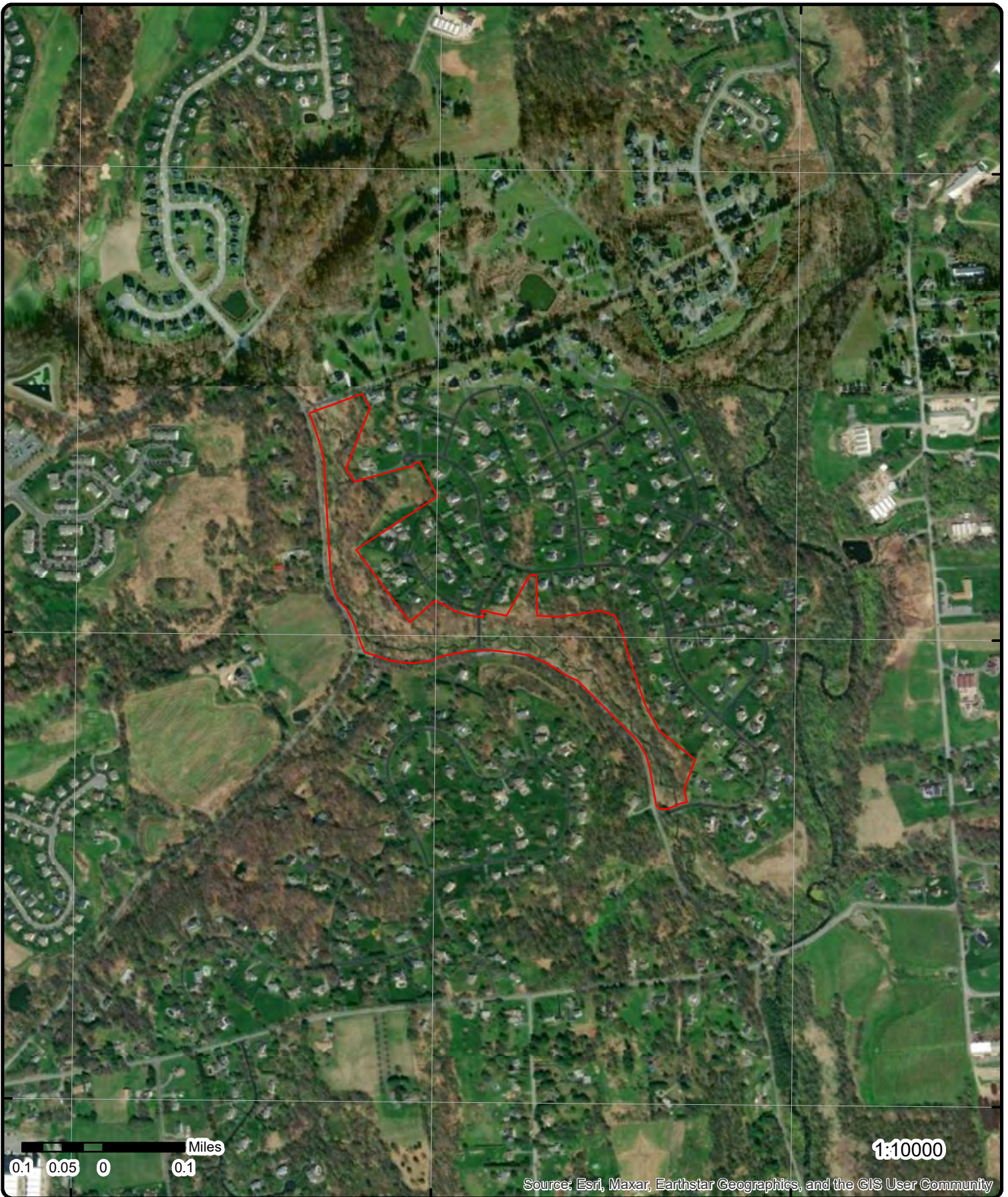
39°49'N

39°48'30"N

39°48'30"N

39°48'N

39°48'N



Aerial Year: 2023

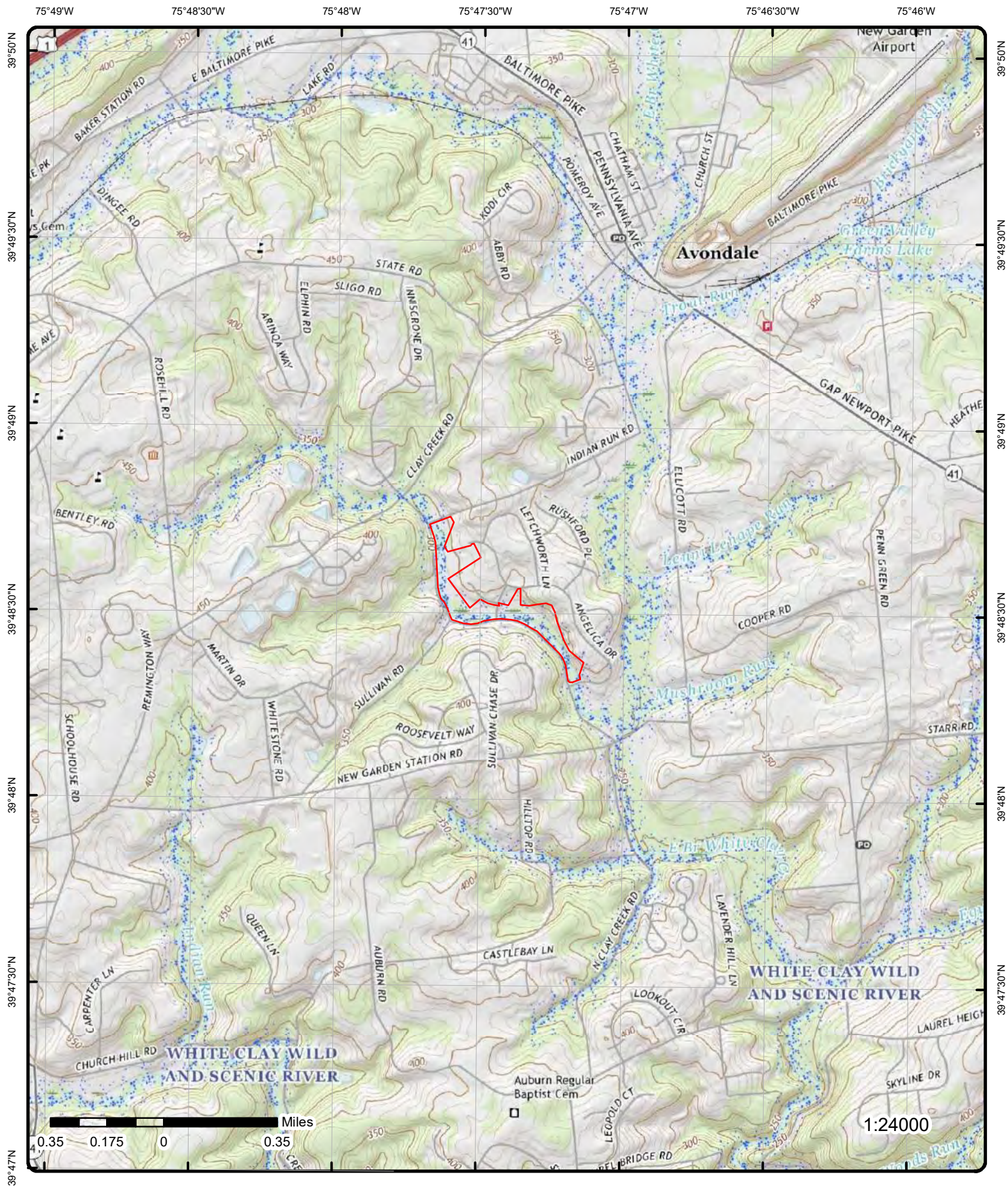
Address: Garden Station Rd, London Grove, PA

Source: ESRI World Imagery

Order Number: 24042400518



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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	WNW	0.22 / 1,187.88	347.73 / 71	STROUD WATER RESEARCH CENTER RR 1 BOX 512-E AVONDALE PA 19311-9801	RCRA VSQG

EPA Handler ID: PAD075490870
Gen Status Universe: VSG
Contact Name:
Contact Address: US
Contact Phone No and Ext:
Contact Email:
Contact Country: US
County Name: CHESTER
EPA Region: 03
Land Type: Other
Receive Date: 20110125
Location Latitude: 39.812277
Location Longitude: -75.798837

Violation/Evaluation Summary

Note: NO RECORDS: As of Jan 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19850517
Handler Name: STROUD WATER RESEARCH CENTER
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
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Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: U220
Waste Code Description: BENZENE, METHYL- (OR) TOLUENE

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20110125
Handler Name: STROUD WATER RESEARCH CENTER
Federal Waste Generator Code: 3
Generator Code Description: Very Small Quantity Generator
Source Type: Implementer

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: F002
Waste Code Description: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Hazardous Waste Code: F005
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Private
Name: OWNERNAME
Date Became Current:
Date Ended Current:
Phone: 215-555-1212
Source Type: Notification

Street No:
Street 1: OWNERSTREET
Street 2:
City: OWNERCITY
State: AK
Country:
Zip Code: 99999

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
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Owner/Operator Ind:	Current Operator	Street No:	
Type:	Private	Street 1:	OPERSTREET
Name:	OPERNAME	Street 2:	
Date Became Current:		City:	OPERCITY
Date Ended Current:		State:	AK
Phone:	215-555-1212	Country:	
Source Type:	Notification	Zip Code:	99999

Historical Handler Details

Receive Dt:	19850517
Generator Code Description:	Very Small Quantity Generator
Handler Name:	STROUD WATER RESEARCH CENTER

2	1 of1	ENE	0.43 / 2,244.34	289.05 / 13	TOTO PROP 232 ELLICOTT RD AVONDALE PA 19311-9106	CLEANUP EFACTS
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Facility ID:	634261	County Name:	Chester County
Status:	Inactive	Municipality Name:	New Garden Township
Program:	Environmental Cleanup & Brownfields		
Facility URL:	https://www.ahs.dep.pa.gov/eFACTSWeb/searchResults_singleFacility.aspx?FacilityID=634261		

Facility Search Results

Other ID:	634261
Program:	Environmental Cleanup & Brownfields
Status:	Inactive

Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
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No unplottable records were found that may be relevant for the search criteria.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List:

NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Dec 26, 2023

National Priority List - Proposed:

PROPOSED NPL

Sites proposed by the United States Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Dec 26, 2023

Deleted NPL:

DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Dec 26, 2023

SEMS List 8R Active Site Inventory:

SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the SEMS GIS/REST file layer obtained from EPA's Facility Registry Service.

Government Publication Date: Jan 26, 2024

SEMS List 8R Archive Sites:[SEMS ARCHIVE](#)

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Jan 26, 2024

Inventory of Open Dumps, June 1985:[ODI](#)

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS:[CERCLIS](#)

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands:[IODI](#)

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned:[CERCLIS NFRAP](#)

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens:[CERCLIS LIENS](#)

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action:[RCRA CORRACTS](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Jan 1, 2024

RCRA non-CORRACTS TSD Facilities:[RCRA TSD](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites that have indicated engagement in the treatment, storage, or disposal of hazardous waste which requires a RCRA hazardous waste permit.

Government Publication Date: Jan 1, 2024

RCRA Generator List:[RCRA LQG](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Jan 1, 2024

RCRA Small Quantity Generators List:[RCRA SQG](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Jan 1, 2024

RCRA Very Small Quantity Generators List:[RCRA VSQG](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Jan 1, 2024

RCRA Non-Generators:[RCRA NON GEN](#)

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Jan 1, 2024

RCRA Sites with Controls:[RCRA CONTROLS](#)

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Jan 1, 2024

Federal Engineering Controls-ECs:[FED ENG](#)

List of Engineering controls (ECs) made available by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Feb 29, 2024

Federal Institutional Controls- ICs:[FED INST](#)

List of Institutional controls (ICs) made available by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Feb 29, 2024

Land Use Control Information System:

LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites:

NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: Dec 26, 2023

Emergency Response Notification System:

ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System:

ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System:

ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Feb 20, 2024

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database:

FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Feb 7, 2024

FEMA Underground Storage Tank Listing:

FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan:

FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: May 2, 2023

Delisted Facility Response Plans:

DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: May 2, 2023

Historical Gas Stations:**HIST GAS STATIONS**

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries:**REFN**

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Feb 28, 2024

Petroleum Product and Crude Oil Rail Terminals:**BULK TERMINAL**

A list of petroleum product and crude oil rail terminals from the U.S. Energy Information Administration (EIA), as well as petroleum terminals sourced from the Federal Communications Commission Data hosted by the Homeland Infrastructure Foundation-Level Database. Data includes operable bulk petroleum product terminals with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil with activity between 2017 and 2018. EIA petroleum product terminal data comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings.

Government Publication Date: Sep 22, 2023

LIEN on Property:**SEMS LIEN**

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Jan 26, 2024

Superfund Decision Documents:**SUPERFUND ROD**

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Dec 26, 2023

Formerly Utilized Sites Remedial Action Program:**DOE FUSRAP**

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

State**Hazardous Sites Response Actions Site List:****SHWS**

List of hazardous sites response actions that have been taken since the enactment of the Hazardous Sites Cleanup Act (HSCA) on October 18, 1988. The information in this list is derived from the Department of Environmental Protection (DEP)'s Environment, Facility, Application and Compliance Tracking System (eFACTS). This database is state equivalent NPL.

Government Publication Date: Apr 18, 2024

Delisted Hazardous Sites Response Actions Site List:**DELISTED SHWS**

This list contains the records removed from the Pennsylvania Department of Environmental Protection (DEP)'s Environment, Facility, Application and Compliance Tracking System (eFACTS) database.

Government Publication Date: Apr 18, 2024

HSCA Remedial Sites:**HSCA**

List of remedial sites where the Pennsylvania Department of Environmental Protection (DEP) has performed a cleanup under the Hazardous Sites Cleanup Act (HSCA). The Hazardous Sites Cleanup Act (HSCA) provides DEP with the funding and authority to conduct cleanup actions at hazardous substance release sites. This sites are state equivalent of federal Superfund sites. This database is state equivalent NPL.

Solid Waste Facilities:

SWF

The Pennsylvania Department of Environmental Protection (DEP) Bureau of Waste Management maintains Residual Waste Operation facilities and their subcategories, as well as Municipal Waste Operation facilities and their subcategories. Residual waste is waste generated at a mining, industrial, or wastewater treatment facility. A Municipal Waste Operation is a DEP primary facility type related to the Waste Management Municipal Waste Program.

Government Publication Date: Aug 29, 2023

Underground Storage Tank Releases:

LUST

List of confirmed release incidents that have been reported to the Pennsylvania Department of Environmental Protection (DEP) since enactment of the Storage Tank and Spill Prevention Act (Tank Act) in July, 1989. These release incidents represent leaks, spills, and overfills which have occurred from underground storage tank systems regulated by the Tank Act.

Government Publication Date: Apr 9, 2024

Unregulated Storage Tank Releases:

LST UNREG

List of confirmed release incidents that have been reported to the Pennsylvania Department of Environmental Protection (DEP) since enactment of the Storage Tank and Spill Prevention Act (Tank Act) in July, 1989. These release incidents represent leaks, spills, and overfills which have occurred from unregulated storage tank systems.

Government Publication Date: Apr 9, 2024

Aboveground Storage Tank Releases:

LAST

List of confirmed release incidents that have been reported to the Pennsylvania Department of Environmental Protection (DEP) since enactment of the Storage Tank and Spill Prevention Act (Tank Act) in July, 1989. These release incidents represent leaks, spills, and overfills which have occurred from aboveground storage tank systems regulated by the Tank Act.

Government Publication Date: Apr 9, 2024

Delisted Leaking Storage Tanks:

DELISTED LST

This database contains a list of leaking storage tank sites that were removed from the Pennsylvania Department of Environmental Protection (DEP) since enactment of the Storage Tank and Spill Prevention Act (Tank Act) in July, 1989.

Government Publication Date: Apr 9, 2024

Underground Storage Tanks:

UST

This list of underground storage tanks (UST) is provided by the Pennsylvania Department of Environmental Protection (DEP). The listing includes UST records from the DEP's Storage Tank Inventory Reports, Active and Inactive Tank Search Applications, and the DEP's eMapPA mapping tool.

Government Publication Date: Feb 26, 2024

Aboveground Storage Tanks:

AST

This list of registered aboveground storage tanks (AST) is provided by the Pennsylvania Department of Environmental Protection (DEP). The listing includes AST records from the DEP's Storage Tank Inventory Reports, Active and Inactive Tank Search Applications, and the DEP's eMapPA mapping tool. Aboveground tank systems storing highly hazardous substances, or aboveground tank systems with capacities greater than 21,000 gallon are not included. Home heating oil tanks are not regulated and are also not part of this list.

Government Publication Date: Feb 26, 2024

Storage Tanks:

TANKS

This list of storage tanks is provided by the Pennsylvania Department of Environmental Protection (DEP). The listing includes records from the DEP's Storage Tank Inventory Reports, Active and Inactive Tank Search Applications, and the DEP's eMapPA mapping tool. Aboveground tank systems storing highly hazardous substances, or aboveground tank systems with capacities greater than 21,000 gallon are not included. Home heating oil tanks are not regulated and are also not part of this list.

Government Publication Date: Feb 26, 2024

Tank Facilities Not Currently Registered:

UNREG TANK

List of tanks not currently registered with the Pennsylvania Department of Environmental Protection (PA DEP). Facilities may appear on this list if tanks have been removed, permanently closed in place, closed without a permit, or under other circumstances. This list is made available by PA DEP.

Government Publication Date: Jan 25, 2024

Delisted Tanks:

DEL TANK

Locations of closed or removed tanks which are no longer actively registered with the Pennsylvania Department of Environmental Protection (DEP). The Pennsylvania Department of Environmental Protection (DEP)'s eFACTS (Environment, Facility, Application, Compliance Tracking System) database contains records of active, registered aboveground and underground storage tanks. This list represents tanks which have been removed since Oct 9, 2013.

Government Publication Date: Feb 26, 2024

Engineering Controls:

ENG

List of sites with engineering controls recorded by the Pennsylvania Department of Environmental Protection (DEP)'s Land Recycling and Environmental Cleanup program prior to the implementation of the Pennsylvania Activity and Use Limitation Registry in 2008. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Government Publication Date: May 2008

Institutional Controls:

INST

List of sites with institutional controls recorded by the Pennsylvania Department of Environmental Protection (DEP)'s Land Recycling and Environmental Cleanup program prior to the implementation of the Pennsylvania Activity and Use Limitation Registry in 2008. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Government Publication Date: May 2008

Environmental Covenants Listing:

AUL

List of sites where any type of Activity and Use Limitations (AUL) has been imposed and of which the Pennsylvania Department of Environmental Protection (DEP) has been informed. The DEP is required under the Uniform Environmental Covenants Act (UECA) to obtain a registry of environmental covenants.

Government Publication Date: Feb 20, 2024

Voluntary Cleanup Program:

VCP

The Pennsylvania Department of Environmental Protection (DEP) Land Recycling Program encourages the voluntary cleanup and reuse of contaminated commercial and industrial sites. The VCP inventory or the Act 2 - Site Lists includes Completed Sites, Sites in Progress and Act 2 Non-Use Aquifer Determination sites recorded by DEP. This list also includes layers from the eMapPA.

Government Publication Date: Jun 21, 2023

Brownfields:

BROWNFIELDS

Sites included in the Pennsylvania Department of Community & Economic Development Brownfields site search. Brownfields are typically former industrial or commercial properties that have some sort of environmental contamination. Information in the directory is provided voluntarily by property owners and community redevelopment organizations.

Government Publication Date: Jan 24, 2024

Brownfields Success:

BROWNF SUCCESS

This listing of brownfields success stories includes a list of highlighted sites that have successfully undergone remediation. This list is managed by the Pennsylvania Department of Environmental Protection.

Government Publication Date: Oct 19, 2021

eFACTS Environmental Cleanup & Brownfields:

CLEANUP EFACTS

Environmental Cleanup & Brownfields sites listed in Pennsylvania's Environment Facility Application Compliance Tracking System (eFACTS), made available by the Pennsylvania Department of Environmental Protection (DEP). Includes leaks from unregulated and home heat fuel tanks.

Government Publication Date: Nov 9, 2023

Delisted Environmental Cleanup & Brownfields from eFACTS:

DELISTED ECBF

Sites which once appeared in - and have since been removed from - Pennsylvania's Environment Facility Application Compliance Tracking System (eFACTS) Environmental Cleanup & Brownfields sites search, made available by the Pennsylvania Department of Environmental Protection (DEP). The Environmental Cleanup & Brownfields sites search includes leaks from unregulated and home heat fuel tanks.

Government Publication Date: Nov 9, 2023

Tribal

Leaking Underground Storage Tanks (LUSTs) on Tribal/Indian Lands:

INDIAN LUST

This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 3, which includes Pennsylvania, is made available by the United States Environmental Protection Agency (EPA). There are no federally recognized Tribes in Pennsylvania, according to the U.S. Department of Interior, Bureau of Indian Affairs.

Government Publication Date: May 4, 2018

Underground Storage Tanks (USTs) on Indian Lands:

INDIAN UST

This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 3, which includes Pennsylvania, is made available by the United States Environmental Protection Agency (EPA). There are no federally recognized Tribes in Pennsylvania, according to the U.S. Department of Interior, Bureau of Indian Affairs.

Government Publication Date: May 4, 2018

Delisted Tribal Leaking Storage Tanks:

DELISTED INDIAN LST

Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Oct 25, 2023

Delisted Tribal Underground Storage Tanks:

DELISTED INDIAN UST

Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Oct 25, 2023

County

No County standard environmental record sources available for this State.

Additional Environmental Record Sources**Federal****PFAS Greenhouse Gas Emissions Data:**

PFAS GHG

The U.S. Environmental Protection Agency's Greenhouse Gas Reporting Program (GHGRP) collects Greenhouse Gas (GHG) data from large emitting facilities (25,000 metric tons of carbon dioxide equivalent (CO₂e) per year), and suppliers of fossil fuels and industrial gases that results in GHG emissions when used. Includes GHG emissions data for facilities that emit or have emitted since 2010 chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures by DSSTox. PFAS emissions data has been identified for facilities engaged in the following industrial processes: Aluminum Production (GHGRP Subpart F), HCFC-22 Production and HFC-23 Destruction (Subpart O), Electronics Manufacturing (Subpart I), Fluorinated Gas Production (Subpart L), Magnesium Production (Subpart T), Electrical Transmission and Distribution Equipment Use (Subpart DD), and Manufacture of Electric Transmission and Distribution Equipment (Subpart SS). Over time, other industrial processes with required GHGRP reporting may include PFAS emissions data and the list of reportable gases may change over time.

Government Publication Date: Feb 5, 2024

Facility Registry Service/Facility Index:

FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Feb 9, 2024

Toxics Release Inventory (TRI) Program:

TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment. This database includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

PFOA/PFOS Contaminated Sites:

[PFAS NPL](#)

This list of Superfund Sites with Per- and Polyfluoroalkyl Substances (PFAS) detections is made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data, previously the list was obtained by EPA FOIA requests. EPA's Office of Land and Emergency Management and EPA Regional Offices maintain what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment. Limitations: Detections of PFAS at National Priorities List (NPL) sites do not mean that people are at risk from PFAS, are exposed to PFAS, or that the site is the source of the PFAS. The information in the Superfund NPL and Superfund Alternative Agreement (SAA) PFAS detection site list is years old and may not be accurate today. Site information such as site name, site ID, and location has been confirmed for accuracy; however, PFAS-related information such as media sampled, drinking water being above the health advisory, or mitigation efforts has not been verified. For Federal Facilities data, the other Federal agencies (OFA) are the lead agency for their data and provided them to EPA.

Government Publication Date: Mar 19, 2024

Federal Agency Locations with Known or Suspected PFAS Detections:

[PFAS FED SITES](#)

List of Federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS), made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data. EPA outlines that these data are gathered from several federal entities, such as the Federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration, Department of Transportation, and Department of Energy. The dates this data was extracted for the PFAS Analytic Tools range from March 2022 to September 2023. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: Sep 5, 2023

SSEHRI PFAS Contamination Sites:

[PFAS SSEHRI](#)

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map, credited to the Northeastern University's PFAS Project Lab, Silent Spring Institute, and the PFAS-REACH team. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: <https://pfasproject.com/pfas-sites-and-community-resources/>

Government Publication Date: May 19, 2023

National Response Center PFAS Spills:

[ERNS PFAS](#)

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, is the designated federal point of contact for reporting all oil, chemical, and other discharges into the environment, for the United States and its territories. This dataset contains NRC spill information from 1990 to the present that is restricted to records associated with PFAS and PFAS-containing materials. Incidents are filtered to include only records with a "Material Involved" or "Incident Description" related to Aqueous Film Forming Foam (AFFF). The keywords used to filter the data included "AFFF," "Fire Fighting Foam," "Aqueous Film Forming Foam," "Fire Suppressant Foam," "PFAS," "PERFL," "PFOA," "PFOS," and "Genx." Limitations: The data from the NRC website contains initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Jan 24, 2024

PFAS NPDES Discharge Monitoring:

[PFAS NPDES](#)

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Feb 19, 2024

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory:

[PFAS TRI](#)

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment. This listing includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

Perfluorinated Alkyl Substances (PFAS) Water Quality:

PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

PFAS TSCA Manufacture and Import Facilities:

PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest :

PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Feb 25, 2024

PFAS Industry Sectors:

PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Dec 4, 2023

Hazardous Materials Information Reporting System:

HMIRS

The Hazardous Materials Incident Reporting System (HMIRS) database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Government Publication Date: Nov 26, 2023

National Clandestine Drug Labs:

NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Nov 30, 2023

Toxic Substances Control Act:[TSCA](#)

The U.S. Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule. The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI). EPA CDR collections occur approximately every four years and reporting requirements change per collection.

Government Publication Date: May 12, 2022

Hist TSCA:[HIST TSCA](#)

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing:[FTTS ADMIN](#)

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing:[FTTS INSP](#)

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List:[PRP](#)

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Jan 26, 2024

State Coalition for Remediation of Drycleaners Listing:[SCRD DRYCLEANER](#)

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS):[ICIS](#)

The Integrated Compliance Information System (ICIS) database contains integrated enforcement and compliance information across most of U.S. Environmental Protection Agency's (EPA) programs. The vision for ICIS is to replace EPA's independent databases that contain enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions and a subset of the Permit Compliance System (PCS), which supports the National Pollutant Discharge Elimination System (NPDES). This information is maintained by the EPA Headquarters and at the Regional offices. A future release of ICIS will completely replace PCS and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities that support compliance and enforcement programs, including incident tracking, compliance assistance, and compliance monitoring.

Government Publication Date: Aug 26, 2023

Drycleaner Facilities:[FED DRYCLEANERS](#)

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Jan 20, 2024

Delisted Drycleaner Facilities:

DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Jan 20, 2024

Formerly Used Defense Sites:

FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset which applies to the Fiscal Year 2021 FUDS Inventory.

Government Publication Date: May 15, 2023

FUDS Munitions Response Sites:

FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: May 15, 2023

Former Military Nike Missile Sites:

FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents:

PIPELINE INCIDENT

This list of flagged pipeline incidents is made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types. Accidents reported on hazardous liquid gravity lines (§195.13) and reporting-regulated-only hazardous liquid gathering lines (§195.15) and incidents reported on Type R gas gathering (§192.8(c)) are not included in the flagged incident file data.

Government Publication Date: Nov 6, 2023

Material Licensing Tracking System (MLTS):

MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites:

HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File:

MINES

The Master Index File (MIF) is provided by the United States Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Feb 5, 2024

Surface Mining Control and Reclamation Act Sites:

SMCRA

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This inventory contains information on the type and extent of Abandoned Mine Land (AML) impacts, as well as information on the cost associated with the reclamation of those problems. The data is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed. Disclaimer: Per the OSMRE, States and tribes who enter their data into eAMLIS (AML Inventory System) may truncate their latitude and longitude so the precise location of usually dangerous AMLs is not revealed in an effort to protect the public from searching for these AMLs, most of which are on private property. If more precise location information is needed, please contact the applicable state/tribe of interest.

Government Publication Date: Jun 13, 2023

Mineral Resource Data System:

MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites:

LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Title II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: Dec 12, 2023

Alternative Fueling Stations:

ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.

Government Publication Date: Nov 27, 2023

Superfunds Consent Decrees:

CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS) since 2010. CMS may not reflect the latest developments in a case nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Apr 19, 2023

Air Facility System:

AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments:

SSTS

This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Mar 1, 2023

Polychlorinated Biphenyl (PCB) Transformers:

PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers:

PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Oct 30, 2023

State

Spills:

SPL

Pennsylvania Department of Environmental Protection (PA DEP) Emergency Response Spills Report: a listing of spills or releases of hazardous materials. The PA DEP provides for emergency response capability for spills, accidents and other releases of hazardous substances and contaminants. In response to emergencies and spills, DEP takes actions that it deems necessary or appropriate to protect the public health, safety or welfare or the environment from releases or threats of releases of hazardous materials. Some records provided by the PA DEP have been redacted to prevent the risk of potentially identifying a complainants identity.

Government Publication Date: Mar 6, 2024

Dry Cleaning Facilities:

DRYCLEANERS

Registered dry cleaner facilities tracked by the Bureau of Air Quality of the Department of Environmental Protection (DEP).

Government Publication Date: Mar 12, 2024

Delisted Drycleaners:

DELISTED DRYCLEANERS

List of sites removed from the permitted drycleaners database made available by the Bureau of Air Quality of the Pennsylvania Department of Environmental Protection (DEP).

Government Publication Date: Mar 12, 2024

PFC Sites Under DEP Investigation:

PFAS

List of sites being investigated by the Pennsylvania Department of Environmental Protection (PA DEP) for Perfluorinated Chemicals (PFC), Perfluoroalkyl and polyfluoroalkyl substances (PFAS). PA DEP is working closely with public water systems and local governments across the Commonwealth to address these emerging contaminants.

Government Publication Date: Oct 30, 2023

Air Permitted Facilities:

AIR PERMITS

List of Pennsylvania Department of Environmental Protection (DEP) Air Quality facilities included in the annual point-source emissions inventory program.

Government Publication Date: Apr 3, 2024

Underground Injection Control Wells:

UIC

A partial list of underground injection control wells is maintained by the Pennsylvania Department of Environmental Protection (DEP). The DEP maintains a list of Class II enhanced recovery and brine disposal wells.

Government Publication Date: Jan 26, 2024

Tribal

No Tribal additional environmental record sources available for this State.

County

No County additional environmental record sources available for this State.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



Property Information

Order Number:	24042400518p
Date Completed:	April 25, 2024
Project Number:	203402183 Task 177.3
Project Property:	Clay Creek Garden Station Rd London Grove PA
Coordinates:	
Latitude:	39.80893155
Longitude:	-75.79081719
UTM Northing:	4406789.48515 Meters
UTM Easting:	432369.067855 Meters
UTM Zone:	UTM Zone 18S
Elevation:	276.38 ft
Slope Direction:	SE

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Geologic Information.....	15
Soil Information.....	17
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Appendix.....	199
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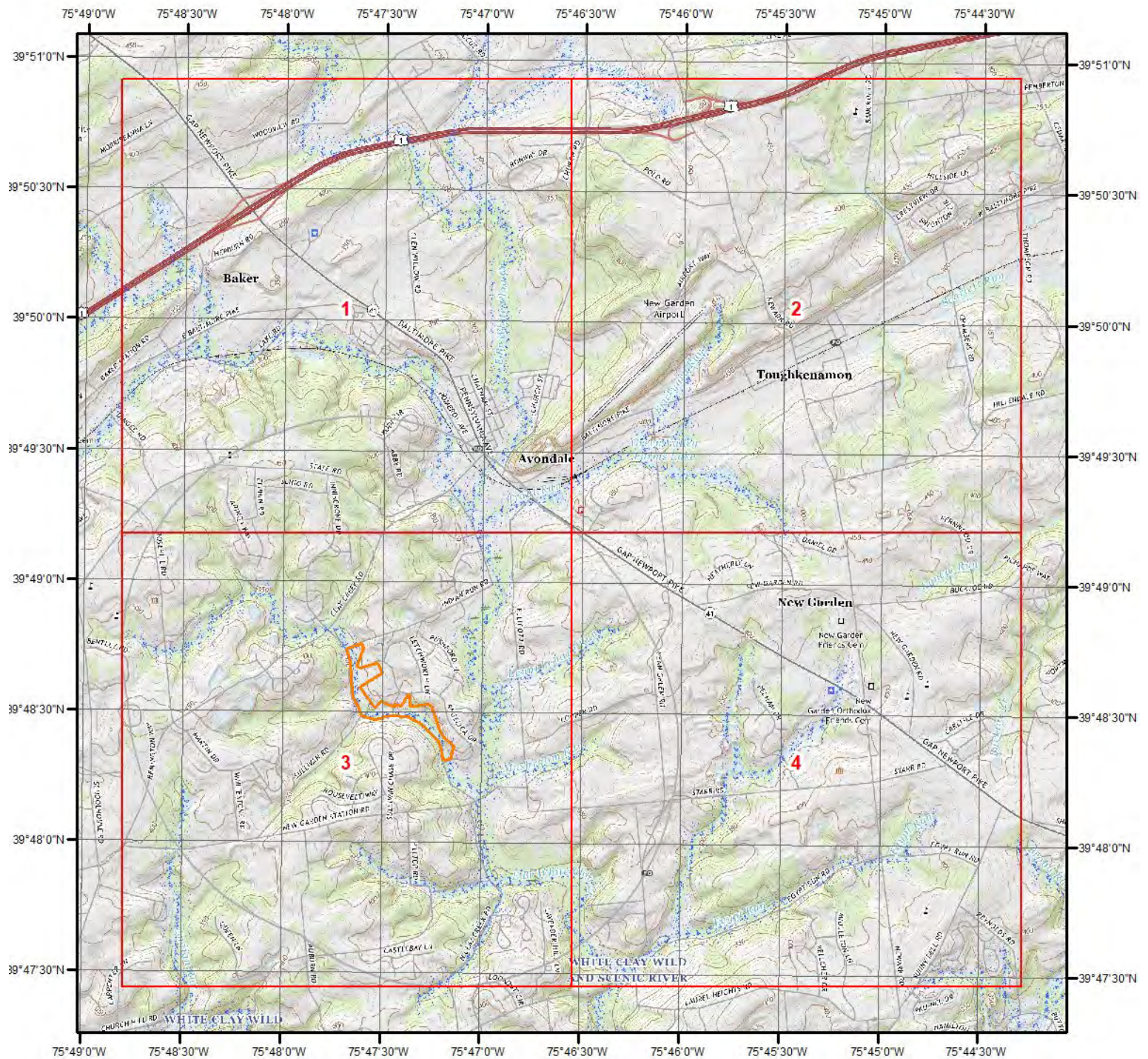
The ERIS **Physical Setting Report - PSR** provides comprehensive information about the physical setting around a site and includes a complete overview of topography and surface topology, in addition to hydrologic, geologic and soil characteristics. The location and detailed attributes of oil and gas wells, water wells, public water systems and radon are also included for review.

The compilation of both physical characteristics of a site and additional attribute data is useful in assessing the impact of migration of contaminants and subsequent impact on soils and groundwater.

Disclaimer

This Report does not provide a full environmental evaluation for the site or adjacent properties. Please see the terms and disclaimer at the end of the Report for greater detail.

Topographic Information



Current USGS Topo (2019)

0 0.2 0.4 0.8 1.2 1.6 Miles

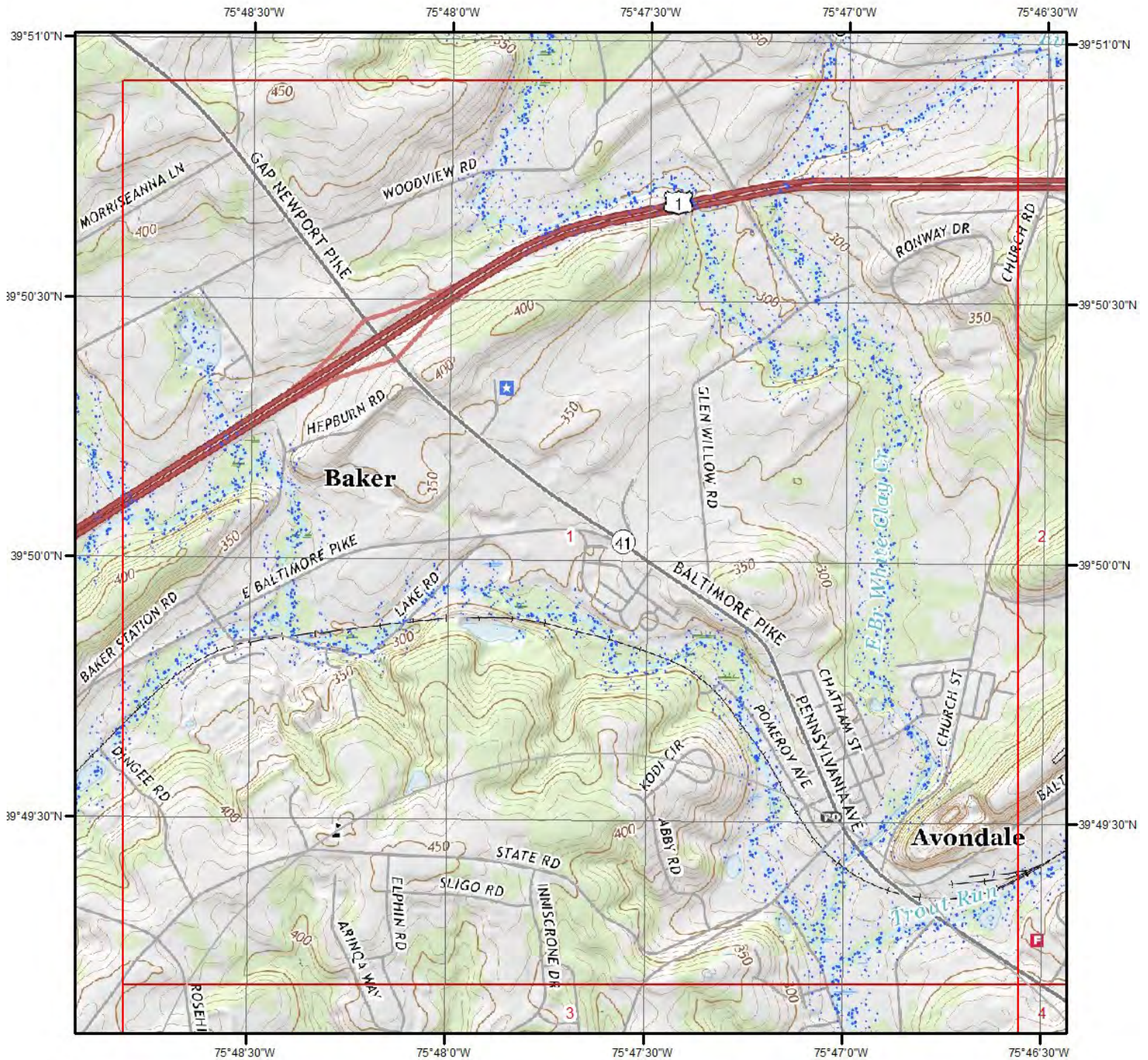


**Quadrangle(s): Kennett Square,PA; West Grove,PA; Unionville,PA;
Coatesville,PA; Parkesburg,PA; Newark West,DE; Oxford,PA; Newar**



Source: USGS 7.5 Minute Topographic Map

Topographic Information



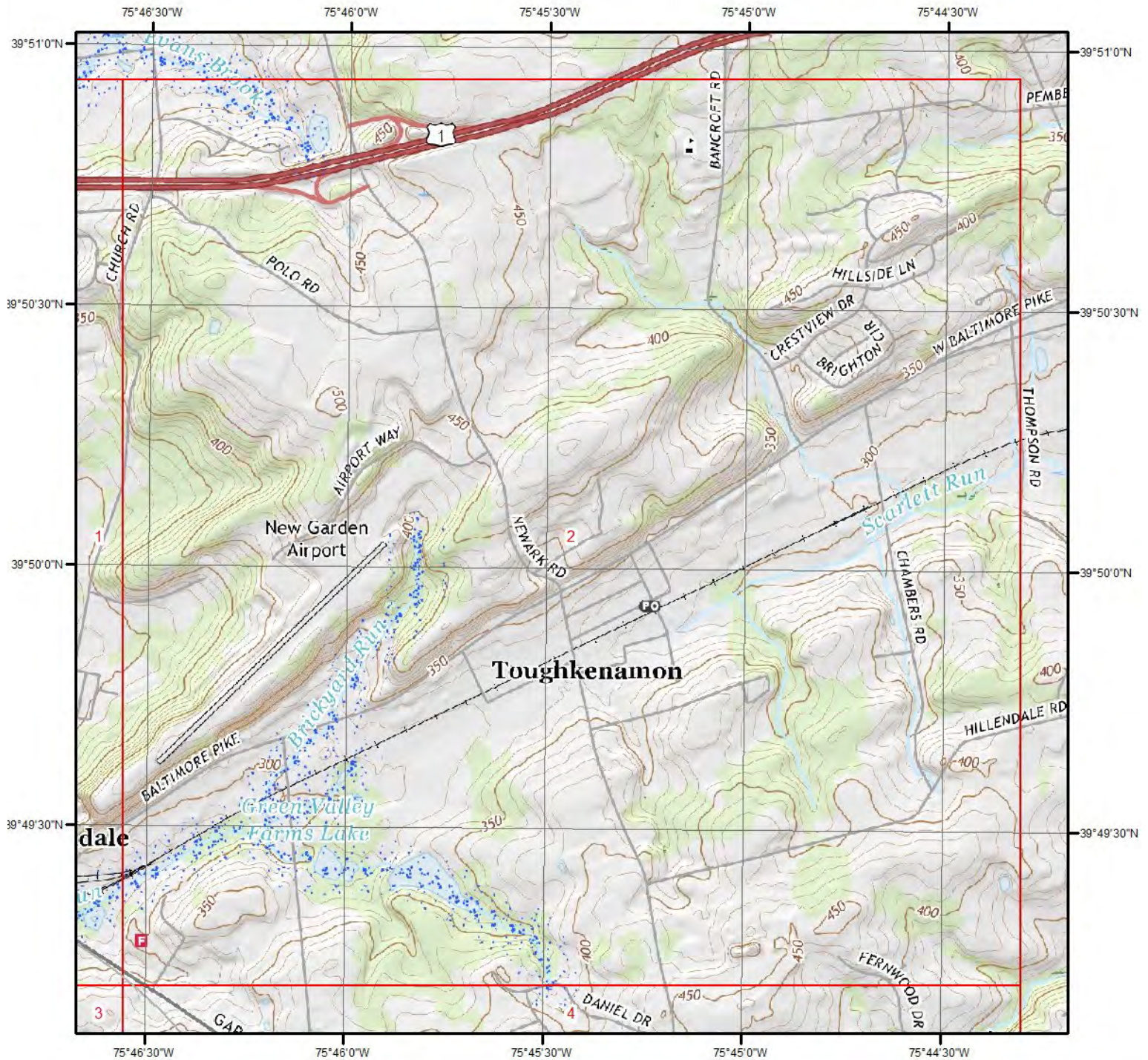
Current USGS Topo - Page 1

Quadrangle(s): West Grove, PA

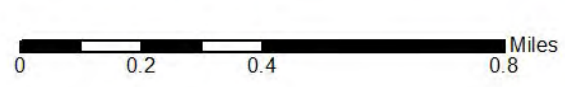
Source: USGS 7.5 Minute Topographic Map



Topographic Information



Current USGS Topo - Page 2

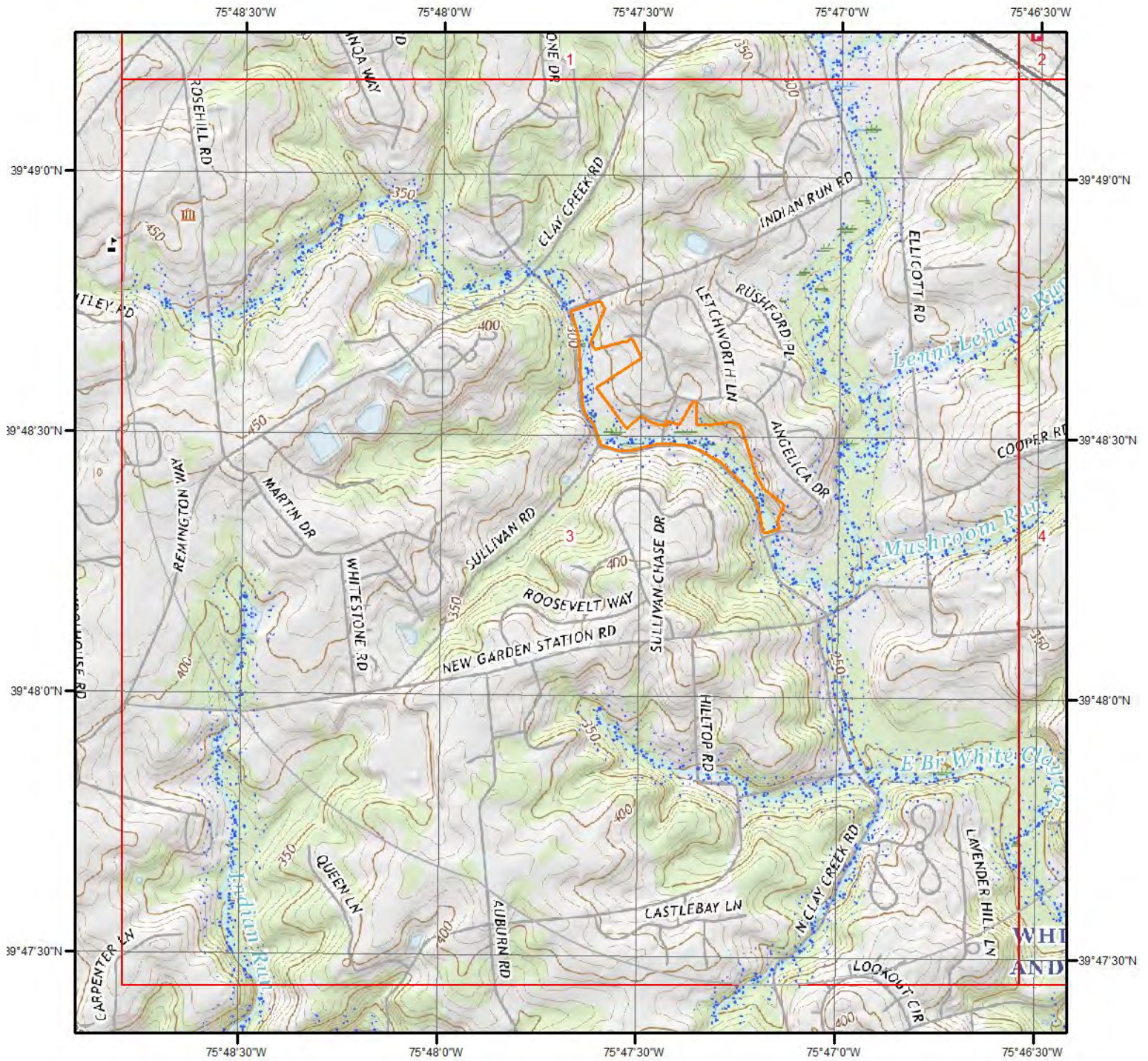


Quadrangle(s): Kennett Square, PA; West Grove, PA

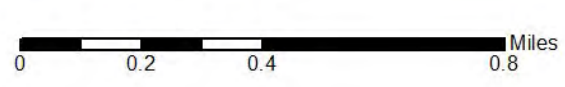
Source: USGS 7.5 Minute Topographic Map



Topographic Information



Current USGS Topo - Page 3



Quadrangle(s): West Grove, PA

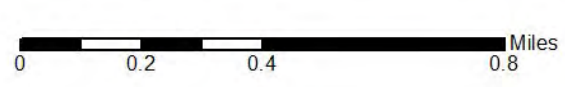
Source: USGS 7.5 Minute Topographic Map



Topographic Information



Current USGS Topo - Page 4



Quadrangle(s): Kennett Square, PA; West Grove, PA

Source: USGS 7.5 Minute Topographic Map

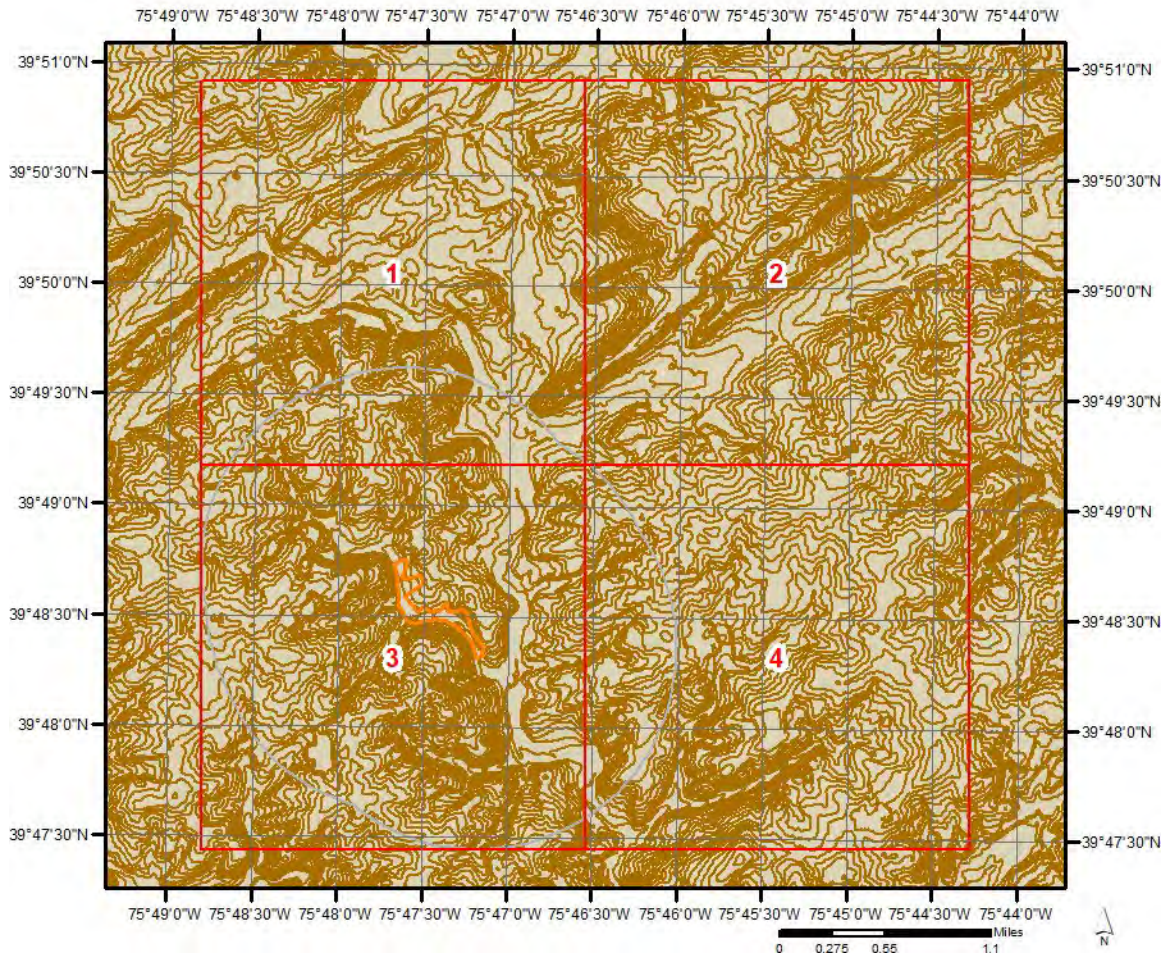


Topographic Information

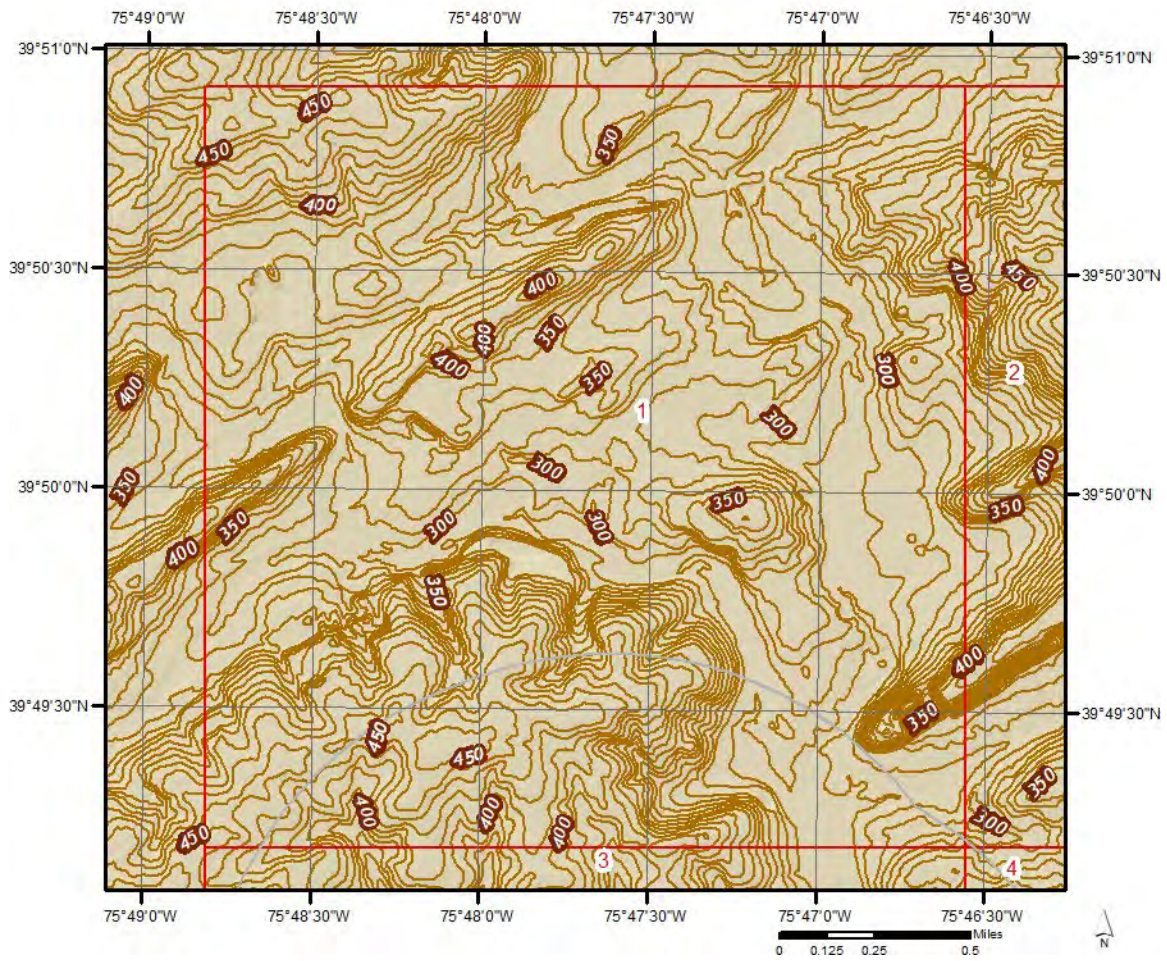
The previous topographic map(s) are created by seamlessly merging and cutting current USGS topographic data. Below are shaded relief map(s), derived from USGS elevation data to show surrounding topography in further detail.

Topographic information at project property:

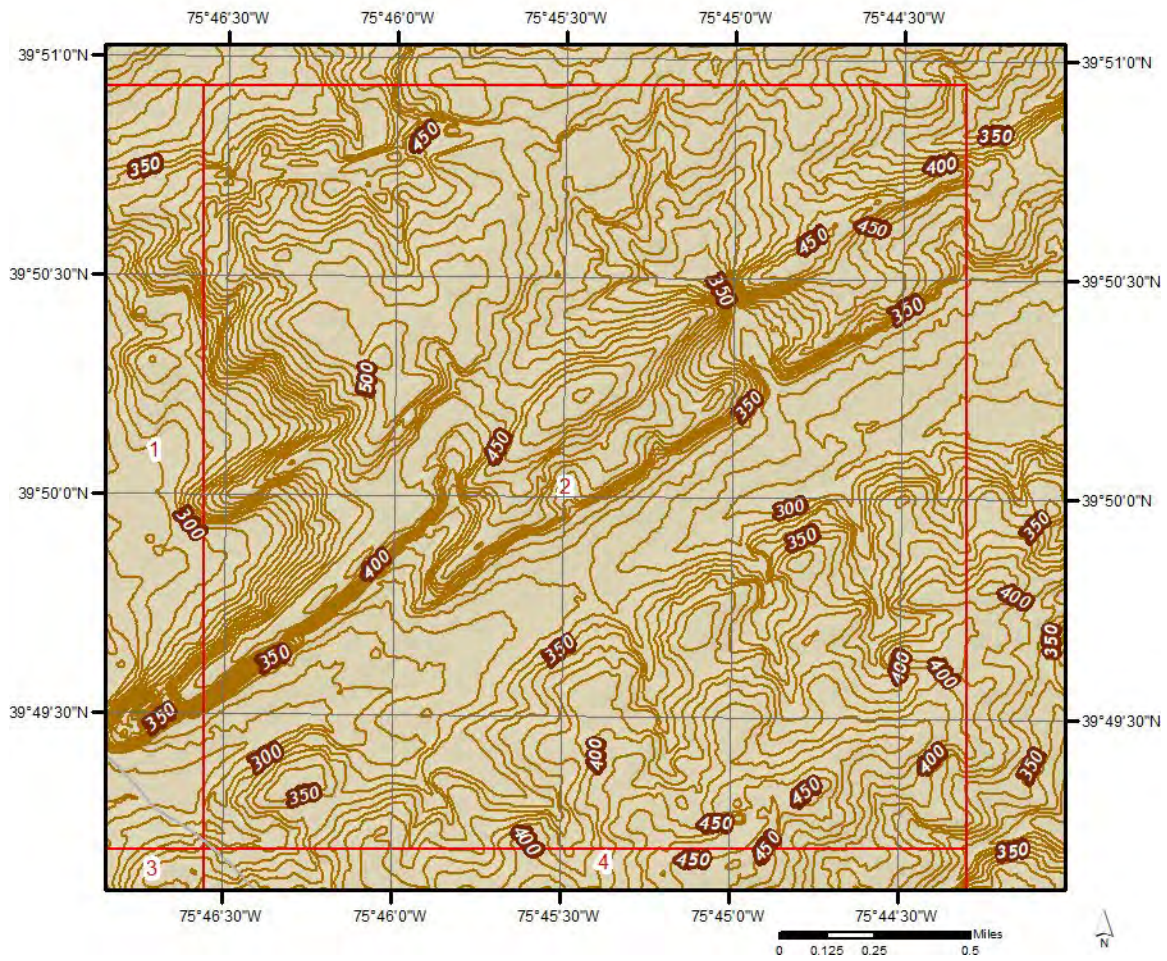
Elevation: 276.38 ft
Slope Direction: SE



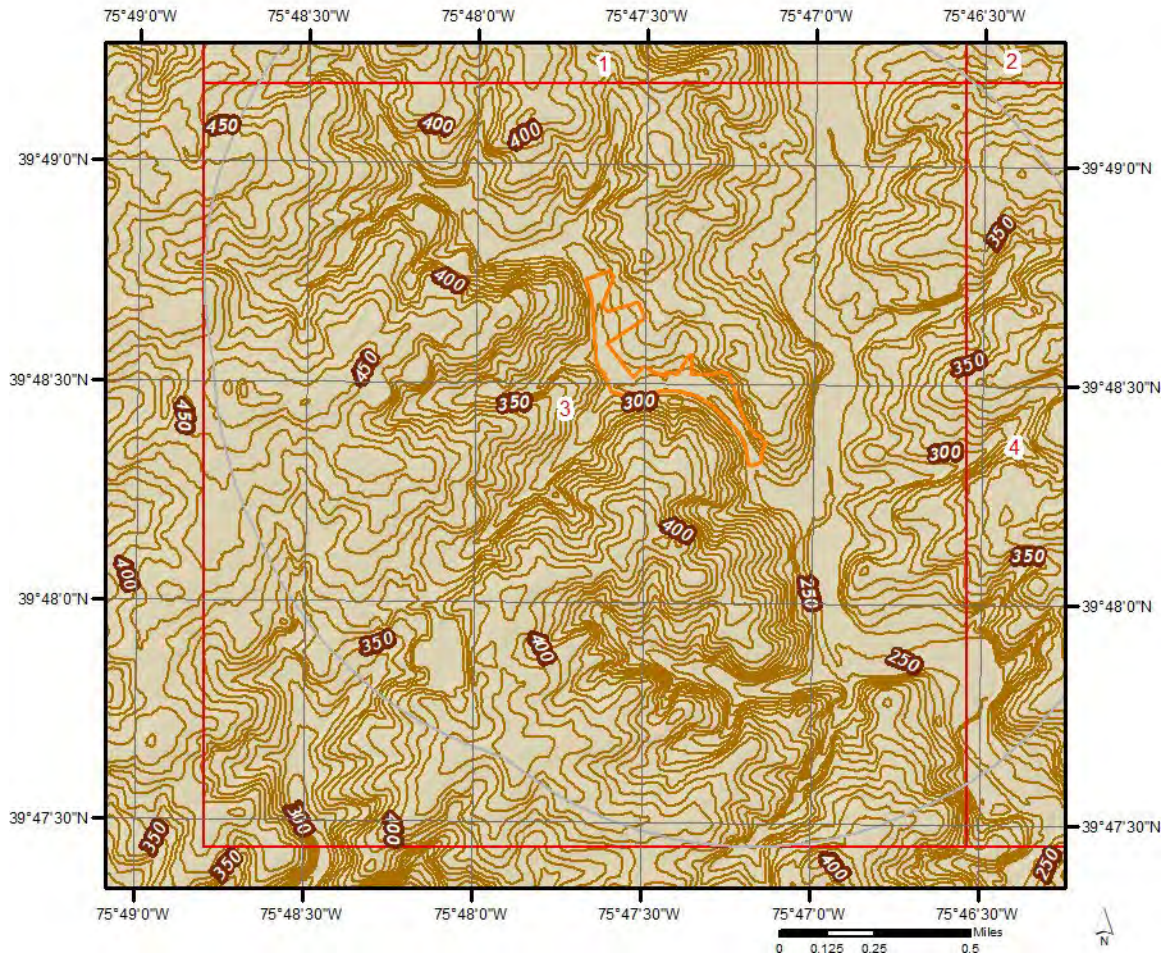
Topographic Information



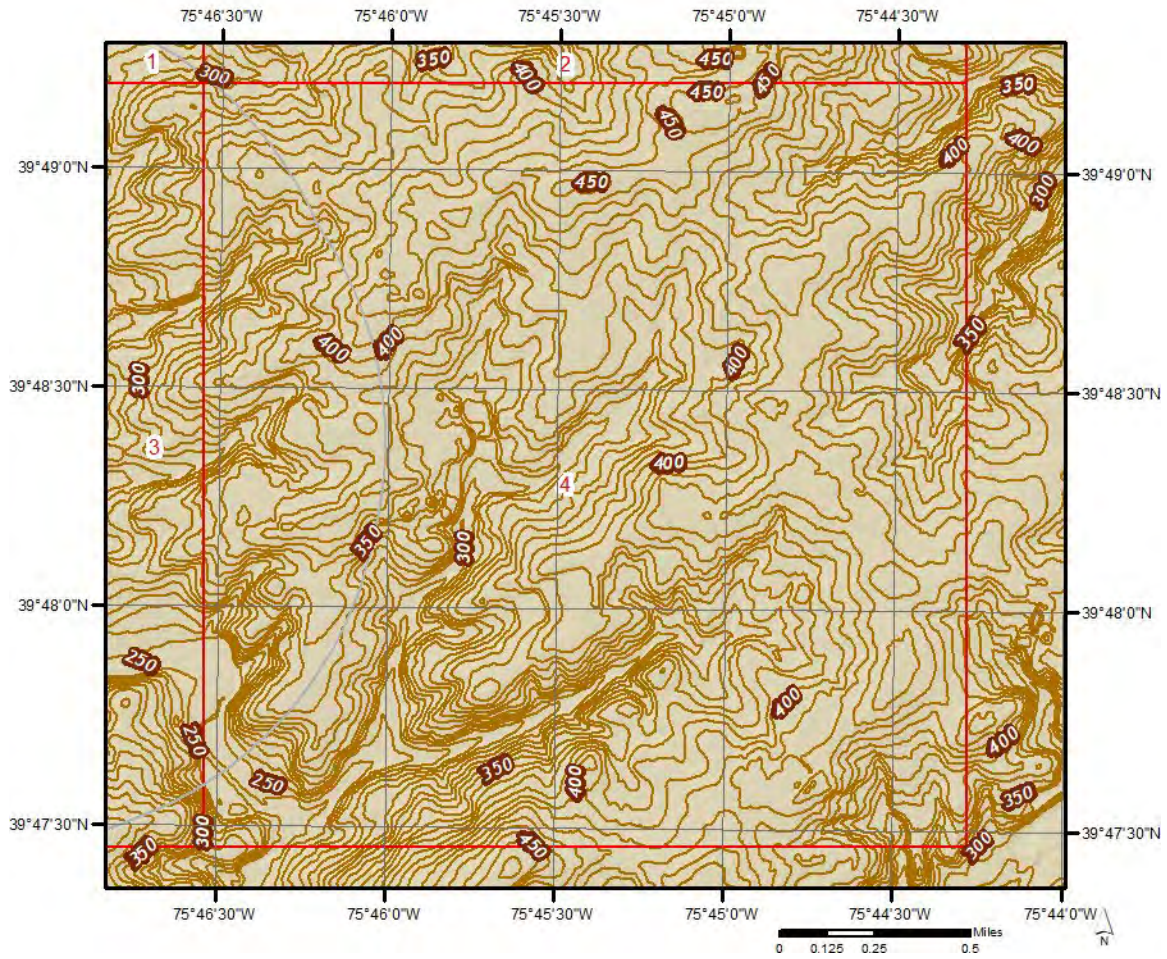
Topographic Information



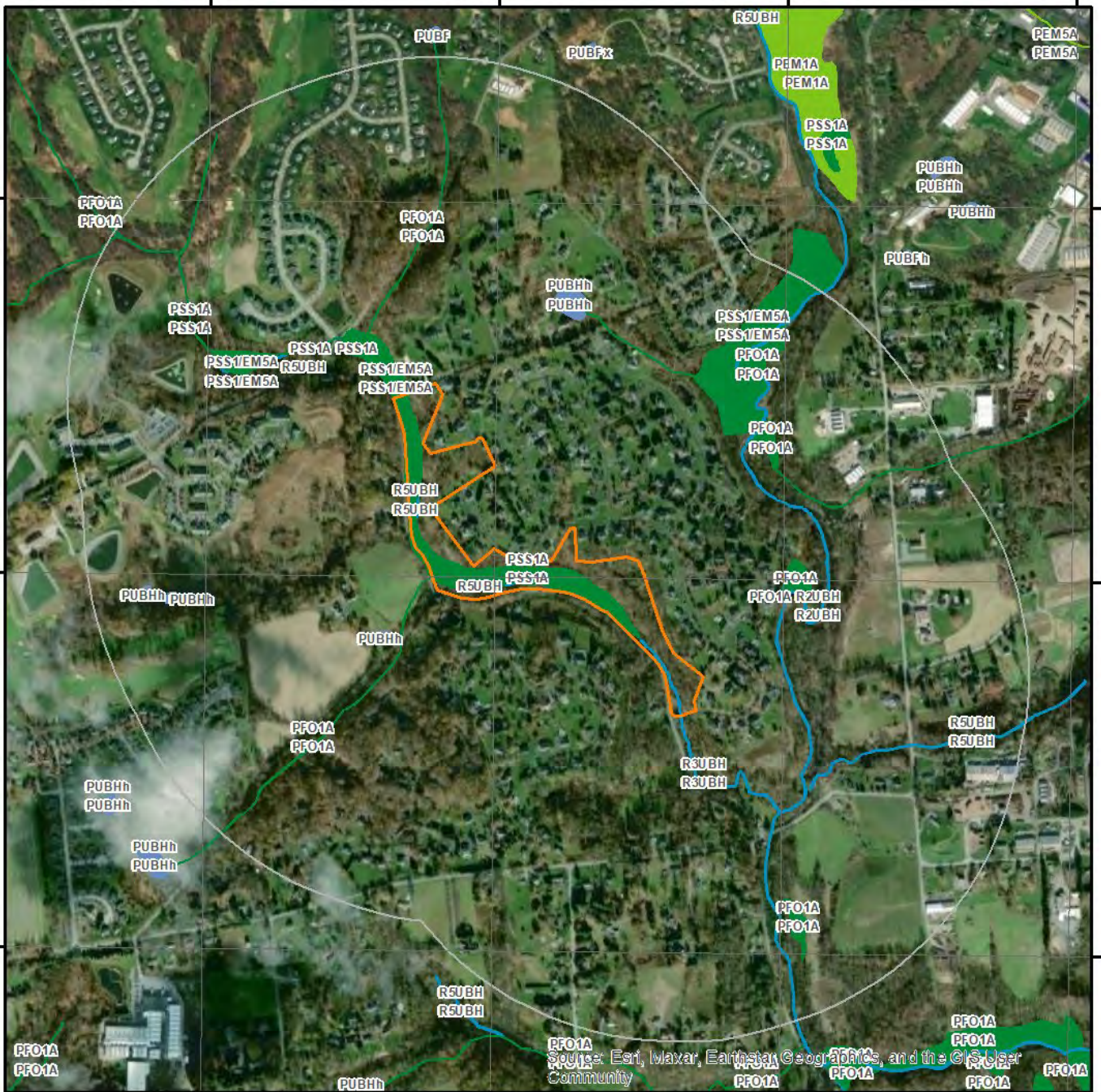
Topographic Information



Topographic Information

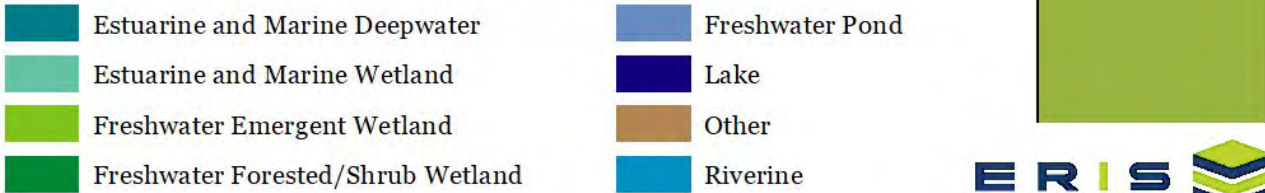


Hydrologic Information



Wetland

This map shows wetland existence using data from US Fish & Wildlife. Data coverage is shown to the right. Gray indicates no data available in the area.



ERIS 

Hydrologic Information



Flood Hazard Zones

This map shows FEMA flood hazard zones based on FEMA's National Flood Hazard Layer. FIRM Panels are overlaid. An absent FIRM panel represents no data available.

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard

- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area with Risk Due to Levee
- Open Water

Quadrangle(s): Kennett Square,PA; West Grove,PA; Unionville,PA; Coatesville,PA;



Hydrologic Information

The Wetland Type map shows wetland existence overlaid on an aerial imagery. The Flood Hazard Zones map shows FEMA flood hazard zones overlaid on an aerial imagery. Relevant FIRM panels and detailed zone information is provided below.

For detailed Zone descriptions please click the link: <https://floodadvocate.com/fema-zone-definitions>

Available FIRM Panels in area:

42029C0335G(effective:2017-09-29) 42029C0330G(effective:2017-09-29)
42029C0290G(effective:2017-09-29) 42029C0285G(effective:2017-09-29)
10003C0025J(effective:1996-04-17)

Flood Zone A-01

Zone: A

Zone subtype:

Flood Zone AE-01

Zone: AE

Zone subtype:

Flood Zone AE-11

Zone: AE

Zone subtype: FLOODWAY

Flood Zone X-01

Zone: X

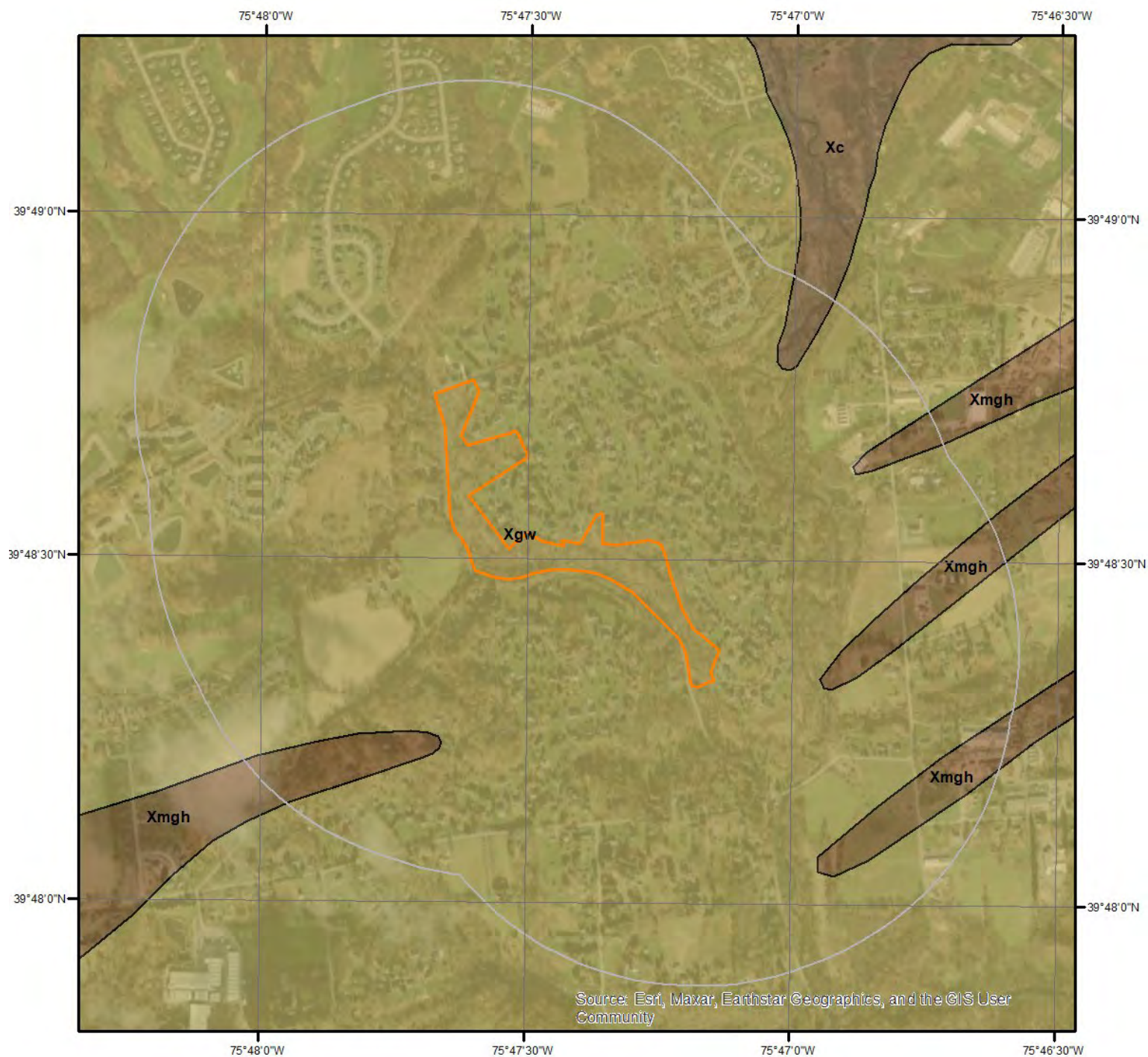
Zone subtype: 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

Flood Zone X-12

Zone: X

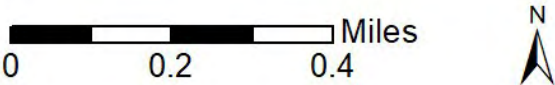
Zone subtype: AREA OF MINIMAL FLOOD HAZARD

Geologic Information



Geologic Units

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.



Geologic Information

The previous page shows USGS geology information. Detailed information about each unit is provided below.

Geologic Unit Xc

Unit Name:	Cockeysville Marble
Unit Age:	Probably lower Paleozoic
Primary Rock Type:	Marble
Secondary Rock Type:	
Unit Description:	White to light bluish gray, finely to coarsely crystalline.

Geologic Unit Xgw

Unit Name:	"Glenarm Wissahickon" formation
Unit Age:	Probably lower Paleozoic
Primary Rock Type:	Mica-schist
Secondary Rock Type:	
Unit Description:	Lithologically similar to oligoclase-mica schist of the Wissahickon Formation (PZw), but also includes lenticular amphibolite bodies having ocean-floor basalt chemistry.

Geologic Unit Xmgh

Unit Name:	Mafic gneiss
Unit Age:	Probably lower Paleozoic
Primary Rock Type:	Gneiss
Secondary Rock Type:	
Unit Description:	Dark, medium grained; includes rocks of probable sedimentary origin; may be equivalent to pCAMgh in places.

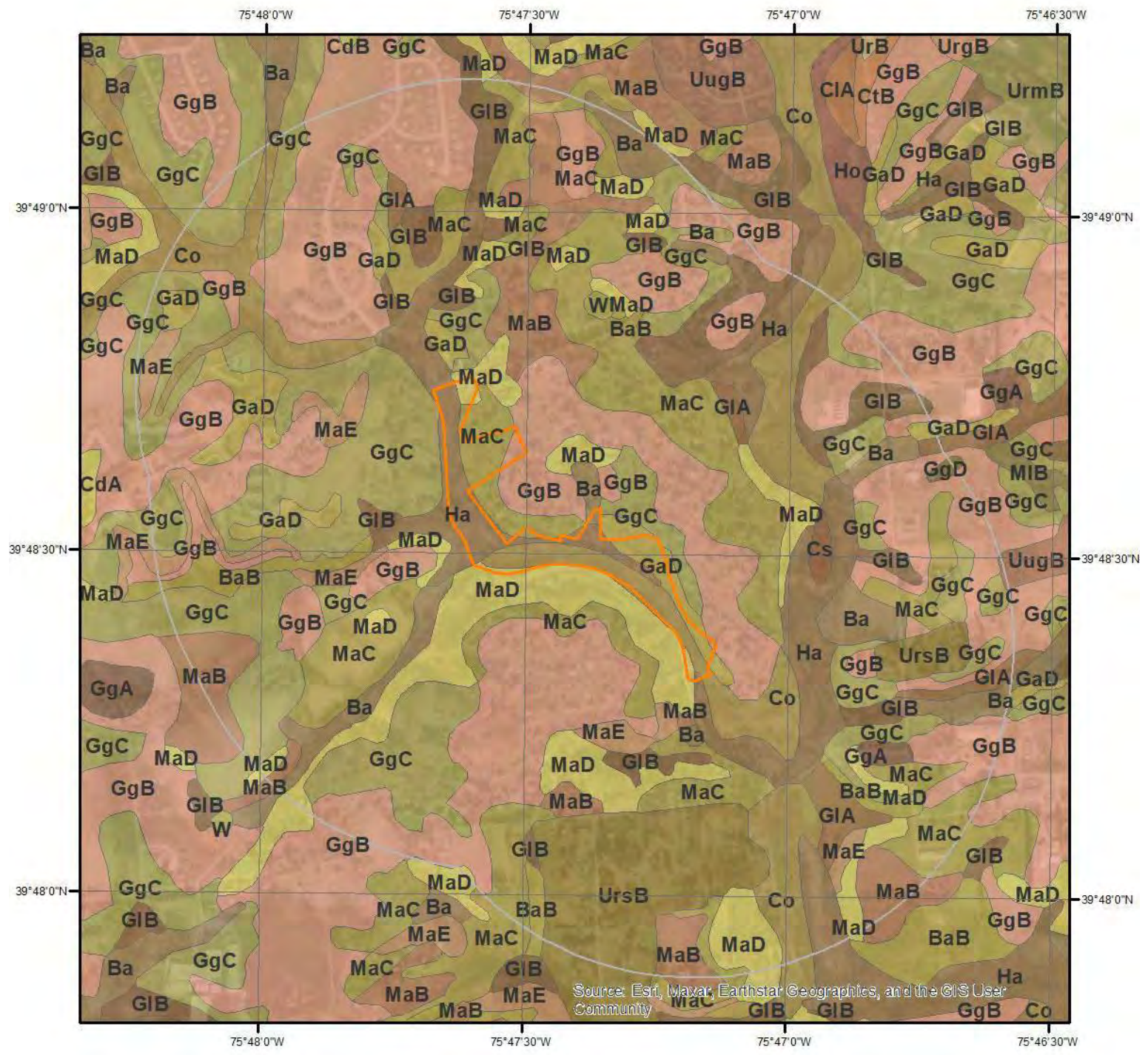
Geologic Unit Xmgh

Unit Name:	Mafic gneiss
Unit Age:	Probably lower Paleozoic
Primary Rock Type:	Gneiss
Secondary Rock Type:	
Unit Description:	Dark, medium grained; includes rocks of probable sedimentary origin; may be equivalent to pCAMgh in places.

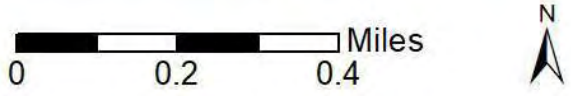
Geologic Unit Xmgh

Unit Name:	Mafic gneiss
Unit Age:	Probably lower Paleozoic
Primary Rock Type:	Gneiss
Secondary Rock Type:	
Unit Description:	Dark, medium grained; includes rocks of probable sedimentary origin; may be equivalent to pCAMgh in places.

Soil Information



SSURGO Soils



This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.



Soil Information

The previous page shows a soil map using SSURGO data from USDA Natural Resources Conservation Service. Detailed information about each unit is provided below.

Map Unit Ba (2.54%)

Map Unit Name:	Baile silt loam
Bedrock Depth - Min:	201cm
Watertable Depth - Annual Min:	8cm
Drainage Class - Dominant:	Poorly drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Baile(85%)

horizon Ap(0cm to 25cm)	Silt loam
horizon Btg(25cm to 102cm)	Silt loam
horizon Cg(102cm to 152cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Ba - Baile silt loam

Component: Baile (85%)

The Baile component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions, uplands. The parent material consists of local alluvium over residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, lithic, is 60 to 99 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Glenville (9%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Manor (2%)

Generated brief soil descriptions are created for major soil components. The Manor soil is a minor component.

Component: Chester (2%)

Generated brief soil descriptions are created for major soil components. The Chester soil is a minor component.

Component: Glenelg (2%)

Generated brief soil descriptions are created for major soil components. The Glenelg soil is a minor component.

Map Unit BaB (0.63%)

Map Unit Name:	Baile silt loam, 3 to 8 percent slopes
Bedrock Depth - Min:	201cm
Watertable Depth - Annual Min:	8cm
Drainage Class - Dominant:	Poorly drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Baile(85%)

horizon Ap(0cm to 25cm)	Silt loam
-------------------------	-----------

Soil Information

horizon Btg(25cm to 102cm)
horizon Cg(102cm to 152cm)

Silt loam
Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: BaB - Baile silt loam, 3 to 8 percent slopes

Component: Baile (85%)

The Baile component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on depressions, uplands. The parent material consists of local alluvium over residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, lithic, is 60 to 99 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Map Unit Co (6.36%)

Map Unit Name:	Codorus silt loam
Bedrock Depth - Min:	217cm
Watertable Depth - Annual Min:	69cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.

Major components are printed below

Codorus(85%)

horizon Ap(0cm to 30cm)	Silt loam
horizon Bw(30cm to 122cm)	Silt loam
horizon C(122cm to 152cm)	Silt loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Co - Codorus silt loam

Component: Codorus (85%)

The Codorus component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on nearly level flood plains, uplands. The parent material consists of alluvium derived from gneiss and/or alluvium derived from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Hatboro (8%)

Generated brief soil descriptions are created for major soil components. The Hatboro soil is a minor component.

Component: Glenville (4%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Baile (3%)

Generated brief soil descriptions are created for major soil components. The Baile soil is a minor component.

Map Unit Cs (0.11%)

Map Unit Name:	Comus silt loam
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Soil Information

Bedrock Depth - Min:	217cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Comus(90%)	
horizon A(0cm to 30cm)	Silt loam
horizon B(30cm to 99cm)	Silt loam
horizon C(99cm to 152cm)	Stratified gravelly loamy sand to loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Cs - Comus silt loam

Component: Comus (90%)

The Comus component makes up 90 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, uplands. The parent material consists of alluvium derived from granite and gneiss and/or alluvium derived from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria.

Component: Holly (8%)

Generated brief soil descriptions are created for major soil components. The Holly soil is a minor component.

Component: Newark (2%)

Generated brief soil descriptions are created for major soil components. The Newark soil is a minor component.

Map Unit GaD (1.48%)

Map Unit Name:	Gaila silt loam, 15 to 25 percent slopes
Bedrock Depth - Min:	173cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Gaila(85%)	
horizon Ap(0cm to 8cm)	Silt loam
horizon Bt(8cm to 23cm)	Loam
horizon BC(23cm to 33cm)	Loam
horizon C(33cm to 127cm)	Sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GaD - Gaila silt loam, 15 to 25 percent slopes

Component: Gaila (85%)

The Gaila component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hills, uplands. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, paralithic, is 60 to 99 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Soil Information

Map Unit GgA (0.1%)

Map Unit Name:	Glenelg silt loam, 0 to 3 percent slopes
Bedrock Depth - Min:	152cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Glenelg(100%)	
horizon Ap(0cm to 24cm)	Silt loam
horizon Bt(24cm to 74cm)	Channery silt loam
horizon C(74cm to 152cm)	Channery loam
horizon R(152cm to 162cm)	Bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GgA - Glenelg silt loam, 0 to 3 percent slopes

Component: Glenelg (100%)

The Glenelg component makes up 100 percent of the map unit. Slopes are 0 to 3 percent. This component is on nearly level to steep dissected hillslopes, hills. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, paralithic, is 60 to 120 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria.

Map Unit GgB (41.8%)

Map Unit Name:	Glenelg silt loam, 3 to 8 percent slopes
Bedrock Depth - Min:	
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Glenelg(85%)	
horizon Ap(0cm to 20cm)	Silt loam
horizon Bt1(20cm to 46cm)	Clay loam
horizon Bt2(46cm to 76cm)	Clay loam
horizon BCt(76cm to 107cm)	Loam
horizon CBt(107cm to 137cm)	Loam
horizon C(137cm to 193cm)	Channery fine sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GgB - Glenelg silt loam, 3 to 8 percent slopes

Component: Glenelg (85%)

The Glenelg component makes up 85 percent of the map unit. Slopes are 3 to 8 percent. This component is on nearly level to steeply dissected hillslopes, upland piedmonts. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is

Soil Information

moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Gaila (10%)

Generated brief soil descriptions are created for major soil components. The Gaila soil is a minor component.

Component: Glenville (5%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Map Unit GgC (14.09%)

Map Unit Name:	Glenelg silt loam, 8 to 15 percent slopes
Bedrock Depth - Min:	
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Glenelg(85%)

horizon Ap(0cm to 20cm)	Silt loam
horizon Bt1(20cm to 46cm)	Clay loam
horizon Bt2(46cm to 76cm)	Clay loam
horizon BCt(76cm to 107cm)	Loam
horizon CBt(107cm to 137cm)	Loam
horizon C(137cm to 193cm)	Channery fine sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GgC - Glenelg silt loam, 8 to 15 percent slopes

Component: Glenelg (85%)

The Glenelg component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on hillslopes, upland piedmonts. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Gaila (10%)

Generated brief soil descriptions are created for major soil components. The Gaila soil is a minor component.

Component: Glenville (5%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Map Unit GgD (0.05%)

Map Unit Name:	Glenelg silt loam, 15 to 25 percent slopes
Bedrock Depth - Min:	244cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Glenelg(90%)

horizon Ap(0cm to 20cm)	Silt loam
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Soil Information

horizon Bt(20cm to 56cm)
horizon C(56cm to 152cm)

Silt loam
Fine sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GgD - Glenelg silt loam, 15 to 25 percent slopes

Component: Glenelg (90%)

The Glenelg component makes up 90 percent of the map unit. Slopes are 15 to 25 percent. This component is on nearly level to steep dissected hillslopes, hills. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Glenville (10%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Map Unit GIA (1.04%)

Map Unit Name:	Glenville silt loam, somewhat poorly drained, 0 to 3 percent slopes
Bedrock Depth - Min:	
Watertable Depth - Annual Min:	35cm
Drainage Class - Dominant:	Somewhat poorly drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Glenville(85%)

horizon Ap(0cm to 27cm)	Silt loam
horizon Bt1(27cm to 51cm)	Channery silt loam
horizon Bt2(51cm to 76cm)	Silt loam
horizon Btx(76cm to 102cm)	Silt loam
horizon C1(102cm to 150cm)	Loam
horizon C2(150cm to 203cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GIA - Glenville silt loam, 0 to 3 percent slopes

Component: Glenville (90%)

The Glenville component makes up 90 percent of the map unit. Slopes are 0 to 3 percent. This component is on hillslopes, hills. The parent material consists of colluvium and/or residuum weathered from mica schist. Depth to a root restrictive layer, fragipan, is 15 to 30 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

Component: Glenelg (5%)

Generated brief soil descriptions are created for major soil components. The Glenelg soil is a minor component.

Component: Baile (5%)

Generated brief soil descriptions are created for major soil components. The Baile soil is a minor component.

Map Unit GIB (3.1%)

Soil Information

Map Unit Name: Glenville silt loam, 3 to 8 percent slopes
Bedrock Depth - Min:
Watertable Depth - Annual Min: 51cm
Drainage Class - Dominant: Moderately well drained
Hydrologic Group - Dominant: C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Glenville(75%)

horizon Ap(0cm to 27cm)	Silt loam
horizon Bt1(27cm to 51cm)	Channery silt loam
horizon Bt2(51cm to 76cm)	Silt loam
horizon Btx(76cm to 102cm)	Silt loam
horizon C1(102cm to 150cm)	Loam
horizon C2(150cm to 208cm)	Loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: GIB - Glenville silt loam, 3 to 8 percent slopes

Component: Glenville (75%)

The Glenville component makes up 75 percent of the map unit. Slopes are 3 to 8 percent. This component is on drainageways, piedmonts. The parent material consists of colluvium derived from metamorphic rock over schist, gneiss or phyllite residuum. Depth to a root restrictive layer, fragipan, is 29 to 31 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Unnamed (15%)

Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Baile (10%)

Generated brief soil descriptions are created for major soil components. The Baile soil is a minor component.

Map Unit Ha (5.48%)

Map Unit Name: Hatboro silt loam
Bedrock Depth - Min: 202cm
Watertable Depth - Annual Min: 8cm
Drainage Class - Dominant: Poorly drained
Hydrologic Group - Dominant: B/D - These soils have moderately low runoff potential when drained and high runoff potential when undrained.

Major components are printed below

Hatboro(95%)

horizon Ap(0cm to 23cm)	Silt loam
horizon Bg(23cm to 112cm)	Silt loam
horizon Cg(112cm to 142cm)	Sandy clay loam
horizon C(142cm to 178cm)	Stratified gravelly sand to clay

Component Description:

Minor map unit components are excluded from this report.

Map Unit: Ha - Hatboro silt loam

Component: Hatboro (95%)

Soil Information

The Hatboro component makes up 95 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, valleys. The parent material consists of alluvium derived from metamorphic and sedimentary rock. Depth to a root restrictive layer, bedrock, lithic, is 60 to 99 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, October, November, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.

Component: Glenville (5%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Map Unit MaB (3.8%)

Map Unit Name:	Manor loam, 3 to 8 percent slopes
Bedrock Depth - Min:	210cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Manor(85%)

horizon A1(0cm to 5cm)	Loam
horizon A2(5cm to 15cm)	Sandy loam
horizon Bw1(15cm to 33cm)	Fine sandy loam
horizon Bw2(33cm to 56cm)	Fine sandy loam
horizon C1(56cm to 76cm)	Fine sandy loam
horizon C2(76cm to 112cm)	Channery sand
horizon C3(112cm to 135cm)	Loamy sand
horizon C4(135cm to 210cm)	Channery loamy sand
horizon Cr(210cm to 275cm)	Bedrock
horizon R(275cm to 350cm)	Bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MaB - Manor loam, 3 to 8 percent slopes

Component: Manor (95%)

The Manor component makes up 95 percent of the map unit. Slopes are 3 to 8 percent. This component is on nearly level to very steep dissected hillslopes, uplands. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Glenville (3%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Hatboro (2%)

Generated brief soil descriptions are created for major soil components. The Hatboro soil is a minor component.

Map Unit MaC (8.18%)

Map Unit Name:	Manor loam, 8 to 15 percent slopes
Bedrock Depth - Min:	210cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained

Soil Information

Hydrologic Group - Dominant:

B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Manor(85%)

horizon A1(0cm to 5cm)	Loam
horizon A2(5cm to 15cm)	Sandy loam
horizon Bw1(15cm to 33cm)	Fine sandy loam
horizon Bw2(33cm to 56cm)	Fine sandy loam
horizon C1(56cm to 76cm)	Fine sandy loam
horizon C2(76cm to 112cm)	Channery coarse sand
horizon C3(112cm to 135cm)	Loamy sand
horizon C4(135cm to 210cm)	Channery loamy sand
horizon Cr(210cm to 275cm)	Bedrock
horizon R(275cm to 350cm)	Bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MaC - Manor loam, 8 to 15 percent slopes

Component: Manor (85%)

The Manor component makes up 85 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills, piedmonts. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, paralithic, is 59 to 100 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Glenville (5%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Mt. Airy (5%)

Generated brief soil descriptions are created for major soil components. The Mt. Airy soil is a minor component.

Component: Blocktown (5%)

Generated brief soil descriptions are created for major soil components. The Blocktown soil is a minor component.

Map Unit MaD (4.8%)

Map Unit Name:

Manor loam, 15 to 25 percent slopes

Bedrock Depth - Min:

210cm

Watertable Depth - Annual Min:

Drainage Class - Dominant:

Well drained

Hydrologic Group - Dominant:

B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Manor(85%)

horizon A1(0cm to 5cm)	Loam
horizon A2(5cm to 15cm)	Sandy loam
horizon Bw1(15cm to 33cm)	Fine sandy loam
horizon Bw2(33cm to 56cm)	Fine sandy loam
horizon C1(56cm to 76cm)	Fine sandy loam
horizon C2(76cm to 112cm)	Channery coarse sand
horizon C3(112cm to 135cm)	Loamy sand
horizon C4(135cm to 210cm)	Channery loamy sand
horizon Cr(210cm to 275cm)	Bedrock
horizon R(275cm to 350cm)	Bedrock

Soil Information

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MaD - Manor loam, 15 to 25 percent slopes

Component: Manor (85%)

The Manor component makes up 85 percent of the map unit. Slopes are 15 to 25 percent. This component is on hillslopes on upland piedmonts. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer, bedrock, paralithic, is 59 to 100 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Glenville (5%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Mt. Airy (5%)

Generated brief soil descriptions are created for major soil components. The Mt. Airy soil is a minor component.

Component: Blocktown (5%)

Generated brief soil descriptions are created for major soil components. The Blocktown soil is a minor component.

Map Unit MaE (1.13%)

Map Unit Name:	Manor loam, 25 to 35 percent slopes
Bedrock Depth - Min:	210cm
Watertable Depth - Annual Min:	
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.

Major components are printed below

Manor(98%)

horizon A1(0cm to 5cm)	Loam
horizon A2(5cm to 15cm)	Sandy loam
horizon Bw1(15cm to 33cm)	Fine sandy loam
horizon Bw2(33cm to 56cm)	Fine sandy loam
horizon C1(56cm to 76cm)	Fine sandy loam
horizon C2(76cm to 112cm)	Channery sand
horizon C3(112cm to 135cm)	Loamy sand
horizon C4(135cm to 210cm)	Channery loamy sand
horizon Cr(210cm to 275cm)	Bedrock
horizon R(275cm to 350cm)	Bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: MaE - Manor loam, 25 to 35 percent slopes

Component: Manor (98%)

The Manor component makes up 98 percent of the map unit. Slopes are 25 to 35 percent. This component is on nearly level to very steep dissected hillslopes, uplands. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Glenville (2%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Soil Information

Map Unit UrsB (3.36%)

Map Unit Name: Urban land-Manor complex, 0 to 8 percent slopes

Bedrock Depth - Min: 138cm

Watertable Depth - Annual Min:

Drainage Class - Dominant:

Hydrologic Group - Dominant:

Major components are printed below

Urban land(50%)

horizon C(0cm to 15cm) Variable

Manor(30%)

horizon A(0cm to 18cm) Loam

horizon Bw(18cm to 53cm) Channery loam

horizon C(53cm to 152cm) Very fine sandy loam

Component Description:

Minor map unit components are excluded from this report.

Map Unit: UrsB - Urban land-Manor complex, 0 to 8 percent slopes

Component: Urban land (50%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Manor (30%)

The Manor component makes up 30 percent of the map unit. Slopes are 0 to 8 percent. This component is on hillslopes, uplands. The parent material consists of residuum weathered from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Map Unit UugB (1.88%)

Map Unit Name: Urban land-Udorthents, schist and gneiss complex, 0 to 8 percent slopes

Bedrock Depth - Min: 102cm

Watertable Depth - Annual Min: 152cm

Drainage Class - Dominant:

Hydrologic Group - Dominant:

Major components are printed below

Urban land(80%)

horizon C(0cm to 15cm) Variable

Udorthents(15%)

horizon Ap(0cm to 15cm) Loam

horizon C(15cm to 102cm) Silty clay loam

horizon R(102cm to 152cm) Bedrock

Component Description:

Minor map unit components are excluded from this report.

Map Unit: UugB - Urban land-Udorthents, schist and gneiss complex, 0 to 8 percent slopes

Component: Urban land (80%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Soil Information

Component: Udorthents (15%)

The Udorthents, schist and gneiss component makes up 15 percent of the map unit. Slopes are 0 to 8 percent. This component is on hills, uplands. The parent material consists of graded areas of schist and/or gneiss. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 70 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

Component: Glenelg (1%)

Generated brief soil descriptions are created for major soil components. The Glenelg soil is a minor component.

Component: Edgemont (1%)

Generated brief soil descriptions are created for major soil components. The Edgemont soil is a minor component.

Component: Glenville (1%)

Generated brief soil descriptions are created for major soil components. The Glenville soil is a minor component.

Component: Baile (1%)

Generated brief soil descriptions are created for major soil components. The Baile soil is a minor component.

Component: Gladstone (1%)

Generated brief soil descriptions are created for major soil components. The Gladstone soil is a minor component.

Map Unit W (0.06%)

Map Unit Name: Water

No more attributes available for this map unit

Component Description:

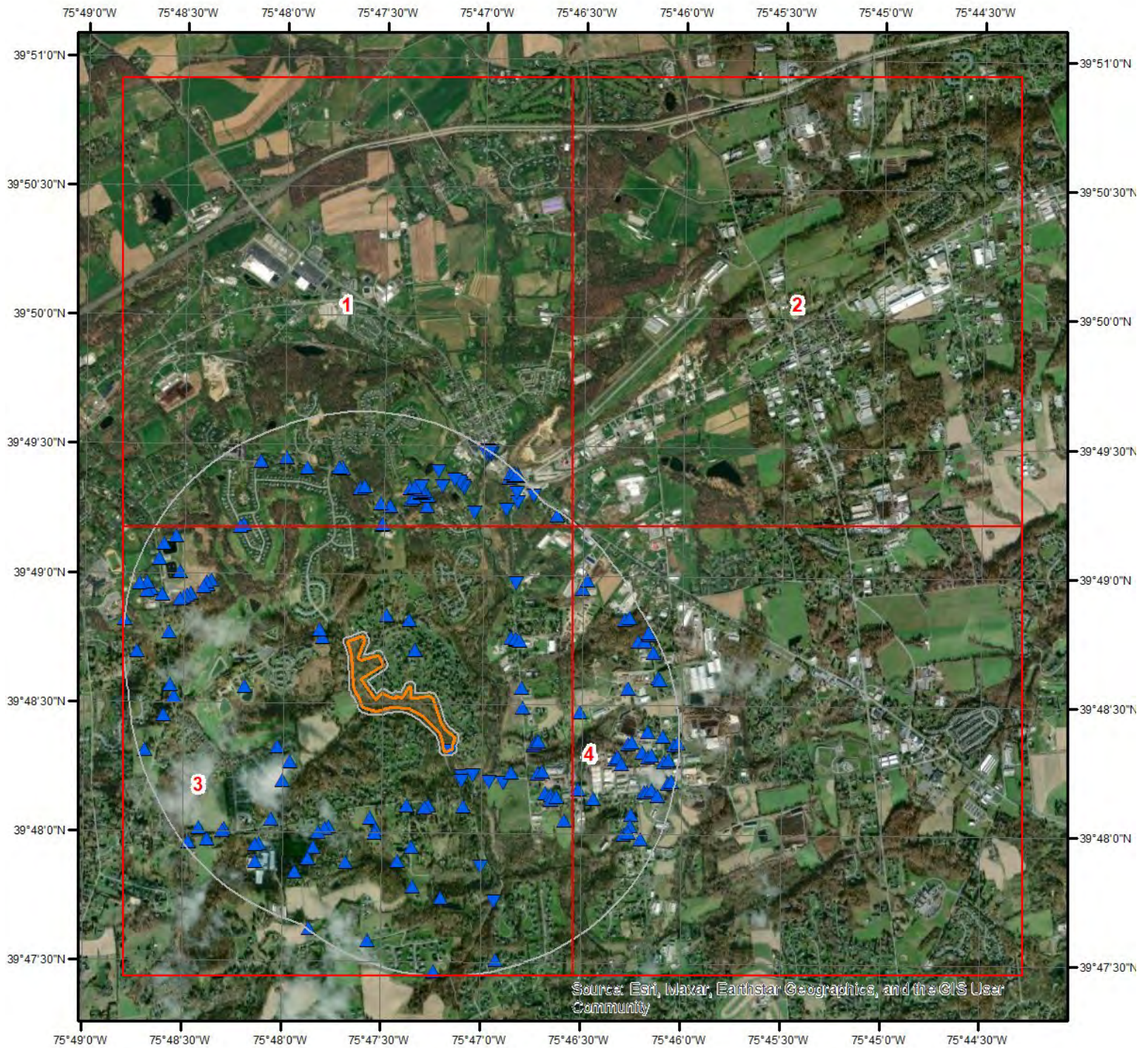
Minor map unit components are excluded from this report.

Map Unit: W - Water

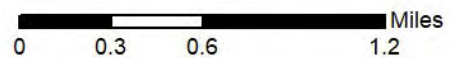
Component: Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Wells and Additional Sources



Wells & Additional Sources



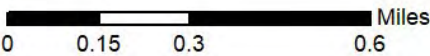
- | | |
|--------------------------------|------------------------------------|
| ▲ Sites with Higher Elevation | ▲ OGW Sites with Higher Elevation |
| ■ Sites with Same Elevation | ■ OGW Sites with Same Elevation |
| ▼ Sites with Lower Elevation | ▼ OGW Sites with Lower Elevation |
| ○ Sites with Unknown Elevation | ● OGW Sites with Unknown Elevation |



Wells and Additional Sources



Wells & Additional Sources - Page 1



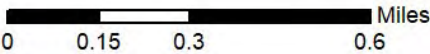
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| ▲ Sites with Higher Elevation | ▲ OGW Sites with Higher Elevation |
| ■ Sites with Same Elevation | ■ OGW Sites with Same Elevation |
| ▼ Sites with Lower Elevation | ▼ OGW Sites with Lower Elevation |
| ○ Sites with Unknown Elevation | ● OGW Sites with Unknown Elevation |



Wells and Additional Sources



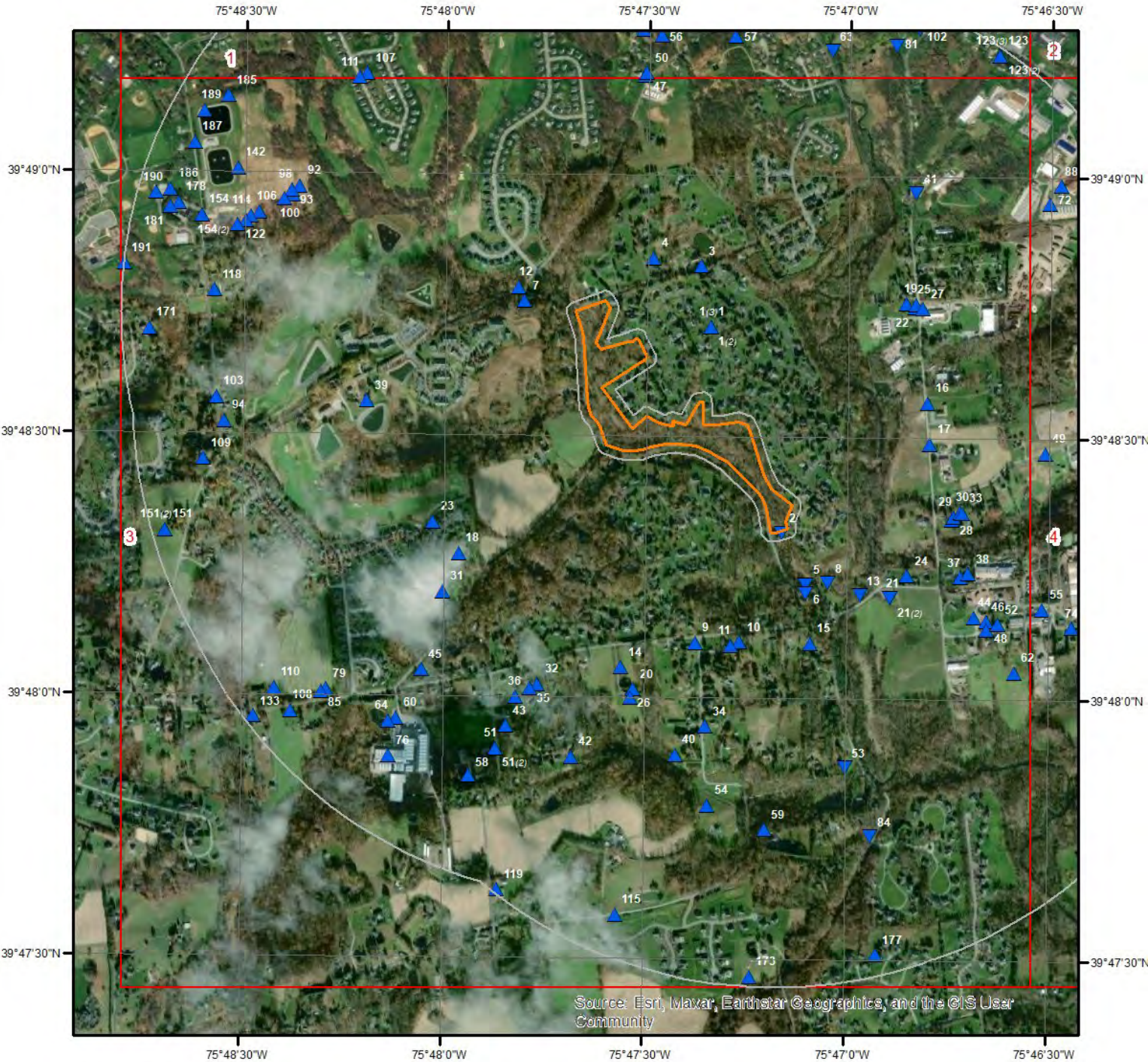
Wells & Additional Sources - Page 2



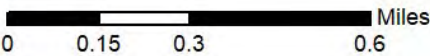
- | | |
|--------------------------------|------------------------------------|
| ▲ Sites with Higher Elevation | ▲ OGW Sites with Higher Elevation |
| ■ Sites with Same Elevation | ■ OGW Sites with Same Elevation |
| ▼ Sites with Lower Elevation | ▼ OGW Sites with Lower Elevation |
| ○ Sites with Unknown Elevation | ● OGW Sites with Unknown Elevation |



Wells and Additional Sources



Wells & Additional Sources - Page 3



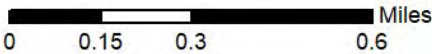
- | | |
|--------------------------------|------------------------------------|
| ▲ Sites with Higher Elevation | ▲ OGW Sites with Higher Elevation |
| ■ Sites with Same Elevation | ■ OGW Sites with Same Elevation |
| ▼ Sites with Lower Elevation | ▼ OGW Sites with Lower Elevation |
| ○ Sites with Unknown Elevation | ● OGW Sites with Unknown Elevation |



Wells and Additional Sources



Wells & Additional Sources - Page 4



- | | |
|--------------------------------|------------------------------------|
| ▲ Sites with Higher Elevation | ▲ OGW Sites with Higher Elevation |
| ■ Sites with Same Elevation | ■ OGW Sites with Same Elevation |
| ▼ Sites with Lower Elevation | ▼ OGW Sites with Lower Elevation |
| ○ Sites with Unknown Elevation | ● OGW Sites with Unknown Elevation |



Wells and Additional Sources Summary

Federal Sources

Public Water Systems Violations and Enforcement Data

Map Key	PWS ID	Distance (ft)	Direction
154	PA1150165	4481.15	WNW

Safe Drinking Water Information System (SDWIS)

Map Key	PWS ID	Distance (ft)	Direction
154	PA1150165	4481.15	WNW

USGS National Water Information System

Map Key	Site No	Distance (ft)	Direction
2	USGS-01478147	34.93	SE
4	USGS-394850075472901	753.91	N
7	USGS-394845075474801	597.40	NW
8	USGS-014781475	793.44	SE
9	USGS-394806075472201	1558.18	S
10	USGS-394806075471701	1326.79	SSE
13	USGS-01478146	1152.24	SE
15	USGS-394806075470501	1345.18	SSE
18	USGS-394816075475801	2126.94	WSW
20	USGS-394801075473201	2431.01	SSW
25	USGS-394845075465001	2416.58	ENE
30	USGS-394822075464301	1957.91	ESE
32	USGS-394801075474701	2888.96	SSW
33	USGS-394821075464401	1983.28	ESE
38	USGS-394814075464301	2172.10	ESE
39	USGS-394834075481201	2552.06	W
40	USGS-394753075472501	2813.91	S
45	USGS-394803075480301	3378.14	SW
52	USGS-394808075463901	2687.22	ESE
58	USGS-394751075475601	4156.32	SSW
63	USGS-01478136	3917.17	NNE
67	USGS-394918075471801	3653.37	N
71	USGS-394919075471901	3714.74	N
77	USGS-394920075472201	3726.12	N
78	USGS-394920075472001	3779.43	N
83	USGS-394920075473701	3526.31	N
84	USGS-394744075465601	3702.72	SSE
92	USGS-394858075482301	3517.50	WNW
93	USGS-394857075482401	3549.84	WNW
94	USGS-394831075483301	4218.86	W
97	USGS-014781358	4255.12	NNE
102	USGS-394918075472101	4813.55	NNE
105	USGS-394821075461601	4166.95	E
106	USGS-394855075482901	3850.30	WNW
107	USGS-394911075481301	3668.33	NW
116	USGS-394854075483101	3972.47	WNW
118	USGS-394846075483401	4195.77	WNW
119	USGS-394738075475201	5230.08	SSW
121	USGS-394850075461701	4985.35	ENE
125	USGS-01478137	5210.39	NNE
133	USGS-394758075482801	5166.12	WSW

Wells and Additional Sources Summary

137	USGS-394805075461501	4461.01	ESE
140	USGS-394818075461001	4650.16	ESE
143	USGS-394846075461101	5172.51	ENE
152	USGS-394800075461701	4566.52	ESE
162	USGS-394810075461001	4774.44	ESE
176	USGS-394817075460501	5047.76	ESE
177	USGS-394731075465501	5037.22	SSE
178	USGS-394856075484101	4778.35	WNW
184	USGS-394821075460201	5259.07	E
188	USGS-394812075460401	5197.71	ESE
191	USGS-394849075484901	5267.82	WNW

State Sources

Groundwater Information System

Map Key	PA WELL ID	Distance (ft)	Direction
1	475597	828.32	NNE
1	475599	828.32	NNE
1	475598	828.32	NNE
3	685724	1120.60	N
5	108860	692.36	SE
6	108810	788.84	SE
11	8905	1396.32	SSE
12	108808	710.88	NW
14	655620	2345.21	SSW
16	109263	1975.29	E
17	480262	1752.63	E
19	646615	2326.28	ENE
21	509413	1442.70	SE
21	509412	1442.70	SE
22	109268	2385.04	ENE
23	480917	2198.73	WSW
24	509411	1501.85	ESE
26	108861	2522.26	SSW
27	640286	2452.22	ENE
28	595938	1870.82	ESE
29	8928	1891.01	ESE
31	108832	2550.04	WSW
34	488117	2379.12	S
35	8899	2958.78	SSW
36	108859	3103.96	SSW
37	8920	2091.21	ESE
41	109264	3321.50	NE
42	498328	3490.70	SSW
43	691793	3464.68	SSW
44	473599	2406.04	ESE
46	109287	2558.51	ESE
47	494482	2654.46	N
48	8908	2602.07	ESE
49	473678	3006.32	E
50	474924	2686.55	N
51	108862	3754.21	SSW
51	108863	3754.21	SSW
53	107766	2852.29	SSE
54	646303	3256.30	S
56	108807	3144.90	N
57	109137	3424.64	N
59	643066	3450.29	SSE
61	709196	3172.57	N
62	550142	3124.57	SE
64	251756	4079.71	SW

Wells and Additional Sources Summary

65	645112	3421.54	N
66	9047	3489.43	N
68	9049	3639.38	N
69	9046	3668.90	N
70	649441	3651.83	N
72	109289	4360.56	ENE
73	9051	3655.87	N
74	628527	3505.30	ESE
75	9050	3733.57	N
76	622946	4407.11	SW
79	477984	4315.62	SW
80	9052	3483.84	N
81	104628	4498.48	NNE
82	645109	3976.74	N
85	477983	4381.85	SW
87	251477	4199.65	NNE
88	661522	4583.42	ENE
89	490427	3863.09	ESE
91	251476	4244.77	NNE
95	109328	4242.33	E
98	12546	3587.05	WNW
100	12551	3621.99	WNW
101	12675	4073.32	E
103	594573	4289.12	W
104	649468	4264.39	N
108	642968	4787.94	SW
109	616337	4504.77	W
110	479717	4776.35	WSW
111	9028	3700.15	NW
112	104629	4943.91	NNE
113	8983	4883.20	ENE
114	12630	3928.50	WNW
115	107868	4798.92	S
117	667104	3974.20	NNW
120	685616	4008.56	NNW
122	12629	4053.00	WNW
123	478556	5197.46	NE
123	478555	5197.46	NE
123	477953	5197.46	NE
124	109294	4883.47	ENE
126	655669	4430.64	ESE
127	109299	4543.13	E
128	303334	5091.19	NNE
129	12677	5021.56	ENE
130	8925	4559.55	ESE
131	643218	5184.60	NNE
132	701914	4173.91	NNW
134	643217	5185.65	NNE
135	643174	5224.31	NNE
135	643220	5224.31	NNE
136	643168	5244.47	NNE
138	643172	5277.76	NNE
138	506756	5277.76	NNE
139	643169	5243.05	NNE
141	643173	5267.57	NNE
142	478684	4256.68	WNW
144	109136	5185.71	ENE
145	627317	5088.64	E
146	643650	4977.08	E
147	109290	4613.73	ESE
148	8896	4499.45	ESE
149	643871	5021.84	E
150	12577	4557.98	ESE
151	498261	5114.08	W
151	498262	5114.08	W
153	646450	5165.89	NNE

Wells and Additional Sources Summary

155	8911	4690.07	ESE
156	620196	4886.59	E
157	646506	5231.36	NNE
158	646449	5199.61	NNE
159	646509	5242.16	NNE
160	480485	5240.11	NNE
161	646508	5235.70	NNE
163	481354	5254.71	NNE
164	646482	5252.95	NNE
164	646503	5252.95	NNE
165	646481	5254.21	NNE
165	646502	5254.21	NNE
166	646451	5244.27	NNE
167	646501	5257.38	NNE
167	646480	5257.38	NNE
168	646507	5248.67	NNE
169	480484	5270.28	NNE
169	646448	5270.28	NNE
170	646446	5275.90	NNE
170	646538	5275.90	NNE
171	108809	4951.76	WNW
172	8924	4957.81	ESE
173	107691	5166.86	S
174	680319	4571.35	NNW
175	655528	4947.89	ESE
179	109273	4895.11	ESE
180	8927	5165.15	E
181	8995	4858.83	WNW
182	8917	5113.21	ESE
183	511917	4714.70	NNW
183	511919	4714.70	NNW
183	511918	4714.70	NNW
185	478686	4739.11	NW
186	108802	4912.06	WNW
187	478683	4835.89	WNW
189	108817	4894.71	NW
190	483961	5066.03	WNW

Historical Oil and Gas Well Locations

Map Key	ID	Distance (ft)	Direction
No records found			

Oil and Gas Wells

Map Key	ID	Distance (ft)	Direction
No records found			

Public Water Supply Wells

Map Key	PWS ID	Distance (ft)	Direction
55	1150695	3107.25	ESE
60	1150700	4001.40	SW
86	1150695	3807.09	ESE
90	1150005	4235.89	NNE
96	1150005	4278.54	NNE
99	1150695	3975.69	ESE

Underground Injection Control Wells

Wells and Additional Sources Summary

Map Key	ID	Distance (ft)	Direction
No records found			

Wells and Additional Sources Detail Report

Public Water Systems Violations and Enforcement Data

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
154	WNW	0.85	4,481.15	443.32	PWSV

PWS ID: PA1150165
PWS Type Code: CWS
PWS Type Description: Community water system
Primary Source Code: SWP
Primary Source Desc: Surface water purchased
PWS Activity Code: A
PWS Activity Description: Active
PWS Deactivation Date:
Zip Code: 19390
Phone No: 610-345-0300
Phone Ext No:
Admin Name: KENNETH BATTIN
Alt Phone No:
Email Addr:
Fax No:
Cds ID:
Population Served Count: 4770
Epa Region Desc: Region 3
Epa Region: 03
First Reported Date: 01/10/1986
Gw or Sw: Surface water
Gw Sw Code: SW
Is Grant Eligible Ind: Yes
Outstanding Performer:
Is School or Daycare Ind: No
Is Source Water Protection:
Is Wholesaler Ind: No
Lt2 Schedule Cat:
Lt2 Schedule Cat Code:
Last Reported Date: 09/19/2023
Org Name: LONDON GROVE TWP MUN AUTH
Outstanding Perform
Begin Date:
Owner Type: Local government
Pop Cat 11: 3,301-10,000
Pop Cat 2: <10,000
Pop Cat 3: 3,301-50,000
Pop Cat 4: <10K
Pop Cat 5: 3,301-10,000
Primacy Agency: Pennsylvania
Season Begin Date:

Wells and Additional Sources Detail Report

Season End Date:
Service Connections Count: 1566
Submission Status Code: Y
Submissionyearquarter: 2023Q3
Primacy Type: State
Dbpr Schedule Category:
Submission Status: Reported and accepted
Reduced Monitoring Begin Date:
Reduced Monitoring End Date:
Reduced Rtr Monitoring:
Seasonal Startup System:
Source Protection Begin Date:
City Served:
County Served: Chester

Safe Drinking Water Information System (SDWIS)

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
154	WNW	0.85	4,481.15	443.32	SDWIS

PWS ID: PA1150165
PWS Type Code: CWS
PSW Type: Community water system
Primary Source Code: SWP
Primary Source: Surface water purchased
Pws Activity Code: A
Activity: Active
PWS Deactivation Dt:
Phone No: 610-345-0300
Phone Ext No:
Admin Name: KENNETH BATTIN
Alt Phone No:
Email Addr:
Fax No:
Cds ID:
Population Served Count: 4770
Epa Region Desc: Region 3
Epa Region: 03
First Reported Date: 01/10/1986
Gw or Sw: Surface water
Is Grant Eligible Ind: Yes
Outstanding Performer:
Is School or Daycare Ind: No
Is Wholesaler Ind: No
Lt2 Schedule Cat:
Last Reported Date: 09/19/2023

Wells and Additional Sources Detail Report

Org Name: LONDON GROVE TWP MUN AUTH

Outstanding Perform

Begin Date:

Owner Type: Local government

Pop Cat 11: 3,301-10,000

Pop Cat 2: <10,000

Pop Cat 3: 3,301-50,000

Pop Cat 4: <10K

Pop Cat 5: 3,301-10,000

Primacy Agency: Pennsylvania

Primacy Agency Code: PA

Season Begin Date:

Season End Date:

Service Connections 1566

Count:

Submission Yr Qtr: 2023Q3

Primacy Type: State

Dbpr Schedule Category:

Submission Status: Reported and accepted

Reduced Monitoring

Begin:

Reduced Monitoring End

Date:

Reduced Rtr Monitoring:

Seasonal Startup System:

Source Protection Begin

Date:

City Served:

County Served: Chester

USGS National Water Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
2	SE	0.01	34.93	268.57	FED USGS

Site No: USGS-01478147

Site Type: Stream

Formation Type:

Date Drilled:

Well Depth:

Well Depth Unit:

Well Hole Depth:

Well Hole Depth Unit:

Reporting Agency: USGS Pennsylvania Water Science Center

Station Name: Unnamed Trib to EB White Clay Creek nr West Grove

Latitude: 39.80525000000000

Longitude: -75.78600000000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
4	N	0.14	753.91	341.73	FED USGS

Wells and Additional Sources Detail Report

Site No: USGS-394850075472901
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7084
Latitude: 39.81400000000000
Longitude: -75.7913611000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	NW	0.11	597.40	331.05	FED USGS

Site No: USGS-394845075474801
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7083
Latitude: 39.81261110000000
Longitude: -75.7966944000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	SE	0.15	793.44	255.02	FED USGS

Site No: USGS-014781475
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: UT EB White Clay Cr ab Grdn Stn Rd nr Avondale, PA
Latitude: 39.80366667000000
Longitude: -75.7840833000000

Wells and Additional Sources Detail Report

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	S	0.30	1,558.18	405.60	FED USGS

Site No: USGS-394806075472201
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 198608
Well Depth: 502
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7077
Latitude: 39.80175000000000
Longitude: -75.7895556000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
10	SSE	0.25	1,326.79	376.07	FED USGS

Site No: USGS-394806075471701
Site Type: Well
Formation Type:
Date Drilled: 19700714
Well Depth: 258
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1953
Latitude: 39.80177670000000
Longitude: -75.7877168000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
13	SE	0.22	1,152.24	254.40	FED USGS

Site No: USGS-01478146
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center

Wells and Additional Sources Detail Report

Station Name: EB White Clay Cr at Garden Stn Rd, nr Avondale, PA
Latitude: 39.80327778000000
Longitude: -75.7827500000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
15	SSE	0.25	1,345.18	294.09	FED USGS

Site No: USGS-394806075470501
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7078
Latitude: 39.80175000000000
Longitude: -75.7848056000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	WSW	0.40	2,126.94	379.28	FED USGS

Site No: USGS-394816075475801
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7081
Latitude: 39.80455556000000
Longitude: -75.7993611000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
20	SSW	0.46	2,431.01	384.81	FED USGS

Site No: USGS-394801075473201
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:

Wells and Additional Sources Detail Report

Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7080
Latitude: 39.80025000000000
Longitude: -75.7921111000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
25	ENE	0.46	2,416.58	298.97	FED USGS

Site No: USGS-394845075465001
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7029
Latitude: 39.81258330000000
Longitude: -75.7805000000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
30	ESE	0.37	1,957.91	300.90	FED USGS

Site No: USGS-394822075464301
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7037
Latitude: 39.80597220000000
Longitude: -75.7786388900000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
32	SSW	0.55	2,888.96	415.31	FED USGS

Site No: USGS-394801075474701
Site Type: Well
Formation Type:

Wells and Additional Sources Detail Report

Date Drilled: 19690521
Well Depth: 80.0
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1794
Latitude: 39.80038774000000
Longitude: -75.7960504000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
33	ESE	0.38	1,983.28	302.16	FED USGS

Site No: USGS-394821075464401
Site Type: Well
Formation Type:
Date Drilled: 19660720
Well Depth: 136
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1939
Latitude: 39.80594339000000
Longitude: -75.7785499000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
38	ESE	0.41	2,172.10	313.58	FED USGS

Site No: USGS-394814075464301
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth: 140
Well Depth Unit: ft
Well Hole Depth: 140
Well Hole Depth Unit: ft
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 4122
Latitude: 39.80399898000000
Longitude: -75.7782720800000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
39	W	0.48	2,552.06	431.10	FED USGS

Wells and Additional Sources Detail Report

Site No: USGS-394834075481201
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 1972
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7085
Latitude: 39.80938889000000
Longitude: -75.8031944000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
40	S	0.53	2,813.91	323.20	FED USGS

Site No: USGS-394753075472501
Site Type: Well
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 6921
Latitude: 39.79816667000000
Longitude: -75.7903333000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
45	SW	0.64	3,378.14	378.98	FED USGS

Site No: USGS-394803075480301
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 1987
Well Depth: 410
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7076
Latitude: 39.80083330000000
Longitude: -75.8008611000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

52 ESE 0.51 2,687.22 332.64 FED USGS

Site No: USGS-394808075463901
 Site Type: Well
 Formation Type:
 Date Drilled: 19710924
 Well Depth: 213
 Well Depth Unit: ft
 Well Hole Depth:
 Well Hole Depth Unit:
 Reporting Agency: USGS Pennsylvania Water Science Center
 Station Name: CH 1902
 Latitude: 39.80238889000000
 Longitude: -75.7770556000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
58	SSW	0.79	4,156.32	430.34	FED USGS

Site No: USGS-394751075475601
 Site Type: Well
 Formation Type: Wissahickon Formation, Oligoclase Mica Schist
 Date Drilled:
 Well Depth:
 Well Depth Unit:
 Well Hole Depth:
 Well Hole Depth Unit:
 Reporting Agency: USGS Pennsylvania Water Science Center
 Station Name: CH 7079
 Latitude: 39.79747220000000
 Longitude: -75.7988888900000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
63	NNE	0.74	3,917.17	265.05	FED USGS

Site No: USGS-01478136
 Site Type: Stream
 Formation Type:
 Date Drilled:
 Well Depth:
 Well Depth Unit:
 Well Hole Depth:
 Well Hole Depth Unit:
 Reporting Agency: USGS Pennsylvania Water Science Center
 Station Name: EB White Clay Cr nr Indian Run Rd, Avondale PA
 Latitude: 39.82063889000000

Wells and Additional Sources Detail Report

Longitude: -75.7840556000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
67	N	0.69	3,653.37	285.03	FED USGS

Site No: USGS-394918075471801
Site Type: Well
Formation Type:
Date Drilled: 1931
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1932
Latitude: 39.82177630000000
Longitude: -75.7879953000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
71	N	0.70	3,714.74	277.53	FED USGS

Site No: USGS-394919075471901
Site Type: Well
Formation Type:
Date Drilled: 19701218
Well Depth: 83
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1931
Latitude: 39.82205408000000
Longitude: -75.7882731000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
77	N	0.71	3,726.12	284.24	FED USGS

Site No: USGS-394920075472201
Site Type: Well
Formation Type:
Date Drilled:
Well Depth: 80
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:

Wells and Additional Sources Detail Report

Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1934
Latitude: 39.82233184000000
Longitude: -75.7891064900000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
78	N	0.72	3,779.43	275.75	FED USGS

Site No: USGS-394920075472001
Site Type: Well
Formation Type:
Date Drilled:
Well Depth: 77
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1933
Latitude: 39.82233185000000
Longitude: -75.7885509000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
83	N	0.67	3,526.31	381.82	FED USGS

Site No: USGS-394920075473701
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth: 70
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 490
Latitude: 39.82233180000000
Longitude: -75.7932733000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
84	SSE	0.70	3,702.72	270.43	FED USGS

Site No: USGS-394744075465601
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 1988
Well Depth: 220

Wells and Additional Sources Detail Report

Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 6920
Latitude: 39.79558330000000
Longitude: -75.78225000000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
92	WNW	0.67	3,517.50	408.64	FED USGS

Site No: USGS-394858075482301
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 19771021
Well Depth: 235
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 4133
Latitude: 39.81622066000000
Longitude: -75.80605130000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
93	WNW	0.67	3,549.84	409.75	FED USGS

Site No: USGS-394857075482401
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 1964
Well Depth: 200
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1807
Latitude: 39.81594288000000
Longitude: -75.80632910000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
94	W	0.80	4,218.86	444.09	FED USGS

Site No: USGS-394831075483301
Site Type: Well

Wells and Additional Sources Detail Report

Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7074
Latitude: 39.80872220000000
Longitude: -75.8090833000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
97	NNE	0.81	4,255.12	267.90	FED USGS

Site No: USGS-014781358
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: UT EB White Clay Cr at State Rd, at Avondale, PA
Latitude: 39.82275000000000
Longitude: -75.7857777800000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
102	NNE	0.91	4,813.55	270.01	FED USGS

Site No: USGS-394918075472101
Site Type: Well
Formation Type: Cockeysville Marble
Date Drilled: 19700814
Well Depth: 46
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1930
Latitude: 39.82133330000000
Longitude: -75.7804722000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
105	E	0.79	4,166.95	370.35	FED USGS

Wells and Additional Sources Detail Report

Site No: USGS-394821075461601
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 19670606
Well Depth: 136
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1907
Latitude: 39.80594347000000
Longitude: -75.7707719000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
106	WNW	0.73	3,850.30	418.52	FED USGS

Site No: USGS-394855075482901
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 19550528
Well Depth: 203
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1806
Latitude: 39.81538730000000
Longitude: -75.8077180000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
107	NW	0.69	3,668.33	417.16	FED USGS

Site No: USGS-394911075481301
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth: 125
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 491
Latitude: 39.81983170000000
Longitude: -75.8032735900000

Wells and Additional Sources Detail Report

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
116	WNW	0.75	3,972.47	423.16	FED USGS

Site No: USGS-394854075483101
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 19640622
Well Depth: 165
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1805
Latitude: 39.81510954000000
Longitude: -75.8082736000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
118	WNW	0.79	4,195.77	410.85	FED USGS

Site No: USGS-394846075483401
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 7073
Latitude: 39.81288889000000
Longitude: -75.8095277800000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
119	SSW	0.99	5,230.08	436.34	FED USGS

Site No: USGS-394738075475201
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 6922

Wells and Additional Sources Detail Report

Latitude: 39.79383330000000
Longitude: -75.7976667000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
121	ENE	0.94	4,985.35	351.34	FED USGS

Site No: USGS-394850075461701
Site Type: Well
Formation Type:
Date Drilled:
Well Depth: 135
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 479
Latitude: 39.81399888000000
Longitude: -75.7710500000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
125	NNE	0.99	5,210.39	275.57	FED USGS

Site No: USGS-01478137
Site Type: Stream
Formation Type:
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: Trout Run at Avondale, PA
Latitude: 39.82177640000000
Longitude: -75.7791061000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
133	WSW	0.98	5,166.12	361.71	FED USGS

Site No: USGS-394758075482801
Site Type: Well
Formation Type: Cockeysville Marble
Date Drilled:
Well Depth:
Well Depth Unit:
Well Hole Depth:

Wells and Additional Sources Detail Report

Well Hole Depth Unit:

Reporting Agency: USGS Pennsylvania Water Science Center

Station Name: CH 7107

Latitude: 39.79933330000000

Longitude: -75.8078056000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
137	ESE	0.84	4,461.01	354.29	FED USGS

Site No: USGS-394805075461501

Site Type: Well

Formation Type: Wissahickon Formation, Oligoclase Mica Schist

Date Drilled:

Well Depth: 150

Well Depth Unit: ft

Well Hole Depth:

Well Hole Depth Unit:

Reporting Agency: USGS Pennsylvania Water Science Center

Station Name: CH 7035

Latitude: 39.80127778000000

Longitude: -75.7708333000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
140	ESE	0.88	4,650.16	362.49	FED USGS

Site No: USGS-394818075461001

Site Type: Well

Formation Type:

Date Drilled: 1951

Well Depth: 120

Well Depth Unit: ft

Well Hole Depth:

Well Hole Depth Unit:

Reporting Agency: USGS Pennsylvania Water Science Center

Station Name: CH 1908

Latitude: 39.80511017000000

Longitude: -75.7691051000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
143	ENE	0.98	5,172.51	382.90	FED USGS

Site No: USGS-394846075461101

Site Type: Well

Formation Type: Wissahickon Formation, Oligoclase Mica Schist

Date Drilled:

Wells and Additional Sources Detail Report

Well Depth: 28
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 480
Latitude: 39.81288780000000
Longitude: -75.7693831800000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
152	ESE	0.86	4,566.52	335.26	FED USGS

Site No: USGS-394800075461701
Site Type: Well
Formation Type:
Date Drilled:
Well Depth: 100
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1940
Latitude: 39.80011025000000
Longitude: -75.7710494000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
162	ESE	0.90	4,774.44	386.58	FED USGS

Site No: USGS-394810075461001
Site Type: Well
Formation Type:
Date Drilled: 19730201
Well Depth: 160
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1903
Latitude: 39.80288799000000
Longitude: -75.7691050000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
176	ESE	0.96	5,047.76	386.07	FED USGS

Site No: USGS-394817075460501

Wells and Additional Sources Detail Report

Site Type: Well
Formation Type:
Date Drilled: 19680502
Well Depth: 110
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1906
Latitude: 39.80483240000000
Longitude: -75.7677161000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
177	SSE	0.95	5,037.22	364.51	FED USGS

Site No: USGS-394731075465501
Site Type: Well
Formation Type: Wissahickon Formation, Oligoclase Mica Schist
Date Drilled: 19980812
Well Depth: 222
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 6931
Latitude: 39.79183330000000
Longitude: -75.7820000000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
178	WNW	0.90	4,778.35	453.10	FED USGS

Site No: USGS-394856075484101
Site Type: Well
Formation Type:
Date Drilled:
Well Depth: 40.0
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1803
Latitude: 39.81566506000000
Longitude: -75.8110515000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
184	E	1.00	5,259.07	380.91	FED USGS

Wells and Additional Sources Detail Report

Site No: USGS-394821075460201
Site Type: Well
Formation Type:
Date Drilled: 1956
Well Depth: 80
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1909
Latitude: 39.80594350000000
Longitude: -75.7668828000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
188	ESE	0.98	5,197.71	373.18	FED USGS

Site No: USGS-394812075460401
Site Type: Well
Formation Type:
Date Drilled: 1926
Well Depth: 65.0
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1905
Latitude: 39.80344356000000
Longitude: -75.7674383000000

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
191	WNW	1.00	5,267.82	436.11	FED USGS

Site No: USGS-394849075484901
Site Type: Well
Formation Type:
Date Drilled: 19690215
Well Depth: 230
Well Depth Unit: ft
Well Hole Depth:
Well Hole Depth Unit:
Reporting Agency: USGS Pennsylvania Water Science Center
Station Name: CH 1863
Latitude: 39.81372060000000
Longitude: -75.8132738000000

Wells and Additional Sources Detail Report

Groundwater Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	NNE	0.16	828.32	316.31	WATER WELLS

PA WELL ID:	475597	PA GWIS ID:	
Site ID:		Well Address ID:	82322
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	36	Latitude DD:	39.81183
Elevation Ft:		Longitude DD:	-75.78899
Uses:	J	X:	-75.78898804002401
Local Permit:		Y:	39.81182198541424
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	NNE	0.16	828.32	316.31	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	475599	PA GWIS ID:	
Site ID:		Well Address ID:	82322
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	36	Latitude DD:	39.81183
Elevation Ft:		Longitude DD:	-75.78899
Uses:	J	X:	-75.78898804002401
Local Permit:		Y:	39.81182198541424
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	NNE	0.16	828.32	316.31	WATER WELLS

PA WELL ID:	475598	PA GWIS ID:	
Site ID:		Well Address ID:	82322
Dep Counter:		Quad ID:	

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	36	Latitude DD:	39.81183
Elevation Ft:		Longitude DD:	-75.78899
Uses:	J	X:	-75.78898804002401
Local Permit:		Y:	39.81182198541424
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	N	0.21	1,120.60	318.76	WATER WELLS

PA WELL ID:	685724	PA GWIS ID:	
Site ID:		Well Address ID:	82366
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliability ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 30	Latitude DD: 39.81377
Elevation Ft:	Longitude DD: -75.78942
Uses: W	X: -75.78941803976872
Local Permit:	Y: 39.813761985044685
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
5	SE	0.13	692.36	256.11	WATER WELLS

PA WELL ID: 108860	PA GWIS ID:
Site ID:	Well Address ID: 88320
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 3868	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W

Wells and Additional Sources Detail Report

Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	38	Latitude DD:	39.80361111111111
Elevation Ft:		Longitude DD:	-75.785
Uses:	W	X:	-75.78499804178912
Local Permit:		Y:	39.803603097900606
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
6	SE	0.15	788.84	270.34	WATER WELLS

PA WELL ID:	108810	PA GWIS ID:	
Site ID:		Well Address ID:	88319
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0409	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	

Wells and Additional Sources Detail Report

Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 66	Latitude DD: 39.8033333333333
Elevation Ft:	Longitude DD: -75.785
Uses: W	X: -75.78499804180625
Local Permit:	Y: 39.80332531995579
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: M	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
11	SSE	0.26	1,396.32	383.91	WATER WELLS

PA WELL ID: 8905	PA GWIS ID:
Site ID: 394806075471701	Well Address ID: 284259
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: CH 1953	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 1
Type of Activity:	Data Reliabilty ID: C
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: Z
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.8016666666667

Wells and Additional Sources Detail Report

Elevation Ft:	Longitude DD:	-75.7880555555556
Uses: W	X:	-75.78805359694542
Local Permit:	Y:	39.801658654398956
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code: S		
Lat Long Accuracy Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
12	NW	0.13	710.88	309.19	WATER WELLS

PA WELL ID: 108808	PA GWIS ID:
Site ID:	Well Address ID: 88326
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 0407	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 2
Type of Activity:	Data Reliabilty ID: L
Well Depth:	Coord Method ID:
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 63	Latitude DD: 39.8130555555556
Elevation Ft:	Longitude DD: -75.7969444444444
Uses: W	X: -75.79694248143986
Local Permit:	Y: 39.813047541462694
Latest Owner:	

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	SSW	0.44	2,345.21	417.73	WATER WELLS

PA WELL ID:	655620	PA GWIS ID:	
Site ID:		Well Address ID:	284310
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.80095
Elevation Ft:		Longitude DD:	-75.7926
Uses:	W	X:	-75.79259803955652
Local Permit:		Y:	39.800941987708015
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
16	E	0.37	1,975.29	297.08	WATER WELLS

PA WELL ID:	109263	PA GWIS ID:	
Site ID:		Well Address ID:	83285
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0475	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	42	Latitude DD:	39.80944444444444
Elevation Ft:		Longitude DD:	-75.78
Uses:	W	X:	-75.77999804300634
Local Permit:		Y:	39.80943642955839
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	E	0.33	1,752.63	286.08	WATER WELLS

PA WELL ID:	480262	PA GWIS ID:	
Site ID:		Well Address ID:	83364
Dep Counter:		Quad ID:	2040
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	37	Latitude DD:	39.808137
Elevation Ft:		Longitude DD:	-75.779912
Uses:	W	X:	-75.77991004311468
Local Permit:		Y:	39.80812898581486
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			

Wells and Additional Sources Detail Report

Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
19	ENE	0.44	2,326.28	300.60	WATER WELLS

PA WELL ID:	646615	PA GWIS ID:	
Site ID:		Well Address ID:	88579
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	1	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.81262
Elevation Ft:		Longitude DD:	-75.78093
Uses:	W	X:	-75.78092804251722
Local Permit:		Y:	39.81261198496166
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

21 SE 0.27 1,442.70 264.44 WATER WELLS

PA WELL ID:	509413	PA GWIS ID:	
Site ID:		Well Address ID:	84313
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	1
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	1
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	65	Latitude DD:	39.80321
Elevation Ft:		Longitude DD:	-75.78152
Uses:	U	X:	-75.78151804291129
Local Permit:		Y:	39.80320198685265
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
21	SE	0.27	1,442.70	264.44	WATER WELLS

PA WELL ID: 509412 PA GWIS ID:

Wells and Additional Sources Detail Report

Site ID:	Well Address ID:	84313
Dep Counter:	Quad ID:	2039
Transac Counter:	Quadrangle:	
Local Well No:	Quad Code:	
Date Created:	Quad Name:	
Date Updated:	Municipality Code:	
Date Drilled:	Toppgraphy ID:	
Type of Site Code:	Topography Code:	
Type of Site Desc:	Topography Desc:	
Latest Production:	Type of Site ID:	W
Latest Well Use:	Src of Site Rec ID:	3
Type of Activity:	Data Reliabilty ID:	1
Well Depth:	Coord Method ID:	1
Hydrologic Unit:	Coord Method Desc:	
Depth to Bedrock:	Source of Data Cd:	1
Bedrock not Reachd:	County Code:	
Bedrock Reached: 0	County:	CHESTER
Bedrock Depth (ft): 30	Latitude DD:	39.80321
Elevation Ft:	Longitude DD:	-75.78152
Uses: U	X:	-75.78151804291129
Local Permit:	Y:	39.80320198685265
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code:		
Lat Long Accuracty Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
22	ENE	0.45	2,385.04	296.44	WATER WELLS

PA WELL ID:	109268	PA GWIS ID:	
Site ID:		Well Address ID:	85323
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0480	Quad Code:	

Wells and Additional Sources Detail Report

Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.8125
Elevation Ft:		Longitude DD:	-75.7805555555556
Uses:	W	X:	-75.78055359864273
Local Permit:		Y:	39.81249198497179
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
23	WSW	0.42	2,198.73	401.76	WATER WELLS

PA WELL ID:	480917	PA GWIS ID:	
Site ID:		Well Address ID:	82378
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.80555
Elevation Ft:		Longitude DD:	-75.80041
Uses:	J	X:	-75.80040803681005
Local Permit:		Y:	39.8055419870807
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
24	ESE	0.28	1,501.85	278.04	WATER WELLS

PA WELL ID:	509411	PA GWIS ID:	
Site ID:		Well Address ID:	82345
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	1

Wells and Additional Sources Detail Report

Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	1
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.80393
Elevation Ft:		Longitude DD:	-75.7808
Uses:	W	X:	-75.78079804309395
Local Permit:		Y:	39.80392198668319
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
26	SSW	0.48	2,522.26	382.47	WATER WELLS

PA WELL ID:	108861	PA GWIS ID:	
Site ID:		Well Address ID:	88317
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3869	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	35	Latitude DD:	39.8
Elevation Ft:		Longitude DD:	-75.79222222222222
Uses:	W	X:	-75.79222026173423
Local Permit:		Y:	39.79999198788291
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
27	ENE	0.46	2,452.22	297.69	WATER WELLS

PA WELL ID:	640286	PA GWIS ID:	
Site ID:		Well Address ID:	289177
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	20	Latitude DD:	39.81246
Elevation Ft:		Longitude DD:	-75.78023
Uses:	W	X:	-75.78022804274785

Wells and Additional Sources Detail Report

Local Permit: Y: 39.812451984967794
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
28	ESE	0.35	1,870.82	298.02	WATER WELLS

PA WELL ID:	595938	PA GWIS ID:	
Site ID:		Well Address ID:	83348
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.80574
Elevation Ft:		Longitude DD:	-75.77897
Uses:	W	X:	-75.77896804355953
Local Permit:		Y:	39.805731986256546
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
29	ESE	0.36	1,891.01	300.73	WATER WELLS

PA WELL ID:	8928	PA GWIS ID:	
Site ID:	394821075464401	Well Address ID:	89414
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1939	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8058333333333
Elevation Ft:		Longitude DD:	-75.7788888888889
Uses:	W	X:	-75.77888693257937
Local Permit:		Y:	39.80582531923502
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
31	WSW	0.48	2,550.04	387.55	WATER WELLS

PA WELL ID:	108832	PA GWIS ID:	
Site ID:		Well Address ID:	88318
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 1274	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.8033333333333
Elevation Ft:		Longitude DD:	-75.8
Uses:	W	X:	-75.79999803707607
Local Permit:		Y:	39.80332532050602
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
34	S	0.45	2,379.12	346.03	WATER WELLS

PA WELL ID:	488117	PA GWIS ID:	
Site ID:		Well Address ID:	82220
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	20	Latitude DD:	39.79909
Elevation Ft:		Longitude DD:	-75.7891
Uses:	J	X:	-75.78909804077487
Local Permit:		Y:	39.79908198794918
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
35	SSW	0.56	2,958.78	406.32	WATER WELLS

PA WELL ID:	8899	PA GWIS ID:	
Site ID:	394801075474701	Well Address ID:	83974
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1794	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8002777777778
Elevation Ft:		Longitude DD:	-75.7963888888889
Uses:	W	X:	-75.79638692740319
Local Permit:		Y:	39.800269765980566
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
36	SSW	0.59	3,103.96	416.21	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	108859	PA GWIS ID:	
Site ID:		Well Address ID:	284258
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3867	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.8
Elevation Ft:		Longitude DD:	-75.79694444444444
Uses:	W	X:	-75.79694248224514
Local Permit:		Y:	39.79999198805614
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
37	ESE	0.40	2,091.21	314.46	WATER WELLS

PA WELL ID:	8920	PA GWIS ID:	
Site ID:	394814075464301	Well Address ID:	89411
Dep Counter:		Quad ID:	2039

Wells and Additional Sources Detail Report

Transac Counter:	Quadrangle:
Local Well No: CH 4122	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 1
Type of Activity:	Data Reliability ID: C
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: O
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.8038888888889
Elevation Ft:	Longitude DD: -75.7786111111111
Uses: W	X: -75.77860915478684
Local Permit:	Y: 39.803880875611135
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: S	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
41	NE	0.63	3,321.50	274.51	WATER WELLS

PA WELL ID: 109264	PA GWIS ID:
Site ID:	Well Address ID: 89425
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 0476	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:

Wells and Additional Sources Detail Report

Date Drilled:		Topography ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliability ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.81611111111111
Elevation Ft:		Longitude DD:	-75.78055555555556
Uses:	W	X:	-75.78055359842001
Local Permit:		Y:	39.81610309525453
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
42	SSW	0.66	3,490.70	388.96	WATER WELLS

PA WELL ID:	498328	PA GWIS ID:	
Site ID:		Well Address ID:	71291
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W

Wells and Additional Sources Detail Report

Latest Well Use:	Src of Site Rec ID:	3
Type of Activity:	Data Reliabilty ID:	1
Well Depth:	Coord Method ID:	3
Hydrologic Unit:	Coord Method Desc:	
Depth to Bedrock:	Source of Data Cd:	1
Bedrock not Reached:	County Code:	
Bedrock Reached: 0	County:	CHESTER
Bedrock Depth (ft):	Latitude DD:	39.79809
Elevation Ft:	Longitude DD:	-75.79463
Uses: J	X:	-75.79462803909273
Local Permit:	Y:	39.79808198835071
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code:		
Lat Long Accuracty Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
43	SSW	0.66	3,464.68	428.09	WATER WELLS

PA WELL ID: 691793	PA GWIS ID:
Site ID:	Well Address ID: 284309
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No:	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliabilty ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:

Wells and Additional Sources Detail Report

Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.79906
Elevation Ft:		Longitude DD:	-75.79735
Uses:	B	X:	-75.7973480381752
Local Permit:		Y:	39.799051988257744
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
44	ESE	0.46	2,406.04	312.95	WATER WELLS

PA WELL ID:	473599	PA GWIS ID:	
Site ID:		Well Address ID:	83330
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	70	Latitude DD:	39.80263

Wells and Additional Sources Detail Report

Elevation Ft:		Longitude DD:	-75.77802
Uses:	W	X:	-75.77801804405081
Local Permit:		Y:	39.8026219868396
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
46	ESE	0.48	2,558.51	319.04	WATER WELLS

PA WELL ID:	109287	PA GWIS ID:	
Site ID:		Well Address ID:	83275
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3904	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	28	Latitude DD:	39.8025
Elevation Ft:		Longitude DD:	-75.7775
Uses:	W	X:	-75.77749804422282
Local Permit:		Y:	39.80249198684634
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
47	N	0.50	2,654.46	381.96	WATER WELLS

PA WELL ID:	494482	PA GWIS ID:	
Site ID:		Well Address ID:	82367
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	90	Latitude DD:	39.81984
Elevation Ft:		Longitude DD:	-75.79179
Uses:	W	X:	-75.79178803864671
Local Permit:		Y:	39.81983198392616
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
48	ESE	0.49	2,602.07	328.06	WATER WELLS

PA WELL ID:	8908	PA GWIS ID:	
Site ID:	394808075463901	Well Address ID:	89410
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1902	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.802222222222
Elevation Ft:		Longitude DD:	-75.7775
Uses:	W	X:	-75.77749804423995
Local Permit:		Y:	39.80221420890153
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:
Source Depth Desc:
Source Site Data Code:
Site Source Desc:
Drillers Coord Method:
Lat Long Accuracy Code: S
Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
49	E	0.57	3,006.32	357.73	WATER WELLS

PA WELL ID:	473678	PA GWIS ID:	
Site ID:		Well Address ID:	89647
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.80786
Elevation Ft:		Longitude DD:	-75.77513
Uses:	W	X:	-75.77512804463987
Local Permit:		Y:	39.807851985694576
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			

Wells and Additional Sources Detail Report

Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
50	N	0.51	2,686.55	380.60	WATER WELLS

PA WELL ID: 474924

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft): 90

Elevation Ft:

Uses: W

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

PA GWIS ID:

Well Address ID: 82368

Quad ID: 2039

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Topography ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.81992

Longitude DD: -75.79172

X: -75.79171803866386

Y: 39.81991198390767

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

51 SSW 0.71 3,754.21 417.43 WATER WELLS

PA WELL ID:	108862	PA GWIS ID:	
Site ID:		Well Address ID:	82088
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3870	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	82	Latitude DD:	39.79833333333333
Elevation Ft:		Longitude DD:	-75.79777777777778
Uses:	W	X:	-75.79777581608512
Local Permit:		Y:	39.79832532141785
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
51	SSW	0.71	3,754.21	417.43	WATER WELLS

PA WELL ID:	108863	PA GWIS ID:	
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Wells and Additional Sources Detail Report

Site ID:	Well Address ID: 82088
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 3871	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 2
Type of Activity:	Data Reliabilty ID: L
Well Depth:	Coord Method ID:
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 37	Latitude DD: 39.79833333333333
Elevation Ft:	Longitude DD: -75.79777777777778
Uses: W	X: -75.79777581608512
Local Permit:	Y: 39.79832532141785
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: M	
Lat Long Accuracty Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
53	SSE	0.54	2,852.29	258.17	WATER WELLS

PA WELL ID: 107766	PA GWIS ID:
Site ID:	Well Address ID: 79983
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: 4762N	Quad Code:

Wells and Additional Sources Detail Report

Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	F
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	36	Latitude DD:	39.7977777777778
Elevation Ft:		Longitude DD:	-75.7833333333333
Uses:	W	X:	-75.78333137567424
Local Permit:		Y:	39.797769765998495
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
54	S	0.62	3,256.30	338.75	WATER WELLS

PA WELL ID:	646303	PA GWIS ID:	
Site ID:		Well Address ID:	86268
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	80	Latitude DD:	39.79657
Elevation Ft:		Longitude DD:	-75.789
Uses:	W	X:	-75.78899804096176
Local Permit:		Y:	39.796561988446214
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
56	N	0.60	3,144.90	315.02	WATER WELLS

PA WELL ID:	108807	PA GWIS ID:	
Site ID:		Well Address ID:	83988
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0406	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliability ID:	L

Wells and Additional Sources Detail Report

Well Depth:	Coord Method ID:
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 58	Latitude DD: 39.82111111111111
Elevation Ft:	Longitude DD: -75.79111111111111
Uses: W	X: -75.79110914978241
Local Permit:	Y: 39.82110309464882
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: M	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
57	N	0.65	3,424.64	340.47	WATER WELLS

PA WELL ID: 109137	PA GWIS ID:
Site ID:	Well Address ID: 85334
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: 4887N	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 2
Type of Activity:	Data Reliabilty ID: L
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reached:	County Code:

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	37	Latitude DD:	39.82111111111111
Elevation Ft:		Longitude DD:	-75.78805555555556
Uses:	W	X:	-75.78805359574609
Local Permit:		Y:	39.82110309453669
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
59	SSE	0.65	3,450.29	326.64	WATER WELLS

PA WELL ID:	643066	PA GWIS ID:	
Site ID:		Well Address ID:	80037
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	60	Latitude DD:	39.79581
Elevation Ft:		Longitude DD:	-75.78664
Uses:	E	X:	-75.78663804175277

Wells and Additional Sources Detail Report

Local Permit: Y: 39.795801988510746
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
61	N	0.60	3,172.57	348.42	WATER WELLS

PA WELL ID:	709196	PA GWIS ID:	
Site ID:		Well Address ID:	82359
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.82129
Elevation Ft:		Longitude DD:	-75.79188
Uses:	W	X:	-75.79187803852884
Local Permit:		Y:	39.821281983641505
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
62	SE	0.59	3,124.57	304.33	WATER WELLS

PA WELL ID:	550142	PA GWIS ID:	
Site ID:		Well Address ID:	85377
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.80086
Elevation Ft:		Longitude DD:	-75.77636
Uses:	Q	X:	-75.77635804468338
Local Permit:		Y:	39.80085198713039
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
64	SW	0.77	4,079.71	381.98	WATER WELLS

PA WELL ID:	251756	PA GWIS ID:	
Site ID:		Well Address ID:	88314
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	5
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.7992
Elevation Ft:		Longitude DD:	-75.8022
Uses:	W	X:	-75.80219803663728
Local Permit:		Y:	39.79919198840788
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
65	N	0.65	3,421.54	291.78	WATER WELLS

PA WELL ID:	645112	PA GWIS ID:	
Site ID:		Well Address ID:	286464
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	15	Latitude DD:	39.82153
Elevation Ft:		Longitude DD:	-75.78939
Uses:	W	X:	-75.78938803929938
Local Permit:		Y:	39.82152198350248
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
66	N	0.66	3,489.43	294.87	WATER WELLS

PA WELL ID:	9047	PA GWIS ID:	
Site ID:	394918075472101	Well Address ID:	80190
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1930	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8216666666667
Elevation Ft:		Longitude DD:	-75.7891666666667
Uses:	U	X:	-75.78916470636136
Local Permit:		Y:	39.821658650467135
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
68	N	0.69	3,639.38	283.02	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	9049	PA GWIS ID:	
Site ID:	394919075471901	Well Address ID:	73903
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1931	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8219444444444
Elevation Ft:		Longitude DD:	-75.7886111111111
Uses:	U	X:	-75.78860915051945
Local Permit:		Y:	39.82193642739159
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
69	N	0.69	3,668.90	283.66	WATER WELLS

PA WELL ID:	9046	PA GWIS ID:	
Site ID:	394918075471801	Well Address ID:	72916
Dep Counter:		Quad ID:	2039

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:	CH 1932	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliability ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8219444444444
Elevation Ft:		Longitude DD:	-75.7883333333333
Uses:	W	X:	-75.78833137260705
Local Permit:		Y:	39.8219364273814
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
70	N	0.69	3,651.83	280.52	WATER WELLS

PA WELL ID:	649441	PA GWIS ID:	
Site ID:		Well Address ID:	286523
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliability ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 30	Latitude DD: 39.82199
Elevation Ft:	Longitude DD: -75.78864
Uses: W	X: -75.78863803950755
Local Permit:	Y: 39.82198198338359
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
72	ENE	0.83	4,360.56	366.05	WATER WELLS

PA WELL ID: 109289	PA GWIS ID:
Site ID:	Well Address ID: 85327
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 3906	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W

Wells and Additional Sources Detail Report

Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	32	Latitude DD:	39.81583333333333
Elevation Ft:		Longitude DD:	-75.775
Uses:	W	X:	-75.77499804418936
Local Permit:		Y:	39.81582531710596
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
73	N	0.69	3,655.87	286.74	WATER WELLS

PA WELL ID:	9051	PA GWIS ID:	
Site ID:	394920075472201	Well Address ID:	80191
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1934	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	

Wells and Additional Sources Detail Report

Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.822222222222
Elevation Ft:		Longitude DD:	-75.789444444444
Uses:	U	X:	-75.78944248323948
Local Permit:		Y:	39.82221420536701
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
74	ESE	0.66	3,505.30	367.14	WATER WELLS

PA WELL ID:	628527	PA GWIS ID:	
Site ID:		Well Address ID:	89642
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	39	Latitude DD:	39.8023

Wells and Additional Sources Detail Report

Elevation Ft:		Longitude DD:	-75.77398
Uses:	W	X:	-75.77397804534522
Local Permit:		Y:	39.802291986757034
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
75	N	0.71	3,733.57	277.08	WATER WELLS

PA WELL ID:	9050	PA GWIS ID:	
Site ID:	394920075472001	Well Address ID:	270768
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1933	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	V
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8222222222222
Elevation Ft:		Longitude DD:	-75.7886111111111
Uses:	W	X:	-75.78860915050231
Local Permit:		Y:	39.82221420533643
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
76	SW	0.83	4,407.11	386.16	WATER WELLS

PA WELL ID:	622946	PA GWIS ID:	
Site ID:		Well Address ID:	88703
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	60	Latitude DD:	39.79808
Elevation Ft:		Longitude DD:	-75.80219
Uses:	W	X:	-75.80218803670945
Local Permit:		Y:	39.79807198863001
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
79	SW	0.82	4,315.62	386.22	WATER WELLS

PA WELL ID: 477984

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reached:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: K

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

PA GWIS ID:

Well Address ID: 286494

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.8002

Longitude DD: -75.8048

X: -75.80479803575575

Y: 39.800191988304626

Wells and Additional Sources Detail Report

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
80	N	0.66	3,483.84	386.73	WATER WELLS

PA WELL ID:

9052

PA GWIS ID:

Site ID:

394920075473701

Well Address ID:

82101

Dep Counter:

Quad ID:

2039

Transac Counter:

Quadrangle:

Local Well No:

CH 490

Quad Code:

Date Created:

Quad Name:

Date Updated:

Municipality Code:

Date Drilled:

Topography ID:

S

Type of Site Code:

Topography Code:

Type of Site Desc:

Topography Desc:

Latest Production:

Type of Site ID:

W

Latest Well Use:

Src of Site Rec ID:

1

Type of Activity:

Data Reliability ID:

C

Well Depth:

Coord Method ID:

Hydrologic Unit:

02040205

Coord Method Desc:

Depth to Bedrock:

Source of Data Cd:

Z

Bedrock not Reached:

County Code:

Bedrock Reached:

0

County:

CHESTER

Bedrock Depth (ft):

Latitude DD:

39.8222222222222

Elevation Ft:

Longitude DD:

-75.7936111111111

Uses:

W

X:

-75.79360914892536

Local Permit:

Y:

39.822214205519934

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquifer Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Wells and Additional Sources Detail Report

Drillers Coord Method:

Lat Long Accuracy Code: F

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
81	NNE	0.85	4,498.48	271.07	WATER WELLS

PA WELL ID: 104628

Site ID:

Dep Counter:

Transac Counter:

Local Well No: X 0405

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft): 32

Elevation Ft:

Uses: W

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code: M

Lat Long Accuracy Desc:

PA GWIS ID:

Well Address ID: 73902

Quad ID: 2039

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID: F

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 2

Data Reliabilty ID: L

Coord Method ID:

Coord Method Desc:

Source of Data Cd: D

County Code:

County: CHESTER

Latitude DD: 39.8208333333333

Longitude DD: -75.7813888888889

X: -75.78138693086588

Y: 39.820825316347246

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

82 N 0.75 3,976.74 271.45 WATER WELLS

PA WELL ID:	645109	PA GWIS ID:	
Site ID:		Well Address ID:	74171
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	35	Latitude DD:	39.82232
Elevation Ft:		Longitude DD:	-75.7868
Uses:	J	X:	-75.78679804006748
Local Permit:		Y:	39.82231198325056
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
85	SW	0.83	4,381.85	385.47	WATER WELLS

PA WELL ID:	477983	PA GWIS ID:	
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Wells and Additional Sources Detail Report

Site ID:	Well Address ID:	82375
Dep Counter:	Quad ID:	
Transac Counter:	Quadrangle:	
Local Well No:	Quad Code:	
Date Created:	Quad Name:	
Date Updated:	Municipality Code:	
Date Drilled:	Toppgraphy ID:	
Type of Site Code:	Topography Code:	
Type of Site Desc:	Topography Desc:	
Latest Production:	Type of Site ID:	W
Latest Well Use:	Src of Site Rec ID:	3
Type of Activity:	Data Reliabilty ID:	
Well Depth:	Coord Method ID:	1
Hydrologic Unit:	Coord Method Desc:	
Depth to Bedrock:	Source of Data Cd:	
Bedrock not Reachd:	County Code:	
Bedrock Reached: 0	County:	CHESTER
Bedrock Depth (ft):	Latitude DD:	39.8001
Elevation Ft:	Longitude DD:	-75.805
Uses: K	X:	-75.80499803569887
Local Permit:	Y:	39.800091988331815
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code:		
Lat Long Accuracty Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
87	NNE	0.80	4,199.65	269.73	WATER WELLS

PA WELL ID:	251477	PA GWIS ID:	
Site ID:		Well Address ID:	72918
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	

Wells and Additional Sources Detail Report

Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	5
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8222
Elevation Ft:		Longitude DD:	-75.785
Uses:	W	X:	-75.7849980406426
Local Permit:		Y:	39.82219198320834
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
88	ENE	0.87	4,583.42	378.18	WATER WELLS

PA WELL ID:	661522	PA GWIS ID:	
Site ID:		Well Address ID:	83825
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.8164
Elevation Ft:		Longitude DD:	-75.77456
Uses:	W	X:	-75.77455804429317
Local Permit:		Y:	39.81639198397726
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
89	ESE	0.73	3,863.09	354.07	WATER WELLS

PA WELL ID:	490427	PA GWIS ID:	
Site ID:		Well Address ID:	83349
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	

Wells and Additional Sources Detail Report

Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	70	Latitude DD:	39.80498
Elevation Ft:		Longitude DD:	-75.77194
Uses:	W	X:	-75.77193804582348
Local Permit:		Y:	39.8049719861498
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
91	NNE	0.80	4,244.77	269.84	WATER WELLS

PA WELL ID:	251476	PA GWIS ID:	
Site ID:		Well Address ID:	80193
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	5
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8225
Elevation Ft:		Longitude DD:	-75.7853
Uses:	W	X:	-75.78529804052944
Local Permit:		Y:	39.82249198315977
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
95	E	0.80	4,242.33	391.78	WATER WELLS

PA WELL ID:	109328	PA GWIS ID:	
Site ID:		Well Address ID:	83286
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3945	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	45	Latitude DD:	39.80944444444444
Elevation Ft:		Longitude DD:	-75.77111111111111
Uses:	W	X:	-75.77110915680977

Wells and Additional Sources Detail Report

Local Permit: Y: 39.80943642923247
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
98	WNW	0.68	3,587.05	410.49	WATER WELLS

PA WELL ID:	12546	PA GWIS ID:	
Site ID:	394858075482301	Well Address ID:	83979
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 4133	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	U
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.81611111111111
Elevation Ft:		Longitude DD:	-75.8063888888889
Uses:	W	X:	-75.8063869232729
Local Permit:		Y:	39.816103096202546
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: F
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
100	WNW	0.69	3,621.99	413.02	WATER WELLS

PA WELL ID:	12551	PA GWIS ID:	
Site ID:	394857075482401	Well Address ID:	82096
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1807	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliability ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	G
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8158333333333
Elevation Ft:		Longitude DD:	-75.8066666666667
Uses:	U	X:	-75.80666470120245
Local Permit:		Y:	39.81582531826791
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
101	E	0.77	4,073.32	366.09	WATER WELLS

PA WELL ID:	12675	PA GWIS ID:	
Site ID:	394821075461601	Well Address ID:	83280
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1907	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8058333333333
Elevation Ft:		Longitude DD:	-75.7711111111111
Uses:	W	X:	-75.77110915703231
Local Permit:		Y:	39.80582531894987
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
103	W	0.81	4,289.12	436.05	WATER WELLS

PA WELL ID:	594573	PA GWIS ID:	
Site ID:		Well Address ID:	286491
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	62	Latitude DD:	39.80949
Elevation Ft:		Longitude DD:	-75.80944
Uses:	J	X:	-75.80943803371946
Local Permit:		Y:	39.80948198662952
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
104	N	0.81	4,264.39	267.98	WATER WELLS

PA WELL ID:	649468	PA GWIS ID:	
Site ID:		Well Address ID:	73906
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	20	Latitude DD:	39.82332
Elevation Ft:		Longitude DD:	-75.78712
Uses:	W	X:	-75.78711803990484
Local Permit:		Y:	39.82331198306376
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
108	SW	0.91	4,787.94	382.17	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	642968	PA GWIS ID:	
Site ID:		Well Address ID:	82372
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	90	Latitude DD:	39.79951
Elevation Ft:		Longitude DD:	-75.80625
Uses:	W	X:	-75.80624803534114
Local Permit:		Y:	39.79950198849489
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
109	W	0.85	4,504.77	461.27	WATER WELLS

PA WELL ID:	616337	PA GWIS ID:	
Site ID:		Well Address ID:	286503
Dep Counter:		Quad ID:	2039

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	77	Latitude DD:	39.807523
Elevation Ft:		Longitude DD:	-75.809933
Uses:	W	X:	-75.8099310336854
Local Permit:		Y:	39.807514987038324
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
110	WSW	0.90	4,776.35	385.26	WATER WELLS

PA WELL ID:	479717	PA GWIS ID:	
Site ID:		Well Address ID:	88599
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliability ID:
Well Depth:	Coord Method ID: 1
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.80023
Elevation Ft:	Longitude DD: -75.80694
Uses: K	X: -75.80693803507913
Local Permit:	Y: 39.80022198837719
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
111	NW	0.70	3,700.15	409.90	WATER WELLS

PA WELL ID: 9028	PA GWIS ID:
Site ID: 394911075481301	Well Address ID: 88333
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: CH 491	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W

Wells and Additional Sources Detail Report

Latest Well Use:	Src of Site Rec ID: 1
Type of Activity:	Data Reliabilty ID: C
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: Z
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.8197222222222
Elevation Ft:	Longitude DD: -75.8036111111111
Uses: W	X: -75.80360914592595
Local Permit:	Y: 39.81971420638345
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: F	
Lat Long Accuracty Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
112	NNE	0.94	4,943.91	272.56	WATER WELLS

PA WELL ID: 104629	PA GWIS ID:
Site ID:	Well Address ID: 72917
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 1001	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID: V
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 2
Type of Activity:	Data Reliabilty ID: L
Well Depth:	Coord Method ID:
Hydrologic Unit:	Coord Method Desc:

Wells and Additional Sources Detail Report

Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 12	Latitude DD: 39.8219444444444
Elevation Ft:	Longitude DD: -75.7805555555556
Uses: W	X: -75.78055359806015
Local Permit:	Y: 39.821936427096034
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: M	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
113	ENE	0.92	4,883.20	346.52	WATER WELLS

PA WELL ID: 8983	PA GWIS ID:
Site ID: 394850075461701	Well Address ID: 89423
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: CH 479	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 1
Type of Activity:	Data Reliabilty ID: C
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: Z
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.8138888888889

Wells and Additional Sources Detail Report

Elevation Ft:	Longitude DD:	-75.7713888888889
Uses: W	X:	-75.77138693444819
Local Permit:	Y:	39.81388087335977
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code: S		
Lat Long Accuracy Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
114	WNW	0.74	3,928.50	421.61	WATER WELLS

PA WELL ID:	12630	PA GWIS ID:	
Site ID:	394855075482901	Well Address ID:	83977
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1806	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8152777777778
Elevation Ft:		Longitude DD:	-75.8080555555556
Uses: U		X:	-75.80805358979876
Local Permit:		Y:	39.815269763429214
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
115	S	0.91	4,798.92	386.69	WATER WELLS

PA WELL ID:	107868	PA GWIS ID:	
Site ID:		Well Address ID:	79981
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 4018	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.7930555555556
Elevation Ft:		Longitude DD:	-75.7927777777778
Uses:	W	X:	-75.79277581798708
Local Permit:		Y:	39.793047545283144
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
117	NNW	0.75	3,974.20	406.30	WATER WELLS

PA WELL ID:	667104	PA GWIS ID:	
Site ID:		Well Address ID:	284298
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.82349
Elevation Ft:		Longitude DD:	-75.79511
Uses:	W	X:	-75.79510803737436
Local Permit:		Y:	39.82348198332321
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
120	NNW	0.76	4,008.56	409.40	WATER WELLS

PA WELL ID: 685616

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reached:

Bedrock Reached: 0

Bedrock Depth (ft): 40

Elevation Ft:

Uses: W

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

PA GWIS ID:

Well Address ID: 88554

Quad ID: 2039

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 3

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82356

Longitude DD: -75.79536

X: -75.7953580372912

Y: 39.82355198331848

Wells and Additional Sources Detail Report

Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
122	WNW	0.77	4,053.00	416.53	WATER WELLS

PA WELL ID: 12629	PA GWIS ID:
Site ID: 394854075483101	Well Address ID: 88329
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: CH 1805	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: S
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 1
Type of Activity:	Data Reliabilty ID: C
Well Depth:	Coord Method ID:
Hydrologic Unit: 02040205	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.815
Elevation Ft:	Longitude DD: -75.80861111111111
Uses: U	X: -75.80860914464073
Local Permit:	Y: 39.81499198550479
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code: S	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

123 NE 0.98 5,197.46 293.00 WATER WELLS

PA WELL ID:	478556	PA GWIS ID:	
Site ID:		Well Address ID:	85491
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.820547
Elevation Ft:		Longitude DD:	-75.777125
Uses:	J	X:	-75.77712304322839
Local Permit:		Y:	39.8205389832477
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
123	NE	0.98	5,197.46	293.00	WATER WELLS

PA WELL ID: 478555 PA GWIS ID:

Wells and Additional Sources Detail Report

Site ID:		Well Address ID:	85491
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	13	Latitude DD:	39.820547
Elevation Ft:		Longitude DD:	-75.777125
Uses:	J	X:	-75.77712304322839
Local Permit:		Y:	39.8205389832477
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
123	NE	0.98	5,197.46	293.00	WATER WELLS

PA WELL ID:	477953	PA GWIS ID:	
Site ID:		Well Address ID:	85491
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	

Wells and Additional Sources Detail Report

Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliabilty ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 25	Latitude DD: 39.820547
Elevation Ft:	Longitude DD: -75.777125
Uses: J	X: -75.77712304322839
Local Permit:	Y: 39.8205389832477
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracty Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
124	ENE	0.92	4,883.47	383.52	WATER WELLS

PA WELL ID: 109294	PA GWIS ID:
Site ID:	Well Address ID: 89418
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 3911	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID:
Type of Site Code:	Topography Code:

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	48	Latitude DD:	39.8125
Elevation Ft:		Longitude DD:	-75.7702777777778
Uses:	W	X:	-75.77027582388426
Local Permit:		Y:	39.812491984594914
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
126	ESE	0.84	4,430.64	367.08	WATER WELLS

PA WELL ID:	655669	PA GWIS ID:	
Site ID:		Well Address ID:	289305
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	

Wells and Additional Sources Detail Report

Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.80533
Elevation Ft:		Longitude DD:	-75.76987
Uses:	W	X:	-75.76986804645476
Local Permit:		Y:	39.80532198600433
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
127	E	0.86	4,543.13	387.70	WATER WELLS

PA WELL ID:	109299	PA GWIS ID:	
Site ID:		Well Address ID:	89415
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3916	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8066666666667
Elevation Ft:		Longitude DD:	-75.7694444444444
Uses:	W	X:	-75.7694424905066
Local Permit:		Y:	39.806658652723215
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
128	NNE	0.96	5,091.19	277.23	WATER WELLS

PA WELL ID:	303334	PA GWIS ID:	
Site ID:		Well Address ID:	
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	
Latest Well Use:		Src of Site Rec ID:	
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:		County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	
Elevation Ft:		Longitude DD:	
Uses:		X:	

Wells and Additional Sources Detail Report

Local Permit: Y:
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
129	ENE	0.95	5,021.56	390.65	WATER WELLS

PA WELL ID:	12677	PA GWIS ID:	
Site ID:	394846075461101	Well Address ID:	89419
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 480	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8125
Elevation Ft:		Longitude DD:	-75.769722222222
Uses:	W	X:	-75.76972026805949
Local Permit:		Y:	39.81249198457455
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
130	ESE	0.86	4,559.55	365.73	WATER WELLS

PA WELL ID:	8925	PA GWIS ID:	
Site ID:	394818075461001	Well Address ID:	85318
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1908	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.805
Elevation Ft:		Longitude DD:	-75.7694444444444
Uses:	W	X:	-75.76944249060931
Local Permit:		Y:	39.80499198605433
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
131	NNE	0.98	5,184.60	282.28	WATER WELLS

PA WELL ID:	643218	PA GWIS ID:	
Site ID:		Well Address ID:	80194
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82308
Elevation Ft:		Longitude DD:	-75.78082
Uses:	B	X:	-75.78081804190667
Local Permit:		Y:	39.82307198288024
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
132	NNW	0.79	4,173.91	429.37	WATER WELLS

PA WELL ID:	701914	PA GWIS ID:	
Site ID:		Well Address ID:	88707
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.82354
Elevation Ft:		Longitude DD:	-75.79806
Uses:	W	X:	-75.79805803644089
Local Permit:		Y:	39.82353198342156
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
134	NNE	0.98	5,185.65	283.35	WATER WELLS

PA WELL ID:	643217	PA GWIS ID:	
Site ID:		Well Address ID:	72922
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82326
Elevation Ft:		Longitude DD:	-75.78107
Uses:	B	X:	-75.78106804181671
Local Permit:		Y:	39.823251982853655
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
135	NNE	0.99	5,224.31	283.01	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	643174	PA GWIS ID:	
Site ID:		Well Address ID:	72920
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82315
Elevation Ft:		Longitude DD:	-75.78071
Uses:	B	X:	-75.78070804193703
Local Permit:		Y:	39.823141982862296
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
135	NNE	0.99	5,224.31	283.01	WATER WELLS

PA WELL ID:	643220	PA GWIS ID:	
Site ID:		Well Address ID:	72920
Dep Counter:		Quad ID:	2039

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82315
Elevation Ft:		Longitude DD:	-75.78071
Uses:	B	X:	-75.78070804193703
Local Permit:		Y:	39.823141982862296
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
136	NNE	0.99	5,244.47	284.22	WATER WELLS

PA WELL ID:	643168	PA GWIS ID:	
Site ID:		Well Address ID:	80195
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliability ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.82311
Elevation Ft:	Longitude DD: -75.78055
Uses: B	X: -75.78054804198997
Local Permit:	Y: 39.82310198286435
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
138	NNE	1.00	5,277.76	284.72	WATER WELLS

PA WELL ID: 643172	PA GWIS ID:
Site ID:	Well Address ID: 270770
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No:	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W

Wells and Additional Sources Detail Report

Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82311
Elevation Ft:		Longitude DD:	-75.78038
Uses:	B	X:	-75.78037804204362
Local Permit:		Y:	39.82310198285812
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
138	NNE	1.00	5,277.76	284.72	WATER WELLS

PA WELL ID:	506756	PA GWIS ID:	
Site ID:		Well Address ID:	74181
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	

Wells and Additional Sources Detail Report

Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	3	Latitude DD:	39.82312
Elevation Ft:		Longitude DD:	-75.78039
Uses:	K	X:	-75.78038804203983
Local Permit:		Y:	39.823111982856524
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
139	NNE	0.99	5,243.05	283.42	WATER WELLS

PA WELL ID:	643169	PA GWIS ID:	
Site ID:		Well Address ID:	80198
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82327

Wells and Additional Sources Detail Report

Elevation Ft:		Longitude DD:	-75.78078
Uses:	B	X:	-75.78077804190754
Local Permit:		Y:	39.82326198284101
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
141	NNE	1.00	5,267.57	284.50	WATER WELLS

PA WELL ID:	643173	PA GWIS ID:	
Site ID:		Well Address ID:	72921
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82319
Elevation Ft:		Longitude DD:	-75.78054
Uses:	B	X:	-75.78053804198822
Local Permit:		Y:	39.82318198284812
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
142	WNW	0.81	4,256.68	431.83	WATER WELLS

PA WELL ID: 478684

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: K

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

PA GWIS ID:

Well Address ID: 82363

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.8168

Longitude DD: -75.8086

X: -75.80859803353309

Y: 39.81679198514693

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
144	ENE	0.98	5,185.71	380.89	WATER WELLS

PA WELL ID:	109136	PA GWIS ID:	
Site ID:		Well Address ID:	83289
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	4886N	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	80	Latitude DD:	39.8130555555556
Elevation Ft:		Longitude DD:	-75.7694444444444
Uses:	W	X:	-75.76944249011285
Local Permit:		Y:	39.813047540454
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:
Source Depth Desc:
Source Site Data Code:
Site Source Desc:
Drillers Coord Method:
Lat Long Accuracy Code: M
Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
145	E	0.96	5,088.64	402.85	WATER WELLS

PA WELL ID:	627317	PA GWIS ID:	
Site ID:		Well Address ID:	89699
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	2
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	40	Latitude DD:	39.81174
Elevation Ft:		Longitude DD:	-75.76899
Uses:	W	X:	-75.76898804633726
Local Permit:		Y:	39.81173198469866
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			

Wells and Additional Sources Detail Report

Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
146	E	0.94	4,977.08	405.29	WATER WELLS

PA WELL ID:	643650	PA GWIS ID:	
Site ID:		Well Address ID:	289306
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.81014
Elevation Ft:		Longitude DD:	-75.76865
Uses:	W	X:	-75.76864804654313
Local Permit:		Y:	39.81013198500405
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

147 ESE 0.87 4,613.73 383.00 WATER WELLS

PA WELL ID:	109290	PA GWIS ID:	
Site ID:		Well Address ID:	85315
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 3907	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.8027777777778
Elevation Ft:		Longitude DD:	-75.7697222222222
Uses:	W	X:	-75.76972026865862
Local Permit:		Y:	39.80276976450605
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
148	ESE	0.85	4,499.45	334.13	WATER WELLS

PA WELL ID:	8896	PA GWIS ID:	
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Wells and Additional Sources Detail Report

Site ID:	394800075461701	Well Address ID:	289024
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1940	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8
Elevation Ft:		Longitude DD:	-75.7713888888889
Uses:	W	X:	-75.77138693530411
Local Permit:		Y:	39.79999198711908
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
149	E	0.95	5,021.84	410.26	WATER WELLS

PA WELL ID:	643871	PA GWIS ID:	
Site ID:		Well Address ID:	89694
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	

Wells and Additional Sources Detail Report

Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliabilty ID:
Well Depth:	Coord Method ID: 3
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.81
Elevation Ft:	Longitude DD: -75.76843
Uses: W	X: -75.76842804662112
Local Permit:	Y: 39.809991985023814
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracty Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
150	ESE	0.86	4,557.98	350.11	WATER WELLS

PA WELL ID: 12577	PA GWIS ID:
Site ID: 394802075461501	Well Address ID: 83274
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: CH 4549	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Toppgraphy ID: S
Type of Site Code:	Topography Code:

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliability ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	O
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8005555555556
Elevation Ft:		Longitude DD:	-75.7708333333333
Uses:	W	X:	-75.7708313794451
Local Permit:		Y:	39.80054754298832
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
151	W	0.97	5,114.08	433.87	WATER WELLS

PA WELL ID:	498261	PA GWIS ID:	
Site ID:		Well Address ID:	82381
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	

Wells and Additional Sources Detail Report

Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	57	Latitude DD:	39.80524
Elevation Ft:		Longitude DD:	-75.8115
Uses:	J	X:	-75.81149803333221
Local Permit:		Y:	39.80523198754929
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
151	W	0.97	5,114.08	433.87	WATER WELLS

PA WELL ID:	498262	PA GWIS ID:	
Site ID:		Well Address ID:	82381
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	83	Latitude DD:	39.80524
Elevation Ft:		Longitude DD:	-75.8115
Uses:	J	X:	-75.81149803333221
Local Permit:		Y:	39.80523198754929
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
153	NNE	0.98	5,165.89	272.13	WATER WELLS

PA WELL ID:	646450	PA GWIS ID:	
Site ID:		Well Address ID:	72926
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82436
Elevation Ft:		Longitude DD:	-75.783
Uses:	B	X:	-75.7829980411401

Wells and Additional Sources Detail Report

Local Permit: Y: 39.82435198270604
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
155	ESE	0.89	4,690.07	383.70	WATER WELLS

PA WELL ID:	8911	PA GWIS ID:	
Site ID:	394810075461001	Well Address ID:	289025
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1903	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	H
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8027777777778
Elevation Ft:		Longitude DD:	-75.7694444444444
Uses:	W	X:	-75.76944249074621
Local Permit:		Y:	39.80276976449587
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: S
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
156	E	0.93	4,886.59	386.81	WATER WELLS

PA WELL ID:	620196	PA GWIS ID:	
Site ID:		Well Address ID:	289307
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	50	Latitude DD:	39.80633
Elevation Ft:		Longitude DD:	-75.76821
Uses:	W	X:	-75.76820804691666
Local Permit:		Y:	39.80632198574486
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
157	NNE	0.99	5,231.36	273.71	WATER WELLS

PA WELL ID:	646506	PA GWIS ID:	
Site ID:		Well Address ID:	74183
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82444
Elevation Ft:		Longitude DD:	-75.78274
Uses:	B	X:	-75.78273804121714
Local Permit:		Y:	39.8244319826806
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
158	NNE	0.98	5,199.61	272.70	WATER WELLS

PA WELL ID: 646449

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reached:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: B

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

PA GWIS ID:

Well Address ID: 80201

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82456

Longitude DD: -75.78317

X: -75.78316804107415

Y: 39.82455198267259

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
159	NNE	0.99	5,242.16	274.17	WATER WELLS

PA WELL ID: 646509

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reached:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: B

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

PA GWIS ID:

Well Address ID: 80199

Quad ID: 2039

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82446

Longitude DD: -75.78271

X: -75.78270804122539

Y: 39.824451982675534

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
160	NNE	0.99	5,240.11	274.17	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	480485	PA GWIS ID:	
Site ID:		Well Address ID:	270783
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82448
Elevation Ft:		Longitude DD:	-75.78276
Uses:	Q	X:	-75.78275804120837
Local Permit:		Y:	39.824471982673394
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
161	NNE	0.99	5,235.70	273.74	WATER WELLS

PA WELL ID:	646508	PA GWIS ID:	
Site ID:		Well Address ID:	80200
Dep Counter:		Quad ID:	

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82455
Elevation Ft:		Longitude DD:	-75.78292
Uses:	B	X:	-75.78291804115358
Local Permit:		Y:	39.824541982665366
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
163	NNE	1.00	5,254.71	273.94	WATER WELLS

PA WELL ID:	481354	PA GWIS ID:	
Site ID:		Well Address ID:	74186
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 3
Type of Activity:	Data Reliability ID:
Well Depth:	Coord Method ID: 1
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd:
Bedrock not Reached:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.82455
Elevation Ft:	Longitude DD: -75.7828
Uses: Q	X: -75.78279804119146
Local Permit:	Y: 39.82454198266095
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
164	NNE	0.99	5,252.95	273.94	WATER WELLS

PA WELL ID: 646482	PA GWIS ID:
Site ID:	Well Address ID: 270774
Dep Counter:	Quad ID:
Transac Counter:	Quadrangle:
Local Well No:	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID:
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W

Wells and Additional Sources Detail Report

Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82456
Elevation Ft:		Longitude DD:	-75.78283
Uses:	B	X:	-75.78282804118136
Local Permit:		Y:	39.824551982660104
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
164	NNE	0.99	5,252.95	273.94	WATER WELLS

PA WELL ID:	646503	PA GWIS ID:	
Site ID:		Well Address ID:	72928
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	

Wells and Additional Sources Detail Report

Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82456
Elevation Ft:		Longitude DD:	-75.78283
Uses:	B	X:	-75.78282804118136
Local Permit:		Y:	39.824551982660104
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
165	NNE	1.00	5,254.21	273.94	WATER WELLS

PA WELL ID:	646481	PA GWIS ID:	
Site ID:		Well Address ID:	74184
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82458

Wells and Additional Sources Detail Report

Elevation Ft:		Longitude DD:	-75.78286
Uses:	B	X:	-75.78285804117068
Local Permit:		Y:	39.82457198265719
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
165	NNE	1.00	5,254.21	273.94	WATER WELLS

PA WELL ID:	646502	PA GWIS ID:	
Site ID:		Well Address ID:	270782
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82458
Elevation Ft:		Longitude DD:	-75.78286
Uses:	B	X:	-75.78285804117068
Local Permit:		Y:	39.82457198265719
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
166	NNE	0.99	5,244.27	273.62	WATER WELLS

PA WELL ID: 646451

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: B

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

PA GWIS ID:

Well Address ID: 270775

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82462

Longitude DD: -75.783

X: -75.78299804112405

Y: 39.82461198265439

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
167	NNE	1.00	5,257.38	273.94	WATER WELLS

PA WELL ID:	646501	PA GWIS ID:	
Site ID:		Well Address ID:	80288
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82458
Elevation Ft:		Longitude DD:	-75.78284
Uses:	B	X:	-75.78283804117699
Local Permit:		Y:	39.82457198265645
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
167	NNE	1.00	5,257.38	273.94	WATER WELLS

PA WELL ID: 646480

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reached:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: B

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

PA GWIS ID:

Well Address ID: 72927

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82458

Longitude DD: -75.78284

X: -75.78283804117699

Y: 39.82457198265645

Wells and Additional Sources Detail Report

Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
168	NNE	0.99	5,248.67	273.27	WATER WELLS

PA WELL ID: 646507

Site ID:

Dep Counter:

Transac Counter:

Local Well No:

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft):

Elevation Ft:

Uses: B

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

Elevation Mthd Desc:

Accuracy of Elevation:

Data Reliability Code:

Data Reliability Desc:

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

PA GWIS ID:

Well Address ID: 270778

Quad ID:

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Topography ID:

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 3

Data Reliabilty ID:

Coord Method ID: 1

Coord Method Desc:

Source of Data Cd:

County Code:

County: CHESTER

Latitude DD: 39.82465

Longitude DD: -75.78303

X: -75.78302804111271

Y: 39.82464198264957

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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Wells and Additional Sources Detail Report

169 NNE 1.00 5,270.28 273.94 WATER WELLS

PA WELL ID:	480484	PA GWIS ID:	
Site ID:		Well Address ID:	74188
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82461
Elevation Ft:		Longitude DD:	-75.78283
Uses:	Q	X:	-75.78282804117826
Local Permit:		Y:	39.82460198265017
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
169	NNE	1.00	5,270.28	273.94	WATER WELLS

PA WELL ID: 646448 PA GWIS ID:

Wells and Additional Sources Detail Report

Site ID:	Well Address ID:	270776
Dep Counter:	Quad ID:	
Transac Counter:	Quadrangle:	
Local Well No:	Quad Code:	
Date Created:	Quad Name:	
Date Updated:	Municipality Code:	
Date Drilled:	Toppgraphy ID:	
Type of Site Code:	Topography Code:	
Type of Site Desc:	Topography Desc:	
Latest Production:	Type of Site ID:	W
Latest Well Use:	Src of Site Rec ID:	3
Type of Activity:	Data Reliabilty ID:	
Well Depth:	Coord Method ID:	1
Hydrologic Unit:	Coord Method Desc:	
Depth to Bedrock:	Source of Data Cd:	
Bedrock not Reachd:	County Code:	
Bedrock Reached: 0	County:	CHESTER
Bedrock Depth (ft):	Latitude DD:	39.82462
Elevation Ft:	Longitude DD:	-75.78282
Uses: B	X:	-75.78281804118083
Local Permit:	Y:	39.82461198264779
Latest Owner:		
Saltwater Zone:		
AAPG Code:		
Aquafier Desc:		
Elev Method Code:		
Elevation Mthd Desc:		
Accuracy of Elevation:		
Data Reliability Code:		
Data Reliability Desc:		
Source Depth Data Code:		
Source Depth Desc:		
Source Site Data Code:		
Site Source Desc:		
Drillers Coord Method:		
Lat Long Accuracy Code:		
Lat Long Accuracty Desc:		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
170	NNE	1.00	5,275.90	273.94	WATER WELLS

PA WELL ID:	646446	PA GWIS ID:	
Site ID:		Well Address ID:	80291
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	

Wells and Additional Sources Detail Report

Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82461
Elevation Ft:		Longitude DD:	-75.78278
Uses:	B	X:	-75.78277804119405
Local Permit:		Y:	39.824601982648325
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
170	NNE	1.00	5,275.90	273.94	WATER WELLS

PA WELL ID:	646538	PA GWIS ID:	
Site ID:		Well Address ID:	80287
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	

Wells and Additional Sources Detail Report

Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.82461
Elevation Ft:		Longitude DD:	-75.78278
Uses:	B	X:	-75.78277804119405
Local Permit:		Y:	39.824601982648325
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
171	WNW	0.94	4,951.76	431.78	WATER WELLS

PA WELL ID:	108809	PA GWIS ID:	
Site ID:		Well Address ID:	88325
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0408	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliability ID:	L

Wells and Additional Sources Detail Report

Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	80	Latitude DD:	39.8116666666667
Elevation Ft:		Longitude DD:	-75.8122222222222
Uses:	W	X:	-75.81222025470778
Local Permit:		Y:	39.81165865329937
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
172	ESE	0.94	4,957.81	383.68	WATER WELLS

PA WELL ID:	8924	PA GWIS ID:	
Site ID:	394817075460501	Well Address ID:	289027
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1906	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	

Wells and Additional Sources Detail Report

Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.804722222222
Elevation Ft:		Longitude DD:	-75.768055555555
Uses:	W	X:	-75.76805360306446
Local Permit:		Y:	39.80471420805862
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
173	S	0.98	5,166.86	369.42	WATER WELLS

PA WELL ID:	107691	PA GWIS ID:	
Site ID:		Well Address ID:	86061
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	4687N	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	35	Latitude DD:	39.791111111111
Elevation Ft:		Longitude DD:	-75.787222222222
Uses:	W	X:	-75.78722026385869

Wells and Additional Sources Detail Report

Local Permit: Y: 39.79110310046584
 Latest Owner:
 Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
174	NNW	0.87	4,571.35	449.24	WATER WELLS

PA WELL ID:	680319	PA GWIS ID:	
Site ID:		Well Address ID:	84708
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	60	Latitude DD:	39.82421
Elevation Ft:		Longitude DD:	-75.7998
Uses:	W	X:	-75.79979803585074
Local Permit:		Y:	39.824201983352424
Latest Owner:			
Saltwater Zone:			
AAPG Code:			

Wells and Additional Sources Detail Report

Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
175	ESE	0.94	4,947.89	377.11	WATER WELLS

PA WELL ID:	655528	PA GWIS ID:	
Site ID:		Well Address ID:	289168
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	3
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.80251
Elevation Ft:		Longitude DD:	-75.76858
Uses:	B	X:	-75.76857804703535
Local Permit:		Y:	39.80250198651737
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			

Wells and Additional Sources Detail Report

Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
179	ESE	0.93	4,895.11	359.18	WATER WELLS

PA WELL ID:	109273	PA GWIS ID:	
Site ID:		Well Address ID:	83272
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	X 0485	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	H
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	2
Type of Activity:		Data Reliabilty ID:	L
Well Depth:		Coord Method ID:	
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	D
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	28	Latitude DD:	39.7997222222222
Elevation Ft:		Longitude DD:	-75.77
Uses:	W	X:	-75.76999804675924
Local Permit:		Y:	39.79971420912337
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			

Wells and Additional Sources Detail Report

Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
180	E	0.98	5,165.15	384.99	WATER WELLS

PA WELL ID:	8927	PA GWIS ID:	
Site ID:	394821075460201	Well Address ID:	83281
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1909	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.80583333333333
Elevation Ft:		Longitude DD:	-75.76722222222222
Uses:	W	X:	-75.76722026925881
Local Permit:		Y:	39.80582531880734
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		

Wells and Additional Sources Detail Report

Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
181	WNW	0.92	4,858.83	450.94	WATER WELLS

PA WELL ID:	8995	PA GWIS ID:	
Site ID:	394856075484101	Well Address ID:	82095
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1803	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8155555555556
Elevation Ft:		Longitude DD:	-75.8113888888889
Uses:	W	X:	-75.81138692173046
Local Permit:		Y:	39.81554754149645
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
182	ESE	0.97	5,113.21	366.76	WATER WELLS

Wells and Additional Sources Detail Report

PA WELL ID:	8917	PA GWIS ID:	
Site ID:	394812075460401	Well Address ID:	85316
Dep Counter:		Quad ID:	2039
Transac Counter:		Quadrangle:	
Local Well No:	CH 1905	Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	S
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	1
Type of Activity:		Data Reliabilty ID:	C
Well Depth:		Coord Method ID:	
Hydrologic Unit:	02040205	Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	Z
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8033333333333
Elevation Ft:		Longitude DD:	-75.7677777777778
Uses:	W	X:	-75.76777582523762
Local Permit:		Y:	39.80332531932441
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	S		
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
183	NNW	0.89	4,714.70	452.61	WATER WELLS

PA WELL ID:	511917	PA GWIS ID:	
Site ID:		Well Address ID:	88712
Dep Counter:		Quad ID:	

Wells and Additional Sources Detail Report

Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.82395
Elevation Ft:		Longitude DD:	-75.80194
Uses:	J	X:	-75.80193803519188
Local Permit:		Y:	39.82394198348259
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
183	NNW	0.89	4,714.70	452.61	WATER WELLS

PA WELL ID:	511919	PA GWIS ID:	
Site ID:		Well Address ID:	88711
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	

Wells and Additional Sources Detail Report

Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliability ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	29	Latitude DD:	39.82395
Elevation Ft:		Longitude DD:	-75.80194
Uses:	W	X:	-75.80193803519188
Local Permit:		Y:	39.82394198348259
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
183	NNW	0.89	4,714.70	452.61	WATER WELLS

PA WELL ID:	511918	PA GWIS ID:	
Site ID:		Well Address ID:	88712
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Topography ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W

Wells and Additional Sources Detail Report

Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	30	Latitude DD:	39.82395
Elevation Ft:		Longitude DD:	-75.80194
Uses:	J	X:	-75.80193803519188
Local Permit:		Y:	39.82394198348259
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:			
Lat Long Accuracty Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
185	NW	0.90	4,739.11	426.54	WATER WELLS

PA WELL ID:	478686	PA GWIS ID:	
Site ID:		Well Address ID:	286479
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	

Wells and Additional Sources Detail Report

Depth to Bedrock:	Source of Data Cd:
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft):	Latitude DD: 39.8191
Elevation Ft:	Longitude DD: -75.809
Uses: K	X: -75.80899803326494
Local Permit:	Y: 39.819091984704876
Latest Owner:	
Saltwater Zone:	
AAPG Code:	
Aquafier Desc:	
Elev Method Code:	
Elevation Mthd Desc:	
Accuracy of Elevation:	
Data Reliability Code:	
Data Reliability Desc:	
Source Depth Data Code:	
Source Depth Desc:	
Source Site Data Code:	
Site Source Desc:	
Drillers Coord Method:	
Lat Long Accuracy Code:	
Lat Long Accuracy Desc:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
186	WNW	0.93	4,912.06	469.17	WATER WELLS

PA WELL ID: 108802	PA GWIS ID:
Site ID:	Well Address ID: 88330
Dep Counter:	Quad ID: 2039
Transac Counter:	Quadrangle:
Local Well No: X 0400	Quad Code:
Date Created:	Quad Name:
Date Updated:	Municipality Code:
Date Drilled:	Topography ID: H
Type of Site Code:	Topography Code:
Type of Site Desc:	Topography Desc:
Latest Production:	Type of Site ID: W
Latest Well Use:	Src of Site Rec ID: 2
Type of Activity:	Data Reliabilty ID: L
Well Depth:	Coord Method ID:
Hydrologic Unit:	Coord Method Desc:
Depth to Bedrock:	Source of Data Cd: D
Bedrock not Reachd:	County Code:
Bedrock Reached: 0	County: CHESTER
Bedrock Depth (ft): 37	Latitude DD: 39.81611111111111

Wells and Additional Sources Detail Report

Elevation Ft:		Longitude DD:	-75.811388888889
Uses:	W	X:	-75.81138692169614
Local Permit:		Y:	39.816103096386136
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			
Source Depth Data Code:			
Source Depth Desc:			
Source Site Data Code:			
Site Source Desc:			
Drillers Coord Method:			
Lat Long Accuracy Code:	M		
Lat Long Accuracy Desc:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
187	WNW	0.92	4,835.89	458.42	WATER WELLS

PA WELL ID:	478683	PA GWIS ID:	
Site ID:		Well Address ID:	286478
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reachd:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):		Latitude DD:	39.8176
Elevation Ft:		Longitude DD:	-75.8104
Uses:	K	X:	-75.81039803291607
Local Permit:		Y:	39.817591985054136
Latest Owner:			

Wells and Additional Sources Detail Report

Saltwater Zone:
 AAPG Code:
 Aquafier Desc:
 Elev Method Code:
 Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code:
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
189	NW	0.93	4,894.71	442.33	WATER WELLS

PA WELL ID: 108817

Site ID:

Dep Counter:

Transac Counter:

Local Well No: X 0417

Date Created:

Date Updated:

Date Drilled:

Type of Site Code:

Type of Site Desc:

Latest Production:

Latest Well Use:

Type of Activity:

Well Depth:

Hydrologic Unit:

Depth to Bedrock:

Bedrock not Reachd:

Bedrock Reached: 0

Bedrock Depth (ft): 50

Elevation Ft:

Uses: W

Local Permit:

Latest Owner:

Saltwater Zone:

AAPG Code:

Aquafier Desc:

Elev Method Code:

PA GWIS ID:

Well Address ID: 82097

Quad ID: 2039

Quadrangle:

Quad Code:

Quad Name:

Municipality Code:

Toppgraphy ID: S

Topography Code:

Topography Desc:

Type of Site ID: W

Src of Site Rec ID: 2

Data Reliabilty ID: L

Coord Method ID:

Coord Method Desc:

Source of Data Cd: D

County Code:

County: CHESTER

Latitude DD: 39.81861111111111

Longitude DD: -75.81

X: -75.80999803297975

Y: 39.81860309583868

Wells and Additional Sources Detail Report

Elevation Mthd Desc:
 Accuracy of Elevation:
 Data Reliability Code:
 Data Reliability Desc:
 Source Depth Data Code:
 Source Depth Desc:
 Source Site Data Code:
 Site Source Desc:
 Drillers Coord Method:
 Lat Long Accuracy Code: M
 Lat Long Accuracy Desc:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
190	WNW	0.96	5,066.03	476.03	WATER WELLS

PA WELL ID:	483961	PA GWIS ID:	
Site ID:		Well Address ID:	88589
Dep Counter:		Quad ID:	
Transac Counter:		Quadrangle:	
Local Well No:		Quad Code:	
Date Created:		Quad Name:	
Date Updated:		Municipality Code:	
Date Drilled:		Toppgraphy ID:	
Type of Site Code:		Topography Code:	
Type of Site Desc:		Topography Desc:	
Latest Production:		Type of Site ID:	W
Latest Well Use:		Src of Site Rec ID:	3
Type of Activity:		Data Reliabilty ID:	
Well Depth:		Coord Method ID:	1
Hydrologic Unit:		Coord Method Desc:	
Depth to Bedrock:		Source of Data Cd:	
Bedrock not Reached:		County Code:	
Bedrock Reached:	0	County:	CHESTER
Bedrock Depth (ft):	112	Latitude DD:	39.816
Elevation Ft:		Longitude DD:	-75.812
Uses:	J	X:	-75.81199803251032
Local Permit:		Y:	39.81599198543062
Latest Owner:			
Saltwater Zone:			
AAPG Code:			
Aquafier Desc:			
Elev Method Code:			
Elevation Mthd Desc:			
Accuracy of Elevation:			
Data Reliability Code:			
Data Reliability Desc:			

Wells and Additional Sources Detail Report

Source Depth Data Code:

Source Depth Desc:

Source Site Data Code:

Site Source Desc:

Drillers Coord Method:

Lat Long Accuracy Code:

Lat Long Accuracy Desc:

Public Water Supply Wells

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
55	ESE	0.59	3,107.25	351.15	PWSW

PWS ID: 1150695
System Name: ALPINE MUSHROOM DIVISION
Responsibility: MICHAEL PIA
Activity: I
Phone: (610)268-8770
X: -75.7752168078521
Y: 39.8028881478641

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
60	SW	0.76	4,001.40	387.87	PWSW

PWS ID: 1150700
System Name: GOURMETS DELIGHT MUSHROOM CO
Responsibility: RICHARD HARRIS III
Activity: I
Phone: (610)268-3578
X: -75.8018837004047
Y: 39.7992769243585

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
86	ESE	0.72	3,807.09	357.97	PWSW

PWS ID: 1150695
System Name: ALPINE MUSHROOM DIVISION
Responsibility: MICHAEL PIA
Activity: I
Phone: (610)268-8770
X: -75.77216076351
Y: 39.8048321458773

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
90	NNE	0.80	4,235.89	270.67	PWSW

Wells and Additional Sources Detail Report

PWS ID: 1150005
System Name: BOROUGH OF AVONDALE
Responsibility: WILLIAM SHORE
Activity: A
Phone: (610)268-8501
X: -75.7850310002475
Y: 39.822329000809

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
96	NNE	0.81	4,278.54	271.03	PWSW

PWS ID: 1150005
System Name: BOROUGH OF AVONDALE
Responsibility: WILLIAM SHORE
Activity: A
Phone: (610)268-8501
X: -75.7854010001433
Y: 39.8226510004051

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
99	ESE	0.75	3,975.69	359.97	PWSW

PWS ID: 1150695
System Name: ALPINE MUSHROOM DIVISION
Responsibility: MICHAEL PIA
Activity: I
Phone: (610)268-8770
X: -75.771604731502
Y: 39.8045541570255

Radon Information

This section lists any relevant radon information found for the target property.

Federal EPA Radon Zone for *CHESTER* County: **1**

Zone 1: Counties with predicted average indoor radon screening levels greater than 4 pCi/L

Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L

Zone 3: Counties with predicted average indoor radon screening levels less than 2 pCi/L

Federal Area Radon Information for *CHESTER* County

No Measures/Homes:	34
Geometric Mean:	3.8
Arithmetic Mean:	9.9
Median:	3.5
Standard Deviation:	15.3
Maximum:	64.3
% >4 pCi/L:	38
% >20 pCi/L:	18
Notes on Data Table:	TABLE 1. Screening indoor radon data from the EPA/State Residential Radon Survey of Pennsylvania conducted during 1987-88. Data represent 2-7 day charcoal canister measurements from the lowest level of each home tested.

Federal Sources

FEMA National Flood Hazard Layer

FEMA FLOOD

The National Flood Hazard Layer (NFHL) data incorporates Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters Of Map Revision (LOMRs) that have been issued against those databases since their publication date. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs. The FIRM Database depicts flood risk information and supporting data used to develop the risk data. The FIRM Database is derived from Flood Insurance Studies (FISs), previously published FIRMs, flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available.

Indoor Radon Data

INDOOR RADON

Indoor radon measurements tracked by the Environmental Protection Agency(EPA) and the State Residential Radon Survey.

Public Water Systems Violations and Enforcement Data

PWSV

This list of drinking water violations and enforcement actions is sourced from the U.S Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) system that incorporates Public Water Systems data from EPA's Safe Drinking Water Information System (SDWIS) database, as part of the national download of Safe Drinking Water Act (SDWA) data. SDWIS contains information on public water systems from the Public Water System Supervision (PWSS) Program, including monitoring, enforcement, and violation data related to requirements established by the SWDA. Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

Radon Zone Level

RADON ZONE

Areas showing the level of Radon Zones (level 1, 2 or 3) by county. This data is maintained by the Environmental Protection Agency (EPA).

Safe Drinking Water Information System (SDWIS)

SDWIS

This national download of Safe Drinking Water Act (SDWA) data is sourced from the U.S Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) system that incorporates Public Water Systems data from EPA's Safe Drinking Water Information System (SDWIS) database. SDWIS contains information on public water systems from the Public Water System Supervision (PWSS) Program related to requirements established by the Safe Drinking Water Act (SDWA). Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

Soil Survey Geographic database

SSURGO

The Soil Survey Geographic database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey at the Natural Resources Conservation Service (NRCS). Soil maps outline areas called map units. The map units are linked to soil properties in a database. Each map unit may contain one to three major components and some minor components.

U.S. Fish & Wildlife Service Wetland Data

US WETLAND

The U.S. Fish & Wildlife Service Wetland layer represents the approximate location and type of wetlands and deepwater habitats in the United States.

USGS Current Topo

US TOPO

US Topo topographic maps are produced by the National Geospatial Program of the U.S. Geological Survey (USGS). The project was launched in late 2009, and the term "US Topo" refers specifically to quadrangle topographic maps published in 2009 and later.

USGS Geology

US GEOLOGY

Seamless maps depicting geological information provided by the United States Geological Survey (USGS).

USGS National Water Information System

FED USGS

The U.S. Geological Survey's (USGS) National Water Information System (NWIS) is the nation's principal repository of water resources data. The data includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data. This NWIS database information is obtained through the Water Quality Data Portal (WQP). The WQP

Appendix

is a cooperative service sponsored by the USGS, the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC).

State Sources

Groundwater Information System

WATER WELLS

The Pennsylvania GroundWater Information System (PaGWIS) made available by the Pennsylvania Geological Survey Department of Conservation and Natural Resources (DCNR) maintains well records that have been submitted by water well drillers.

Historical Oil and Gas Well Locations

OGW HISTORICAL

This list of Historical Oil and Gas Well Locations is provided by the Pennsylvania Department of Environmental Protection (DEP). According to the DEP, these well locations were derived from historical mine maps known as the WPA, KSheet, and HSheet collections. These locations are provided for informational purposes only and should not be sole means of decision making and are in no way a substitute for actual on the ground observation.

Oil and Gas Wells

OGW

This Oil and Gas Well database is made available by Pennsylvania Department of Environmental Protection (DEP). The well data is sourced from the DEP's Oil and Gas Well Inventory report and eMapPA mapping tool.

Public Water Supply Wells

PWSW

Locations of groundwater sources serving Pennsylvania public water systems. Listing made available by the Pennsylvania Department of Environmental Protection.

Underground Injection Control Wells

UIC

A partial list of underground injection control wells is maintained by the Pennsylvania Department of Environmental Protection (DEP). The DEP maintains a list of Class II enhanced recovery and brine disposal wells.

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APPENDIX E

HISTORICAL RECORDS



HISTORICAL AERIALS

Project Property: Clay Creek
Garden Station Rd
Avondale PA

Project No: 203402183 Task 177.3

Requested By: Stantec Consulting Ltd.

Order No: 24042400518

Date Completed: May 01, 2024

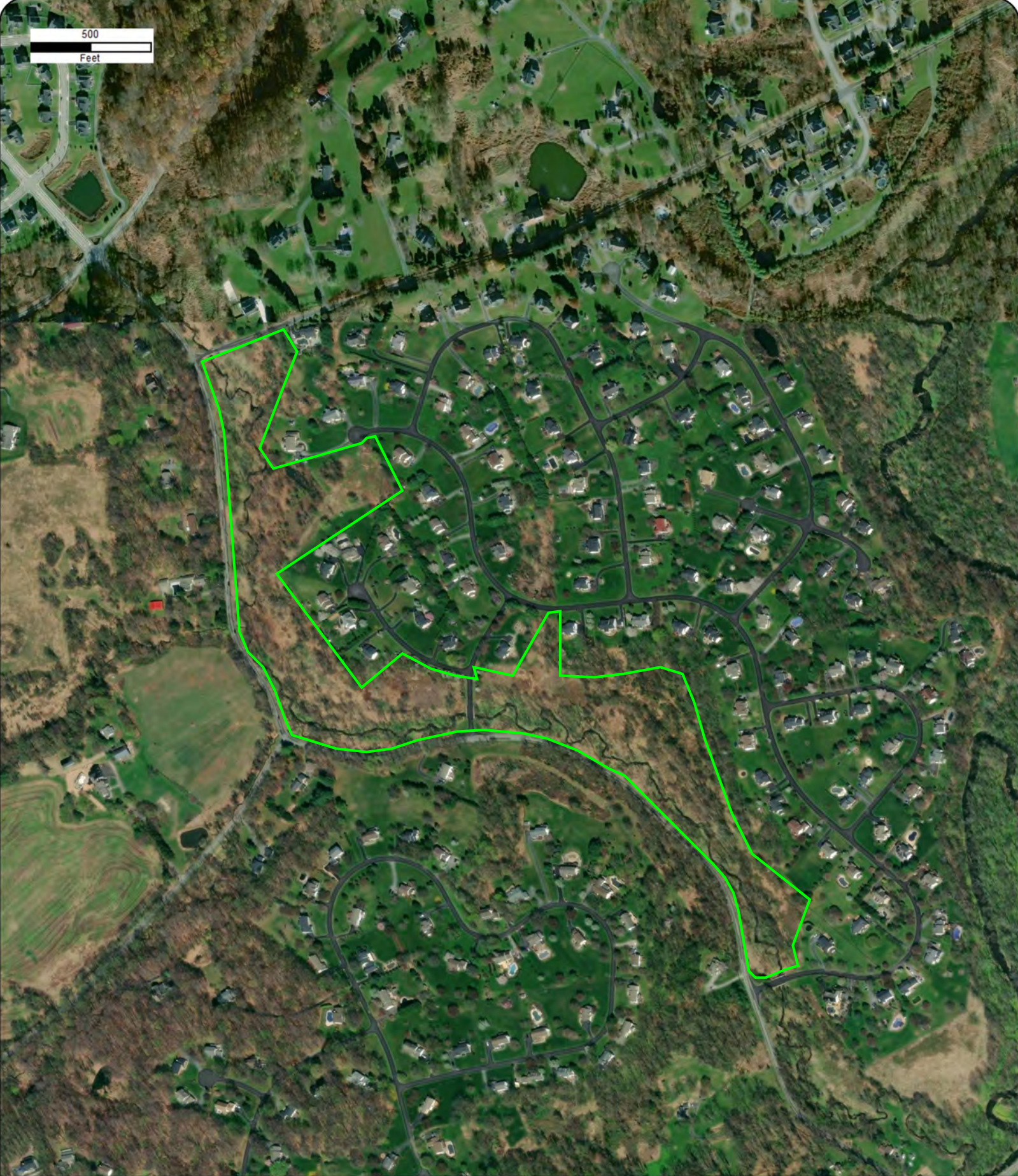
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Environmental Risk Information Services

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1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Scale	Comments
2023	Maxar Technologies	1" = 500'	
2019	United States Department of Agriculture	1" = 500'	
2017	United States Department of Agriculture	1" = 500'	
2015	United States Department of Agriculture	1" = 500'	
2013	United States Department of Agriculture	1" = 500'	
2010	United States Department of Agriculture	1" = 500'	
2008	United States Department of Agriculture	1" = 500'	
2005	United States Department of Agriculture	1" = 500'	
2004	United States Department of Agriculture	1" = 500'	
1999	United States Geological Survey	1" = 500'	
1993	United States Geological Survey	1" = 500'	
1982	United States Geological Survey	1" = 500'	
1973	United States Geological Survey	1" = 500'	Best Copy Available
1968	United States Geological Survey	1" = 500'	
1957	Agricultural Stabilization & Conserv. Service	1" = 500'	
1946	Agricultural Stabilization & Conserv. Service	1" = 500'	
1937	Agricultural Stabilization & Conserv. Service	1" = 500'	



Year: 2023
Source: MAXAR
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518





Year: 2019
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518

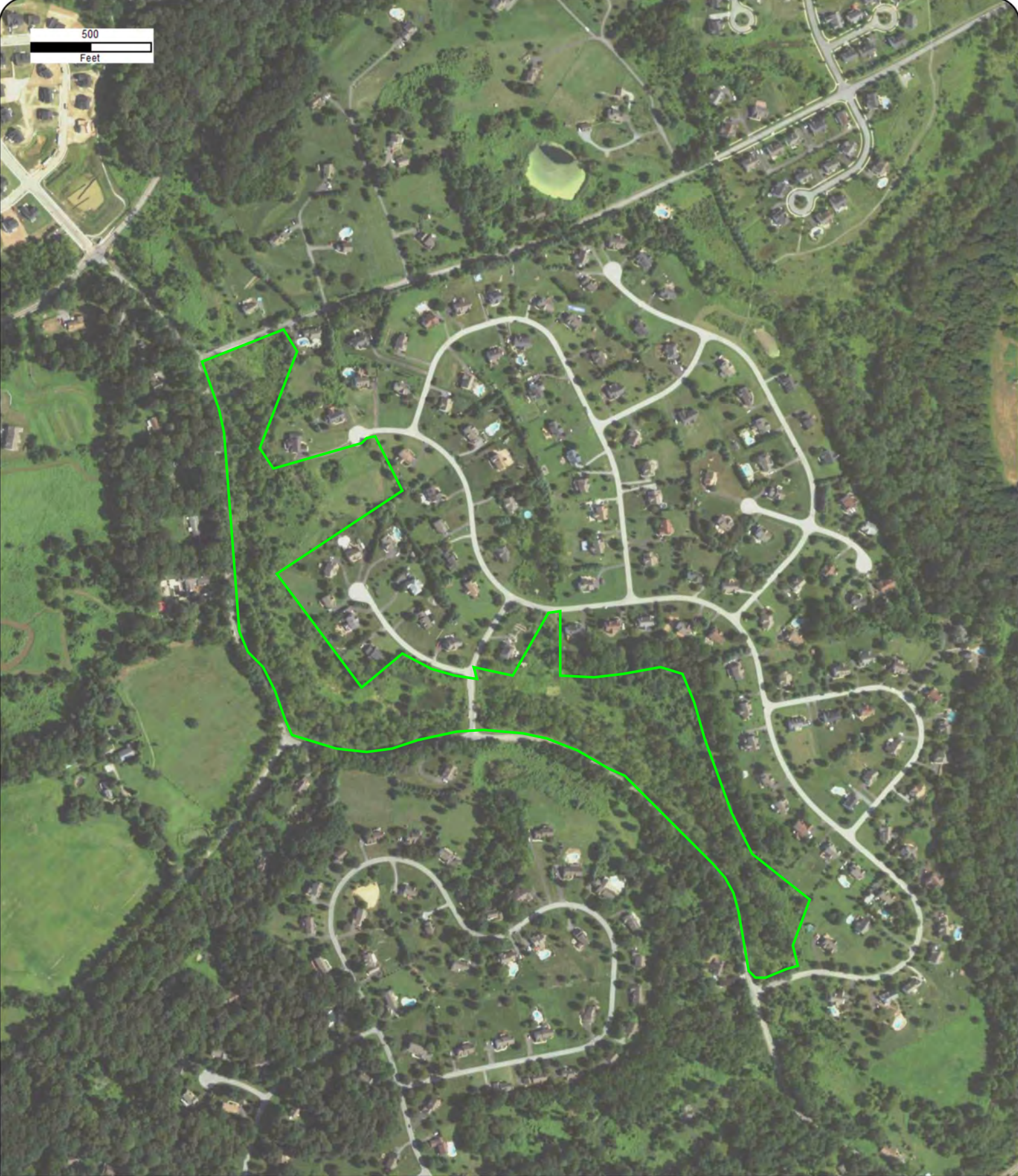




Year: 2017
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



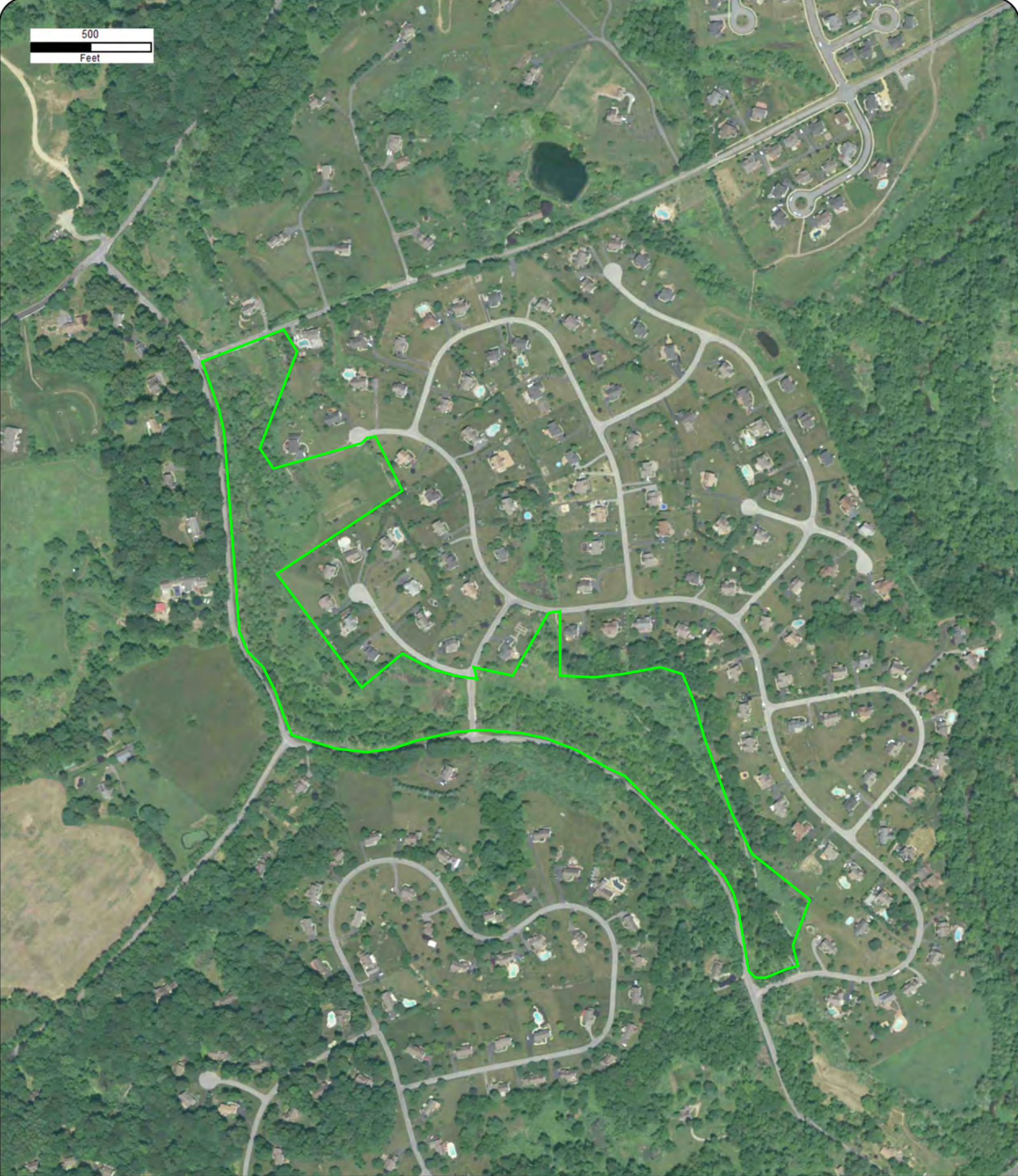
Year: 2015
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



Year: 2013
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet

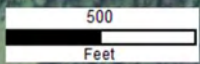


Year: 2010
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



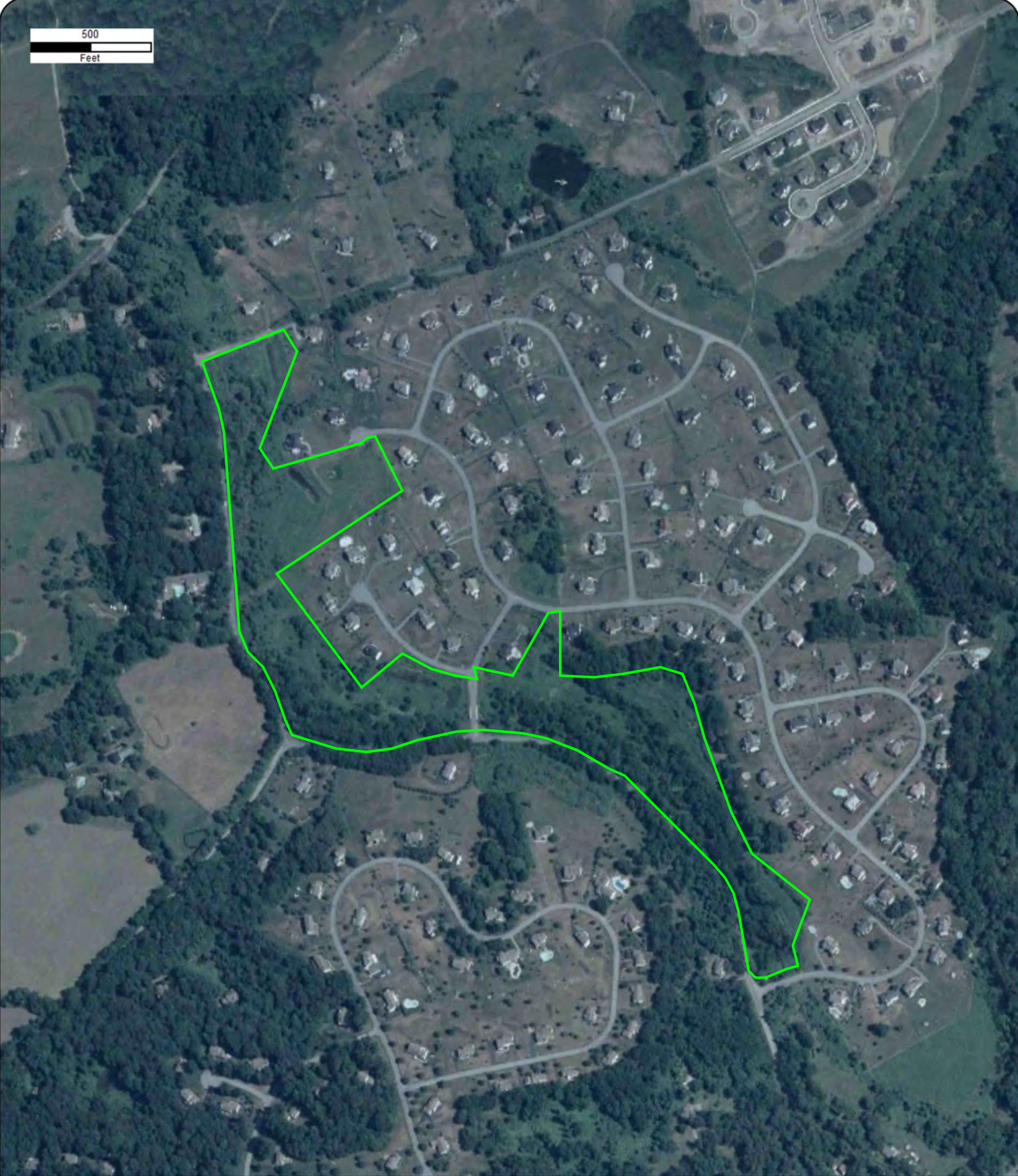
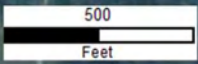


Year: 2008
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518





Year: 2005
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



Year: 2004
Source: USDA
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



Year: 1999
Source: USGS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet

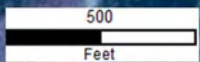


Year: 1993
Source: USGS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518





Year: 1982
Source: USGS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet

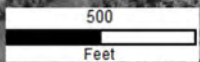


Year: 1973
Source: USGS
Scale: 1" = 500'
Comment: Best Copy Available

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518





Year: 1968
Source: USGS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



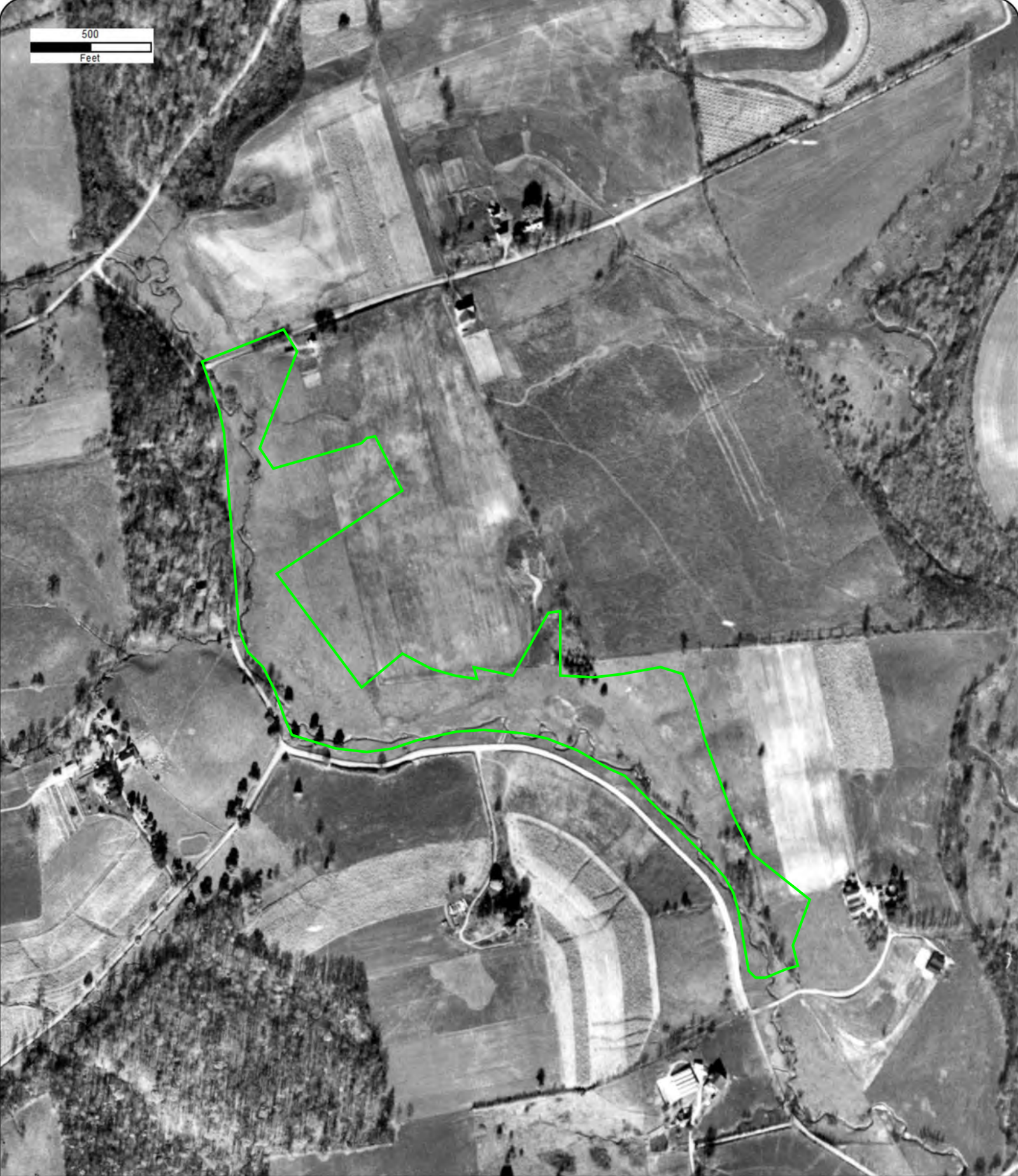
Year: 1957
Source: ASCS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



Year: 1946
Source: ASCS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518



500
Feet



Year: 1937
Source: ASCS
Scale: 1" = 500'
Comment:

Address: Garden Station Rd, Avondale, PA
Approx Center: -75.79081719,39.80893155

Order No: 24042400518





TOPOGRAPHIC MAPS

Project Property:	Clay Creek
	Garden Station Rd
	London Grove PA None
Project No:	203402183 Task 177.3
Requested By:	Stantec Consulting Ltd.
Order No:	24042400518
Date Completed:	April 25, 2024

We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2019	7.5
2016	7.5
2013	7.5
1999	7.5
1997	7.5
1973	7.5
1968	7.5
1953	7.5
1943	15
1918	15
1906	15
1904	15

Topographic Map Symbolology for the maps may be available in the following documents:

Pre-1947

[Page 223 of 1918 Topographic Instructions](#)

[Page 130 of 1928 Topographic Instructions](#)

1947-2009

[Topographic Map Symbols](#)

2009-present

[US Topo Map Symbols](#)

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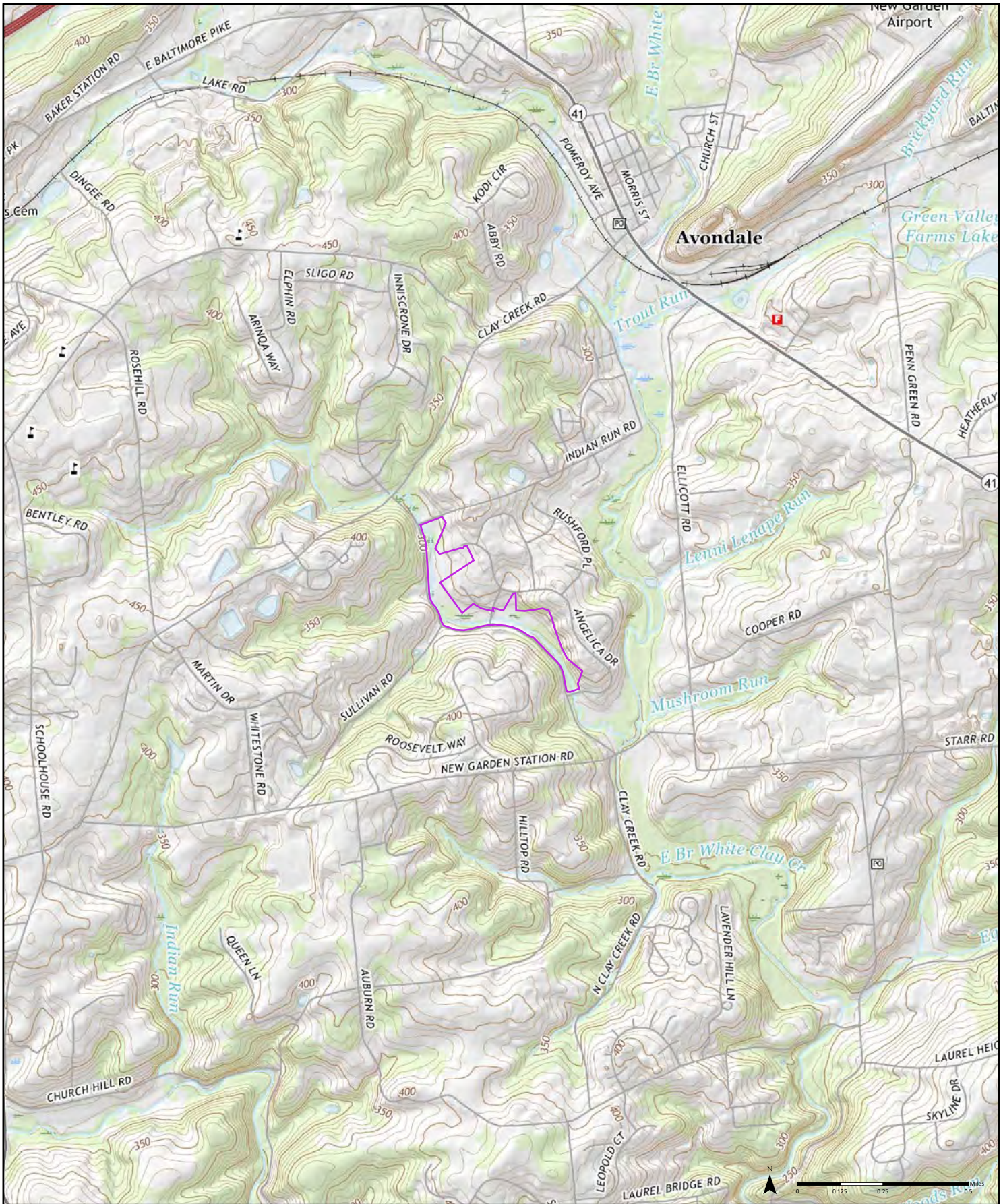
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2016

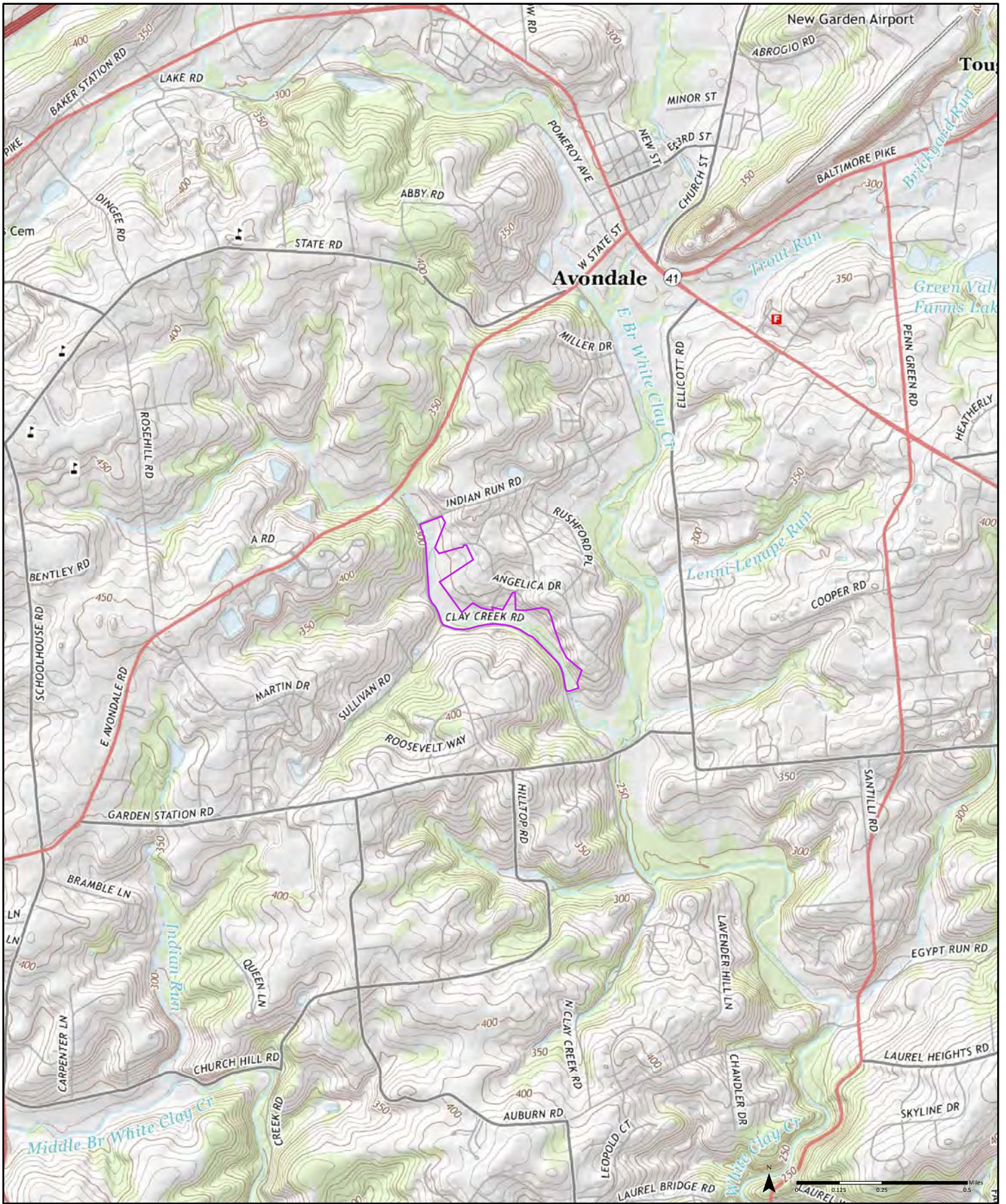
Order No. 24042400518



Available Quadrangle(s): West Grove, PA

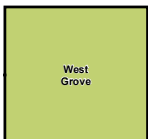
Source: USGS 7.5 Minute Topographic Map





2013

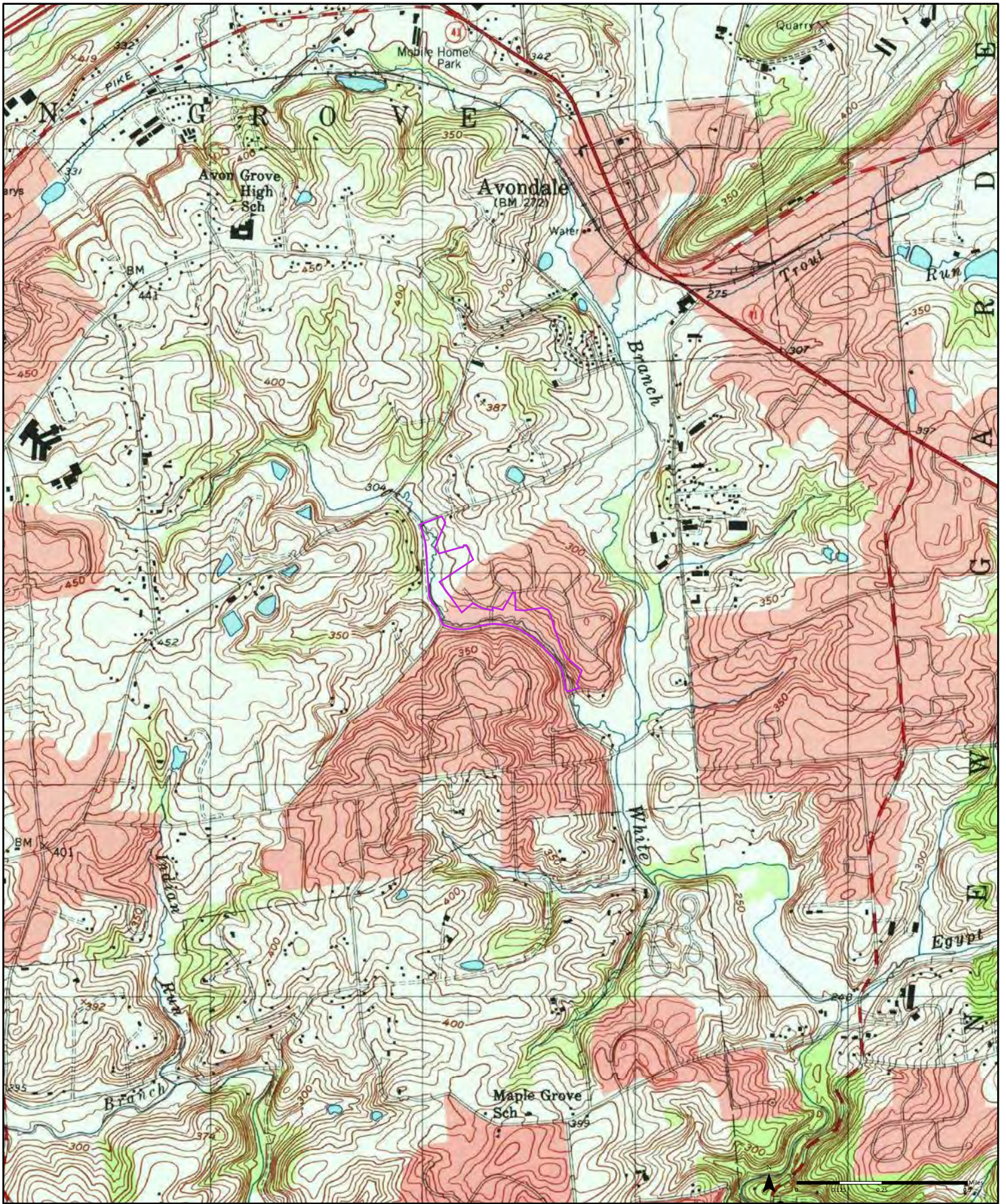
Order No. 24042400518



Available Quadrangle(s): West Grove, PA

Source: USGS 7.5 Minute Topographic Map





1999

(1-1999)
Aerial Photo Year: 1999

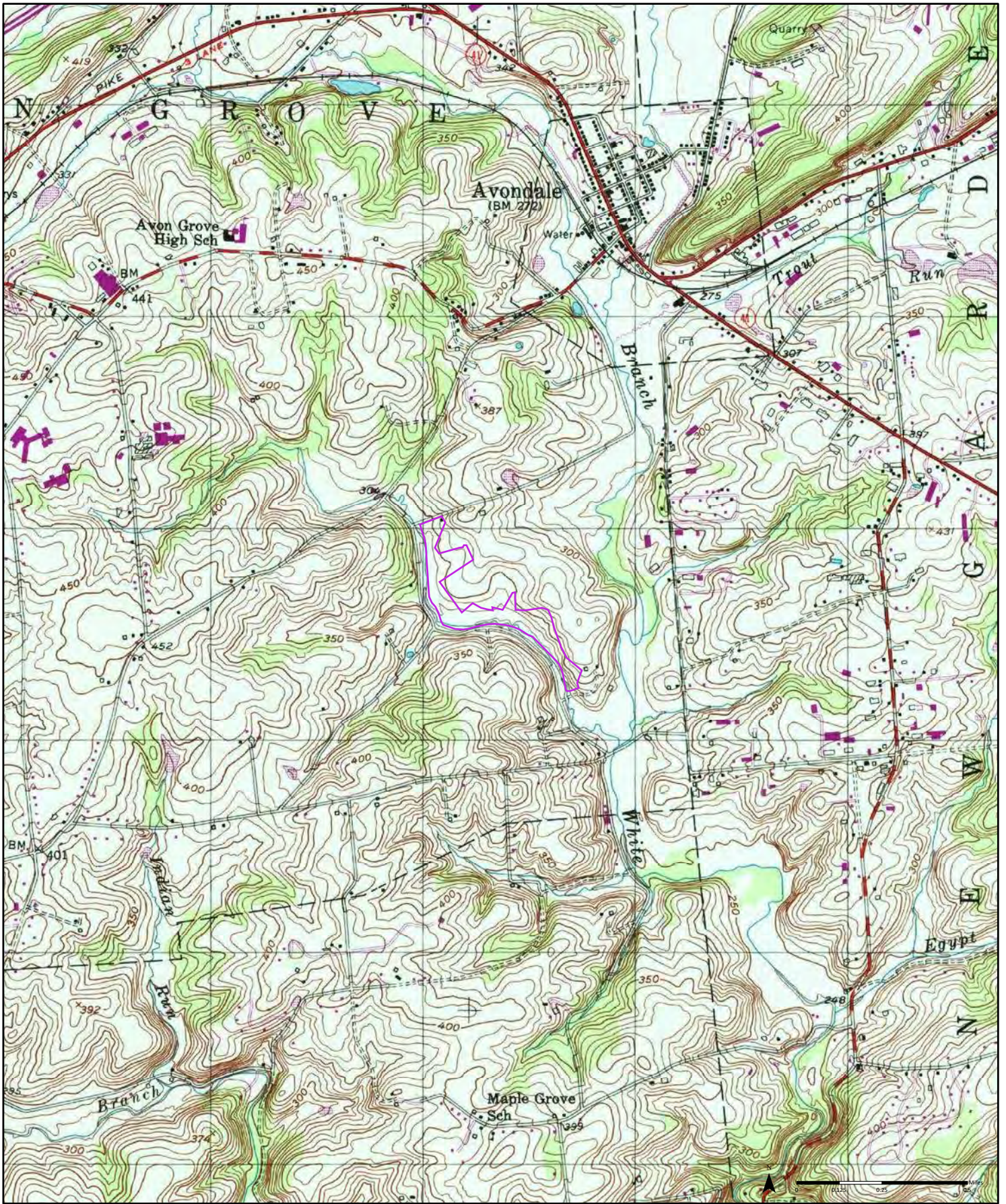
Order No. 24042400518



Available Quadrangle(s): West Grove, PA(1-1999)

Source: USGS 7.5 Minute Topographic Map





1997

(1-1997)
Aerial Photo Year: 1997

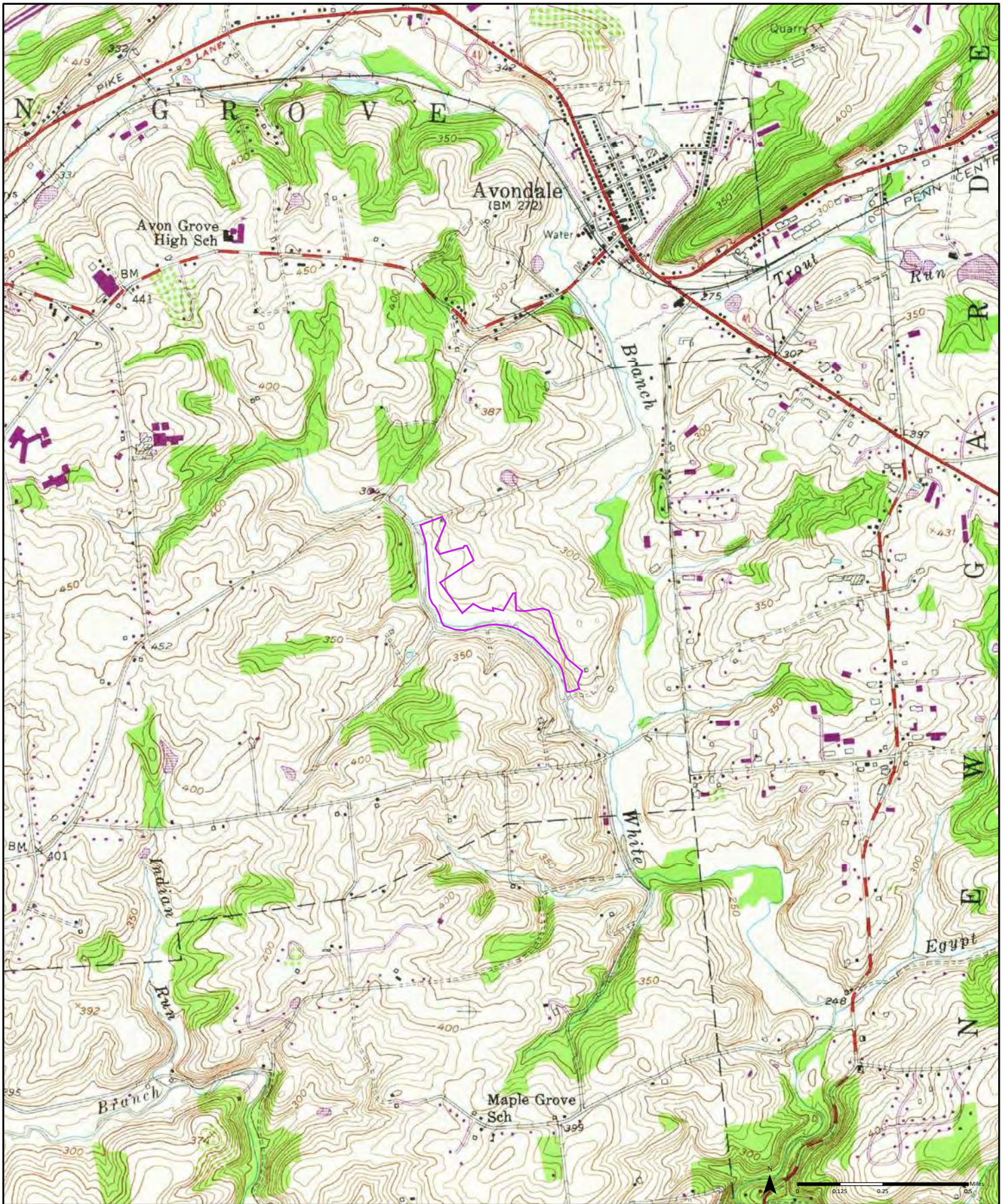
Order No. 24042400518



Available Quadrangle(s): West Grove, PA(1-1997)

Source: USGS 7.5 Minute Topographic Map





1973

(1-1973)
Aerial Photo Year: 1973
Photo Revision Year: 1973

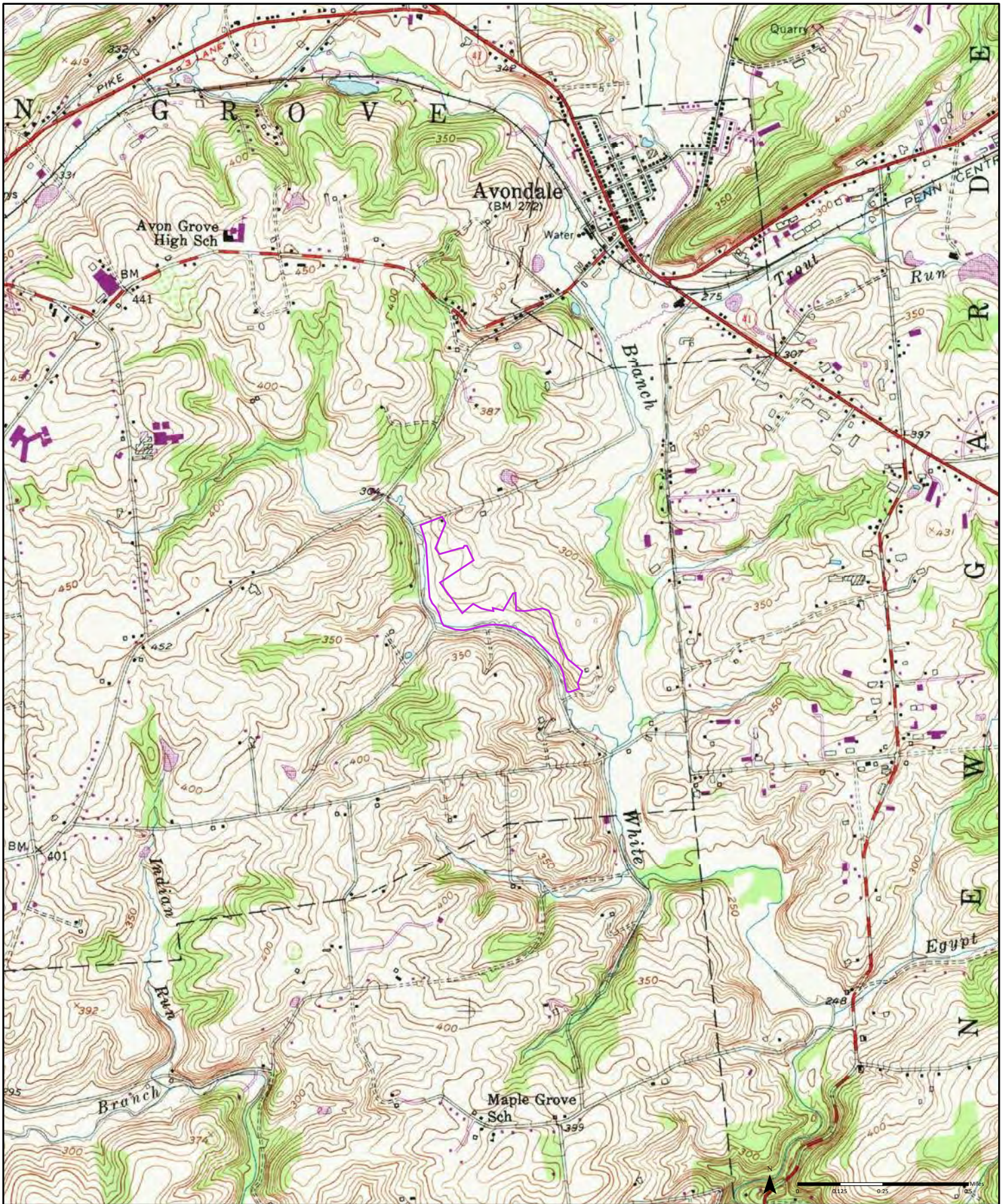
Order No. 24042400518



Available Quadrangle(s): West Grove, PA(1-1973)

Source: USGS 7.5 Minute Topographic Map





1968

(1-1968)
Aerial Photo Year: 1968
Photo Revision Year: 1968

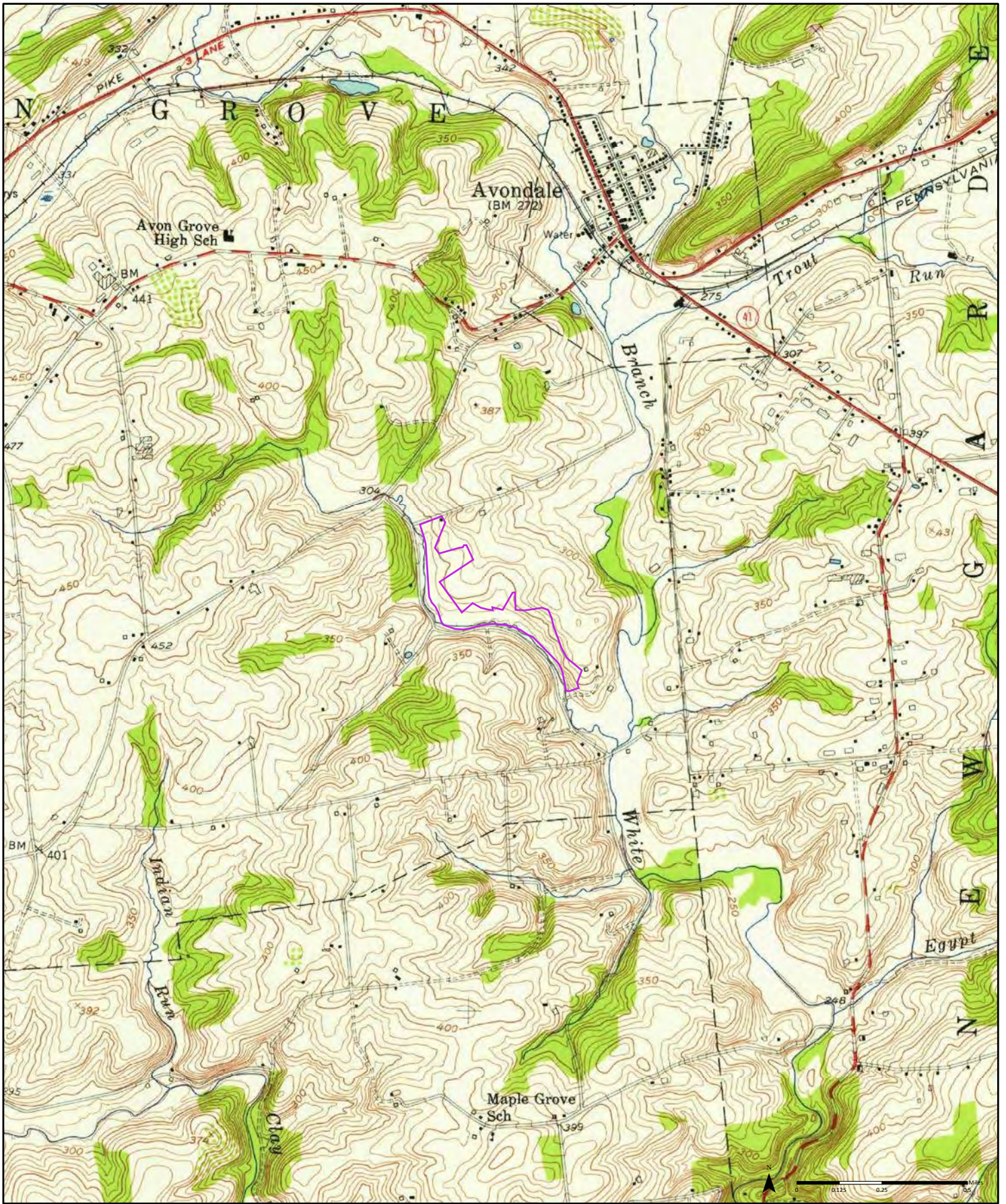
Order No. 24042400518



Available Quadrangle(s): West Grove, PA(1-1968)

Source: USGS 7.5 Minute Topographic Map





1953

(1-1953)
Aerial Photo Year: 1950

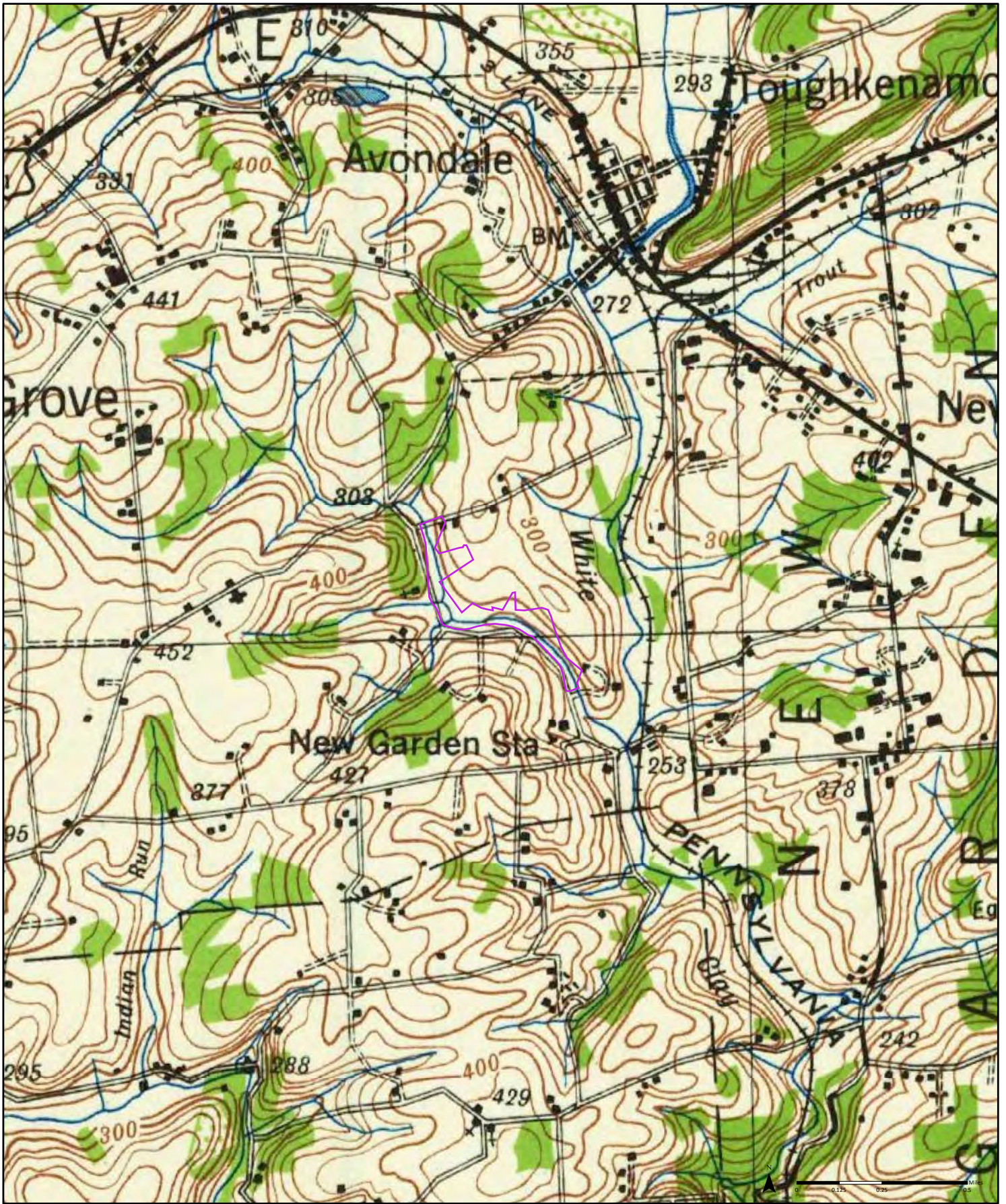
Order No. 24042400518



Available Quadrangle(s): West Grove, PA(1-1953)

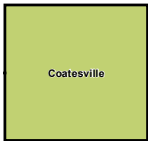
Source: USGS 7.5 Minute Topographic Map





1943

Order No. 24042400518



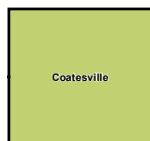
Available Quadrangle(s): Coatesville, PA

Source: USGS 15 Minute Topographic Map



1918

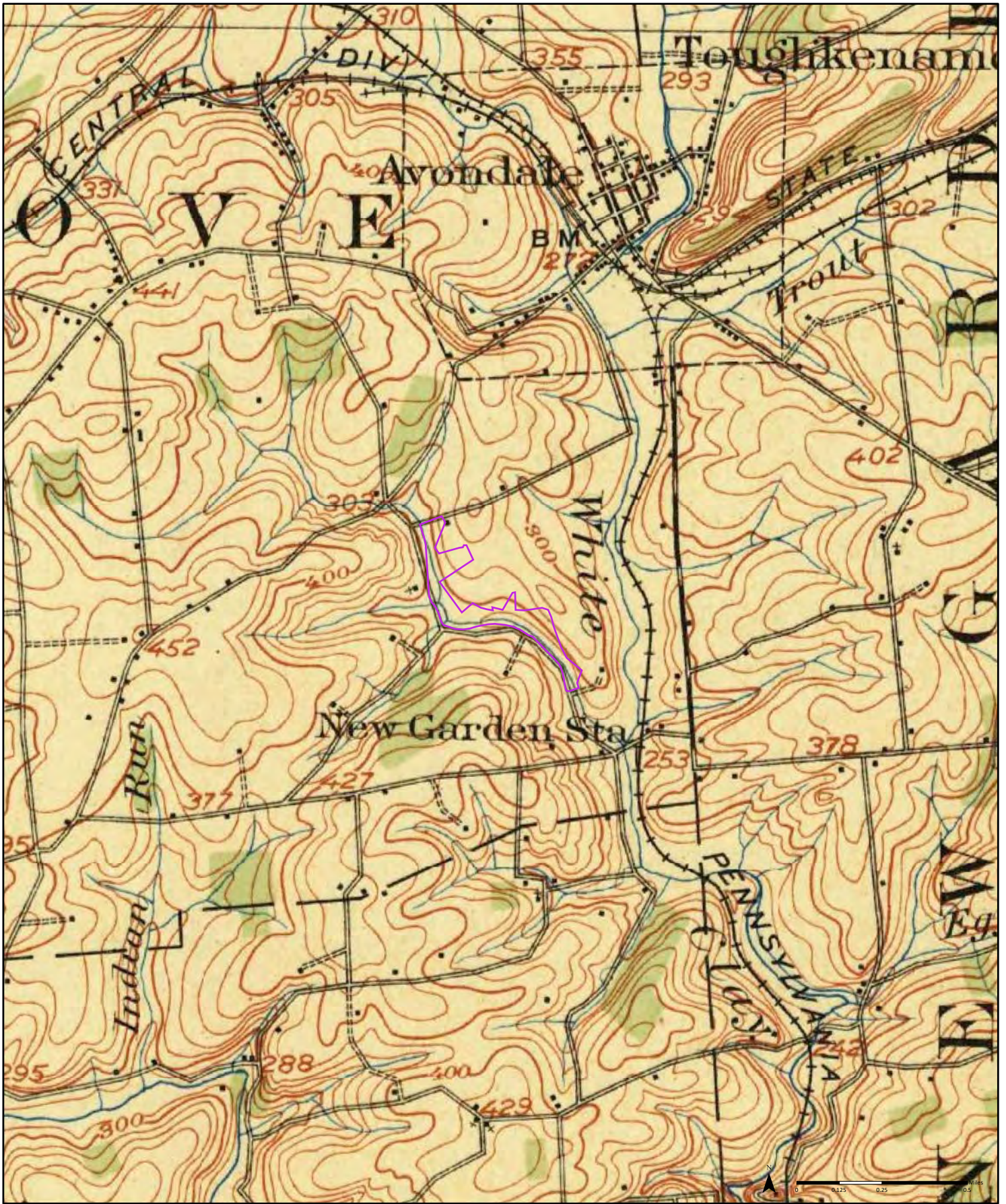
Order No. 24042400518



Available Quadrangle(s): Coatesville, PA

Source: USGS 15 Minute Topographic Map





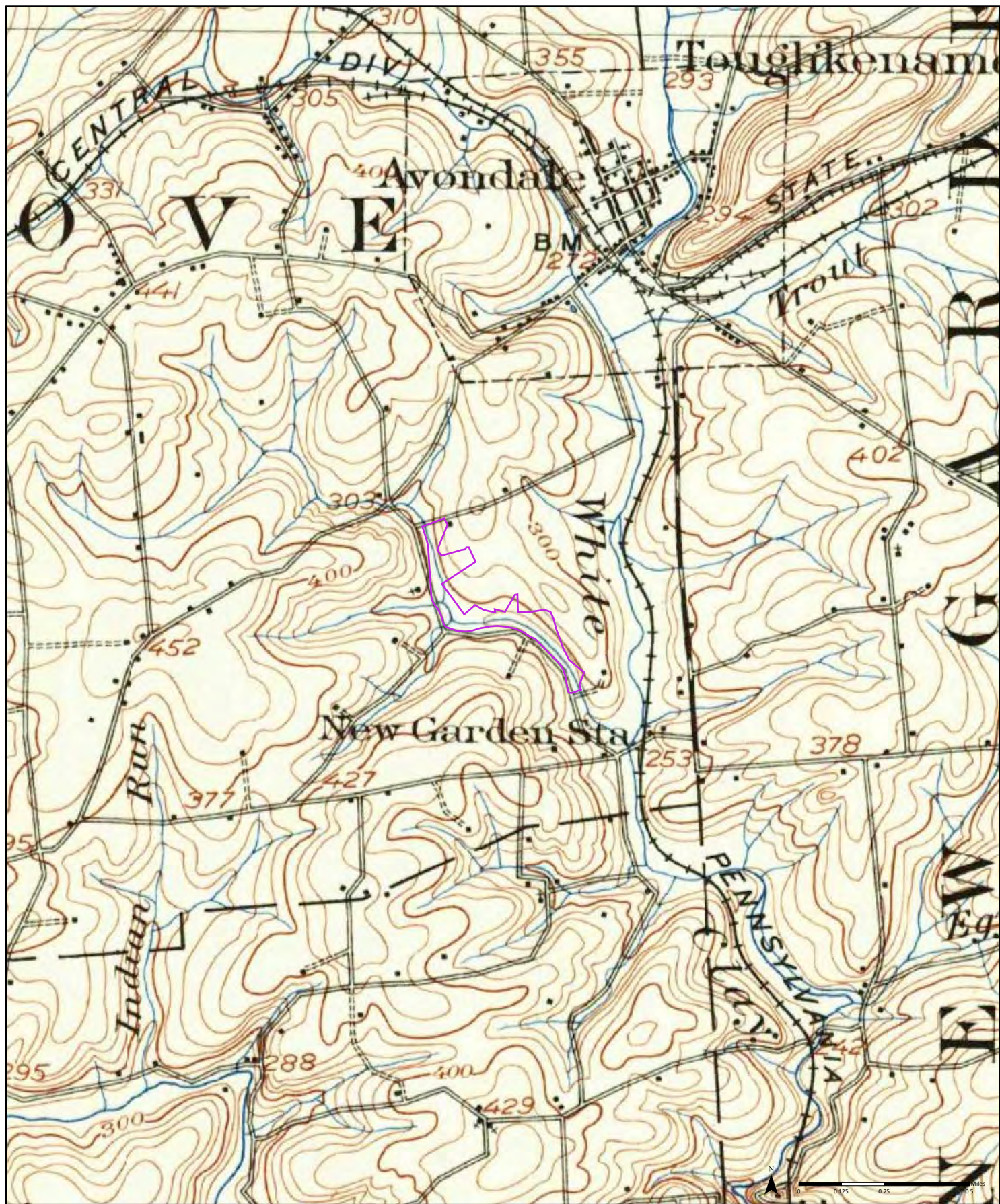
1906

Order No. 24042400518



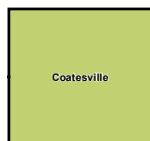
Available Quadrangle(s): Coatesville, PA

Source: USGS 15 Minute Topographic Map



1904

Order No. 24042400518



Available Quadrangle(s): Coatesville, PA

Source: USGS 15 Minute Topographic Map



CITY DIRECTORY

Project Property: *Clay Creek
Garden Station Rd
Avondale, PA*

Project No: *203402183 Task 177.3*

Requested By: *Stantec Consulting Ltd.*

Order No: *24042400518*

Date Completed: *May 01, 2024*

Environmental Risk Information Services

A division of Glacier Media Inc.

1.866.517.5204 | info@erisinfo.com | erisinfo.com

May 01, 2024
RE: CITY DIRECTORY RESEARCH
Garden Station Rd
Avondale,PA

Thank you for contacting ERIS for an City Directory Search for the site described above. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. We have provided the nearest addresses(s) when adjacent addresses are not listed. If we have searched a range of addresses, all addresses in that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on more highly developed areas. Newly developed areas may be covered in the more recent years, but the older directories will tend to cover only the "central" parts of the city. To complete the search, we have either utilized the ACPL, Library of Congress, State Archives, and/or a regional library or history center as well as multiple digitized directories. These do not claim to be a complete collection of all reverse listing city directories produced.

ERIS has made every effort to provide accurate and complete information but shall not be held liable for missing, incomplete or inaccurate information. To complete this search we used the general range(s) below to search for relevant findings. If you believe there are additional addresses or streets that require searching please contact us at 866-517-5204.

Search Criteria:

ALL of Athelone Way
750-1400 of Clay Creek Rd
1750-2100 of Garden Station Rd
BEG-400 of Indian Run Rd

Search Notes:

Search Results Summary

Date	Source	Comment
2022	DIGITAL BUSINESS DIRECTORY	
2020	DIGITAL BUSINESS DIRECTORY	
2016	DIGITAL BUSINESS DIRECTORY	
2012	DIGITAL BUSINESS DIRECTORY	
2008	DIGITAL BUSINESS DIRECTORY	
2003	DIGITAL BUSINESS DIRECTORY	
2000	DIGITAL BUSINESS DIRECTORY	
1995	COLE	
1990	COLE	
1984-85	COLE	
1980-81	COLE	
1975	COLE	

Environmental Risk Information Services

A division of Glacier Media Inc.

1.866.517.5204 | info@erisinfo.com | erisinfo.com

15 **INNISCRONE GOLF CLUB...***BANQUET ROOMS*
15 **INNISCRONE GOLF CLUB...***GOLF COURSES*
15 **INNISCRONE GOLF CLUB...***FEDERAL GOVERNMENT CONTRACTORS*
15 **INNISCRONE GOLF CLUB...***GOLF PRACTICE RANGES*
15 **INNISCRONE GOLF CLUB...***GOVERNMENT OFFICES-CITY, VILLAGE & TWP*

780 **CARMEN NEGRON...***RESIDENTIAL*
782 **VINCENT PROSCINO...***RESIDENTIAL*
784 **2UESDAY NITE BAND...***ENTERTAINERS*
786 **RAYMOND WOODWARD...***RESIDENTIAL*
788 **CHRISTOPHER AMAN...***RESIDENTIAL*
790 **LOUISE BRADY...***RESIDENTIAL*
800 **GEOFFREY STROUD...***RESIDENTIAL*
800 **TLC MOVING SVC...***FURNITURE MOVERS*
800 **TLC MOVING SVC LLC...***FURNITURE MOVERS*
810 **MICHAEL WEAVER...***RESIDENTIAL*
820 **JOHN RIGGINS...***RESIDENTIAL*
1232 **LARRY FISH...***RESIDENTIAL*
1319 **JOSHUA WILLIAMSON...***RESIDENTIAL*
1400 **ELLEN NEFF...***RESIDENTIAL*

1780 H J DEITZ INC...HOME BUILDERS
1827 IMAJEAN PETERSON...RESIDENTIAL
1827 KENNETH BARKER...RESIDENTIAL
1842 LARRY GRUGAN...RESIDENTIAL
1881 LOREEN WEISL-PHOBE...RESIDENTIAL
1918 LUKE FANNON...RESIDENTIAL
1930 STEVEN MILLER...RESIDENTIAL
1952 DANIELLE JONES...RESIDENTIAL
1952 DARLENE JENKINS...RESIDENTIAL
1960 DAVID BOOTH...RESIDENTIAL
2035 DOUGLAS SNYDER...RESIDENTIAL
2035 LORI BECK...RESIDENTIAL
2055 ROGER MCCASLIN...RESIDENTIAL
2057 THOMAS MULLIN...RESIDENTIAL
2059 DALE DAVIS...RESIDENTIAL

14 RUSSELL KILMER...RESIDENTIAL
16 DANIEL LIGHTNER...RESIDENTIAL
18 JOYCE SEXTON...RESIDENTIAL
18 WILSON LYSLE...RESIDENTIAL
317 SEAN GREENE...RESIDENTIAL
323 JAY SHEARON...RESIDENTIAL
329 MICHAEL SZULKOWSKI...RESIDENTIAL
335 TREVOR NIEMKIEWICZ...RESIDENTIAL
341 WAYNE DANEKER...RESIDENTIAL
347 PAULA ROLAND...RESIDENTIAL
353 ANTHONY ALBANO...RESIDENTIAL
353 NAAMANS CREEK AUDIO VIDEO...SCULPTORS
365 WILLIAM POLLOCK...RESIDENTIAL
371 CLAY CREEK EQUINE VETERINARY...GROOMING SVCS PETS
371 STACEY WARD...RESIDENTIAL
377 JOSEPH GORDON...RESIDENTIAL
383 KENNETH GOODIS...RESIDENTIAL
389 MATTHEW VAHEY...RESIDENTIAL
400 ROBERT EISEMAN...RESIDENTIAL

15

INNISCRONE GOLF CLUB...BANQUET ROOMS

15

INNISCRONE GOLF CLUB...GOLF COURSES

15

INNISCRONE GOLF CLUB...FEDERAL GOVERNMENT CONTRACTORS

15

INNISCRONE GOLF CLUB...GOLF PRACTICE RANGES

15

INNISCRONE GOLF CLUB...GOVERNMENT OFFICES-CITY, VILLAGE & TWP

780

CARMEN NEGRON...RESIDENTIAL

782

VINCENT PROSCINO...RESIDENTIAL

784

2UESDAY NITE BAND...ENTERTAINERS

786

BLANCHE WOODWARD...RESIDENTIAL

788

CHRISTOPHER AMAN...RESIDENTIAL

790

JOHN BRADY...RESIDENTIAL

800

CAEN STROUD...RESIDENTIAL

800

TLC MOVING SVC LLC...FURNITURE MOVERS

810

KATHERINE WEAVER...RESIDENTIAL

820

JOHN RIGGINS...RESIDENTIAL

1232

KRISTINA FISH...RESIDENTIAL

1319

JOSHUA WILLIAMSON...RESIDENTIAL

1400

ELLEN NEFF...RESIDENTIAL

2020 GARDEN STATION RD

SOURCE: DIGITAL BUSINESS DIRECTORY

1780 H J DEITZ INC...HOME BUILDERS
1780 JACQUELINE SMITH...RESIDENTIAL
1827 IMAJEAN PETERSON...RESIDENTIAL
1827 KENNETH BARKER...RESIDENTIAL
1842 LARRY GRUGAN...RESIDENTIAL
1881 LOREEN WEISL-PHOBE...RESIDENTIAL
1918 LINDA BOVE...RESIDENTIAL
1918 LUKE FANNON...RESIDENTIAL
1930 STEVEN MILLER...RESIDENTIAL
1952 DANIELLE JONES...RESIDENTIAL
1952 DARLENE JENKINS...RESIDENTIAL
1952 IVERY JENKINS...RESIDENTIAL
1960 DAVID BOOTH...RESIDENTIAL
2035 DOUGLAS SNYDER...RESIDENTIAL
2035 LORI BECK...RESIDENTIAL
2055 ROGER MCCASLIN...RESIDENTIAL
2057 THOMAS MULLIN...RESIDENTIAL
2059 DALE DAVIS...RESIDENTIAL

2020 INDIAN RUN RD

SOURCE: DIGITAL BUSINESS DIRECTORY

14 KATHERINE KILMER...RESIDENTIAL
16 DANIEL LIGHTNER...RESIDENTIAL
18 JOYCE SEXTON...RESIDENTIAL
18 WILSON LYSLE...RESIDENTIAL
256 DONNA KLEIN...RESIDENTIAL
323 JAY SHEARON...RESIDENTIAL
323 JENNIFER SHEARON...RESIDENTIAL
329 KALEIGH SZULKOWSKI...RESIDENTIAL
335 SUZANNE NIEMKIEWICZ...RESIDENTIAL
335 TREVOR NIEMKIEWICZ...RESIDENTIAL
341 BRET DANEKER...RESIDENTIAL
347 PAULA ROLAND...RESIDENTIAL
353 ANTHONY ALBANO...RESIDENTIAL
353 NAAMANS CREEK AUDIO VIDEO...SCULPTORS
359 MELANIE HICKS...RESIDENTIAL
365 WILLIAM POLLOCK...RESIDENTIAL
371 CLAY CREEK EQUINE VETERINARY...GROOMING SVCS PETS
371 STACEY WARD...RESIDENTIAL
377 JOSEPH GORDON...RESIDENTIAL
383 KENNETH GOODIS...RESIDENTIAL
389 MATTHEW VAHEY...RESIDENTIAL
389 MICHELLE VAHEY...RESIDENTIAL
400 ROBERT EISEMAN...RESIDENTIAL

1 **INNISCRONE GOLF CLUB...**GOLF PRACTICE RANGES
15 **INNISCRONE GOLF CLUB...**GOVERNMENT OFFICES-CITY, VILLAGE & TWP

780 **CARMEN NEGRON...**RESIDENTIAL
782 **VINCENT PROSCINO...**RESIDENTIAL
786 **BLANCHE WOODWARD...**RESIDENTIAL
786 **RAYMOND WOODWARD...**RESIDENTIAL
788 **CHRISTOPHER AMAN...**RESIDENTIAL
788 **CYNTHIA AMAN...**RESIDENTIAL
790 **JOHN BRADY...**RESIDENTIAL
790 **LOUISE BRADY...**RESIDENTIAL
800 **CAEN STROUD...**RESIDENTIAL
800 **GEOFFREY STROUD...**RESIDENTIAL
810 **KATHERINE WEAVER...**RESIDENTIAL
810 **MICHAEL WEAVER...**RESIDENTIAL
820 **JOHN RIGGINS...**RESIDENTIAL
820 **NANCY RIGGINS...**RESIDENTIAL
1232 **KRISTINA FISH...**RESIDENTIAL
1232 **LARRY FISH...**RESIDENTIAL
1232 **YVONNE FISH...**RESIDENTIAL
1314 **LAURIE DILLON...**RESIDENTIAL
1319 **JOSHUA WILLIAMSON...**RESIDENTIAL
1400 **ELLEN NEFF...**RESIDENTIAL
1400 **TIMOTHY UNRUH...**RESIDENTIAL

2016 GARDEN STATION RD

SOURCE: DIGITAL BUSINESS DIRECTORY

1780	H J DEITZ INC...HOME BUILDERS
1780	JACQUELINE SMITH...RESIDENTIAL
1842	LARRY GRUGAN...RESIDENTIAL
1918	LINDA BOVE...RESIDENTIAL
1918	LUKE FANNON...RESIDENTIAL
1918	MIRANDA BOVE...RESIDENTIAL
1930	STEVEN MILLER...RESIDENTIAL
1952	DARLENE JENKINS...RESIDENTIAL
1952	IVERY JENKINS...RESIDENTIAL
1960	DAVID BOOTH...RESIDENTIAL
1960	MARGARET BOOTH...RESIDENTIAL
1960	NATHAN BOOTH...RESIDENTIAL
1960	SHELLY BOOTH...RESIDENTIAL
2035	DOUGLAS SNYDER...RESIDENTIAL
2055	JEANNE MCCASLIN...RESIDENTIAL
2055	ROGER MCCASLIN...RESIDENTIAL
2057	THOMAS MULLIN...RESIDENTIAL
2059	DALE DAVIS...RESIDENTIAL

2016 INDIAN RUN RD

SOURCE: DIGITAL BUSINESS DIRECTORY

14	KATHERINE KILMER...RESIDENTIAL
14	RUSSELL KILMER...RESIDENTIAL
16	DANIEL LIGHTNER...RESIDENTIAL
16	LISA LIGHTNER...RESIDENTIAL
18	WILSON LYSLE...RESIDENTIAL
256	DONNA KLEIN...RESIDENTIAL
317	SEAN GREENE...RESIDENTIAL
323	JAY SHEARON...RESIDENTIAL
323	JENNIFER SHEARON...RESIDENTIAL
329	KALEIGH SZULKOWSKI...RESIDENTIAL
329	MICHAEL SZULKOWSKI...RESIDENTIAL
329	ROXANNE SZULKOWSKI...RESIDENTIAL
329	STEVEN SZULKOWSKI...RESIDENTIAL
335	SUZANNE NIEMKIEWICZ...RESIDENTIAL
335	TREVOR NIEMKIEWICZ...RESIDENTIAL
341	BRET DANEKER...RESIDENTIAL
341	LORI DANEKER...RESIDENTIAL
341	WAYNE DANEKER...RESIDENTIAL
347	CHARLES ROLAND...RESIDENTIAL
347	PAULA ROLAND...RESIDENTIAL
353	ANTHONY ALBANO...RESIDENTIAL
353	BRIDGET ALBANO...RESIDENTIAL
353	NAAMANS CREEK AUDIO VIDEO...SCULPTORS
359	MELANIE HICKS...RESIDENTIAL
359	WILLIAM HICKS...RESIDENTIAL
371	CLAY CREEK EQUINE VETERINARY...GROOMING SVCS PETS
371	STACEY WARD...RESIDENTIAL
377	JOSEPH GORDON...RESIDENTIAL
389	MATTHEW VAHEY...RESIDENTIAL
389	MICHELLE VAHEY...RESIDENTIAL
400	ROBERT EISEMAN...RESIDENTIAL

NO LISTING FOUND

780	CARMEN NEGRON...RESIDENTIAL
780	JOHN NEGRON...RESIDENTIAL
782	JOAN PROSCINO...RESIDENTIAL
782	RUTH PROSCINO...RESIDENTIAL
782	VINCENT PROSCINO...RESIDENTIAL
784	DANIEL COPPENS...RESIDENTIAL
784	PO TSOI...RESIDENTIAL
786	BLANCHE WOODWARD...RESIDENTIAL
786	RAYMOND WOODWARD...RESIDENTIAL
788	CHRISTOPHER AMAN...RESIDENTIAL
800	GEOFFREY STROUD...RESIDENTIAL
800	JAMES STROUD...RESIDENTIAL
810	KATHERINE WEAVER...RESIDENTIAL
810	MICHAEL WEAVER...RESIDENTIAL
820	JOHN RIGGINS...RESIDENTIAL
1314	LARRY DILLON...RESIDENTIAL
1319	ALBERT STASZESKY...RESIDENTIAL
1319	PATRICIA STASZESKY...RESIDENTIAL
1400	ELLEN NEFF...RESIDENTIAL

2012 GARDEN STATION RD

SOURCE: DIGITAL BUSINESS DIRECTORY

1780 H J DEITZ INC...HOME BUILDERS
1780 JACQUELINED SMITH...RESIDENTIAL
1780 STEPHEN SMITH...RESIDENTIAL
1827 KENNETH BARKER...RESIDENTIAL
1842 JASON EMERSON...RESIDENTIAL
1842 LARRY GRUGAN...RESIDENTIAL
1842 LINDA EMERSON...RESIDENTIAL
1900 AUDREY BOVE...RESIDENTIAL
1918 LINDA BOVE...RESIDENTIAL
1918 STEVEN BOVE...RESIDENTIAL
1918 TIM BOVE...RESIDENTIAL
1930 STEVEN MILLER...RESIDENTIAL
1952 DARLENE JENKINS...RESIDENTIAL
1952 IVORY JENKINS...RESIDENTIAL
1952 MATTHEW JONES...RESIDENTIAL
1987 HUVENAL TAPIA...RESIDENTIAL
1987 JUVENAL TAPIA...RESIDENTIAL
2055 JEANNE MCCASLIN...RESIDENTIAL
2055 ROBERT MCCASLIN...RESIDENTIAL
2057 THOMAS MULLIN...RESIDENTIAL
2059 DALE DAVIS...RESIDENTIAL
2059 SHARON DAVIS...RESIDENTIAL
2059 SHARON ROSE DAVIS...RESIDENTIAL

2012 INDIAN RUN RD

SOURCE: DIGITAL BUSINESS DIRECTORY

14 KATHERINE KILMER...RESIDENTIAL
14 RUSSELL KILMER...RESIDENTIAL
16 LISA LIGHTNER...RESIDENTIAL
18 JENNIE BRIGGS...RESIDENTIAL
18 JOYCE SEXTON...RESIDENTIAL
256 DONNA KLEIN...RESIDENTIAL
317 GERALDINE GREENE...RESIDENTIAL
317 JEANINE GREENE...RESIDENTIAL
317 SEAN GREENE...RESIDENTIAL
335 SUZANNE NIEMKIEWICZ...RESIDENTIAL
341 BRET DANEKER...RESIDENTIAL
341 LORI DANEKER...RESIDENTIAL
347 CHARLES ROLAND...RESIDENTIAL
347 PAULA ROLAND...RESIDENTIAL
353 BRIDGET ALBANO...RESIDENTIAL
353 NAAMANS CREEK CO...SIGNS (MFRS)
359 WILLIAM HICKS...RESIDENTIAL
365 MICHAEL KLEIN...RESIDENTIAL
365 MICHAEL POLLOCK...RESIDENTIAL
365 WILLIAM POLLOCK...RESIDENTIAL
371 JOHN CREMEANS...RESIDENTIAL
383 BRYAN CUNNINGHAM...RESIDENTIAL
383 JOANNE CUNNINGHAM...RESIDENTIAL
389 KATHERINE VAHEY...RESIDENTIAL
389 MATTHEW VAHEY...RESIDENTIAL
389 MICHELLE VAHEY...RESIDENTIAL
400 CHRIS NORENBURG...RESIDENTIAL
400 PILAR NORENBURG...RESIDENTIAL

NO LISTING FOUND

782	REESE S BONNAGE...RESIDENTIAL
810	K WEAVER...RESIDENTIAL
810	MICHAEL J WEAVER...RESIDENTIAL
1314	LARRY T DILLON...RESIDENTIAL
1319	A M STASZESKY...RESIDENTIAL

2008 GARDEN STATION RD

SOURCE: DIGITAL BUSINESS DIRECTORY

1842 L C EMERSON...RESIDENTIAL
1842 M EMERSON...RESIDENTIAL
2035 DOUGLAS R SNYDER...RESIDENTIAL

2008 INDIAN RUN RD

SOURCE: DIGITAL BUSINESS DIRECTORY

16 L LIGHTNER...RESIDENTIAL
18 GARY W SEXTON...RESIDENTIAL
18 JEFFREY BRIGGS...RESIDENTIAL
317 THERESA DENNEY...RESIDENTIAL
317 VINNY J DENNEY...RESIDENTIAL
323 ROBERT RUGER...RESIDENTIAL
347 LAWRENCE A BARWELL...RESIDENTIAL
353 ANTHONY G ALBANO...RESIDENTIAL
353 B C ALBANO...RESIDENTIAL
353 NAAMANS CREEK CO...SIGNS (MANUFACTURERS)
377 J SADIE...RESIDENTIAL
377 S SADIE...RESIDENTIAL
383 JOHN P CUNNINGHAM...RESIDENTIAL
389 BENJAMIN J MURAWSKI...RESIDENTIAL

NO LISTING FOUND

NO LISTING FOUND

NO LISTING FOUND

353

NAAMANS CREEK CO...EARTH SCIENCE SERVICES

NO LISTING FOUND

NO LISTING FOUND

NO LISTING FOUND

353

NAAMANS CREEK CO...EARTH SCIENCE SERVICES

STREET NOT LISTED

● CLAY CREEK RD

Avondale PO

● RR 2 19311

320	Edward J Doyle93	268-0645
324	Christopher Aman93	268-2847
367	Richard P Jones90	268-0839
368	A M Staszsky88	● 268-0391

374 Apartments

C Gutnajer □ 268-0109

Stefan Gutnajer □ 268-0109

B Jack Terping92 ● 268-0631

375 John Locklin86 268-8270

Deirde Reid86 268-8270

NO # John J Brady87 268-2351

NO # L A Brannan92 268-3324

NO # Larry T Dillon82 268-8176

NO # Dennis C Killian91 268-3866

NO # Dennis O Killian91 268-3866

NO # Dennis L Spencer80 274-8508

NO # Roy Spencer80 274-8309

NO # Caen Stroud92 268-8782

NO # Geoffrey Stroud93 268-8782

NO # Eric Stuverude88 268-0243

19 RESIDENCE

STREET NOT LISTED

INDIAN RUN RD		19311
Avondale PO		
NO #	McKinney Hall	75 268-8844
NO #	Russell S Kilmer	74 268-2437
NO #	Wilson R Lysle	68 268-2389
NO #	Ross W Ritter	75 268-8869
NO #	Lewis C Ross	84 268-3423
NO #	M M Skillen	79 268-8256
NO #	★ Baptist Chldrn Srv	87 268-2355
6 RESIDENCE		1 BUSINESS

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

RANGE NOT LISTED

STREET NOT LISTED

STREET NOT LISTED

STREET NOT LISTED

STREET NOT LISTED



FIRE INSURANCE MAPS

Project Property: Clay Creek
Garden Station Rd
London Grove PA

Project No: 203402183 Task 177.3

Requested By: Stantec Consulting Ltd.

Order No: 24042400518

Date Completed: April 25, 2024

Please note that no information was found for your site or adjacent properties.

Appendix F. Design Plans (Placeholder)

Appendix G. Additional Permitting and Agency Consultation

Part 1. PNDI Receipt and Consultation

Part 2. PHMC Consultation

Part 3. National Wild & Scenic Rivers NPS Coordination

Part 1. PNDI Receipt & Consultation

1. PROJECT INFORMATION

Project Name: **Clay Creek Mitigation Bank**

Date of Review: **5/16/2023 04:44:48 PM**

Project Category: **Habitat Conservation and Restoration, In-stream habitat restoration (habitat improvement structures)**

Project Area: **34.71 acres**

County(s): **Chester**

Township/Municipality(s): **LONDON GROVE TOWNSHIP**

ZIP Code:

Quadrangle Name(s): **WEST GROVE**

Watersheds HUC 8: **Brandywine-Christina**

Watersheds HUC 12: **East Branch White Clay Creek**

Decimal Degrees: **39.808203, -75.792668**

Degrees Minutes Seconds: **39° 48' 29.5303" N, 75° 47' 33.6063" W**

2. SEARCH RESULTS

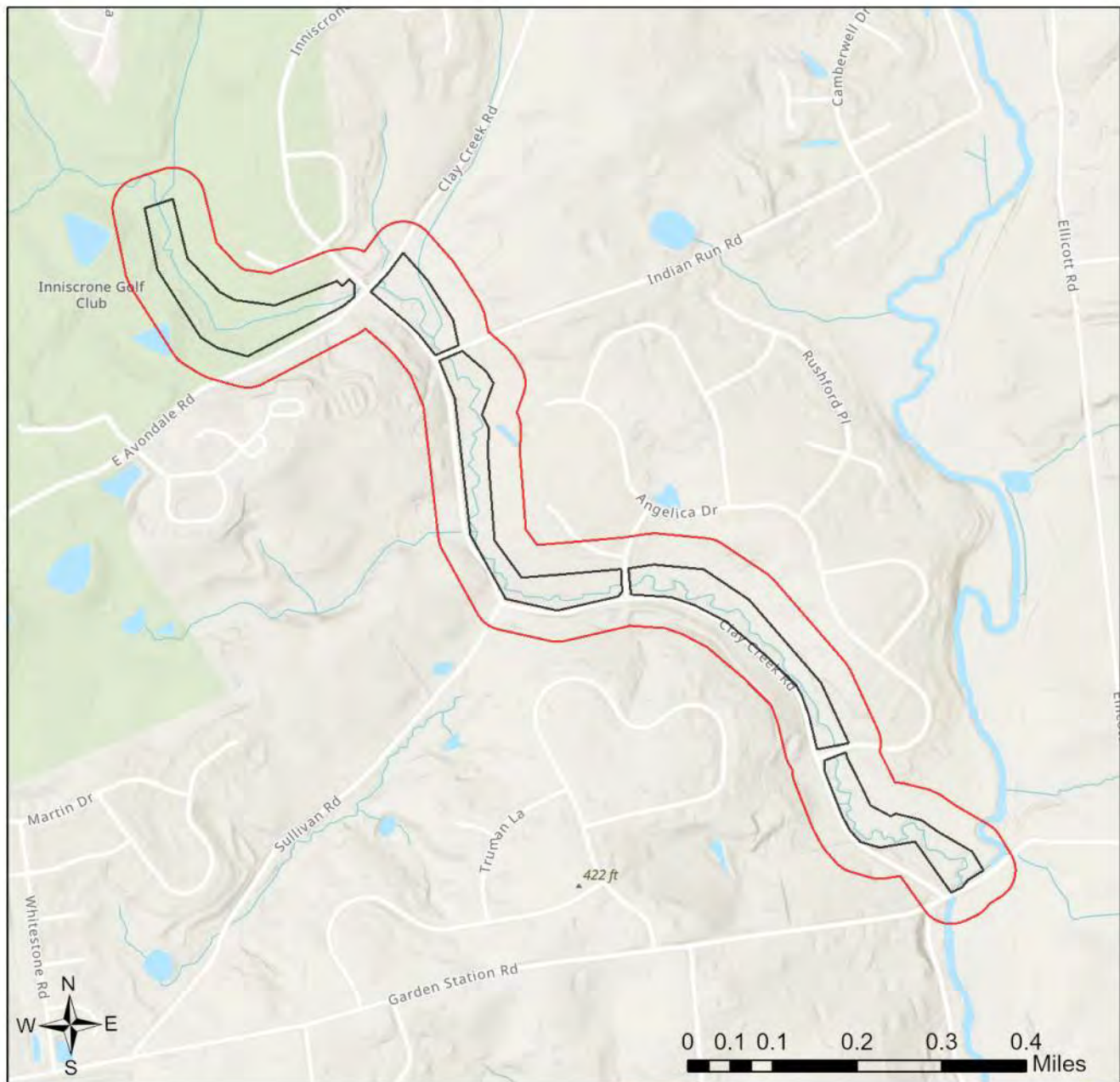
Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service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



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

Clay Creek Mitigation Bank



Clay Creek Mitigation Bank



-  Buffered Project Boundary
-  Project Boundary



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

3. AGENCY COMMENTS

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

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

PA Game Commission

RESPONSE:

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

PA Department of Conservation and Natural Resources

RESPONSE:

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

PA Fish and Boat Commission

RESPONSE:

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

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

Scientific Name	Common Name	Current Status
Sensitive Species**		Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

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

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).

*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:

____ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

____ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

____ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

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

5. ADDITIONAL INFORMATION

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

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

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

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

PA Fish and Boat Commission

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

U.S. Fish and Wildlife Service

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

PA Game Commission

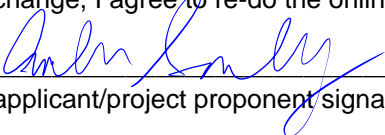
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Amber Snavley
Company/Business Name: Water & Land Solutions, LLC
Address: PO Box 98116
City, State, Zip: Pittsburgh, PA 15227
Phone: (814) 730-0627 Fax: ()
Email: amber@waterlandsolutions.com

8. CERTIFICATION

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


applicant/project proponent signature

5/16/2023

date

Amber Snavley

From: Novak, Richard A <richard_novak@fws.gov>
Sent: Friday, January 12, 2024 9:17 AM
To: Bridger Thompson
Cc: Amber Snavley
Subject: Re: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hello Bridger and Amber,

Thanks for this updated information about the project. With project impacts being more than just minor wetland impacts, I think a Phase 2 survey is a prudent approach.

Should a bog turtle be encountered during the Phase 2 effort, this would not shut down the project. We would need to discuss appropriate avoidance measures and potential tweaks to the project to avoid impacting the wetlands. We are available to assist with that should the need arise. Additionally, if after consultation we determine that take of the bog turtle is unavoidable, there are still options to proceed with the project. If the project is federally funded or authorized, having some federal nexus, we could initiate a formal consultation. If the project is non-federal, a habitat conservation plan (HCP) could be developed with an incidental take permit. I will say, the non-federal route with the HCP is somewhat lengthy, often taking over a year to develop.

These paths would only need to be considered if bog turtles are found to be present AND take is unavoidable. In the vast majority of cases, we are able to reach avoidance through AM's and design tweaks as appropriate.

I appreciate your diligence in being considerate of the bog turtle in the planning of this project. I will put a pin in my records for this project and await updated project plans and the Phase 2 results. Please feel free to reach out at any time about it with questions.

Thanks so much,

Richard

Richard A. Novak
Student Trainee: Biological Sciences
U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Road Suite 101
State College, PA 16801
814-206-7477
richard_novak@fws.gov

From: Bridger Thompson <bthompson@thompsonesp.com>
Sent: Wednesday, January 10, 2024 5:07 PM
To: Novak, Richard A <richard_novak@fws.gov>
Cc: Amber Snavley <amber@waterlandsolutions.com>
Subject: RE: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hi Richard,

Thank you for responding today. After our call I had a quick discussion with Amber at WLS regarding the Project parameters. At this time the design is not finalized enough to determine the extent of wetland impact but it appears

that portions of the Project will require more than just instream work and minor wetland impact as anticipated based on the preliminary plans that you reviewed.

So, that being the case WLS is electing to just move forward with Phase 2 Surveys for all of the potential habitat. One question that arises is, while it is unlikely given the quality of the potential habitat, if we were to find a bog turtle during the Phase 2 surveys would the Project still be able to move forward if direct impact to the mucky portions of occupied wetland were avoided and the appropriate avoidance measure were employed? We/WLS would want some kind of assurance that if we do a Phase 2 and find a turtle it will not shut down the whole project. As we have unfortunately encountered that situation in the past.

If you would still like to set up a call to discuss this we can certainly do that however, it may be better to hold off until WLS has a better idea of wetland impact. As I previously stated we are currently planning on conducting the Phase 2 survey but we would like to have an idea how we would keep the project moving should we find a bog turtle. Please feel free to contact me at any time if you have any questions.

Sincerely,
Bridger Thompson

717-609-3301

From: Bridger Thompson
Sent: Tuesday, January 9, 2024 3:20 PM
To: Novak, Richard A <richard_novak@fws.gov>
Cc: Amber Snavley <amber@waterlandsolutions.com>
Subject: RE: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hi Richard,
I wanted to follow up with you regarding the site visit for Clay Creek. Did you still want to visit the site or do you want to have a teams call before we meet?

Sincerely,
Bridger Thompson

717-609-3301

From: Bridger Thompson
Sent: Monday, October 30, 2023 3:37 PM
To: Novak, Richard A <richard_novak@fws.gov>
Cc: Amber Snavley <amber@waterlandsolutions.com>
Subject: RE: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Richard and Amber,
Attached is a KMZ of the results for the Clay Creek Phase 1 Bog Turtle Habitat Survey. This will give you something to review prior to our onsite meeting. In general, the habitat at the site is low quality. One wetland (CLA-W-013) has moderate quality habitat. My schedule is pretty full for the next two weeks so maybe we can put the field meeting off until later in November.

Sincerely,
Bridger Thompson

717-609-3301

From: Bridger Thompson
Sent: Monday, October 16, 2023 12:04 PM
To: Novak, Richard A <richard_novak@fws.gov>
Cc: Amber Snavley <amber@waterlandsolutions.com>
Subject: RE: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hi Richard and Amber,
I just wanted to follow up regarding our recent phone conversations.
My plan is to complete the Phase 1 Habitat Survey (PH1) this week or early next week, then once that data is processed, I will send it to you for review.
Following the PH1 USFWS would like to meet onsite and discuss the proposed design and how to minimize direct impact to certain wetlands. Tentatively this meeting would occur sometime in the beginning of November.
Results from this meeting will give us some guidance on possible design changes and if a Phase 2 Presence/Probable Absence Survey will be warranted.
If you have any questions, please feel free to contact me at any time.

Bridger Thompson
717-609-3301

From: Bridger Thompson
Sent: Friday, October 13, 2023 12:29 PM
To: Novak, Richard A <richard_novak@fws.gov>
Cc: Amber Snavley <amber@waterlandsolutions.com>
Subject: RE: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hi Richard,
I had a call with Amber today and we decided that it would be best to have the confirmed Phase 1 survey information available so we can determine what direct impacts there might be to potential bog turtle habitat and DSA (mucky areas of the wetland) and how we could minimize that impact. We are going to move forward with the Phase 1 survey and then we will provide that information to you directly so we can have a call to discuss possible options.

One question, if we were to do Phase 2 surveys, instead of assuming presence, and did not find any bog turtles (determination of probable absence) how would that effect the need for avoidance measures?
Essentially, if we were to determine probable absence in onsite wetlands, we could then have direct impact to those wetlands and all we would have to do is consider avoidance for possible off-site wetlands/travel corridors.

One other question, if the proposed project was able to improve the onsite wetlands/streams and enhance the wetland's bog turtle habitat conditions and the ability for bog turtles to use the streams as potential travel corridor wouldn't that be considered an overall benefit to possible disbursement from possible off-site wetlands?

Hopefully I explained that clearly. If not feel free to contact me or Amber.

Bridger Thompson
717-609-3301

From: Novak, Richard A <richard_novak@fws.gov>
Sent: Thursday, October 12, 2023 5:32 PM
To: Bridger Thompson <bthompson@thompsonesp.com>

Cc: Amber Snavley <amber@waterlandsolutions.com>

Subject: Re: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

Hello Bridger and Amber,

Thanks for the follow up about this project.

You are correct that the bog turtle is the species of concern here for our agency. There are known records of the species at multiple points within the watershed and near the proposed project polygon. Given the known occupancy of the species, and your professional opinion that the wetlands delineated would constitute habitat, I think the most prudent option here is to assume presence and select BMP's and avoidance measures.

After reading the project description in Amber's letter of May 16, 2023, it appears that a variety of restoration activities are proposed within the watershed ranging from in-stream structure placement, to culvert removal, to invasive plant control. These are likely to be beneficial to the bog turtle in the long run. However, for this review, we will need to take a look at each proposed action and determine which avoidance measures, if any, will prevent impacts to the bog turtles. It is likely that a combination of time of year restrictions and pre-construction surveys would be effective for this site.

I'd be happy to have a call together to review the project and to consider BMP/ AM options that are feasible for this project. I must tell you that my availability is somewhat sporadic over the next two weeks given school work and work travel. If there are some time slots available for you both on the days of October 17-19, please let me know. I am away on work travel the week of Oct 23,27, but will have full availability in early November.

For our conversation, it would be most useful for me to have a list of the proposed actions, their locations on a map within the project polygon, and their proximity to the delineated wetlands. This will allow us to select which measures are most effective.

Thanks so much and looking forward to chatting soon!

Richard

--

Richard A. Novak
Student Trainee: Biological Sciences
U.S. Fish & Wildlife Service
PA Field Office
110 Radnor Road Suite 101
State College, PA 16801
814-206-7477
richard_novak@fws.gov

From: Bridger Thompson <bthompson@thompsonesp.com>

Sent: Wednesday, October 11, 2023 10:00 AM

To: Novak, Richard A <richard_novak@fws.gov>

Cc: Amber Snavley <amber@waterlandsolutions.com>

Subject: [EXTERNAL] PNDI# 785512 Water Land Solutions-Clay Creek Mitigation Bank

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Richard,

The one project we discussed on the phone yesterday is WLS's -Clay Creek Mitigation Bank. I have attached a copy of the PNDI.

WLS has sent coordination information to USFWS and PFBC. They received a response from PFBC regarding the Sensitive Species hit but have not heard back from USFWS.

As we discussed, TES&P conducted an Aquatic Resource Delineation for the Project and identified wetlands within the Proposed Project Area. While conducting the delineation we noted that several wetlands will likely meet the conditions to be considered Potential Bog Turtle Habitat (PBTH). I have attached a figure depicting the delineated wetlands. While a comprehensive Phase 1 Bog Turtle habitat Survey has not been completed the preliminary information from the aquatic resource delineation indicates wetlands CLA-W-013 (PSS), CLA-W-013 (PEM), CLA-W-010 (PEM) and CLA-W-007 (PEM) will likely be considered PBTH.

Since the PNDI receipt did not indicate what the USFWS species of concern is we have been waiting for a response indicating what possible additional surveys may be necessary. We are assuming the hit was for bog turtle. If you have any information regarding this Project Area that you can share that would be great.

Sincerely,
Bridger



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June 23, 2023

IN REPLY REFER TO

SIR# 58069

WLS

Amber Snavley

1444 Senior Drive

Pittsburgh, Pennsylvania 15227

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 785512_1
Clay Creek Mitigation Bank
London Grove Township: CHESTER County**

Dear Amber Snavley:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish and Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish and Boat Code (Chapter 75), or the Wildlife Code.

Broad-headed Skink (*Plestiodon laticeps*, Candidate)

The Broad-headed Skink is a rare, arboreal lizard species of the Commonwealth that inhabits damp forested areas. The Broad-headed Skink is currently under status review for listing consideration. This species is threatened by habitat alteration and poaching.

Based on the review of this information and the proximity of the project to known element occurrences of the species of concern listed above, potential habitat could be present within the proposed disturbance area. Therefore, additional evaluations are necessary to confirm whether or not the project site contains habitat and to determine the potential for adverse impacts to this species. We request completion of a **habitat assessment** to characterize and determine if potential habitat exists within the vicinity of the proposed project area.

A qualified biologist, who possesses the necessary Scientific Collector’s Permit issued by the Pennsylvania Fish and Boat Commission, must conduct this habitat assessment. Note that currently, we do not have a list of qualified surveyors for the Broad-headed Skink. However, Mr. Brandon Ruhe of Ecological Associates, LLC has demonstrated his proficiency in finding Broad-headed Skinks in Pennsylvania and in other nearby states, as well as identifying their critical habitats. We have reviewed his credentials, approved him, as well as permit him (Type 3 Scientific Collectors’ Permit) to search for and collect Broadhead Skinks. His contact information follows.

Brandon Ruhe

Ecological Associates, LLC

P.O. Box 181 Oley, PA 19547
610-987-6585
eabruhe@gmail.com

If other potential qualified surveyors are known for this species (they must have documented experience with locating Broadhead Skink as well as demonstrate their expertise with identifying critical habitat for the species), please submit their credentials to for us to review and approve.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 or kgipe@pa.gov and refer to the SIR # 58069. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink, appearing to read "Christopher A. Urban". The signature is fluid and cursive, with the first name "Christopher" being more prominent.

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn

Part 2. PHMC Consultation



May 17, 2024

Sent Via PA-SHARE

Clay Creek

RE: ER Project # 2024PR02105.001, ~~McCreary Run~~ Mitigation Bank , Army Corps of Engineers, London Grove Township, Chester County

Dear Submitter,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

No Above Ground Concerns - Environmental Review - No Effect - Above Ground

Based on the information received and available within our files, it is our opinion that the proposed project will have No Effect on above ground historic properties, including historic buildings, districts, structures, and/or objects, should they exist. Should the scope of the project change and/or should you be made aware of historic property concerns, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning above ground resources, please contact Taylor Napoleon at tnapoleon@pa.gov.

Archaeological Resources

More Information Requested - Environmental Review - More Info Archaeological - High Prob

Based on an evaluation by our staff, there is a high probability that National Register-eligible archaeological sites are present within this project area. These sites could be adversely affected by project activities. Our review considers the locations of known archaeological resources, the Statewide Pre-Contact Predictive Model, soil type, topographic setting, slope direction and distance to water, among other regionally specific predictive factors for archaeological site locations. It is our opinion that a Phase I archaeological survey should be conducted to locate potentially significant resources. Guidelines and instructions for conducting all phases of archaeological survey in Pennsylvania are available on our website:

<https://www.phmc.pa.gov/Preservation/About/Documents/Guidelines%20for%20Archaeological%20>

More Information Requested - New Survey

Please use this request for more information to enter survey and resource details and upload the survey report. Please submit the requested materials to the PA SHPO through PA-SHARE using the link under SHPO Requests More Information on the Response screen.

For questions concerning archaeological resources, please contact Casey Hanson at chanson@pa.gov.

Sincerely,

A handwritten signature in black ink that reads "Emma Diehl". The signature is written in a cursive style with a horizontal line extending from the end.

Emma Diehl
Environmental Review Division Manager



April 25, 2024

Pennsylvania Historical and Museum Commission
State Museum Building
400 North Street
Harrisburg, PA 17120-0093

Re: Additional Project Information - PA-SHARE Project Details
~~McCreary Run Mitigation Bank~~
Little Britain Township
Lancaster County, Pennsylvania

Clay Creek

Dear PHMC Project Review Team:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, Water & Land Solutions, LLC (WLS) is requesting to initiate consultation with the Pennsylvania State Historical and Museum Commission (PHMC) for the proposed wetland and stream restoration activities associated with the Clay Creek Mitigation Bank (Bank Site or Project), located in London Grove Township, Chester County, Pennsylvania (PA). The location of the Project is shown in Figure 1: Project Location Map (Attachment 1: Figures). The purpose of the Project is to provide compensatory mitigation for unavoidable impacts to waters and wetlands of the United States (U.S.) as a result of activities authorized under Section 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, Pennsylvania Department of Environmental Protection (PADEP) Chapter 102, 105, and 106 regulatory programs, and Department of the Army, U.S Army Corps of Engineers Permits.

As such, the purpose of this coordination request is to ensure that the proposed Project does not impact archaeological, and/or architectural or above ground cultural resources. As indicated in the Project PA-SHARE Environmental Review Initial Submission (Token: A5HT5S1UCSIP) the proposed Project will require state and federal permits including PA Department of Environmental Protection (DEP) Chapter 105, 102 and Section 401/404 permit authorizations.

The existing land-use surrounding the Project area is predominantly comprised of residential lots and neighborhoods. As shown in the attached mapping (Attachment 1: Figures), there are no farm complex buildings located within the Bank Site. No impacts to any farm complex buildings in the vicinity of the Bank Site will occur as a result of the proposed Project. Representative site photographs are included in Attachment 2: Representative Site Photographs and photograph locations and directions are shown in Figure 2: Existing Conditions Map, provided in Attachment 1: Figures.

Streams and wetlands identified onsite have been degraded significantly as a result of anthropogenic alterations from historic and ongoing agricultural land uses. Excess sedimentation and nutrient loading have degraded the physical and chemical qualities of aquatic resources within the Bank Site, and stream

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PO BOX 98116, Pittsburgh, Pennsylvania, 15227
www.waterlandsolutions.com



reaches act as sources of excess sediment and means of transport for excess nutrients to downstream receiving waters. According to the 2022 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report, East Branch White Clay Creek is listed as an aquatic life impaired waterbody due to organic enrichment. Increased runoff from the impervious area within the watershed drains directly into the streams within the Project area creating accelerated flashy flows, and further exacerbating causes of water quality impairment. Accelerated flows combined with historic stream alterations have increased bank erosion and sediment mobility resulting in vertical and horizontal instabilities. Further, disturbances throughout the Project area have left an environment ideal for the proliferation of invasive species colonization and monoculture establishment. As a result, the Bank Site's terrestrial and aquatic biological integrity has been adversely altered as a result of intense upland land uses.

The goal of the Project is to restore and preserve self-sustaining, functional streams, wetlands, and riparian corridors and to replace the functions and services lost from adverse impacts to waters and wetlands occurring elsewhere. To meet the goals of the Project, WLS proposes the restoration of all resources within the Bank Site.

As shown in Figure 3: Proposed Conditions Map (Attachment 1: Figures), streams identified within the Bank Site will be restored following a reestablishment approach. Best professional judgement, prior experience, and data driven decision-making was used for determining which restoration designation was deemed appropriate for every reach within the Bank Site. The stream reach was assigned its designation predominantly based on the degree of impairment as well as site constraints (e.g., conservation area extents, accessibility and constructability, and existing/surrounding infrastructure). Baseline data collected across the Bank Site was analyzed and used to support the restoration approach decisions and to ensure that the appropriate and successful restoration approach was assigned for all reaches within the Bank Site.

The reestablishment of stream habitat and floodplain diversity will also provide new habitat for amphibians and terrestrial organisms and aid in the reestablishment of historic wetland plant communities. Furthermore, floodplain restoration efforts will improve hydrologic connectivity, water storage capacity, and biogeochemical cycling through the reestablishment of the hyporheic zone.

The Bank's design will create conditions favorable for reestablishing additional riparian wetlands and maximizing functional uplift potential. It is anticipated that as a direct result of implementing floodplain restoration, restoring historic flow patterns, legacy sediment removal, creation of groundwater dams, surface roughening, and revegetation, wetland hydrology will be restored and allow the floodplains to regain their natural/historic functions. The area proposed for wetland reestablishment consists of most of the length of all the on-site low-gradient streams. These areas will experience seasonal wetness for prolonged periods and conditions are favorable to support appropriate wetland hydrology. A natural overbank flooding regime will be restored throughout the area by restoring the appropriate channel geometry, lowering the floodplain elevation by removing legacy sediment, and in certain areas by raising the stream bed elevation to reconnect the channel to its historic floodplain. It is anticipated that as a

Water & Land Solutions, L.L.C

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PO BOX 98116, Pittsburgh, Pennsylvania, 15227

www.waterlandsolutions.com



direct result of implementing floodplain restoration and other hydrologic modifications, historic wetlands will regain their lost functions. Primary wetland reestablishment will be accomplished through the reestablishment of the stream and floodplain connection and sub-surface grade controls. The intent of restoration efforts is to restore a functional and holistic system that will self-sort or filter into a mosaic of vegetative classifications with diverse heterogeneous habitat suitable for the colonization of many aquatic and terrestrial organisms. Planting efforts are proposed in all the restoration areas. While the precise environmental conditions at a given location will influence what combination of plant species establish, the mix of species planted will help ensure that plant communities are diverse and resilient.

A variety of species will be planted to ensure an appropriate diverse plant community. Floodplains will be planted with vegetation native to the region and appropriate for the reestablished soil and hydrologic conditions. During Bank implementation, non-native, invasive and exotic vegetation will be treated with herbicides and mechanically removed during construction activities to control their presence and reduce spread within the Bank. These efforts will aid in the establishment of native vegetative community within the restored riparian buffers and wetland areas. Follow-up control activities will be performed during the monitoring period following the adaptive management plan.

Areas within the proposed Bank Site with the greatest potential of earthmoving are primarily limited to the floodplain corridor (Attachment 1; Figure 3 – Proposed Conditions Map). Excavation of the floodplain soils will occur to a depth of historic or pre-European settlement conditions. These elevations are typically determined following historic gravel or hydric soil layers. Soils disturbed during the restoration process will be returned to adjacent or surrounding upland areas from which they originated. The excess soil will be spread in relatively uniform layers with respect to existing contours in an environmentally sound manner such that the site will blend in with the existing landscape. Upland areas that may be used for soil stockpiling have been used for agricultural purposes for at least 62 years and in 2000 the area was added to the National Wild and Scenic Rivers System (Figures 4.1 – 4.3; Attachment 1: Figures) and, as such, WLS does not anticipate any adverse impacts to potential cultural resources that may be present in these areas.

Temporary haul and access roads, rock construction entrances, and lay-down-yards/staging areas will also be needed for Project implementation. Upon completion of the Project, these areas will be restored to existing conditions and will return to a natural vegetated state. Disturbed surfaces will be graded to existing contours and stabilized appropriately. No adverse impacts are anticipated in those areas.

There are no documented archaeological sites or above-ground resources within the mitigation bank. However, the location has not been formally surveyed. Approximately 14 archaeological sites and two above ground, historic properties have been documented within 0.5 miles of the mitigation bank parcels, including several during surveys for the Inniscrone Golf Club, immediately east of the project area. According to the PHMC's Precontact Probability Model mapping, nearly the entire mitigation bank has moderate to high probability for archaeological resources. Based on the moderate to high modeled-



probability for prehistoric archaeological resources, and the number of historic and prehistoric archaeological sites found nearby, there is a high likelihood of encountering archaeological resources within the project area. **WLS is requesting your review and comment for the proposed Project.**

WLS appreciates your review of this request. Should you have any questions or concerns, please contact me by email or phone at amber@waterlandsolutions.com or 814-730-0627, respectively.

Sincerely,

Amber Snavley
Senior Project Manager
Water & Land Solutions, LLC.



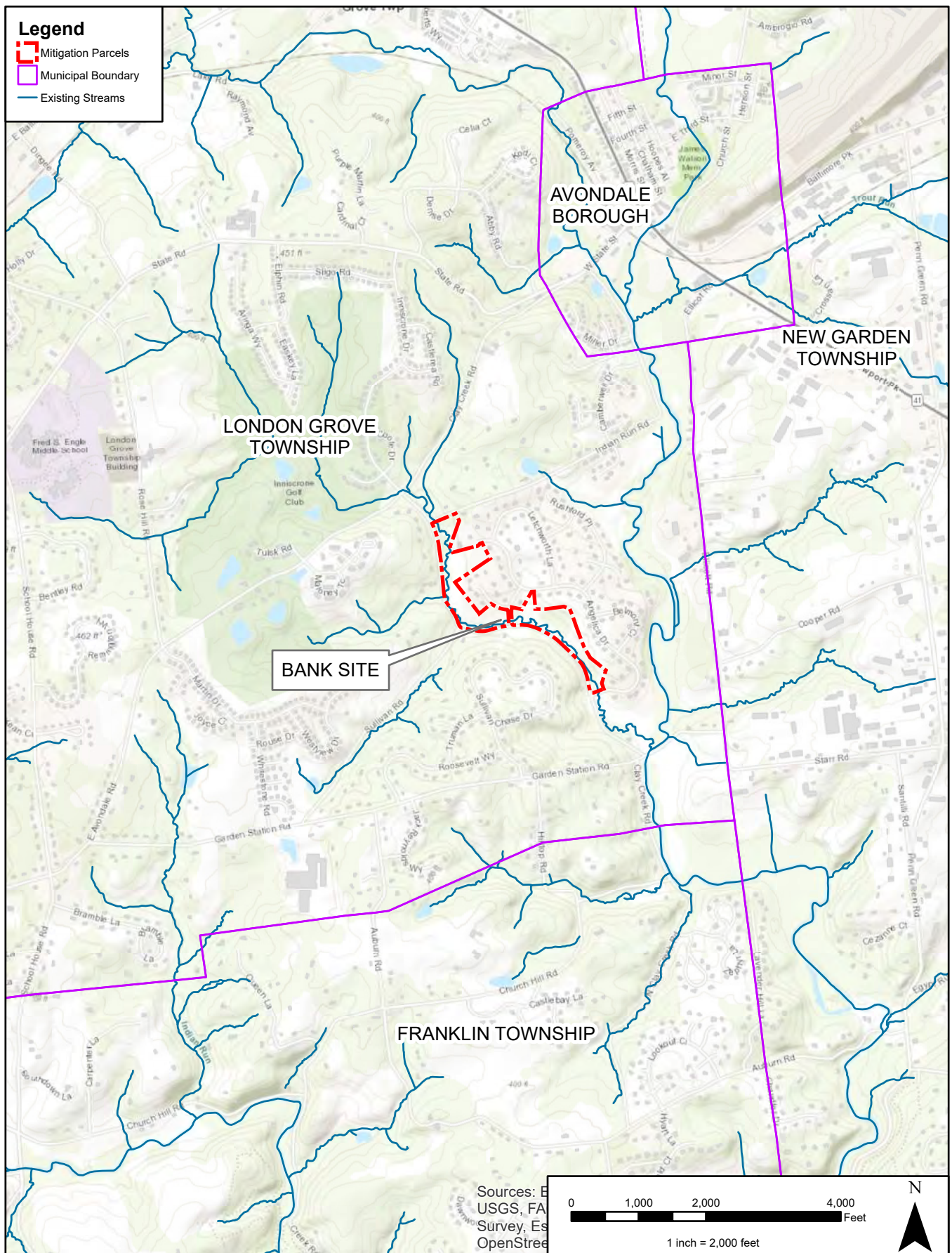
Attachments

Attachment 1: Figures

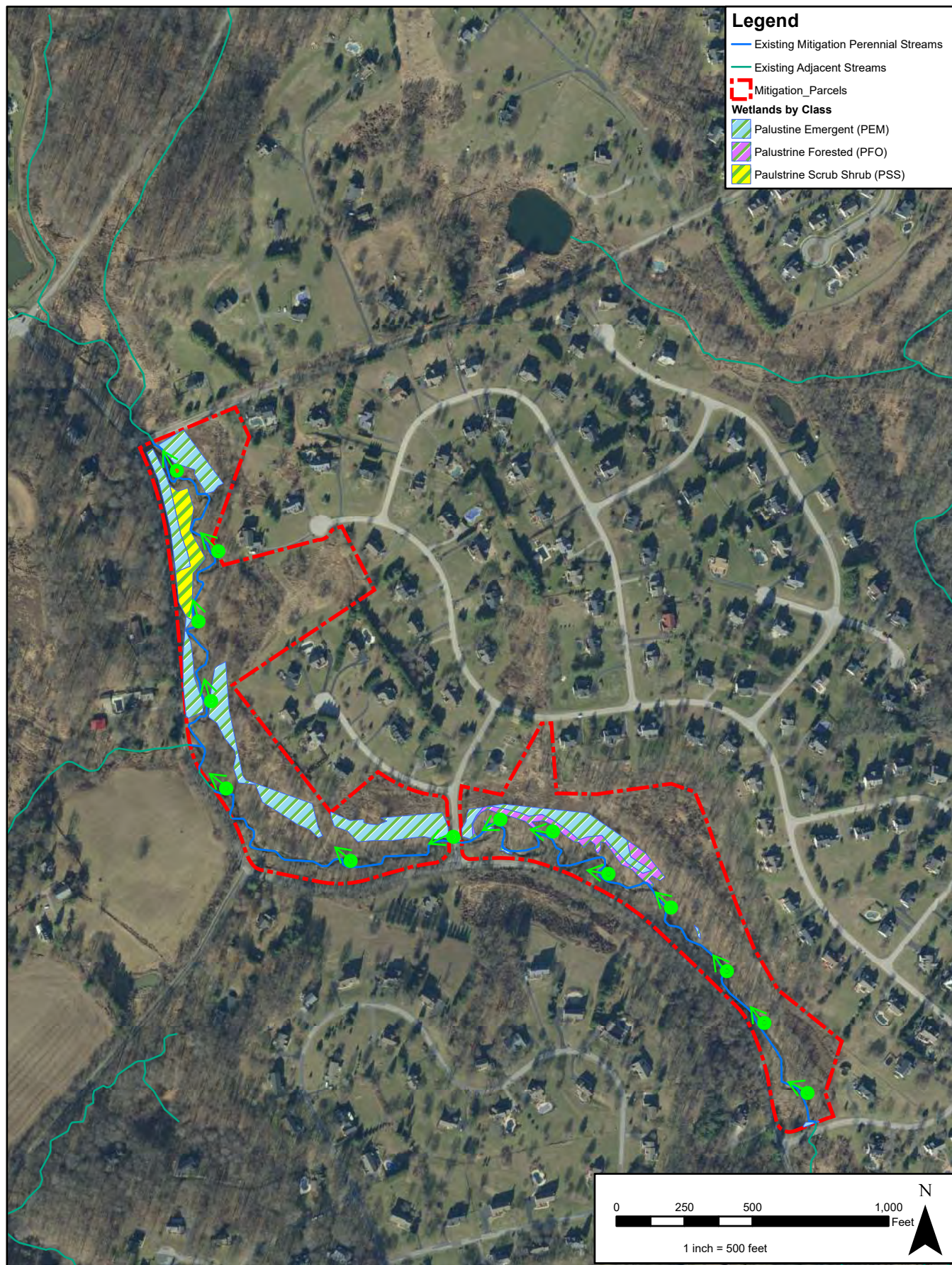
Attachment 2: Representative Site Photos

Attachment 1: Figures

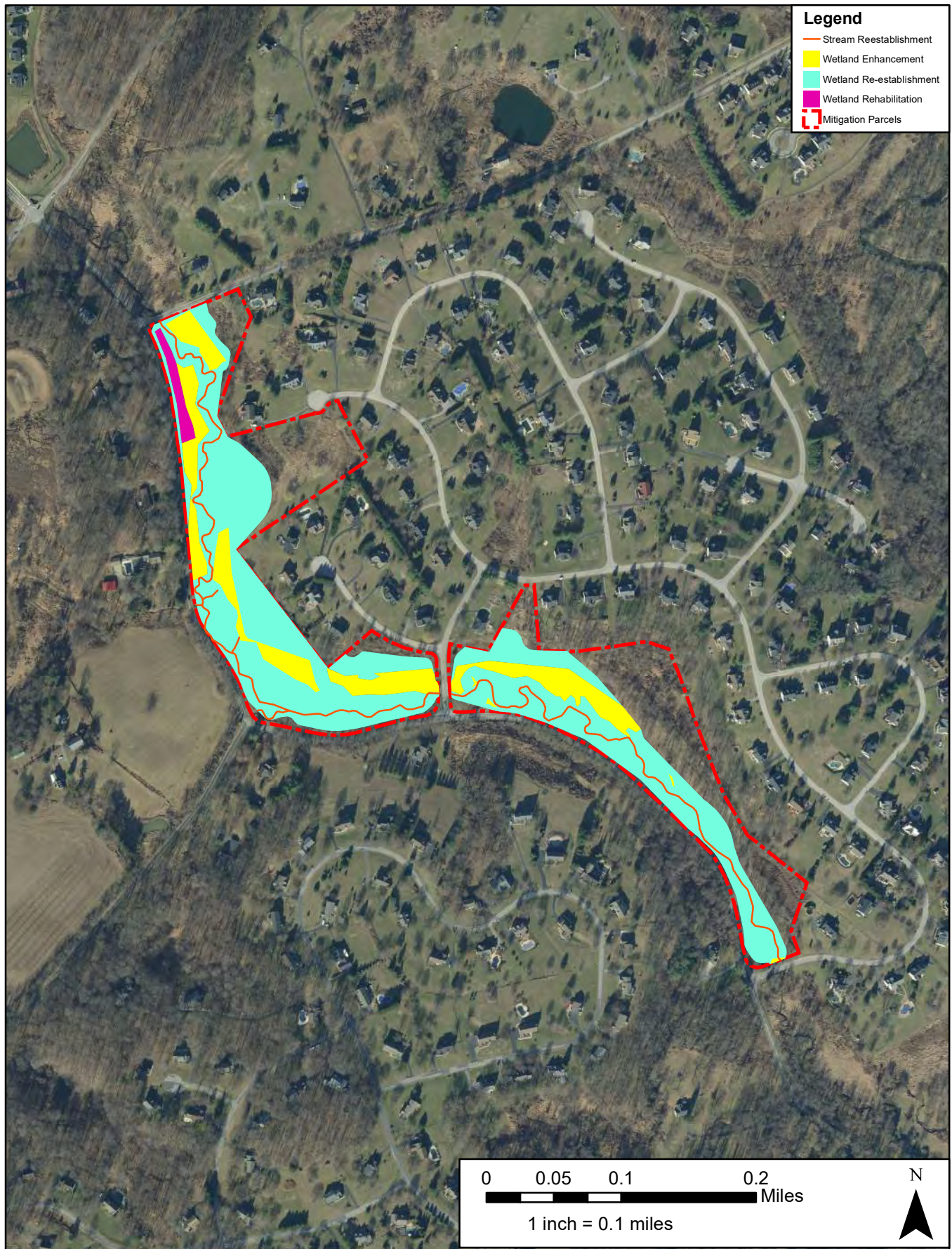
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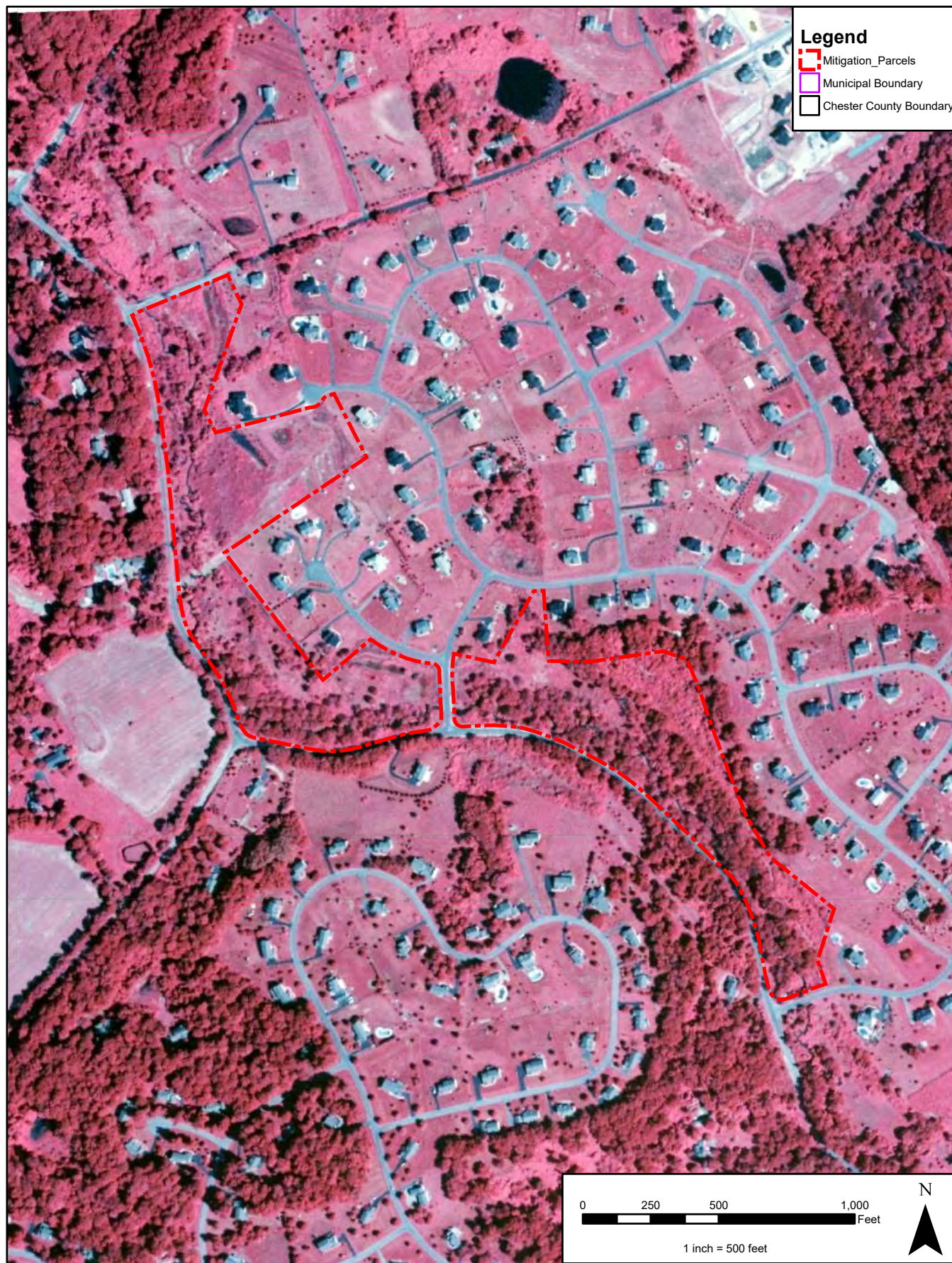
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Attachment 2: Representative Site Photos

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 1. View upstream, to the northwest, of the bridge at Indian Run Road, the upstream limit of the Clay Creek Mitigation Bank.



Photo 2. View upstream, to the northwest, within the Clay Creek Mitigation Bank.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 3. View upstream, to the northwest, on Tributary to Clay Creek.



Photo 4. View upstream, to the northwest, on tributary to Clay Creek.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 5. View upstream, to the northwest, on tributary to Clay Creek adjacent to Clay Creek Road



Photo 6. View upstream, to the northwest, on Tributary to Clay Creek.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 7. View upstream, to the west, from the bridge at Friendship Lane within the Clay Creek Bank Site.



Photo 8. View upstream, to the southwest, within the Clay Creek Bank Site.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 9. View upstream, to the northwest, from the Tributary to Clay Creek.



Photo 10. View to the northwest, upstream, from the Tributary to Clay Creek.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 11. View to the northwest, upstream, from the Tributary to Clay Creek.



Photo 12. View upstream, to the northwest, within the Clay Creek Mitigation Bank.

Attachment 2
Clay Creek Mitigation Bank Representative Site Photos
London Grove Township, Chester County, Pennsylvania



Photo 13. View upstream, to the northwest, from tributary to Clay Creek.



Photo 14. View upstream, to the northwest, from unnamed tributary to Clay Creek, just upstream of the bridge at Angelica Drive.

Part 3. National Wild and Scenic Rivers NPS Coordination

Appendix H. Performance Standards

Aquatic Resource	Milestone 1 15% Administrative Credit Release Objectives	Milestone 2 15% Construction Credit Release Objectives	Milestone 3 35% Credit Release Performance Standards ¹	Milestone 4: 25% Credit Release Performance Standards ¹	Milestone 5: 10% Credit Release Performance Standards ¹
Streams	<ul style="list-style-type: none"> - Approval of MBI - Issuance of USACE and PADEP Permits - Implementation of Financial Assurances - Recordation of Site Protection Instrument(s) 	<ul style="list-style-type: none"> - Construction Completion - As-Built approval 	<ul style="list-style-type: none"> - BEHI of “Low” or “Very Low” - Sinuosity of stream does not increase or decrease by more than 20% from approved as-built pattern within the monitoring reach - No visual instability noted at observable structure locations 	<ul style="list-style-type: none"> - BEHI of “Low” or “Very Low” - Sinuosity of stream does not increase or decrease by more than 15% from previous monitoring result within monitoring reach - Channel access to floodplain a minimum of twice during Milestone 4 - No visual instability noted at observable structure locations 	<ul style="list-style-type: none"> - BEHI of “Low” or “Very Low” - Sinuosity of stream does not increase or decrease by more than 10% from previous monitoring result within the monitoring reach - Channel access to floodplain a minimum of twice during Milestone 5 (for a cumulative of 5 total events across the 3 credit release milestones) - No visual instability noted at observable structure locations
Wetlands			<ul style="list-style-type: none"> - Hydrophytic Vegetation Prevalence Index Indicator ≤ 3.0 - No more than 30% invasive species coverage, on average across all monitoring plots, with no colony exceeding 25% - Minimum of 15 herbaceous species and 8 woody species (average sitewide) - 70% of plots have 2 vegetative strata (average sitewide based on veg. monitoring plots) - Saturation of the upper 12 inches of the surface soil profile for at least 12.5% of the growing season and/or hydrograph like the reference HGM subclass profile 	<ul style="list-style-type: none"> - Average shrub height of surviving shrubs within sample plots are at least 1.5 feet in height - Average tree height of all surviving trees in sample plots are ≥ 2.5 feet in height - Hydrophytic Vegetation Prevalence Index Indicator ≤ 3.0 - No more than 25% invasive species coverage, on average across all monitoring plots, with no colony exceeding 15% - Native non-invasive plant coverage should be at least 50% - Minimum of 15 herbaceous species and 8 woody species (average sitewide) - 70% of plots have 2 vegetative strata (average sitewide based on veg. monitoring plots) - Saturation of the upper 12 inches of the surface soil profile (with a maximum ponding depth of 18 inches) for at least 12.5% of the growing season and/or hydrograph similar to reference HGM subclass profile 	<ul style="list-style-type: none"> - Average shrub height of surviving shrubs within sample plots are at least 2 feet in height - Average tree height of surviving trees in sample plots are ≥ 3 feet in height - Hydrophytic Vegetation Prevalence Index Indicator ≤ 3.0 - No more than 10% invasive species coverage, on average across all monitoring plots, with no colony exceeding 15% - Native non-invasive plant coverage should be at least 70% - Minimum of 15 herbaceous species and 8 woody species (average sitewide) - 70% of plots have 2 vegetative strata (average sitewide based on veg. monitoring plots) - Saturation of the upper 12 inches of the surface soil profile (with a maximum ponding depth of 18 inches) for at least 12.5% of the growing season and/or hydrograph similar to reference HGM subclass profile
Upland	NA	NA	<ul style="list-style-type: none"> - Less than 35% average invasive species (based on monitoring plots) 	<ul style="list-style-type: none"> - Less than 30% average invasive species (based on monitoring plots) 	<ul style="list-style-type: none"> - Less than 25% average invasive species (based on monitoring plots)

Appendix I. Monitoring Schedule

Parameter	As-built	Annual Monitoring (Year)				
		1	2	3	4	5
A. Streams						
1. Visual Inspection & Photo Points	X	X	X	X	X	X
2. Geomorphology:						
Longitudinal Profile	X	X		X		X
Cross-Sections	X	X		X		X
Pebble Counts	X	X		X		X
3. Hydrology	N/A	X	X	X	X	X
4. Length						X
6. Habitat Assessment	X	X		X		X
B. Wetlands						
1. Photo Points	X	X	X	X	X	X
2. Hydrology/Hydric Soil Indicator	N/A	X		X		X
4. Vegetation	X	X	X	X	X	X
5. Area						X

Appendix J. Credit Ledgers (Placeholder)

Appendix K. Financial Assurances

**(CONFIDENTIAL
SUBMITTED SEPARATELY)**

Part 1. Performance Bond

Part 2. Long-Term Management Funding

Part 1. Performance Bond (Placeholder)

Part 2. Long-Term Management Funding (Placeholder)
