EAST BRANDYWINE Township

ACT 537 Sewage Facilities Plan Update

VOLUME I

March 2023

FINAL

Eng. Project No. EBMA11501

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

LIST OF APPENDICES

Acknowledgement

ACKNOWLEDGMENT

East Brandywine Township thanks and acknowledges the support of the Commonwealth of Pennsylvania, Department of Community and Economic Development, and Commonwealth Financing Authority, who provided a grant to the Township to assist in the preparation of this Official Sewage Facilities Plan Update.

Resolution

RESOLUTION NO. ___

A RESOLUTION OF THE BOARD OF SUPERVISORS OF EAST BRANDYWINE TOWNSHIP ADOPTING THE EAST BRANDYWINE TOWNSHIP SEWAGE FACILITIES PLAN

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, require East Brandywine Township to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said Plan whenever it is necessary to meet the sewage disposal needs of the Township, and

WHEREAS, the Township has prepared an official Sewage Facilities Plan which provides for sewage facilities planning for the entirety of East Brandywine Township; and

WHEREAS, East Brandywine Township finds that the Sewage Facilities Plan described above conforms to applicable zoning, subdivision, other Township ordinances and plans and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of East Brandywine Township hereby adopts and submits to the Department of Environmental Protection for its approval as the "Official Plan" of East Brandywine Township, Chester County, the above-referenced Sewage Facilities Plan. The Township hereby assures the Department of the complete and timely implementation of the said Plan as required by law.

RESOLVED AND ADOPTED at a duly advertised public meeting this ____ day of _____, 2023.

BOARD OF SUPERVISORS
EAST BRANDYWINE TOWNSHIP

ATTEST:

_____
Chairman

_____
Lisa Taraschi, Township Secretary

_____
Vice Chairman

_____
Member

I, Lisa Taraschi, Secretary of East Brandywine Township hereby certify that the foregoing is a true copy of the Township's Resolution No. _____, adopted _____, 2023.

TOWNSHIP SEAL

Lisa Taraschi, Township Secretary

_____

Preface

PREFACE

The Pennsylvania Sewage Facilities Act (Act 537) was enacted by the Pennsylvania Legislature on January 24, 1966 and provides for the planning and regulation of community and individual wastewater systems within the Commonwealth of Pennsylvania.

To comply with regulations provided in Act 537, municipalities are required to prepare, adopt, and follow an official sewage facilities plan reflecting the policy set forth in Act 537 to:

1. Protect the public health, safety, and welfare of its citizens through the development and implementation of plans for the sanitary disposal of sewage waste.
2. Promote intermunicipal cooperation in the implementation and administration of such plans by local government.
3. Prevent and eliminate pollution of waters of the Commonwealth by coordinating planning for the sanitary disposal of sewage wastes with a comprehensive program of water quality management.
4. Provide issuance of permits for On-Lot Sewage Disposal Systems by local government in accordance with uniform standards and encourage intermunicipal cooperation.
5. Provide for and insure a high degree of technical competency within local government in the administration of this Act.
6. Encourage the use of the best available technology for on-site sewage disposal systems.
7. Ensure the right of citizens on matters of sewage disposal as they may relate to this Act and the Constitution of this Commonwealth.

The Act 537 Plan is to include all reasonable parameters related to planning of wastewater systems as described in the Act. To ensure that the municipality's Act 537 Plan is sensitive to changing conditions, the Act requires municipalities to review and, if necessary, revise its Act 537 Plan whenever it is determined that the Plan no longer provides for adequate facilities to meet the sewage service needs of the municipality.

During the preparation of an Act 537 Plan, a municipality is required to study problem areas and set forth various alternatives available to eliminate problems. Furthermore, once plans are adopted by local agencies and approved by Pennsylvania Department of Environmental Protection (PADEP), municipalities must implement the plan. Failure to implement an Official Plan can lead to severe restrictions on the growth of that area, as well as subjecting the municipality to enforcement action.

Act 537 Plans must also address areas that have growth potential and must clearly demonstrate the municipality’s approach to provide the services needed to cope with this growth. Where the projected growth is scattered or sparse, and dependent on the use of subsurface sewage systems, the plan must carefully evaluate the limitations of the soil and subsurface conditions with respect to the installation of such systems.

Comments and Responses

EAST BRANDYWINE TOWNSHIP

Board of Supervisors

Kyle P. Scribner
Member

Jason R. Winters
Chairman

George W. Scherbak
Vice-Chairman

December 9, 2020

Matthew Skilljoe, Director
Bureau of Environmental Health
Chester County Health Department
601 Westtown Road
PO Box 2747
West Chester, PA 19380-0990

Dear Mr. Skilljoe,

Hydraterra Professionals recently completed a final draft of the East Brandywine Township Act 537 Sewage Facility Plan Update. The Township is requesting that your organization review the enclosed plan and return any comments or suggestions in a written format to my attention, within 30 days of receipt.

Please feel free to contact Hydraterra Professionals at 610-943-3000 should you require additional information.

Thank you for your consideration.

Luke Reven
Assistant Township Manager

Chester County Health Department Response

East Brandywine Township transmitted a copy of the ACT537 Final draft to the Chester County Health Department (CCHD) on December 9, 2020. Several attempts to obtain comments from CCHD were made during the comment period via email, included in this section. As of April 6, 2021 no comments have been received.

EAST BRANDYWINE TOWNSHIP

Board of Supervisors

Kyle P. Scribner, *Member* | Jason R. Winters, *Chairman* | George W. Scherbak, *Vice-Chairman*

December 9, 2020

Carolyn Conwell, Senior Environmental Planner
Chester County Planning Commission
601 Westtown Road
PO Box 2747
West Chester, PA 19380-0990

Dear Ms. Conwell,

Hydraterra Professionals recently completed a final draft of the East Brandywine Township Act 537 Sewage Facility Plan Update. The Township is requesting that your organization review the enclosed plan and return any comments or suggestions in a written format to my attention, within 30 days of receipt.

Please feel free to contact Hydraterra Professionals at 610-943-3000 should you require additional information.

Thank you for your consideration.

Luke Reven
Assistant Township Manager

THE COUNTY OF CHESTER

COMMISSIONERS
Marian D. Moskowitz
Josh Maxwell
Michelle Kichline

Brian N. O'Leary, AICP
Executive Director

PLANNING COMMISSION
Government Services Center, Suite 270
601 Westtown Road
P. O. Box 2747
West Chester, PA 19380-0990
(610) 344-6285 Fax (610) 344-6515

January 15, 2021

Jason Winters, Chairman
East Brandywine Township
Board of Supervisors
1214 Horseshoe Pike
Downingtown, PA 19335

Re: East Brandywine Township Act 537 Special Study

Dear Mr. Winters:

The Chester County Planning Commission (CCPC) has reviewed the Draft 537 Special Study dated December 2020 as required by Section 71.53(a)(2) of the Pennsylvania Sewage Facilities Act (Act 537). The Special Study was prepared by Hydraterra Professionals, LLC. The Plan was received on December 18, 2020.

This Study was prepared with the intention of explaining the extent and condition of the public sewer system in the township, as well as identifying areas in the township where varying levels of on-lot disposal system malfunctions are suspected, which includes thirteen areas. Further, the Special Study identifies the alternative of pursuing a sewage management program (SMP) to provide a low-cost alternative to mitigate some malfunctions, while collecting supplemental data to assess and potentially justify the extension of the township's public systems, to the identified areas of need. The Planning Commission recommends the Special Study be adopted after consideration of comments in this letter.

The following comments are offered based on review of the document:

A. Consistency with the County Plan – ***Landscapes3***:

1. *Landscapes3* Map:

Landscapes3 designates the area of East Brandywine Township as the Suburban and Rural Landscapes. As such, we find the areas currently served by the existing sewer systems to be located within the designated growth area, and generally consistent with the Landscapes Map of *Landscapes3* (2018). Further, the continued use of on-lot sewage disposal in the Rural Landscape, accompanied by the development of a Sewage Management Program to identify potential areas of need, is supported by *Landscapes3* Connect Goal, "Advance efficient, reliable, and innovative utility

infrastructure systems that responsibly serve thriving and growing communities"

2. *Landscapes3* Plan:

   As presented, the area currently served by East Brandywine Township's public sewer system is primarily located in designated growth areas and utilizes land disposal of treated wastewater. Further, the additional study of the township to identify areas of need for public sewer is consistent with *Landscapes3* Connect Objective F, which states, "Coordinate water and sewage facilities planning with land use planning so that development is directed toward designated growth areas with adequate and well maintained infrastructure."

3. *Watersheds Plan:*

   Watersheds, the water resources element of the County comprehensive plan, identifies Objective 7.3 of Goal 7, "concentrate planned utility service areas to support designated growth areas," to be achieved through key strategies such as encouraging the expansion of community water supply and wastewater facilities to support the planned growth in Urban and Suburban landscapes. Additionally, Objective 6-8 of **Watersheds** states, "Plan water supply and wastewater sources and facilities that seek to maintain the natural watershed balance of each subdivision." The CCPC recognizes that East Brandywine Township currently utilizes land disposal of treated wastewater and that the township will be seeking to implement a Sewage Management program to assess and potentially justify public sewer expansions within the township. As presented, the goals for wastewater and water supply in East Brandywine Township are generally consistent with those of ***Watersheds***.

B. Selection of Alternative:

1. The selected alternative is to implement a Sewage Management Program as a means to allow for continued on-lot disposal system use by many residents, through repair and ongoing maintenance, while also collecting supplemental information on on-lot systems that will be analyzed and assessed to potentially justify the expansion of the public system to identified areas of the township.

   The use of both public and on-lot disposal systems is consistent with the vision for the Suburban Landscape in *Landscapes3*. The use of on-lot sewage disposal is consistent with the vision for the Rural Landscape in *Landscapes3*. According to the County's Comprehensive Plan, land application of treated wastewater is encouraged in Protect recommendations 6 and 8, which support innovative practices for improved water quality and supporting municipal on-lot sewage management programs, respectively.

C. General Comments:

1. According to the National Pipeline Mapping System (NMPS), the township contains multiple pipeline corridors. While the location of these do not preclude development along the pipeline corridor itself, there may be special steps that can avoid negative impacts or interactions between the public and the pipeline. The Planning Commission recommends contacting the pipeline operators to coordinate any future construction activities. Contact information for operators in your area by going to the Chester County Pipeline Information Center website http://www.landscapes2.org/pipeline/Operators.cfm and linking to the corresponding company.

2. Page 2-4. Potable Water Supply. For clarity, please include information as to how much water East Brandywine Township is allocated through the DMWA and Aqua Pennsylvania.

3. Page 4-1. Municipal and County Planning Documents. Please update the information to include *Landscapes3* the County Comprehensive, which was adopted in November 2018.

4. Page 4-6 Population and Housing Trends. The text includes population data for Chester County. In the 2016 projections, the 2020 population for Chester County was forecasted to be 543,702, but the 2019 Census estimate was reported as 524,989. While DVRPC is aware that the projected numbers may be off, these projections may need to be updated as the Sewage Management Plan moves forward through the process. Please contact Jake Michael, the Planning Commission's demographer for more details at jmichael@chesco.org.

5. Plate 5-1. Potential Public Sewer Connection. The map shows the different focus areas that will be considered for future connection to public sewer systems, as well as where treatment plants and pump stations are located. There are boxes with names that are followed by letters and numbers, but those are not identified, and include MH B50, MH F01, and the like. Please update the legend to include what this information is referencing.

6. Page 6-3 Anti-Degradation Requirements. The Plan references Act 167 of 1978, but does not discuss the Chester County County-wide Act 167 Plan and model ordinance that were approved by PA DEP in July of 2013. All Chester County municipalities are required to be consistent with this plan and ordinance.

7. Page 6-3. Evaluation of Alternatives. PA Prime Agricultural Land Policy. While the Plan discusses protected agricultural land, the text should also include a discussion of the Township's Agricultural Security Area and parcels that are protected or prioritized protection. The Township's adoption of an agricultural security area is a public policy statement for the preservation of agriculture, under PA Act 43. Before action is taken to extend sewer service areas, the Planning Commission suggests that the Township include consideration of how extension of sewer to some parts of the Township could change the character of the Township and potentially impact the agriculture security area.

Thank you for the opportunity to offer comments on this plan. We trust that these comments will be of assistance to you as you prepare the final document for submission to PA DEP. The Planning recommends approval of the Special Study once all comments have been addressed. If you have any questions, please contact me at 610-344-6285.

Sincerely,

Carrie J. Conwell

Carrie J. Conwell, AICP
Senior Environmental Planner

cc: Elizabeth Mahoney, PA DEP
Matt Skiljo, Chester County Health Department
Luke Reven, Assistant Township Manager
Joseph Boldaz, Hydraterra Professionals

Elizabeth VanLew

From: Skiljo, Matthew <mskiljo@chesco.org> on behalf of Skiljo, Matthew
Sent: Wednesday, January 06, 2021 12:45 PM
To: 'Elizabeth VanLew'
Subject: RE: [EXTERNAL] - Act537

Hi Liz. We received it.

Matt Skiljo, MPH
Bureau Director, Environmental Health Protection
Chester County Health Department
601 Westtown Road, Suite 290
West Chester, PA 19380
610-344-6439
mskiljo@chesco.org

"Protecting You and Your Environment"

From: Elizabeth VanLew [mailto:evanlew@hydraterrapro.com]
Sent: Monday, January 04, 2021 11:26 AM
To: Skiljo, Matthew
Subject: [EXTERNAL] - Act537

Hi Matt,
Hope you are doing fine and staying safe. Can you confirm you received a copy of the East Brandywine Township Act 537 Sewage Facilities Plan? I mailed a copy on December 10th, 2020.

Regards,
Liz

Hydraterra Professionals
1691 Horseshoe Pike, Suite 2
Glenmoore PA 19343
tele 610-942-3000

Elizabeth VanLew

From: Elizabeth VanLew
Sent: Friday, March 12, 2021 3:13 PM
To: Joe Boldaz; Joseph G. Borgioni (jborgioni@hydraterrapro.com)
Subject: FW: [EXTERNAL] - East Brandywine Act537

From: Skiljo, Matthew [mailto:mskiljo@chesco.org]
Sent: Monday, March 08, 2021 9:46 AM
To: 'Elizabeth VanLew' <evanlew@hydraterrapro.com>
Subject: RE: [EXTERNAL] - East Brandywine Act537

Hi Liz,

Sorry for my delayed response. We received a copy of the Act 537 plan for East Brandywine Township. I'll review the Act 537 plan this week and provide a written response with any comments.

Best,
Matt

From: Elizabeth VanLew <evanlew@hydraterrapro.com>
Sent: Monday, March 8, 2021 8:23 AM
To: Skiljo, Matthew <mskiljo@chesco.org>
Subject: [EXTERNAL] - East Brandywine Act537

Hi Matt,
Hope you are doing well and staying safe. I am asking for an update on the Act537. Can you tell me when we can expect your comments if any? Should you have questions please call me or Joe Boldaz at the number provided below.

Regards,
Liz

Hydraterra Professionals
1691 Horseshoe Pike, Suite 2
Glenmoore PA 19343
tele 610-942-3000

-----Original Message-----
From: Conwell, Carolyn J. [mailto:cconwell@chesco.org]
Sent: Monday, January 25, 2021 2:03 PM
To: 'Luke Reven'
Subject: RE: [EXTERNAL] - RE: adopted copy

I asked the question, in the event that they, or the township, had agreed to a maximum capacity - Looking at it again, I think I had myself confused and thought it was wastewater. I can make a note to DEP or you can indicate that we talked and it's resolved.

Sorry for the confusion.

From: Luke Reven <lukereven@ebrandywine.org>
Sent: Monday, January 25, 2021 1:41 PM
To: Conwell, Carolyn J. <cconwell@chesco.org>
Cc: Joe Borgioni <jborgioni@hydraterrapro.com>
Subject: RE: [EXTERNAL] - RE: adopted copy

Carrie,

I have a follow-up question regarding your general comment #2 (C2) in your letter of January 15, 2021.

You asked for "information as to how much water East Brandywine Township is allocated through the DMWA and Aqua Pennsylvania." While there are parcels in East Brandywine Township on these two public systems, I am not aware of any agreements as to total volume allocated to the Township. Each new connection is accompanied by a "will serve" letter from the utility as appropriate. If the utilities have limited production capacity, I suspect this is allocated to new connections on a first-come-first-serve basis, regardless of municipality.

I could ask the two utilities to provide the sum of all meters in Township, but I don't think that is what you were looking for.

Thanks for the clarification.

- - -
Luke Reven, Township Manager
[http://ebrandywine.org/DocumentCenter/View/446]<http://www.ebrandywine.org/
>

East Brandywine Township
1214 Horseshoe Pike
Downingtown, PA 19335-1153
(610) 269-8230 x 205

Chester County Planning Commission (CCPC) Response Coordinated with General Comments from January 15, 2021 CCPC Letter

East Brandywine Township (EBT) Act 537 Plan Update

C1. The EBT Act 537 Plan does not propose any future construction activities. When construction is proposed, the Township will consider the potential negative impacts of pipeline corridor locations to the community.

C2. An email dated Monday, January 25, 2021 from CCPC's Senior Planner Carrie Conwell to EBT Manager Luke Reven states that the issue of Comment #2 was resolved. No revisions should be made in the Act 537 Plan Update text regarding the water EBT is allocated through DMWA and Aqua PA. Referenced email is included on the next page.

C3. The following paragraph has been added to page 4-3:

"Balancing preservation and growth remain the central theme of Landscapes. To continue this balance, Landscapes3, which was adopted November 2018, recommits to core principles that will position the county and its municipalities for success:

- Resource Preservation - recommit to protecting the county's open spaces, natural areas, and historic landscapes.
- Revitalized Centers - guide compatible growth to the county's urban and suburban centers.
- Housing Diversity - provide for diverse and affordable housing meeting the needs of all residents.
- Transportation Choices - expand public transit, pedestrian, and bicycle networks.
- Collaboration - promote effective multi-municipal and partner cooperation.
- Resiliency - Respond to the changing markets, technology, community and economy."

C4. Per a conversation with Jake Michael (CCPC) regarding Population and Housing trends, a footnote has been added to both Table 4-7 and Table 4-8 on Page 4-8 that read: "According to the CCPC, population forecast may be outdated. Updated population projections may be delayed due to the Covid-19 pandemic."

C5. Plate 5-1 "Potential Public Sewer Connection": manhole identifiers such as letters and numbers have been removed from the map. The legend has been updated to read "Existing Manholes for Potential Connection".

C6. The following has been added to page 6-3:

The Pennsylvania Department of Environmental Protection approved the "County-wide Act 167 Stormwater Management Plan for Chester County, PA" on July 2, 2013 (as submitted). The State, through Act 167, requires that all Chester County municipalities adopt the ordinance requirements included in the Plan.

The County-wide Act 167 Stormwater Management Plan for Chester County, PA fulfills the requirements of PA Act 167. Further, it provides information to assist municipalities with stormwater planning and management, provides municipalities with stormwater standards and a model ordinance, and assists municipalities with meeting certain National Pollutant Discharge."

C7. Section 6, Paragraph G on page 6-3 has been revised to read as follows:

"East Brandywine Township is committed to protecting prime agricultural land within Township boundaries. Four parcels (UPI No.'s 30-6-3; 30-6-4; 30-6-4.1; 30-6-49) in Zone 3, adjacent to Buck Road, are protected for agricultural use. The Township's adoption of an agricultural security area is a public policy statement for the preservation of agriculture, under PA Act 43. Before action is taken to extend sewer service areas, the Township will consider how extension of sewer could change the character of the Township and potentially impact the agriculture security area. The agricultural security area is shown as "Agricultural Easement" on Plate 6-1 Protected Lands prepared by the Township Open Space Committee."

EAST BRANDYWINE TOWNSHIP

Board of Supervisors

Kyle P. Scribner
Member

Jason R. Winters
Chairman

George W. Scherbak
Vice-Chairman

December 9, 2020

Bruce Rawlings, Chairman
East Brandywine Township Planning Commission
1214 Horseshoe Pike
Downingtown, PA 19335

Dear Mr. Rawlings,

Hydraterra Professionals recently completed a final draft of the East Brandywine Township Act 537 Sewage Facility Plan Update. The Township is requesting that your organization review the enclosed plan and return any comments or suggestions in a written format to my attention, within 30 days of receipt.

Please feel free to contact Hydraterra Professionals at 610-943-3000 should you require additional information.

Thank you for your consideration.

Luke Reven
Assistant Township Manager

Excerpt from Planning Committee Meeting

EAST BRANDYWINE TOWNSHIP PLANNING COMMISSION
REGULAR (REMOTE) SESSION
Wednesday, March 3, 2021

Those in Attendance:
Bruce Rawlings, Chairman
Jim Buczala, Vice-Chairman
Michael Corbin, Member
Charles Giordano, Member
Nancy Frame, Member
Luke D. Reven, Township Manager
Lisa Taraschi, Township Secretary
Absent
Michael Wagoner
Francis Taraschi

Comments on Draft Act 537 Sewer Facilities Plan

Mr. Rawlings voiced concern regarding replacement fields and drip fields going from 100% to 150%. Mr. Corbin explained that the purpose of the additional 50% is to provide flexibility such as storage during repairs or maintenance. As well as, operational flexibility if, for example weather causes saturated conditions. Mr. Corbin also stated that the DEP will have requirements which will need to meet. He also stated that it is important to maintain sufficient area in the operational fields in order to have permit compliance. He stated that groundwater recharge is very important since the majority of residents rely on groundwater for their water supply.

Mr. Reven added that the Applecross Waste Water Treatment Plant treated effluent fluctuates depending on climate conditions. This is an important variable.

Mr. Rawlings suggested more clarity is needed in the ACT 537 and can be used as a tool to help applicants. He also stated that he agrees with this process and is looking for the additional rationale on the 50% requirement to share.

East Brandywine Township Planning Commission (EBTPC) Response

East Brandywine Township (EBT) Act 537 Plan Update

A. The need to provide operational flexibility and capacity in the form of additional storage or additional disposal facilities over and above PADEP's minimum requirements is apparent. Operators and manufacturers indicate that storage required during many repairs exceeds the 3-day requirement, larger repairs may require weeks of storage. Additional disposal fields provide operational flexibility and capacity, allowing the operator to direct flow to an alternate drip system rather than to storage.

   Drip Irrigation Systems are permitted based on "Maximum Daily Dose" limits for each zone. The Applecross Regional Treatment Plant is permitted based on "Average Daily" flow limits. The differences between these rates require flow restrictions to the individual zones so an exceedance does not occur. Depending on design, losses between the two values can be up to 20%. The Township/Authority's intent is to maintain compliance by operating the system with no exceedances of the permitted value.

B. The amount of flow needed for proper operation and irrigation of the Applecross Country Club was significantly overstated in the initial planning, design, and agreements. The golf course operator has been challenged by the amount of treated effluent directed to their facilities in recent years.

C. The Municipal Authority intends to use all the disposal facilities in a manner that will minimize or hopefully avoid stream discharge. The Municipal Authority will, depending on the volume of effluent available for disposal and the demand for spray irrigation, operate the disposal facilities in a manner that will provide at least one dose per day to all drip operating facilities. This method of operation will reduce the demand for storage, reduce stream discharges and increase operator flexibility.

EAST BRANDYWINE TOWNSHIP

December 9, 2020

PA Department of Conservation and Natural Resources
PA Natural Diversity Inventory Program
Rachel Carson State Office Building
PO Box 8552
Harrisburg, PA 17105-8552

To Whom It May Concern:

Hydraterra Professionals recently completed a final draft of the East Brandywine Township Act 537 Sewage Facility Plan Update. The Township is requesting that your organization review the enclosed plan and return any comments or suggestions in a written format to my attention, within 30 days of receipt.

Please feel free to contact Hydraterra Professionals at 610-943-3000 should you require additional information.

Thank you for your consideration.

Luke Reven
Assistant Township Manager

East Brandywine Township

Board of Supervisors

Kyle P. Scribner, *Member* | Jason R. Winters, *Chairman* | George W. Scherbak, *Vice-Chairman*

December 9, 2020

Doug McLearen, Division Chief
Pennsylvania Historical and Museum Commission
State Historic Preservation Office
Environmental Review Division
400 N. Street, 2nd Floor
Harrisburg, PA 17121

Dear Mr. McLearen,

Hydraterra Professionals recently completed a final draft of the East Brandywine Township Act 537 Sewage Facility Plan Update. The Township is requesting that your organization review the enclosed plan and return any comments or suggestions in a written format to my attention, within 30 days of receipt.

Please feel free to contact Hydraterra Professionals at 610-943-3000 should you require additional information.

Thank you for your consideration.

Luke Reven
Assistant Township Manager

PA Natural Diversity/PA Historical and Museum Commission Response

The Pennsylvania National Diversity Inventory Program and Pennsylvania Historical & Museum Commission also received Act 537 Plan draft submittal for comment. Following the 60-day PADEP requirement, the EBTMA did not receive comments from either agency.

Pennsylvania Historical & Museum Commission

PROJECT REVIEW FORM

Request to Initiate SHPO Consultation on State and Federal Undertakings

SHPO USE ONLY	Reviewers: ED / CH
DATE RECEIVED: 12/11/20	DATE DUE: 12/25/20
ER NUMBER: 2021-0659-029-A	HRSF:

REV: 07/2020

SECTION A: PROJECT NAME & LOCATION

Is this a new submittal? (●) YES ( ) NO OR ( ) This is additional information for ER Number:

Project Name: Act 537 Sewage Facilities Plan | County: Chester | Municipality: East Brandywine Townsh

Project Address: 1214 Horseshoe Pike | City/State/ Zip: Downingtown/PA/19335

SECTION B: CONTACT INFORMATION & MAILING ADDRESS

Name: Joseph Boldaz

Company: Hydraterra Professionals, LLC

Street/PO Box: 1691 Horseshoe Pike, Suite 2

City/State/Zip: Glenmoore/PA/19343

Phone: (610) 942-3000

Fax: (610) 942-3100

Email: jboldaz@hydraterrapro.com

Email cc: evanlew@hydraterrapro.com

SECTION C: PROJECT DESCRIPTION

This project is located on: (check all that apply) ☐ Federal property ☐ State property ☑ Municipal property ☑ Private property

List all federal and state agencies and programs providing funds, permits, licenses.

Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
State	PADEP/Clean Water	
State	Pennsylvania/Commonwealth Financing Auth	C000066674

Proposed Work – Attach project description, scope of work, site plans, and/or drawings

Project includes (check all that apply): ☐ Construction ☐ Demolition ☐ Rehabilitation ☐ Disposition

Total acres of project area: Entire Tow | Total acres of earth disturbance: NA

Are there any buildings or structures within the project area? (●) Yes ( ) No | Approximate age of buildings: NA

Does this project involve properties listed in or eligible for the National Register of Historic Places, or locally designated? Inventory here: https://gis.penndot.gov/crgis

Yes	No	Unsure
( )	(●)	( )

Name: _____

Key Number: _____

Please email this form and pdf attachments to: RA-PH-PASHPO-ER@pa.gov

Please be sure to save the Project Review Form so that it remains a digital document and retains its function as a fillable pdf. Do not print the form and scan as a pdf.

Attachments – Please include the following information with this form

- ☑ **Map** – 7.5' USGS quad, streetmap, or parcel map showing the project's Area of Potential Effect
- ☑ **Description/Scope of Work**– Narrative description of the project, including any ground disturbance and previous land use, and any potential to impact historic resources
- ☐ **Site Plans/Drawings** – Indicate location and age of buildings, any proposed improvements, and past and present land use
- ☐ **Photographs** – Digital photographs of all buildings and structures keyed to a site plan. If demolition or exterior changes are proposed to buildings more than 50 years old, please also include Abbreviated HRSF

SHPO RESPONSE (SHPO USE ONLY)

- ☐ There are **NO HISTORIC PROPERTIES** in the Area of Potential Effect
- ☐ **SHPO REQUESTS ADDITIONAL INFORMATION** (see attached)
- ☑ The project will have **NO EFFECT** on historic properties
- ☐ The project will have **NO ADVERSE EFFECTS** on historic properties: _____ Key# _____

DIVISION CHIEF, ENVIRONMENTAL REVIEW: [signature]

DATE: 12/18/20

SHPO REVIEWER: ed

Public Comments

From: Fred Ebert <febert@ebertengineering.com>
Sent: Thursday, May 27, 2021 12:07 PM
To: Luke Reven <lukereven@ebrandywine.org>
Cc: Giovanna M. Raffaelli, Esquire <graffaelli@mmgapts.com>
Subject: East Brandywine Township Act 537 Plan - Public Comments

Luke,

On behalf of Metropolitan Development Company and MDG Downingtown, LP, please see the following comments on the East Brandywine Township Act 537 Plan:

1. In Section 3 under paragraph L on Page 3-28 the Act 537 Plan states the following "*Per notification received by the Township, Mt Idy Manufactured Home Park is suspected of COLDS malfunctions. Further investigation of the COLDS serving the Manufactured Home Park should be performed to determine configuration, condition and resolution."*. Why was this investigation not performed as part of this Act 537 Plan? Doing the investigation would have provided a resolution to malfunctions to protect the health safety and welfare of the residents of East Brandywine Township. Given that the Township has knowledge of a suspected malfunction, the Township should have an obligation to fully explore a resolution to this issue.

2. In Section 5 in paragraph I and Table 5-3 on Page 5-10, the Act 537 Plan identifies the alternative to provide public sanitary sewer service to Mt Idy MHP through a connection to the Hillendale collection, treatment and disposal system. This option should be fully explored to determine how capacity can be provided to provide public sanitary sewer service to the Mt Idy MHP. The evaluation should include the identification of the cost of connection and the recapture that would be due to the developer who constructed the WWTP, collection and disposal system in accordance with the Municipal Authorities Act and Act 57 of 2003. The Act 537 Plan should also reference that a recapture amount is due the developer in accordance with the Developer's agreement for the construction of that Hillendale WWTP, collection and disposal capacity.

3. Table 5-3 or the previous narratives in the Act 537 Plan should be updated to correctly identify the number of edus and flows that will need to evaluated. In the narrative it references 40 edus and a flow of 10,000 gpd while in Table 5-3 it identifies 68 edus and a flow of 17,000 gpd.

We tried to submit this utilizing the online link but it did not work so we are providing the comments via email.

Should you have any questions concerning the above comments, please feel free to contact Gia or myself.

Fred

Frederick E. Ebert, P.E.
Ebert Engineering, Inc.
Water and Wastewater Engineering
P.O. Box 540, 4397 Skippack Pike
Skippack, PA 19474
Tel: 610.584.6701

March 15, 2023

Frederick E. Ebert, P.E.
Ebert Engineering
Metropolitan Development Company
P.O. Box 540, 4397 Skippack Pike
Skippack, PA 19474

RE: East Brandywine Township
Act 537 Plan Update
Public Comments
HtP Project Number: EBMA11501

Hydraterra Professionals (HtP) has reviewed comments received regarding Act 537 Plan Update via email by Frederick E. Ebert, P.E. on May 27, 2021 on behalf of Metropolitan Development Company and MDG Downingtown, LP.

HtP offers the following replies:

1. **Ebert Comment 1:** *In Section 3 under Paragraph L on Pages 3-28, the Act 537 Plan states the following: "Per notification received by the Township, Mt. Idy Manufactured Home Park is suspected of COLDS malfunctions. Further investigation of the COLDS serving the Manufactured Home Park should be performed to determine configuration, condition, and resolution". Why was this investigation not performed as part of this Act 537 Plan? Doing the investigation would have provided a resolution to malfunctions to protect the health safety and welfare of the residents of East Brandywine Township. Given that the Township has knowledge of a suspected malfunction, the Township should have an obligation to fully explore a resolution to this issue.*

   a. **HtP Response:**

      i. Section 3, Paragraph L has been revised to read, "Previous public comments reported to the Township suggest that the COLDS serving Mt. Idy MHP may be a potential malfunction".

      ii. Mt. Idy MHP was included in the "Sewage Needs Analysis" completed as part of the Act 537 Plan Update, but the owners of the park did not respond to the questionnaire.

      iii. CCHD maintains two separate databases, one showing pumping events and one showing repairs. A review of this data did not show any information suggesting a malfunction of the Mt. Idy MHP.

2. **Ebert Comment 2:** *In Section 5 in Paragraph I and Table 5-3 on Page 5-10, the Act 537 Plan identifies the alternative to provide public sanitary sewer service to Mt. Idy MHP through a connection to the Hillendale collection, treatment and disposal system. This option should be fully explored to determine how capacity can be provided to provide public sanitary sewer service to the Mt. Idy MHP. The evaluation should include the identification of the cost of connection and the recapture that would be due to the developer who constructed the WWTP, collection, and disposal system in accordance with*

the Municipal Authorities Act and Act 57 of 2003. The Act 537 Plan should also reference that a recapture amount is due the developer in accordance with the Developer's agreement for the construction of that Hillendale WWTP, collection and disposal capacity.

a. HtP Response:

i. COLDS in Chester County are regulated by the Chester County Health Department. No comments were received from the CCHD with regard to the Mt. Idy MHP. Upon confirmation of a "Confirmed Malfunction" by the CCHD, the Township will evaluate the need and methods to address the need.

ii. The option discussed above will require adequate treatment, storage, and disposal capacity. It is noted that the HSTP is a new treatment plant, serving a recently built-out development. Available treatment, storage, and disposal capacity cannot be determined with the limited operating history of the HSTP.

iii. Section 3, Paragraph C, Page 3-10 referring to "Capacity" has been revised to read, "HSTP was constructed to connect only to Estates of Dowlin Forge Station. As of Fall 2021, all public sewage facilities were dedicated to East Brandywine Municipal Authority. As of July 2022, the development was considered "built-out". Given the recent completion of the residential development, little operating history is available to estimate hydraulic and solids loading. Any future sale or transfer of capacity will be in accordance with Section 2(k) of the Developer Sewer Improvement Agreement, included in Appendix E."

3. **Ebert Comment 3:** *Table 5-3 or the previous narratives in the Act 537 Plan should be updated to correctly identify the number of edus and flows that will need to evaluated. In the narrative it references 40 edus and a flow of 10,000 gpd while in Table 5-3 it identifies 68 edus and a flow of 17,000 gpd.*

a. HtP Response:

i. Table 5-3 has been revised to reflect the number of EDUs in the Mt. Idy MHP as 40.

Should you have any questions or concerns, please contact our office at 610-942-3000.

Very truly yours,
Hydraterra Professionals

Joseph Boldaz, P.E.
Senior Engineer

cc: Thomas Oeste, Solicitor
Giovanna M. Raffaelli, Esquire
Luke Reven, East Brandwyine Township Manager

Publication

21ST CENTURY media

MediaNews Group

PHILADELPHIA GROUP

AFFIDAVIT OF PUBLICATION

307 Derstine Avenue • Lansdale, PA 19446

EAST BRANDYWINE TOWNSHIP
1214 HORSESHOE PIKE
DOWNINGTOWN, PA 19335
Attention:

RECEIVED

MAY 10 2021

EAST BRANDYWINE TWP.

STATE OF PENNSYLVANIA,
COUNTY OF MONTGOMERY

The undersigned Sharon Dietz, being duly sworn the he/she is the principal clerk of Daily Local News, Daily Local News Digital, published in the English language for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

EAST BRANDYWINE TOWNSHIP

Published in the following edition(s):

Daily Local News	04/27/21
Daily Local News Digital	04/27/21

Commonwealth of Pennsylvania - Notary Seal
MAUREEN SCHMID, Notary Public
Montgomery County
My Commission Expires March 31, 2025
Commission Number 1248132

Sworn to the subscribed before me this 4/29/21.

Maureen Schmid

Notary Public, State of Pennsylvania
Acting in County of Montgomery

NOTICE

Notice is hereby given, in accordance with Pennsylvania Department of Environmental Protection regulations Section 71.53(d)(6) of PA Code, Title 25 Act 537, that East Brandywine Township is opening a 30-day public comment period prior to the Board of Supervisors considering adoption of an Act 537 Sewage Facilities Plan. The Plan provides an analysis of sewage needs for existing On-Lot Disposal Systems, Community On-Lot Disposal Systems, Holding Tanks, and Wastewater Treatment Plants within the Township. No sewage facilities are proposed, so no additional stream discharge into high quality or exceptional value bodies of water and no change in user fees will occur.

The Plan concludes the following: 1) Existing parcels served by on-lot disposal systems should continue to be so, with repair or replacement by property owners as needed to correct any occurrence of malfunction; 2) All on-lot disposal systems will be subject to an on-lot sewage management program which develops inventory for Township and requires system evaluation by a professional with reoccurring pumping at 3-year intervals; 3) The four Township wastewater treatment plants should continue to operate; 4) Focus areas identified in the Needs Analysis will be evaluated for potential public sewer connection, with consideration of sewage management program; 5) Subsurface disposal and potential capacity expansion for Applecross Treatment Plant will be evaluated.

Due to the current Covid-19 social distancing limitations, the Act 537 Plan is conveniently available for review on the Township's website at www.ebrandywine.org/537Plan. If viewing online is not feasible for a resident, please contact the Township at (610) 269-8230 to make alternative arrangements. All comments must be in writing and submitted within 30 days of the date of publication of this notice to:

Luke Reven, Township Manager
1214 Horseshoe Pike
Downingtown, PA 19335-1153
DLN 4/27; 1a

Advertisement Information

Client Id: 884418 **Ad Id:** 2162626 **PO:** **Sales Person:** 018303

Summary of Plan

SUMMARY OF PLAN

In 1999, the Township prepared and submitted an Official Sewage Facilities Plan to the PADEP. This plan identified the need to recharge ground water resources by promoting subsurface discharge for public wastewater facilities and to protect the on-lot disposal systems (OLDS) throughout the Township by implementing a Sewage Management Program (SMP). Special Studies and Sewage Facility Planning Modules submitted after the 1999 plan proposed the use of public sewage systems to address the need for larger-sized residential developments and areas of obvious public sewer need.

The 2020 Act 537 Sewage Facilities Plan briefly explains the extent and condition of the public sewer system which includes four (4) wastewater treatment plants, three of which rely on subsurface disposal system. Each wastewater treatment plant has limited capacity and strict discharge limits. Approximately half (½) of the Township parcels are tributary to these public sewer systems.

The Applecross Treatment Plant is the largest of the wastewater treatment plants with a current treatment capacity of 300,000 gpd and potential expansion to 500,000 gpd. Disposal capacity in the form of subsurface discharge is limited and will be exhausted before the treatment plant reaches its current and maximum treatment capacity. Every opportunity to find additional disposal capacity should be considered. Refer to Section 3 for details related to the Applecross Treatment Plant and Table 5-2, for future capacity information at Applecross Treatment Plant.

Additionally, the 2020 Act 537 Sewage Facilities Plan identifies areas where varying levels of OLDS malfunctions are suspected. A total of thirteen (13) focus areas were identified and are summarized in Tables 3-13 through 3-15. The Plan identifies residential dwellings with confirmed malfunctions in the Bondsville Mill area.

The use of a SMP provides a low-cost alternative to mitigate many OLDS' operational and maintenance problems, while allowing residents continued use of their OLDS. The SMP will collect supplemental data regarding the OLDs by a qualified service provider. The analysis of this data will be used to assess and perhaps justify the extension of public sewers into areas of need.

Township SMP implementation should consider a revision to East Brandywine Township Ordinance 02-03 "An Ordinance Establishing a Management Program for Sewer Systems". Suggested revisions are detailed in Section 5 of the Plan and generally include establishing a timeline for implementation, creation of a database for record keeping, along with all operational and maintenance requirements.

The costs for SMP implementation will be borne by the Township and paid for through the General Fund. Individual property owners will be financially responsible for all costs related to observation and pumping of their respective OLDs. The Township will not incur any debt for this program; therefore, no financing consideration is necessary.

A schedule for implementation of the SMP is provided in Section 8 of the Plan.

Section 1

Previous Wastewater Planning

1. Previous Wastewater Planning

A. Pennsylvania Sewage Facilities Act (1966)

This Act (Act 537) provides for the planning and regulation of public, community and individual sewage systems; requiring municipalities to submit systems' planning documents in their jurisdiction; authorization and granting of permits for installation of such systems; and authorizing Department of Environmental Resources, now Pennsylvania Department of Environmental Protection (PADEP) to adopt and administer rules, regulations, standards, and procedures.

B. Master Plan for Sewage Chester County (1970)

The County Plan was prepared in 1968 and revised in 1970 to fulfill requirements of Act 537. Under Act 537 individual municipalities are to adopt sewage facility plans for their communities.

C. East Brandywine Township Sewage Plan (Act 537 Plan-1977)

This plan was adopted in 1977 and reflected the Chester County Plan. Act 537 Plan-1977 concluded the Township should be served largely with individual On-Lot Disposal Systems (OLDS). Act 537 Plan-1977 suggested sewage facility planning was adequate within the Township until year 2000.

D. East Brandywine Township Official Sewage Facilities Plan (Act 537 Plan-1999)

April 1999, the Township prepared, adopted, and submitted Act 537 Plan-1999 to PADEP. PADEP approved the plan on March 14, 2002. Act 537 Plan-1999 added a discussion of planning initiatives for potential areas of need including: Village of Guthriesville; Mt. Idy Mobile Home Park; Downingtown Industrial and Agricultural School currently known as Delaware County Community College (DCCC) Downingtown Campus; and Locust Knoll Development.

Act 537 Plan-1999 includes:

1. Downingtown Area Regional Authority (DARA) Phase III, 2001 Study. The Township did not participate in the study; thus no DARA capacity was allocated for Township.
2. The concept of On-Lot Disposal was presented as the best method of wastewater disposal (where soils permit) as it treats wastewater most proximal to the source and promotes ground water recharge.
3. The implementation of a Sewage Management Program for both OLDS and Community On-Lot Disposal Systems (COLDS) within the Township.

E. Act 537 Plan Special Study (Special Study Guthriesville Area-2001)

June 2001, PADEP approved a Special Study for the Guthriesville Area. This Special Study examined existing sanitary sewer systems' conditions and future sanitary needs for both Village of Guthriesville and Hopewell Development.

1. This special study's purpose was to identify sanitary sewer needs of:
   - Ninety-six (96) existing single-family homes, apartments, and commercial units in Village of Guthriesville and Kristin Circle area; and
   - Previously-proposed 120 single family homes of Hopewell Development.
2. Special Study Guthriesville Area-2001 provided the following recommendations:
   - Constructing a system to collect sanitary sewage from the Village of Guthriesville, Kristin Circle, and previously proposed Hopewell Development;
   - Constructing pumping station to convey sanitary sewage from the Village of Guthriesville to privately-owned Little Washington Wastewater Treatment Plant (LWWTP);
   - Expanding LWWTP facility from 75,000 gpd to approximately 115,000 gpd annual average flow;
   - Installing new subsurface disposal areas in LWWTP area with 22,133 gpd annual average capacity; and
   - Implementing a Township Sewage Management Program.

F. Keats Glen/DCCC SFPM-2000

Year 2000, PADEP granted planning approval of the residential subdivision known as "Keats Glen at Corner Ketch" containing 50 single family residential dwellings and the Chester County Campus of DCCC. Sewage Facilities Planning Module (SFPM) provided for planned flow rates of 18,129 gpd, treated by an existing on-site sewage treatment plant. SFPM proposed continued use of existing stream discharge but not to increase discharges into stream and to reduce the likelihood of lowering water quality of the Beaver Creek.

G. Hide-A-Way Farms SFPM-2004

Year 2004, PADEP approved SFPM for Hide-A-Way Farms Subdivision which then provided for:

1. One hundred fifty (150) new four-bedroom, single-family dwellings on 293 acres;
2. Planned sewage flow of approximately 39,640 gpd;
3. Collection from development conveyed through pumping station and forcemain;
4. LWWTP treatment to expand facilities from 115,133 gpd to 155,300 gpd total capacity;
5. Returning treated effluent from LWWTP to eight (8) new effluent disposal beds within Hide-A-Way Farms subdivision.

SFPM required that Little Washington Wastewater Company (previously Aqua America, currently Aqua Pennsylvania) secure a Clean Streams Law permit and amend NPDES permit for treatment plant expansion; and that East Brandywine Township secure a Clean Streams Law permit for construction of raw sewage pumping station and eight (8) new effluent disposal beds and their associated forcemains.

H. Applecross SFPM-2006-2016

Year 2006, PADEP granted planning approval of SFPM for Applecross development, accounting for:

1. 180 single family homes; 475 townhouses; a community center, ancillary facilities and an 18-hole golf course located on a 622-acre agricultural site;
2. Proposed 137,680 gpd of sewage for treatment by a tertiary wastewater treatment facility;
3. Treated effluent would be stored in three lagoons with minimum storage capacity of 20,300,000 gallons;
4. Entire proposed treated effluent flow would be used to irrigate golf course during growing season;
5. Require drip disposal areas with a minimum capacity of 20,945 gpd;
6. Require stream discharge to serve as a backup;
7. Pumping station to convey sewage to treatment facility;
8. Agreement between the Township, Municipal Authority, developer, and golf course operator related to amounts of treated effluent provided, volumes of storage provided and an application rate to the golf course was included with the SFPM.

Three (3) important planning concepts of this agreement include:

1. Irrigation application rates are golf course operator responsibility;
2. Stored effluent is golf course operator responsibility;
3. Golf course operator never to be required to accept flows surpassing 137,680 GPD limit; an amount detrimental to golf course.

Several amendments to Applecross SFPM have occurred over the years and resulted in addition of a pumping station and adjustments to number and type residential units. Ultimately, three (3) pumping stations received planning approval and were constructed to convey raw sewage from Applecross development to newly constructed Applecross Regional Treatment Plant (AKA Overlook Road Farms WWTP).

Year 2010, PADEP reissued its 2006 Applecross Country Club project planning approval. This amended both type and number of residential dwelling units approved; for overall dwelling unit reduction to 555. This amendment approved sewage facilities' planning to permit development of:

1. 426 single-family dwelling units;

2. 129 townhouses;
3. Community center, clubhouse, restaurant, banquet facility, and an 18-hole golf course with maintenance buildings on 622 acres.

Year 2016, PADEP approved yet another revision to Applecross County Club. This revision approved sewage planning for Phase IV of the development including; 91 townhouses, replacing 11 previously approved single-family dwellings; approved 15,925 gallons of sewage per day (gpd) to be treated at Applecross Regional Treatment Plant by use of drip irrigation disposal fields' permanent capacity.

I. Hillendale SFPM-2007

October 2007, PADEP approved Hillendale development SFPM which included:

1. 150 new single-family dwellings; 59 townhouses, and the connection of two existing dwellings to a proposed wastewater treatment facility with a drip disposal system;
2. Construction of municipal authority-owned wastewater facility with sanitary sewage treatment capacity of 61,388 gpd.
3. Drip disposal system to consist of four (4) areas located on 12.56 acres of open space lands throughout development;
4. 185,000 gallons of storage within the treatment system, which represents three days of storage at 61,388 gpd.

J. Weaver Tract SFPM-2007

December 2007, PADEP approved SFPM for Weaver Tract development. SFPM provided for:

1. 273 new age-restricted homes and 12 existing single-family homes;
2. 44,550 gpd of sewage for processing at Applecross Regional Treatment Plant;
3. Treated sewage must be returned to Weaver Tract for disposal at on-site beds with 63,177 gpd capacity.

This design of the Weaver Tract was never constructed. Regarding additional Weaver Tract information, please refer to Paragraph N "Weaver Tract SFPM – 2021".

K. Special Study (Rerouting Guthriesville Sanitary Sewer)-2012

November 2012, PADEP approved rerouting Guthriesville sanitary sewer from existing pumping station with treatment at LWWTP to a new pumping station with treatment at Applecross Regional Treatment Plant.

This approval provided the following:

1. Phased expansion of Applecross Pump Station B, now known as Bondsville Road Pump Station, from 58,425 gpd to 143,250 gallons gpd;
2. Phased expansion of Applecross Regional Treatment Plant from 137,680 gpd to 186,430 gpd;

3. Commitments to implement Capacity Management Plan (CMP) regarding collection, conveyance, storage, treatment, and disposal capacity.

L. Watters Commercial SFPM-2014

August 2014, PADEP approved proposed East Brandywine Center SFPM that provided for:

1. Supermarket, bank branch, and associated retail stores;
2. Connection to EBTMA collection system via pump station and forcemain;
3. 7,280 gpd of sewage;
4. Treatment at EBTMA's Applecross Regional Treatment Plant.

February 2019, PADEP responded to request for proposed flow reduction due to elimination of a proposed bank. A favorable response granted sewage flow reduction to 7,030 gpd with no need for additional sewage facility planning.

M. Mapleview SFPM-2018

May 2018, PADEP approved SFPM for proposed Mapleview Townhome Development SFPM provided for:

1. 154-lot new residential (townhouses) subdivision;
2. 26,950 gpd of sewage for treatment at Applecross Regional Treatment Plant;
3. Treated effluent returned to on-site drip disposal fields;
4. Municipal Authority-owned sewage pumping station and forcemain, to convey development sewage flows to existing manhole located within Applecross Development.

N. Weaver Tract SFPM – 2021

August 2021 PADEP approved SFPM for proposed construction of 161 single family homes and 134 townhomes. Provides for:

1. 45,000 gpd of sewage treated at ARTP;
2. Increase in permitted flows to ARTP, BRPS;
3. Construction and operation of drip disposal fields.
4. This approval replaces DEP's approval as described in Paragraph J "Weaver Tract SFPM-2007" above.

O. McCausland/Plank Subdivision

January 2023, preliminary plans submitted illustrating construction of eighty-nine (89) residential townhomes with proposed sewage generation of 15,575 gpd with treatment at ARTP.

P. East Brandywine Township Comprehensive Plan (2022)

The Township Comprehensive Plan (Plan) was adopted in October 2022 with specific intent to manage future growth so that it is consistent with the Township Act 537 Sewage

Facilities Plan Update and to both protect and enhance the natural resources, agricultural lands, and open spaces in the Township. The Plan Considers groundwater; potable water; treated and untreated wastewater as follows:

1. Adopt and implement the Draft Act 537 Sewage Facilities Plan Update (Update);
2. Implement the Sewer Management Plan (SMP);
3. Continue implementing the Township's MS4: Pollution Reduction plan;
4. Meet federal and state mandates for improving water quality and addressing stormwater management;
5. Incorporate demonstration projects (such as rain barrels, rain gardens, stream restoration, etc.) on Township-owned properties.

Q. A Plan for Guthriesville Village

The 2022 Comprehensive Plan presents a plan for Guthriesville Village to enhance the traditional character, economic health, and transportation options so that its historic role and location in the Township becomes a source of community pride in the future. The 2022 Comprehensive Plan lists the following ten (10) goals related to Guthriesville Village:

1. Amend Zoning Map to emphasize open space preservation;
2. Implement the Reeceville Road extension;
3. Update the 2011 Official Map to reflect 2022 Comprehensive Plan vision;
4. Reassess Guthriesville Village Master Plan and Associated Zoning Districts;
5. Consider a Development Type Market Analysis;
6. Consider addressing temporary and pop-up uses with updated Zoning Ordinance;
7. Build on the Village as Pedestrian Trail Hub;
8. Create a Guthriesville Village concept and master plan marketing plan;
9. Create Cohesive Identity and Branding;
10. Reconsider Township's dry status.

Section 2

Physical and Demographic Analysis

2. Physical and Demographic Analysis

East Brandywine Township's physical and demographic characteristics are important sewage facilities development and planning considerations. Physical features (i.e., geology, soils types, water bodies) help determine areas in the Township that are suitable for OLDS and COLDS. Demographic characteristics, i.e., population growth and distribution, are key considerations to determine existing or future Township sewage needs.

East Brandywine Township's physical and demographic characteristics are discussed in ensuing sections, establishing the foundation to determine requisite sewage facility capabilities for existing and future Township needs.

A. Location

East Brandywine Township is in Chester County, a Philadelphia suburb within Pennsylvania's Southeastern region. The Township is bordered by Caln Township to the south; West Brandywine Township to the west; Wallace Township to the north; and Upper Uwchlan Township, Uwchlan Township, and East Caln Townships to the east. The planning area for Township Act 537 Plan Update includes the entirety of Township. The Township's location relative to surrounding communities is exhibited in Plate 2-1.

B. Physical Characteristics

Watersheds of East Brandywine Township are divided into three drainage basins:

1. Culbertson Run;
2. Beaver Creek; and
3. Unnamed tributaries of Brandywine Creek East Branch.

These drainage basins are tributary to Brandywine Creek East Branch and ultimately tributary to Delaware River Basin. Brandywine Creek East Branch creates a large natural boundary on the eastern part of the Township between Upper Uwchlan Township, Uwchlan Township, and East Caln Township. Brandywine Creek East Branch is PA Code (Title 25 Environmental Protection, Chapter 93 Water Quality Standards) classified as High-Quality Stream with Trout Stocking, and Migratory Fishes.

Stream Order categorizes waterway size. Brandywine Creek East Branch is level five (5) or medium-sized stream with one (1) representing largest rivers or estuaries and twelve (12) representing smallest tributaries. Streams are classified fourth (4^{th}) through sixth (6^{th}) orders and any larger waterways are considered a river.

1. Culbertson Run (level 5 stream) enters East Brandywine Township along its northwestern section perpendicular to Horseshoe Pike (Rt. 322): then flows north, parallel to Little Washington-Lyndell Road eventually merging with Brandywine Creek East Branch in the northeastern section of the Township (past Creek Rd.). This creek

is PA Code (Title 25 Environmental Protection, Chapter 93 Water Quality Standards) defined as High-Quality Creek, Trout stocking, and Migratory Fishes.

2. Beaver Creek (level 5 stream) enters East Brandywine Township at its western border with West Brandywine Township; then flows through Applecross Country Club development then alongside Hadfield Rd; then passes PA State Road 4015 reaching Fisherville, where it enters Caln Township. This creek is PA Code (Title 25 Environmental Protection, Chapter 93 Water Quality Standards) defined as Trout Stocking and Migratory Fishes.
3. Unnamed Tributaries to the Brandywine Creek East Branch are PA Code (Title 25 Environmental Protection, Chapter 93 Water Quality Standards) defined as special protection High-Quality tributaries with Trout Stocking, and Migratory Fishes.

The three watersheds within the Township are exhibited in Plate 2-2.

C. Soils Analysis

Several soil types identified within the Township include the following: Gladstone-Parker (GdC, GdB, & GeD); Parker (PaD); Califon (CaB); Edgemont (ExD); and Cokesbury (CpA). More in-depth soil descriptions are located in Appendix A.

Absorption fields are areas where effluent from OLDS and COLDS travel to be finally renovated. Depths of disposal typically range between 24-72 inches. Absorption fields distribute effluent into the soil through perforated pipe or other subsurface drainage material. Soil is considered to have low limitations for OLDS with properties and features largely favorable for use as absorption fields. Soil is considered to have moderate limitations where properties or site features are not absorption field-favorable. Soil is considered to have unsatisfactory drainage where properties or site features are unable to be surmounted through design or increased maintenance. Soils having bedrock less than 6’ below ground surface; soil with slow downward movement of water (slow “perc rate”); soil containing a clay pan impeding drainage; and soil characterized by perpetual wetness, or soils subject to flooding are considered unsuitable for OLDS and COLDS. Township has areas of soil unsuitable for In-Ground Beds. Additionally, some prime agricultural soils and farmland are present in proposed land disposal areas. Proposed disposal areas for publicly treated effluent from ARTP include Mapleview and Weaver Tract, and potentially the McCausland/Plank Farm.

Township Soils Map shown in Plate 2-3 provides soils as designated by the U.S. Department of Agriculture, National Resource Conservation Service, dated 10/3/17, Soil Survey Geographic (SSURGO) database for Chester County. Plate 2-3a through Plate 2-3d show Township soil suitability for absorption areas with OLDS. Plate 2-3a shows soil suitable for in-ground beds; Plate 2-3b shows soils suitable for sand mounds; Plate 2-3c shows areas suitable for spray irrigation; and Plate 2-3d shows areas suitable for drip irrigation.

D. Geologic Features

East Brandywine Township is within the Piedmont Upland Physiographic Province of Pennsylvania, characterized by broad gently rolling hills and valleys of low to moderate relief; generally underlain by folded and faulted metamorphic rocks of igneous origin, primarily Gneiss. The Township northern-most portion consists of Gneiss that contains graphite (graphitic Gneiss); the Township eastern middle has thin east-west trending band of younger (Cambrian) metamorphosed sandstone, the Chickies, Quartzite. *(Water Resources of Chester Co., 1996)*

While its bedrock is very hard, the upper portion, (one-hundred feet or more in some locations) is weathered and unconsolidated. Groundwater is limited to upper weathered zones and fractures within its bedrock. Individual well yields vary greatly depending on interception of rock fractures; yet, most wells generally produce sufficient water for domestic use with domestic well median production often (10) gallons per minute (gpm) in the Chickies and slightly higher, 12 gpm, in the Gneiss. Much higher or lower well yields are possible depending on a well's connection, or lack thereof, to a fracture network capable of transmitting groundwater.

Plate 2-4 provides a Township Geologic Features Map.

E. Topographic Features

The East Brandywine Township terrain generally consists of rolling hills with gentle to moderate slopes. Three (3) watersheds (all flowing into Brandywine Creek East Branch) have been topographically created. Some of the highest elevations in the Township appear in Applecross Development (~600 feet above sea level); Keller Way and Hopewell Road areas (~590 feet and ~600 feet above sea level); Township Road area (~590 feet above sea level) with the lowest Township elevation areas located along PA Route 282 (Creek Road) and Bondsville Road, where tributaries exit the Township. The Township area approximation is 11.25 square miles with approximately 0.1 square miles of water.

Topography or land slope is critical in evaluating all sewage facilities. On-Lot Disposal Systems require gentle slope and well-drained soil for subsurface disposal fields. Areas with slopes less than 15 percent generally do not constrain use of public or private subsurface disposal soil absorption systems. Areas sloped between 15 and 25 percent pose moderate constraints, while slopes over 25 percent are not suitable for soil absorption areas.

Topography also affects public collection and conveyance systems. Topography Township-wide will affect capacity and ultimate sewage collection costs from certain areas and sewage conveyance to treatment sites. Slopes also determine whether a home can be connected by gravity or if a low-pressure sewer connection is required.

Plate 2-5 provides a Township Topographical Map.

F. Potable Water Supplies

Many Township residents rely on potable water from private on-site wells; however, roughly half of Township parcels have the capability to receive public water service. Approximately 1,700 parcels are connected to public water. Two (2) public water purveyors provide public water to three (3) distinct areas as follows:

1. Downingtown Municipal Water Authority (DMWA): 8-inch (8") water main entering southeastern part of East Brandywine Township from Caln Township supplies potable water into the Township. This water main extends via easement between 23 and 25 Hillcrest Drive, Downingtown, PA, in Caln Township; through a forested area crossing the municipal boundary into both Tunbridge and Cumberland Ridge Developments.
    - A hydro booster pump station pumps potable water into the Tunbridge and Cumberland Ridge developments via easement between 44 and 46 Blakely Road;
    - Within both developments are six-inch (6") and eight-inch (8") water mains that supply potable water to the homes;
    - Future planning includes upgrading the hydro booster pump station and to install Variable Frequency Drives (VFDs) in 2020;
    - Approximately 180 parcels are currently connected to public water in DMWA service area.
2. Aqua Pennsylvania:
    - Twelve–inch (12") diameter water main entering Township from southeast along Horseshoe Pike (U.S. Rt. 322) supplies potable water to Aqua Pennsylvania (Aqua PA) service territory area from an interconnection in Caln Township with DMWA supply. Withdrawal point is from Brandywine Creek East Branch at 100 Water Plant Way, Downingtown, PA. Water main provides potable water to various properties along Horseshoe Pike;
    - Aqua Pennsylvania: twelve-inch (12") water main crosses Brandywine Creek East Branch from Uwchlan Township to serve a growing community of 211 residential homes in the Estates of Dowlin Forge Station Development;
    - Over 1,500 parcels connected to public water exist in Aqua PA service area.

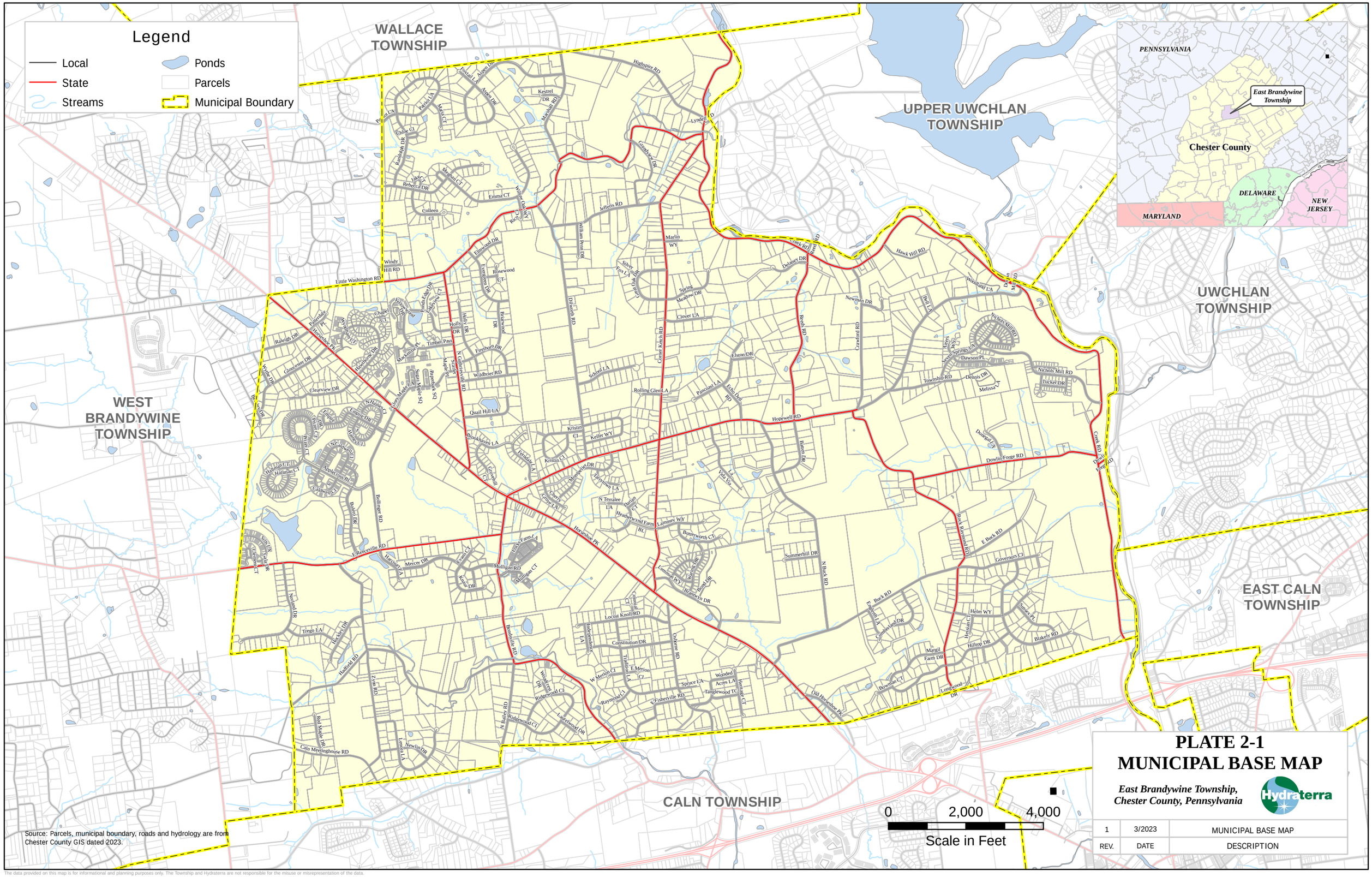
In the year 2000, Aqua Pennsylvania performed hydrogeologic investigation within Township to identify water supplies able to supplement their UGS North Division, including East Brandywine Township. These investigations ultimately led to approval of installation and operation of groundwater wells located within Beaver Creek Water Shed. August 2002, Aqua Pennsylvania initiated operation of Production Wells B and C (a.k.a. the Kay Wells). According to 2010-2011 Monitoring Report, there's been no pumping from either well since April 2007. DRBC Docket restricted production of wells to 6.25 million gallons per 30-day period, or an average withdraw rate of approximately 208,000 gpd (as of 2012).

Plate 2-6 provides a map of the Township Potable Water Supply Service Area Map.

G. Wetlands

Wetlands are areas where water covers soil or is present at or near soil surface year-long or over varying time periods during the year, including during the growing season. Wetlands are a restrictive feature regarding wastewater planning; most are under State and Federal protection. Floodplains are generally areas of low elevation adjacent to streams subject to rain-event flooding; hence, floodplains and wetlands represent areas unsuitable for OLDS and restrictive for placement of public sewer collection, conveyance, and treatment systems.

Plate 2-7 provides a map of Wetlands within the Township.



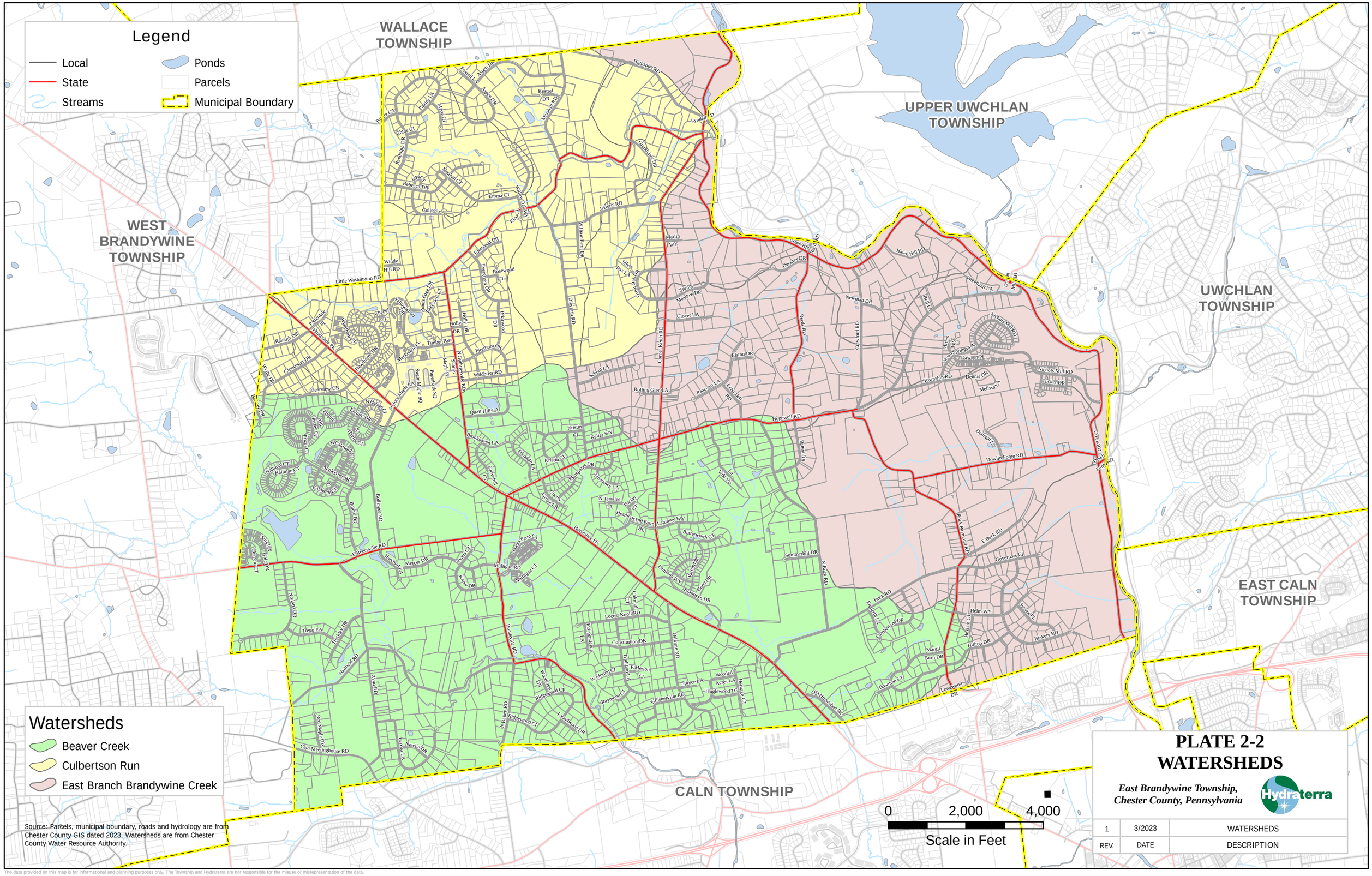
Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

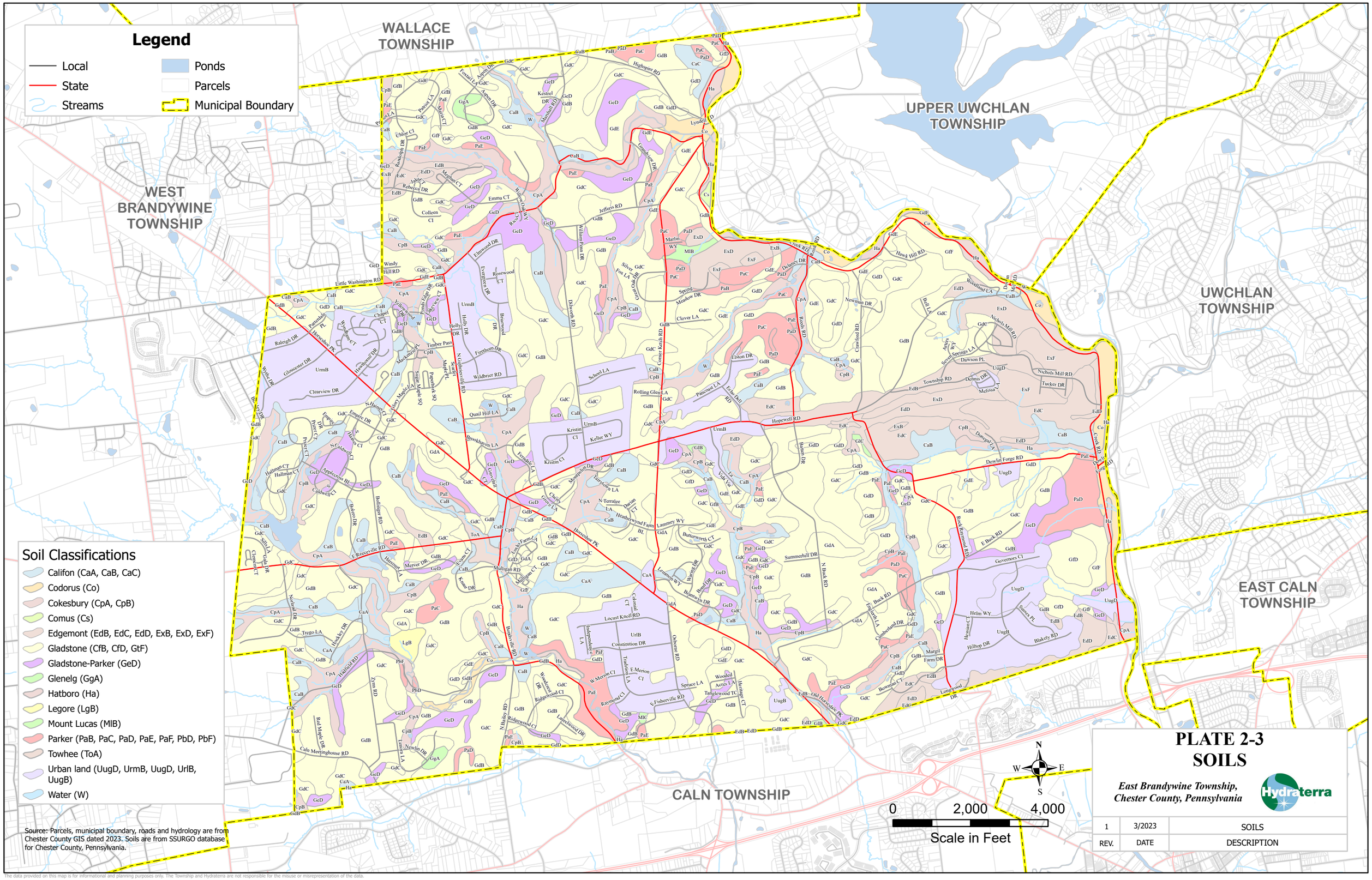
PLATE 2-1
MUNICIPAL BASE MAP

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	MUNICIPAL BASE MAP





Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

Soil Suitability for In-Ground Bed

- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated or not available

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023. Soils are from SSURGO database for Chester County, Pennsylvania.

N
W E
S

0 2,000 4,000

Scale in Feet

PLATE 2-3A
SOILS FOR IN-GROUND BEDS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	SOILS FOR IN-GROUND BEDS

Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

Soil Suitability for Sand Mound Beds

- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023. Soils are from SSURGO database for Chester County, Pennsylvania.

N
W E
S

0 2,000 4,000

Scale in Feet

PLATE 2-3B
SOILS FOR SAND MOUND BEDS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	SOILS FOR SAND MOUND BEDS

Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

Soil Suitability for Spray Irrigation

- Very limited
- Moderately limited
- Slightly limited
- Not limited
- Not rated

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023. Soils are from SSURGO database for Chester County, Pennsylvania.

N
W E
S

0 2,000 4,000

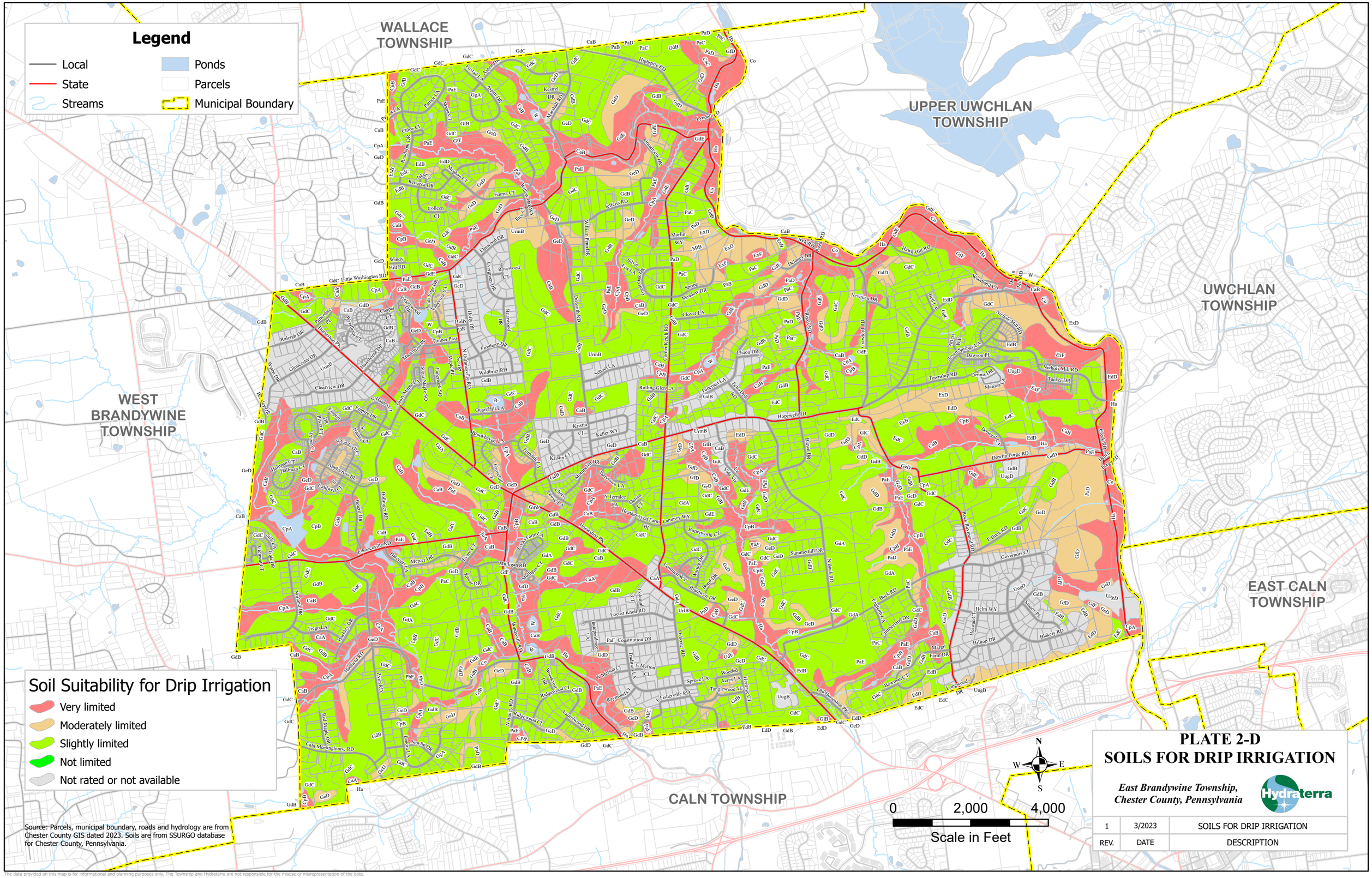
Scale in Feet

PLATE 2-3C
SOILS FOR SPRAY IRRIGATION

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	SOILS FOR SPRAY IRRIGATION



Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

Yhma

Yhga

md

pg

Ybia

Cc

CZah

Yhfa

Yhma Cc

Geologic Features

- CZah - Antietam and Harpers Formations, undivided
- Cc - Chickies Quartzite
- Ybia - felsic and intermediate gneiss, amphibolite facies
- Yhfa - felsic gneiss, amphibolite facies
- Yhga - graphitic felsic gneiss, amphibolite facies
- Yhma - banded mafic gneiss, amphibolite facies
- md - metadiabase
- pg - pegmatite
- Dikes
- Faults

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023. Geologic features are from Chester County Water Resource Authority dated 1996. Dike and Faults are from DCNR dated 2023.

N W E S

0 2,000 4,000

Scale in Feet

PLATE 2-4
GEOLOGIC FEATURES

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	GEOLOGIC FEATURES

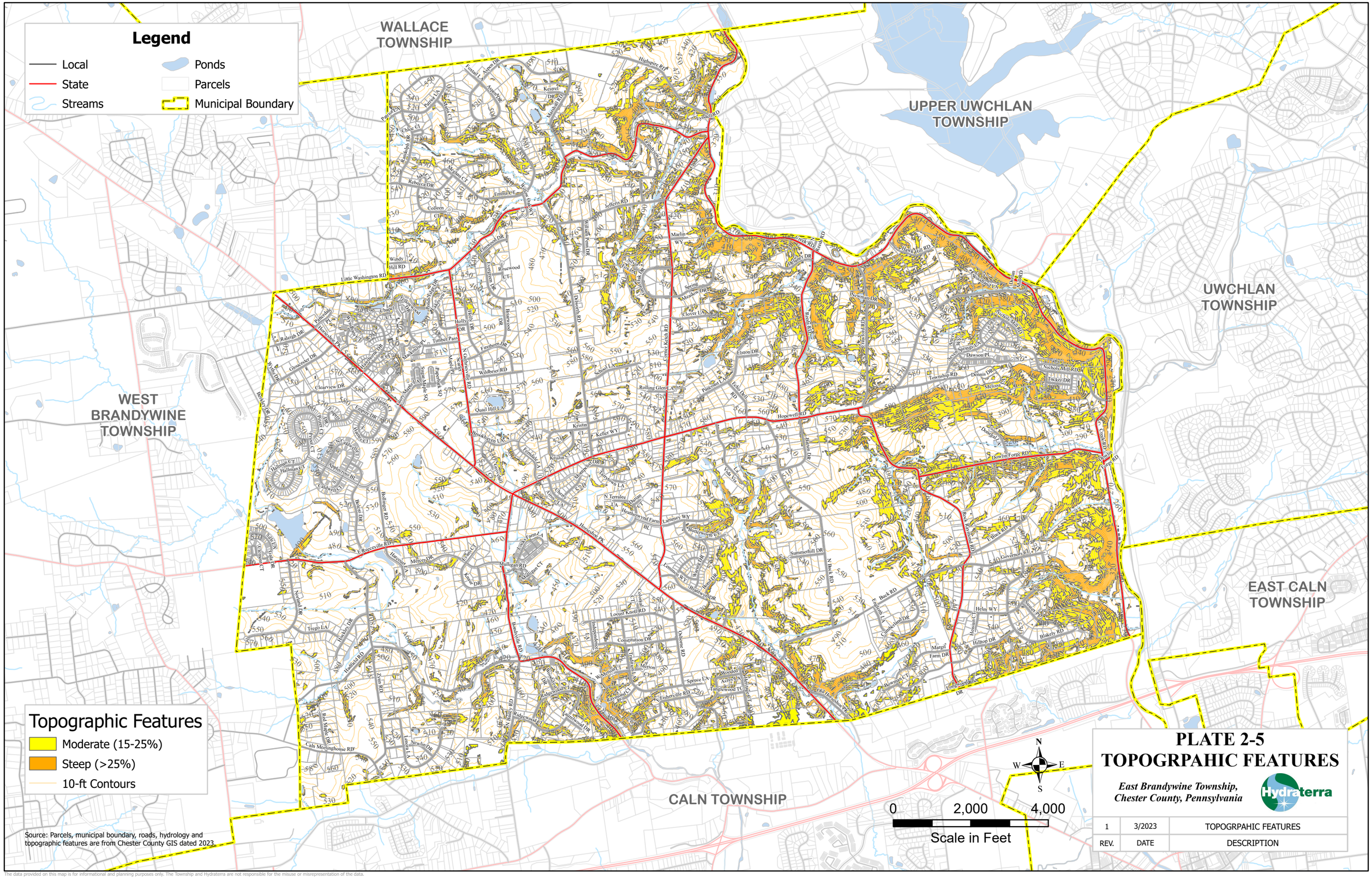
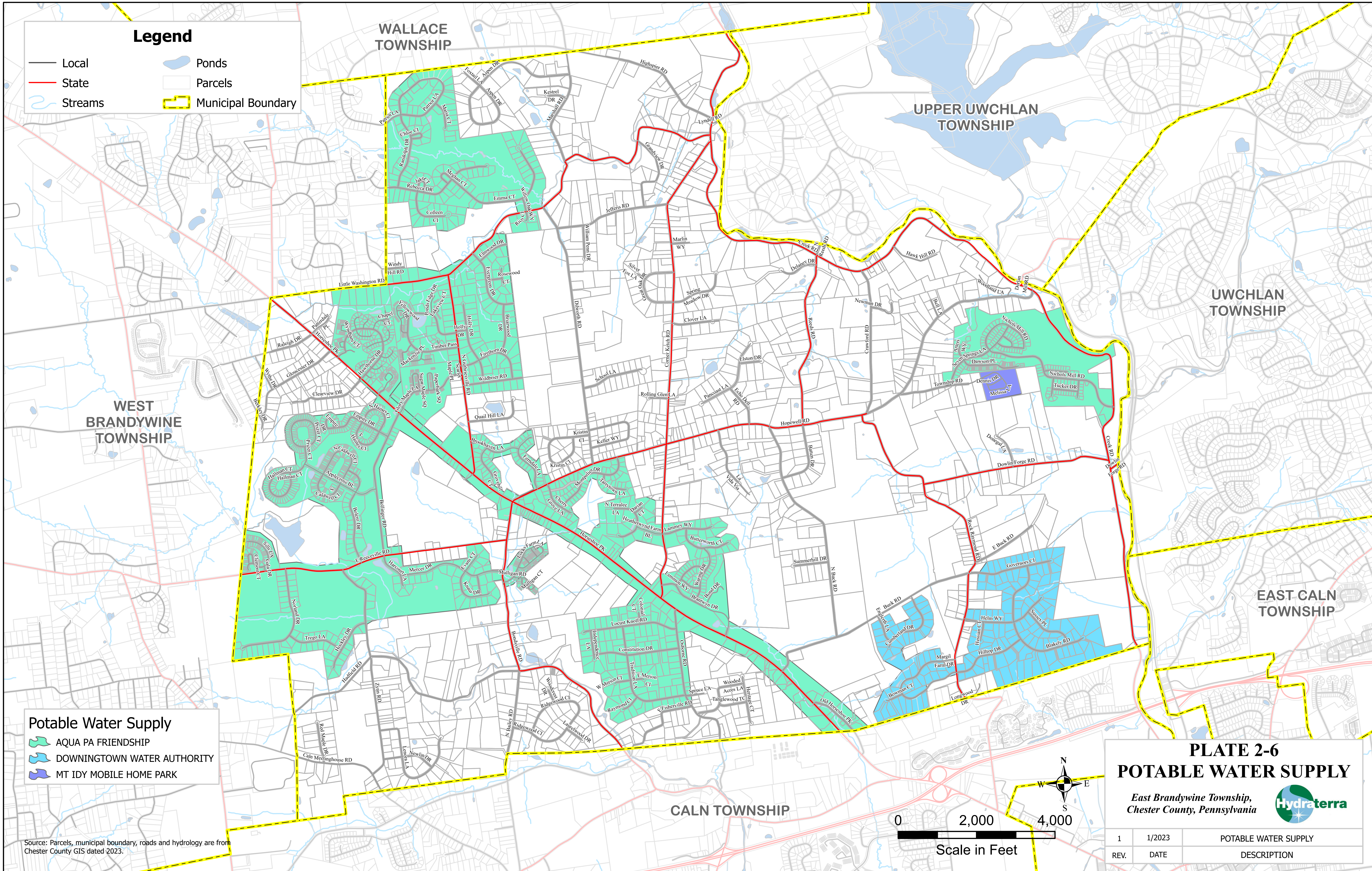


PLATE 2-5
TOPOGRPAHIC FEATURES

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	TOPOGRPAHIC FEATURES



Legend
Local
State
Streams
Ponds
Parcels
Municipal Boundary
WALLACE TOWNSHIP
UPPER UWCHLAN TOWNSHIP
UWCHLAN TOWNSHIP
WEST BRANDYWINE TOWNSHIP
EAST CALN TOWNSHIP
CALN TOWNSHIP
Potable Water Supply
AQUA PA FRIENDSHIP
DOWNINGTOWN WATER AUTHORITY
MT IDY MOBILE HOME PARK
Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.
N
S
E
W
0
2,000
4,000
Scale in Feet
PLATE 2-6
POTABLE WATER SUPPLY
East Brandywine Township, Chester County, Pennsylvania
Hydraterra
1
1/2023
POTABLE WATER SUPPLY
REV.
DATE
DESCRIPTION

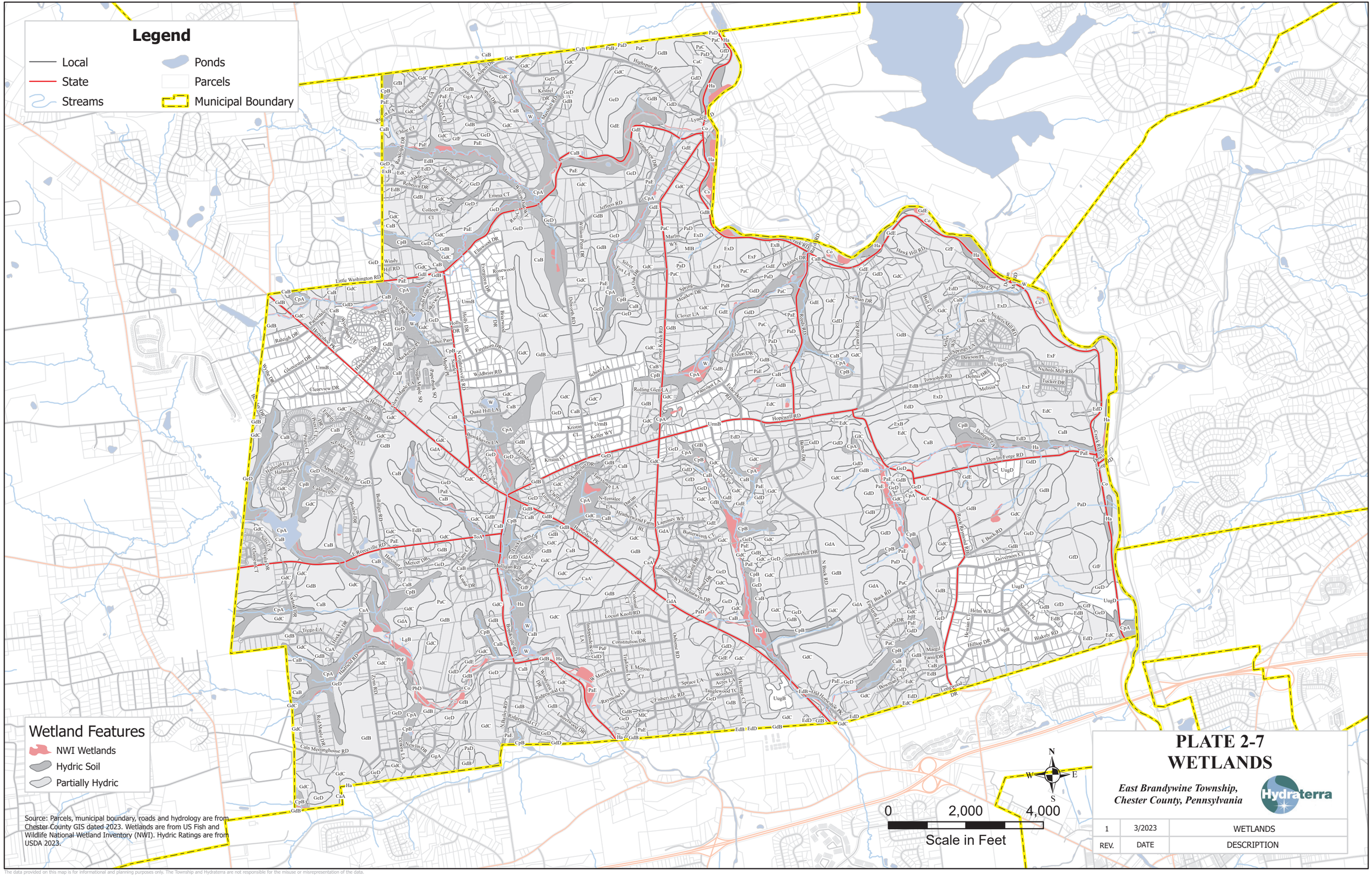


PLATE 2-7
WETLANDS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	WETLANDS

Section 3

Existing Sewage Facilities in the Planning Area

3. Existing Sewage Facilities in the Planning Area

Municipal or Other Publicly Owned Sewage Facilities: East Brandywine Township uses public sewer collection and treatment systems as well as OLDS to address its population's sanitary sewer needs. There are approximately 3,400 parcels within the Township of which at least 1,600 (47%) are served by municipal or other publicly-owned sewage facilities.

Four (4) wastewater treatment plants exist in the Township:

1. Applecross Regional Treatment Plant (ARTP);
2. Keats Glen Sewage Treatment Plant (KGSTP);
3. Little Washington Wastewater Treatment Plant (LWWTP) and;
4. Hillendale Sewage Treatment Plant (HSTP).

In addition to sewage treatment plants, drip irrigation systems, Large Volume On-Lot Disposal Systems (LVOLDS), and pumping stations exist in the Township. These facilities are shown on Plate 3-1 and described in more detail in the following subsections:

A. Applecross Regional Treatment Plant (ARTP)

Location, Ownership, and Operation

ARTP, located at 101 Bolero Drive, lies north of East Reeceville Road, and west of Bollinger Road in the western portion of Township. ARTP is owned by EBTMA and is contract-operated by EEMA O&M Service Group.

Service Area and Collection System

ARTP serves the Village of Guthriesville, Hopewell, Applecross, Brandywine Walk and Mapleview Developments, as well as other residential and commercial dwellings in the Beaver Creek Drainage Basin through a series of 8" and 10" gravity sewer and pumping stations. Development in the service area is strong. The Mapleview and Weaver Tract developments are under construction. Future development at the Plank Farm is under consideration.

As of this Update's final printing there were 851 customers in the Applecross Public Sewer Service Area. This figure includes 664 residential customers in the Applecross Country Club development; 187 residential customers in the Hopewell development and the Village of Guthriesville; as well as several residential and commercial customers along PA Route 322, Bondsville and Hopewell Roads. ARTP and all customers are within the Aqua Pennsylvania Service Territory (Southeastern Division).

Treatment and Disposal System

ARTP uses an activated sludge, sequencing batch reactor process within a segmental concrete tank and enclosed in a building. Tankage includes a small grit chamber; an influent equalization tank, three 100,000 gpd sequencing batch reactors; filtrate tank and decant equalization.

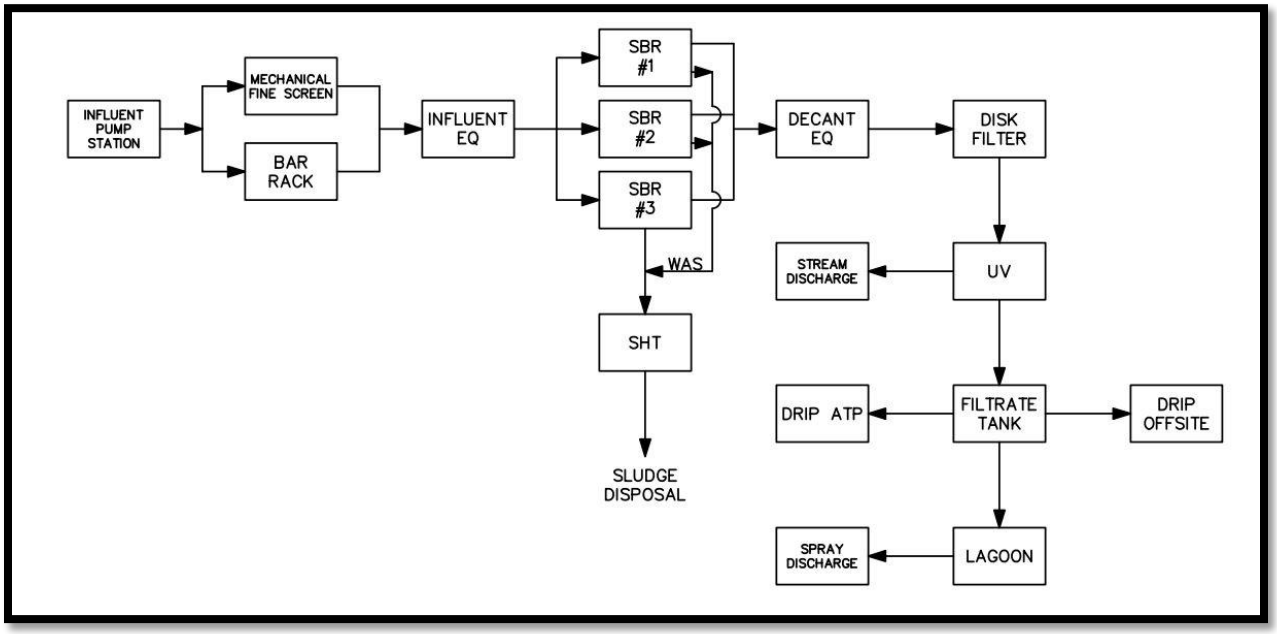


Figure 3-1 - Process Flow Diagram for ARTP

ARTP has flexibility to discharge treated effluent using three (3) different methods:

1. Storage in 3 lagoons followed by spray irrigation of the Applecross golf course;
2. Drip Dispersal at:
    - Applecross Country Club golf course driving range;
    - Mapleview Development Drip Irrigation System; and
    - Brandywine Walk Drip Irrigation System (permitted but not currently constructed).
3. Stream discharge into Beaver Creek.

Discharge to the storage lagoons and golf course spray irrigation system was originally planned and permitted to handle 137,680 gpd. This permitted flow rate has not been tested, only calculated. As flows from ARTP approach this capacity, concern is the golf course may have difficulty disposing of the permitted flow particularly amid years of heavy precipitation. The Township and Municipal Authority recognize this potential shortfall and as a result adopted Township code Chapter 350-17 and Resolution 01 of 2017 Section 406 requiring that all new subdivisions and land developments be self-sustaining relative to the storage and disposal of treated sewage effluent. Further land

disposal areas shall be sized at one and one-half times the land area determined necessary in accordance with laws, ordinances, and statutes.

Discharges from the ARTP are all within the Beaver Creek Drainage Basin, which is designated as CWF (Cold Water Fishery) with no exceptions to specific criteria presented by Pennsylvania Code.

Permit Limitations

ARTP operates under two discharge permits and a Delaware River Basin Commission Docket. The NPDES Permit #PA0244333 governs discharge to Beaver Creek and the WQM Permit #1506407 governs lagoon storage, spray irrigation and subsurface discharge. Capacity and limitations are included in each permit and provided in Appendix B.

Capacity and Future Improvements

The Municipal Authority uses a Capacity Management Plan (CMP), which is updated annually to compare Treatment, Storage, and Disposal Capacity to future demands. This CMP is included in Appendix C.

Table 3-1 – ARTP Hydraulic and Organic Capacity

Hydraulic Design Capacity[(1)]		**Permitted Hydraulic Capacity**	**Annual Average Daily Flow**	**5-Year Annual Average Flow**	**Available Hydraulic Capacity[(2)(3)]**
399,000		231,616	134,000	127,000	104,616
Organic Design Capacity			**Annual Average Organic Loading**	**5-Year Annual Average Loading**	**Available Organic Capacity[(3)(4)]**
1,351			304	275	1076
Notes:	[(1)] Hydraulic Capacity presented in gallons per day; organic capacity presented in pounds per day; data from 2022 Chapter 94 Report [(2)] Available Hydraulic Capacity = Permitted Capacity – 5-Year Annual Average Flow [(3)] Available Capacity does not account for planned development, capacity reservations, or excessive inflow/infiltration [(4)] Available Organic Capacity = Organic Design Capacity – 5-Year Annual Average Organic Loading				

During the year 2019, ARTP was upgraded to meet future demands by modifying the effluent control panel and effluent pumping and piping to allow simultaneous automatic discharge to the lagoons; to Applecross drip system and to off-site disposal areas such as the Mapleview Development. The third and final sequencing batch reactor basin was fitted with mechanical equipment to allow sewage treatment to 300,000 gpd. Future control equipment will be required to utilize the recently permitted Mapleview Development and Brandywine Walk Drip Irrigation Systems.

The ARTP has the potential to be expanded to a maximum of 500,000 gpd by installing two additional 100,000 gpd SBR reactors. Structural, mechanical, electrical, and hydraulic requirements for any expansion have not been defined.

Sewer Extensions

An extension to transfer sewage from the existing Hopewell development and the Village of Guthriesville, originally treated at the LWWTP, was completed in August 2014. The extension included 322 feet of 10" pipes and 2 manholes to convey flows from the old Bondsville Road Pumping Station to a new Bondsville Road Pumping Station (PSB).

A new forcemain to transfer sewage from the Mapleview Development to ARTP was completed in October 2019. This extension for Phase 1 of the development includes approximately 1,400 lineal feet of 8" collection piping, a pumping station, and approximately 3,300 feet of forcemain (4") connecting into an existing manhole at Applecross Boulevard and Bollinger Road intersection. Phase 2 and Phase 3 of construction are approved for development.

Sewage Pump Stations

A total of four (4) pump stations all within the Applecross Country Club Development convey raw sewage to ARTP. These stations are operated, inspected, and maintained by a contract operator at three times weekly, minimum. Built-up solids are typically removed from pump station wet-well on a semi-annual basis. See Table 3-2 for a description of each pump station.

Table 3-2 - ARTP Pump Stations

	Year Const.	Service Area	Design Capacity (gpm)	Annual Average Flow (gpd)
Influent PS	2009	Applecross Public Sewer District	1320	134,000
Notes:	Located off Bolero Drive, discharges into ARTP influent fine screen channel			
Zynn Rd PS (PSA)	2008	Applecross' Southwest Drainage Basin	131	23,844
Notes:	Located off Zynn Road, six-inch forcemain, approximately 3,500 lineal feet discharging into MH C2 off of Bolero Drive			
Bondsville Road PS (PSB)	2011	Applecross Southeast Drainage Basin	200	51,642
Notes:	Located off Bondsville Road, six-inch forcemain, approximately 4,800 lineal feet discharging into MH C2 off of Bolero Drive			
Sills Lane PS (PSC)	2012	Sills Lane, Gala Drive, Clement Court	53	9,855
Notes:	Located off Sills Lane, uses a grinder pump with a three-inch forcemain into MH A18 off of Norland Drive.			
Sugar Maple Square PS	2019	Mapleview Development	203	9,000
Notes:	Located off Sugar Maple Square, four-inch forcemain approximately 3,300 lineal feet discharging into MH C133 on Applecross Blvd.			

Solids Management

According to Chapter 94-Wasteload Management Reports the total amount of sludge generated by ARTP in 2022 was 615,800 gallons, an average of 51,316 gallons per month. Sludge was hauled to Delaware County Regional Water Authority (DELCORA) and Pottstown Wastewater Treatment Plants by McGovern Septic & Waste Removal Company.

B. Keats Glen Sewage Treatment Plant (KGSTP)

Location, Ownership, and Operation

KGSTP is located on the Delaware County Community College, Downingtown Campus (DCCC) at 351 Bond Drive, Downingtown. Access to the KGSTP is through an easement provided by DCCC. Sewer infrastructure (including collection and treatment systems) is owned by EBTMA and contract-operated by EEMA O&M Service Group.

Please refer to Plate 3-1 for the location of KGSTP.

Service Area and Collection System

KGSTP serves the Delaware County Community College Downingtown Campus (DCCC), and Keats Glen development through a series of 8” diameter pipes. The East Brandywine Baptist Church is connected by a low-pressure forcemain.

Treatment and Disposal System

KGSTP uses activated sludge wastewater treatment process and includes an anoxic/influent zone with channel grinder and mixer; aeration tank with diffusers and RAS return line; clarifier with skimmer; sludge holding tanks and a chlorine contact tank. Disposal from KGSTP is by stream discharge into an unnamed tributary of Beaver Creek. Major unit processes are shown in Figure 3-2 on the following page.

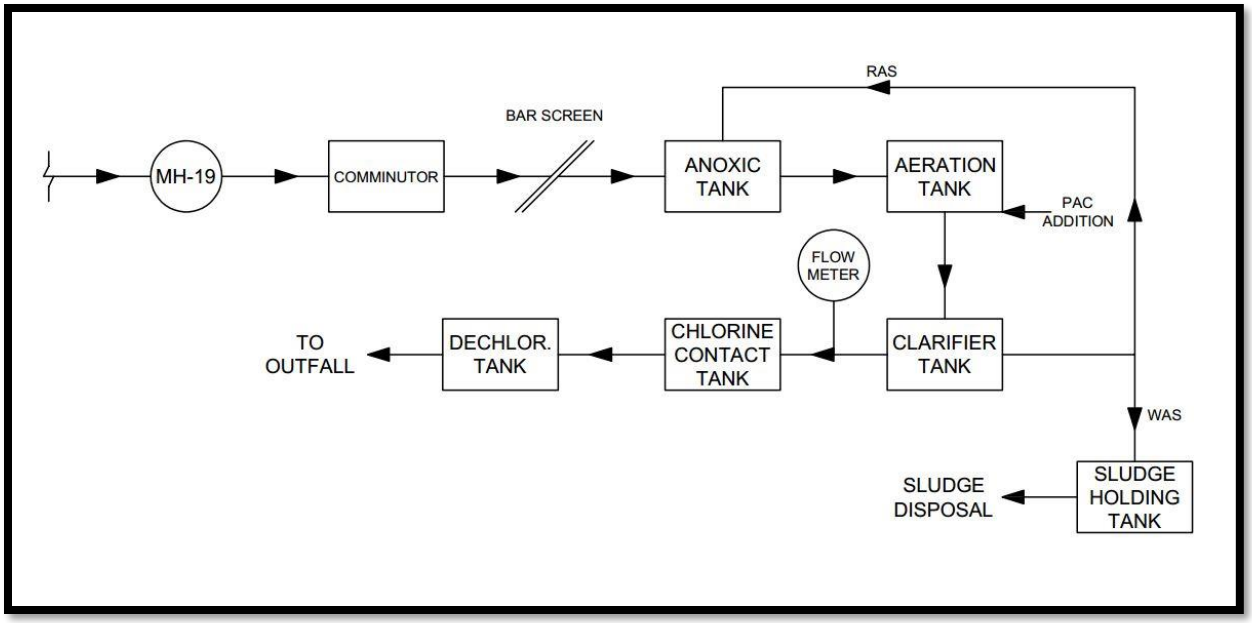


Figure 3-2 - KGSTP Process Flow Diagram

Permit Limitations

KGSTP operates under NPDES Permit #PA0030228. Capacities/limitations are provided in Appendix D.

Sewer Extensions

Apart from a low-pressure sewer from East Brandywine Baptist Church, no sewer extensions have been constructed since the original system construction. No public sewer extensions are currently proposed.

Future Improvements and Capacity

Keats Glen is a fifty-unit residential subdivision that has been built-out since 2003. DCCC is projecting a slight increase in students from 2022 to 2025, and East Brandywine Baptist Church has no plans to expand over the next five-year period. No additional capacity demand currently exists. Future improvements needed at the KGSTP are being explored.

Table 3-3 describes the available capacity at KGSTP as it relates to the Permitted Capacity and the Average Daily flow. Capacity for KGSTP as follows:

Table 3-3 - Keats Glen STP Capacity and Flow

Hydraulic Design Capacity[1]	**Permitted Hydraulic Capacity**	**Annual Average Daily Flow**	**5-Year Annual Average Daily Flow**	**Available Hydraulic Capacity[2]**
22,500	18,000	6,400	7,104	10,896
Organic Design Capacity[1]		**Annual Average Organic Loading**	**5-Year Annual Average Loading**	**Available Organic Capacity[3]**
49		16	13	36
Notes:	[(1)] Hydraulic Capacity presented in gallons per day; organic capacity presented in pounds per day; data from 2022 Chapter 94 Report [(2)] Available Hydraulic Capacity = Permitted Capacity – 5-Year Annual Average Daily Flow [(3)] Available Organic Capacity = Organic Design Capacity – 5-Year Annual Average Organic Loading			

Solids Management

According to Discharge Monitoring Reports, total sludge amount generated by KGSTP in 2022 was 91,700 gallons or an average of 7,642 gallons per month. Sludge was hauled to DELCORA and Pottstown Wastewater Treatment Plants by McGovern Septic & Waste Removal Company.

C. Hillendale Sewage Treatment Plant (HSTP)

Location, Ownership, and Operation

HSTP is located at 276 Arter's Way within the Estates at Dowlin Forge Station development in Township's eastern section. Housing construction and all sewage improvements were completed and are currently owned by Metropolitan Development Group (MDG). Construction and transfer of ownership of the sewer improvements to EBTMA are detailed in the Developer's Sanitary Sewer Construction, Improvement, and Financial Security Agreement. A copy of this agreement is included in Appendix E.

Operation of sewer improvements is provided by a licensed operator under contract with the EBTMA. As of February 2023, approximately 211 residential units were connected to the HSTP. The development is considered built-out. Please refer to Plate 3-1 for the location of HSTP and sewage facility components.

Service Area and Collection System

HSTP is designed to treat sewage from a 211-unit residential development known as the Estates of Dowlin Forge Station. Development is in eastern part of the Township largely bounded by PA Route 282, Township Road, and Hopewell Road. Raw sewage is collected by a series of eight (8) inch diameter pipes connected directly to the Hillendale STP or to one of two (2) pumping stations.

Pumping Stations

Two (2) submersible pumping stations collect and convey sewage to HSTP. See below for pump station details.

Table 3-4 - HSTP Pump Stations

PS Name	Year Constructed	Service Area[1]	Design Capacity (gpm)	Annual Average Flow (gpd)
Pump Station 1	2018	Eastern part of development, including approximately 63 residential dwelling units	120	9,959
Pump Station 2	2020	North central part of the development, including approximately 83 residential dwelling units	120	12,203
Notes:	[1]PS1 & PS2 discharge into MH 10 near the intersection of Dawson Place and Nichols Mill Road			

Treatment and Disposal Systems

HSTP uses an activated sludge sequencing batch reactor process within a segmental concrete tank. Tankage includes an influent equalization tank, a sequencing batch reactor; sludge holding tank and a 3-day storage tank. Major unit processes are shown in Figure 3-3.

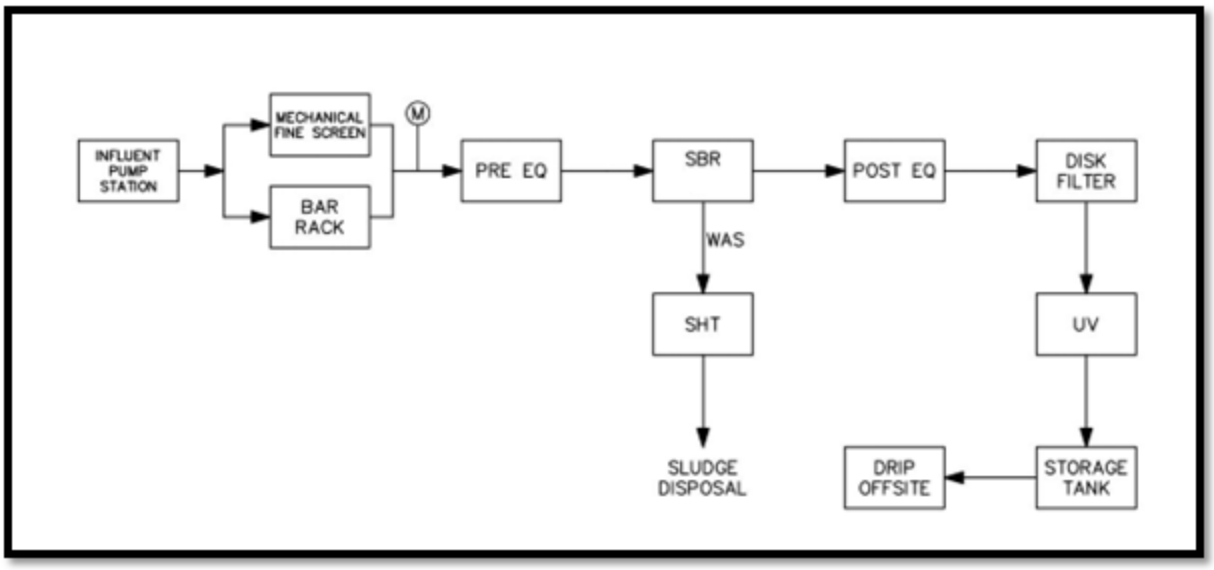


Figure 3-3 - HSTP Process Flow Diagram

Subsurface Discharge

Treated effluent from HSTP is dispersed into four (4) drip field areas having a total of approximately nine (9) acres and sixteen (16) zones. These areas are located north and east of Nichols Mill Road within development open space. No stream discharge is permitted. Discharge is within the Drainage Basin of the Brandywine Creek East Branch.

Permit Limitations

HSTP operates under WQM Permit # 1507406 for the treatment of raw sewage and subsurface discharge of treated effluent. The capacities/limitations are provided in Appendix F.

Capacity

HSTP was constructed to connect only to Estates of Dowlin Forge Station. As of Fall 2021, all public sewage facilities were dedicated to East Brandywine Municipal Authority. As of July 2022, the development was considered “built-out”. Given the recent completion of the residential development, little operating history is available to estimate hydraulic and solids loading. Any future sale of or transfer of capacity shall be in accordance with section 2(k) of the Developer Sewer Improvement Agreement, included in Appendix E. Table 3-5 describes available capacity at HSTP as it relates to Permitted Capacity and Average Daily flow.

Table 3-5 - HSTP Hydraulic and Organic Capacity

Hydraulic Design Capacity[(1)]	Permitted Hydraulic Capacity	Annual Average Daily Flow	5-Year Annual Average Daily Flow	Available Hydraulic Capacity[(2)]
61,388	55,387	31,000	N/A	N/A
Organic Design Capacity		**Annual Average Organic Loading**	**5-Year Annual Average Loading**	**Available Organic Capacity[(3)]**
152		83	N/A	N/A
Notes:	(1) Hydraulic Capacity presented in gallons per day; organic capacity presented in pounds per day; data taken from 2022 Chapter 94 Report (2) Available Hydraulic Capacity = Permitted Capacity – 5-Year Annual Average Daily Flow (3) Available Organic Capacity = Organic Design Capacity – 5-Year Annual Average Organic Loading			

Solids Management

According to Discharge Monitoring Reports the total amount of sludge generated by HSTP in 2022 was 235,830 gallons, an average of 19,653 gallons per month. Sludge is hauled to DELCORA and Pottstown Wastewater Treatment Plants by McGovern Septic & Waste Removal Company.

D. Little Washington Wastewater Treatment Plant (LWWTP)

Location, Ownership, and Operation

LWWTP is located at 250 Little Washington Lyndell Road in the northwestern portion of the Township. LWWTP is privately owned and operated by Aqua Pennsylvania Wastewater Inc. (Aqua Pennsylvania). Please refer to Plate 3-1 for location of the LWWTP.

Service Area and Collection System

There are two (2) distinct sewer collection areas tributary to LWWTP. Area 1 includes a series of small diameter pipes and a pump station which collects and conveys raw sewage from the Hedgerow, Culbertson Run, Timbers/Timberlake and Pinebrook Village developments within the Aqua Pennsylvania PUC Franchise Area to the LWWTP.

All operation and maintenance requirements of collection and conveyance system within these developments are the responsibility of Aqua Pennsylvania.

Area 2 includes a series of small diameter pipes and a pump station which collects and conveys raw sewage from the Hide-A-Way Farms development to LWWTP. The sewage system in this development is owned by the EBTMA. A bulk sewer agreement exists between EBTMA and Aqua Pennsylvania that defines sewage waste strength, volumes and cost of treatment on a per gallon basis.

Treatment

LWWTP was originally constructed in 1973, upgraded in 1996, 2002, 2005 and 2008. LWWTP uses an activated sludge, Modified Ludzak-Ettinger treatment process (MLE) wastewater process that includes the following:

1. Comminution/bar screen;
2. Influent equalization;
3. Five separate MLE reactors;
4. Filtration;
5. Ultraviolet light disinfection.

A process flow diagram for the LWWTP is shown in Figure 3-4.

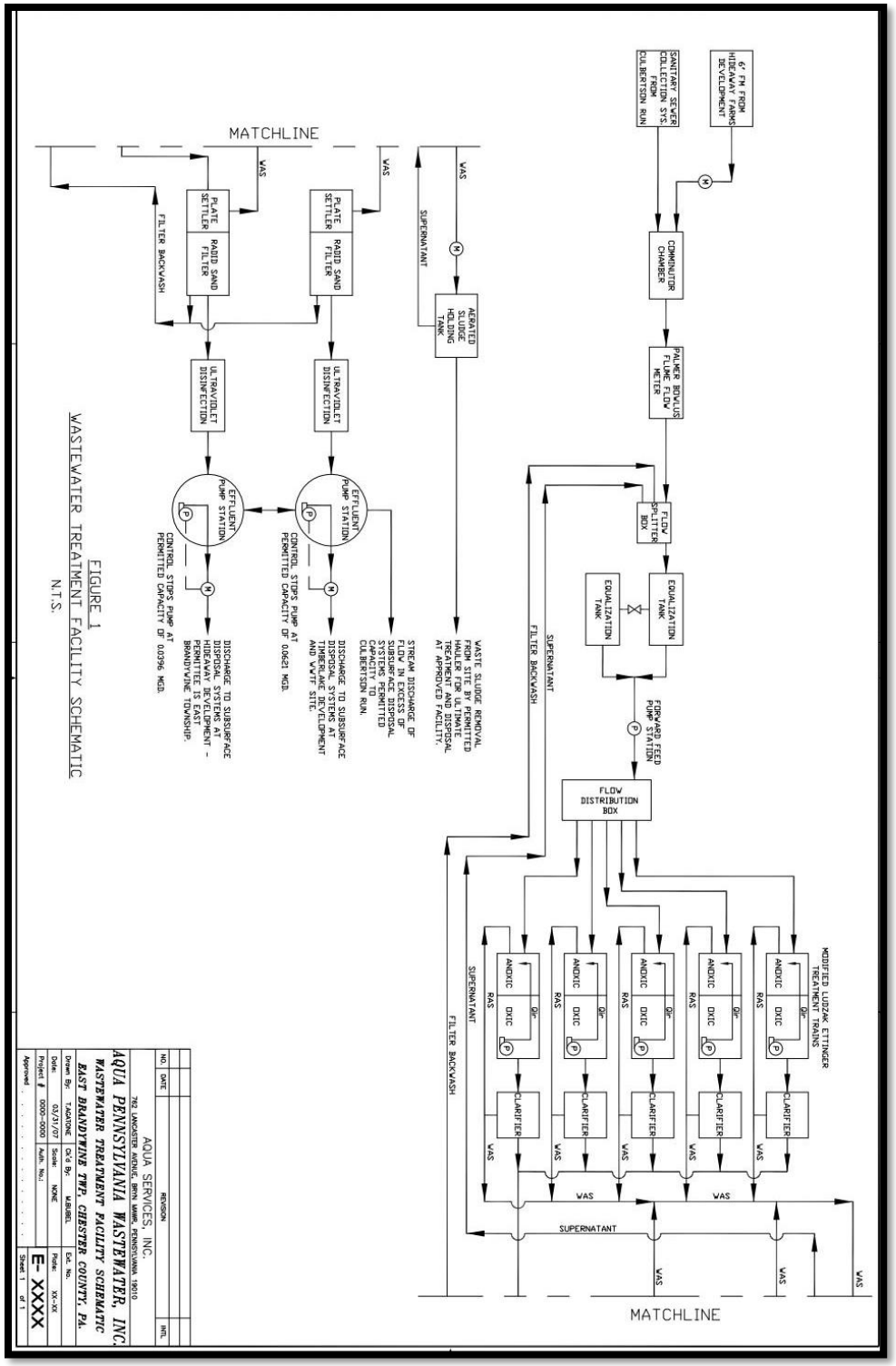


Figure 3-4 - Process Flow Diagram LWWTP

Effluent Disposal

Treated effluent from LWWTP is discharged: 1) into a tributary of the Culbertson Run; 2) into on-site subsurface disposal area and 3) into off-site subsurface disposal areas adjacent to Wood Drive in the Timbers Development.

Treatment and discharge occur within the Culbertson Run Drainage Basin with a portion of its treated effluent directly into an unnamed tributary of Culbertson Run. Culbertson Run is a tributary to Brandywine Creek East Branch and is considered a High-Quality Waters (HQ), with special protection, migratory fish and trout stocking as presented by Pennsylvania Code.

Permit Limitations

LWWTP operates under a NPDES Permit #PA0050458 which governs discharge to Culbertson Run and the WQM Permit #1596401 governing subsurface discharge. Capacities/limitations of each permit are provided in Appendix G.

Future Improvements

According to Aqua Pennsylvania Wastewater, there are plans to make several improvements to the facility in 2023-2029. Improvements are reported to include biological nutrient removal enhancements, aeration system upgrade, steel tank rehab, effluent filter replacement, and filter building improvements. None of these improvements are proposed to increase plant capacity.

Reserve Capacity

Available capacity at LWWTP as described by Aqua Pennsylvania Wastewater Inc. is presented below in Table 3-6.

Table 3-6 - LWWTP Hydraulic and Organic Capacity

Hydraulic Design Capacity[(1)]	Permitted Hydraulic Capacity	Annual Average Daily Flow	5-Year Annual Average Daily Flow	Available Hydraulic Capacity[(2)]
155,000	115,133	92,400	71,800	43,333
Organic Design Capacity		**Annual Average Organic Loading**		**Available Organic Capacity[(3)]**
323		94		229
Notes:	(1) Hydraulic Capacity presented in gallons per day; organic capacity presented in pounds per day; data taken from 2019 Chapter 94 Report (2) Available Hydraulic Capacity = Permitted Capacity – 5-Year Annual Average Daily Flow (3) Available Organic Capacity = Organic Design Capacity – Annual Average Organic Loading			

Table 3-7 - LWWTP Pump Station Descriptions

PS Name	Year Const.	Service Area	Design Capacity (gpm)	Permitted Annual Average Flow (gpd)
Timbers PS	2009	Timbers Development	175[1]	40,000
Notes:	Located on the North side of Timbers Development. Discharges into manhole No. 2 upstream of LWWTP.			
Emma Court PS[2]	2007	Hide-A-Way Farms	95	39,638
Notes:	[1] Actual design capacity could not be located. [2] Located off Emma Court in Hide-A-Way Farms, discharges into Manhole No. 2 upstream of LWWTP.			

Sludge Treatment

In 2018, WWTP average sludge hauling per month was 52,000 gallons totaling approximately 624,000 gallons. In 2019, average sludge hauling per month was 64,262 gallons according to 2019 Chapter 94 Report. The company Russel Reid hauled the sludge to DELCORA. Total amount of sludge generated by LWWTP in 2019 was 771,149 gallons according to 2019 Chapter 94 Report.

E. Hide-A-Way Farms-Large Volume On-Lot Disposal Beds

Location, Ownership, and Operation

Hide-A-Way Farms Large Volume On-Lot Disposal Beds (LVOLDS) are located along Patriot Lane in the Hide-A-Way Farms development. The LVOLD beds and effluent pumping station are owned by EBTMA. There are 153 homes in this development.

The beds were designed, permitted, and constructed but never placed into service and have been idle since construction was completed in 2009. A contractor performs monthly preventative maintenance on generator, pumps and valves associated with the dosing pump station. Monthly reports are provided to EBTMA's Engineer by contractor. The EBTMA does not currently collect samples or monitor ground water from four (4) sampling wells around the system. Ground water monitoring should be initiated 6-months prior to bed operation.

Effluent Return and Disposal

Treated effluent can be supplied to eight (8) LVOLD beds via a four (4) inch forcemain from LWWTP. The location of beds within the development is shown in Plate 3-1. Bed area and the design dosing volume is shown below in Table 3-8.

Table 3-8 - Hide-A-Way Farms LVOLD

Bed Number	Area (sq. ft)	Maximum Dose (gpd)
1	**8,000**	**4,596**
2	**8,000**	**6,217**
3	**8,000**	**4,152**
4	**8,000**	**2,813**
5	**8,000**	**6,502**
6	**8,000**	**6,337**
7	**8,000**	**4,840**
8	**8,000**	**4,182**

Permitted Capacities/Limitations

Seepage beds are intended to operate under Water Quality Management Permit No. 1504407. Permit showing capacity and limits is provided in Appendix H.

F. Summary of WWTP Capacity, Disposal Capacity, and Sludge Generation

Tables 3-9 and 3-10 show a summary of the flows, capacity, and sludge generated for each wastewater treatment plant.

Table 3-9 - Summary of Hydraulic and Organic Capacity

Wastewater Treatment Plant	Available Hydraulic Capacity (1)	Available Organic Capacity (2)
Applecross RSTP	**104,616**	**1,076**
Keats Glen STP	**10,896**	**36**
Hillendale STP	**N/A**	**N/A**
Little Washington WTP	**43,333**	**229**
Notes:	(1) Hydraulic Capacity presented in gallons per day; organic capacity presented in pounds per day (2) See Individual Hydraulic and Organic Capacity Tables for Details	

Table 3-10 - Summary of Sludge Generated in 2019

Treatment Plant	Total Gallons Hauled	Monthly Average (Gal.)
Keats Glen STP	**91,700**	**7,642**
Applecross RSTP	**615,800**	**51,316**
Hillendale STP	**235,830**	**19,653**
Little Washington WTP	**817,000**	**68,000**

G. Guthriesville Sewer System/Bondsville Road Pump Station (Decommissioned)

Location, Ownership, and Operation

The original Bondsville Road Pumping Station is located approximately 800 feet south of the Bondsville Road/Horseshoe Pike intersection. The facility was originally constructed in 2002 and utilized by EBTMA for conveyance of raw sewage from the Guthriesville area of the Township to LWWTP. In September 2014, the pump station was decommissioned. Concrete structures have been sealed and are inspected monthly to prevent deterioration. Grounds and structures are owned by EBTMA.

A forcemain exists and extends from the original Bondsville Road Pump Station, across PA Route 322, along an easement in Hopewell subdivision, then along North Guthriesville Road and Little Washington Road to Little Washington Wastewater Treatment Plant. The six-inch (6”) ductile iron forcemain was flushed during decommissioning, pumps were removed and power de-energized. Please refer to Plate 3-1 for location of the abandoned pump station.

H. Small Flow Treatment Facilities

According to PA Code Title 25 Chapter 73, a Small Flow Treatment Facility (SFTF) is an individual or community sewage system designed to adequately treat sewage flows not greater than 2,000 gpd for final disposal using a stream discharge or other methods approved by Department. These facilities require use of certified wastewater operator.

There is one (1) known SFTF at 1660 Bondsville Rd. It is a privately-owned facility, permit issuance date 10/25/17 with a Permit No. PAG040220 and Facility ID of 821293. Plate 3-1 shows the location of the SFTF.

I. Holding Tanks

Holding tanks are watertight receptacles designed to retain sewage for disposal at another location. All holding tanks installed as repairs are considered to be confirmed malfunctions. Specifically excluded are holding tanks installed to temporarily serve new land development or low flow commercial facilities. Holding Tanks are required to be operated in accordance with Township Code §350-47, sewage treatment and disposal.

There are two (2) known Holding Tanks in East Brandywine Township. Plate 3-1 shows the location of holding tanks:

1. 795 Creek Road Downingtown, PA:
    - Serves a single-family residence;
    - 3-acre parcel;
    - 1,200-gallon tank;
2. 1091 Creek Road Downingtown, PA:
    - Brandywine Creek Campground serves 11 acres;
    - Includes approximately 65 camper sites, 12 to 15 tent sites, one bathhouse and one three (3)-bedroom single family dwelling;
    - Owner reports system is comprised of four (4) 5,000-gallon tanks connected in series to create 20,000-gallons of storage;
    - System is pumped approximately once per week during winter, twice weekly in fall and spring, and three (3) times weekly during summer months;
    - According to the owner there are no plans for future expansion; site is entirely on well water.

J. Fats, Oils, Grease (FOG)

The EBTMA monitors Fats, Oils, and Grease (FOG) for Food Service Establishments under Resolution 01 of 2017. Grease traps and interceptors are inspected annually in accordance with an agreement at the following locations:

1. Brandywine Village Shopping Center;

- China Moon (2 Grease Traps);
- Milan Café (Grease Trap)(Vacant as of 2023);
- Michelangelo's (Grease Trap);
- Crop's Fresh Marketplace (5 Grease Traps);
- Dunkin Donuts (Grease Interceptor);

2. Applecross Country Club;
    - Original Clubhouse (Grease Trap);
    - New Clubhouse (Grease Interceptor).

Resolution 1 of 2017 Section 600 "Prohibitions and Restrictions on Food Service Establishments" can be found in Appendix I.

K. COLDS and OLDS

Approximately 1,700 parcels in the Township are served by OLDS or COLDS permitted by Chester County Health Department (CCHD). The CCHD can permit COLDS with sewage flows up to 10,000 gpd:

1. COLDS

   According to Pennsylvania Code, Title 25, Chapter 71, a COLDS uses a system of piping, tanks or other facilities for collection, treatment and disposal of sewage into a soil absorption area or retaining tank located on one or more of lots or at another site. There are three (3) known COLDS in the Township permitted by Chester County Health Department: Brandywine Wallace Elementary School; Mt. Idy Mobile Home Trailer Park; and East Brandywine Township Community Park. Each of these systems is exhibited on Plate 3-1 and discussed below:

   a. Brandywine-Wallace Elementary School

      Location and Ownership

      Located at 435 Dilworth Road, Downingtown, PA 19335. Elementary school is owned by the Downingtown Area School District.

      Sewage System

      Originally constructed in 1960 (with upgrades in 1965, 1982 and 2008), elementary school uses the COLDS for design population of 430 (staff and students) using three (3) septic tanks and four (4) drainage fields. System provides a capacity of 5,500 gpd and was designed for 13 EDUs and potential sewer flow of 3,250 gpd.

b. Mt. Idy Manufactured Home Park

Location and Ownership

Located along Township Road in the eastern portion of the Township, adjacent to the Estates of Dowlin Forge Station development. Property is owned by the Robert and Elizabeth Hodge Trust and is managed by the MISA Corporation.

Sewage System

The manufactured Home Park is located on 14.7 acres with 40 existing manufactured homes and uses a COLDS with disposal beds. The total sanitary sewer flow was estimated at 8,100 gpd in 2017.

c. East Brandywine Township Community Park

Location and Ownership

The East Brandywine Township Community Park is located at 440 Dilworth Road Downingtown, PA and is owned by the Township.

Sewage System

The Township Community Park provides sewer service using two (2) on-site restrooms, three (3) Septic Tanks; two (2) Pump Tanks; a Subsurface Sand Filter Bed and a Drainage Field (82' x 20'). The SFPM Application indicates that 1,000 gpd will be discharged to a seepage bed after flow equalization:

- Restroom facilities at the Community Park are open to the public from mid-March through the end of November each year;
- Water supply at the park is from a private well, not public water;
- Future plans to add a second restroom facility in Phase 3 of the Township Park will add three (3) toilets, one (1) urinal, and one (1) sink.

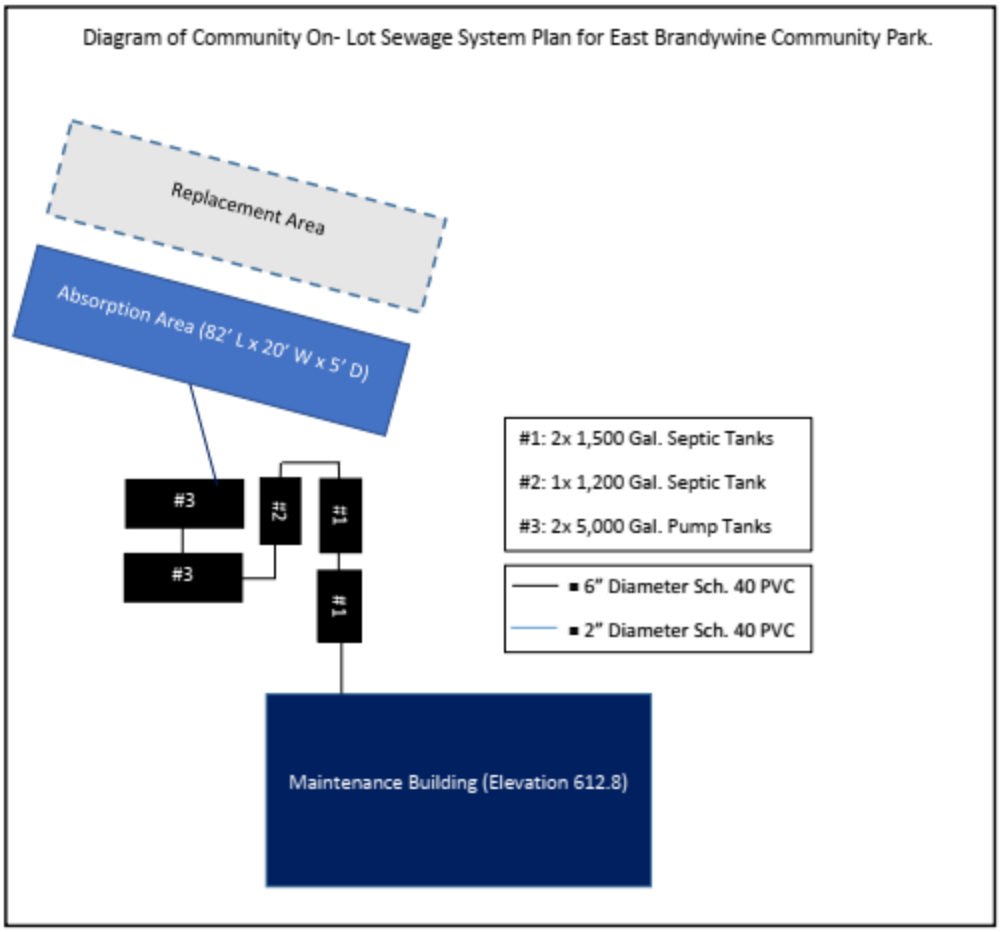


Figure 3-5 - COLDS for East Brandywine Township Community Park

2. Individual OLDS

   Individual OLDS use a system of piping, tanks or other facilities for collection, treating and disposing of sewage into a soil absorption area. As of 2018 there were approximately 1,700 OLDs in the Township.

   There are several typical components of OLDS that exist on properties within Township, and they include:

   a. Septic Tanks

      An underground sedimentation tank is used for wastewater treatment through a process of biological decomposition and drainage. Septic tanks allow safe disposal of wastewater into suitable soils; hence these systems are popular in areas off of the public sewage network. A septic tank is a watertight box, usually made of concrete or fiberglass, with inlet and outlet pipes, and treats the wastewater naturally by holding it in tank long enough for solids and liquids to separate and decompose.

b. Elevated Sand Mounds

A sand mound system is an on-site sewage disposal system following a septic tank that is elevated above the natural soil surface in a suitable sand fill material. Septic tank effluent is pumped into an absorption area through a pressure distribution network. The purpose of the design is to overcome site limitations prohibiting use of conventional style on-site sewage disposal systems.

c. In-Ground Beds

An in-ground bed is an on-site sewage disposal system following a septic tank. Beds are used when the property provides gentle slopes (less than 8%). Septic tank effluent is distributed over a rectangular area(s) then filtered through the soil under the pipes. In-ground gravity absorption areas can be placed on sites that have soils with percolation rates between 6 and 60 minutes per inch.

d. In-Ground Trenches

An in-ground trench is an on-site sewage disposal system following a septic tank. Trenches are used on properties with maximum slope of 25%. Standard trench absorption area consists of two or more excavated linear trenches in which perforated pipes or laterals distribute effluent into a layer of crushed stone under the pipes.

e. Cesspools

Cesspools (or leaching pools) are in-ground pits formed with concrete, brick or cement block walls. Wastewater flows into the cesspool and drains or “percolates” into the adjacent soil through the perforated walls. Over time, drainage areas around cesspool becomes saturated and plugged with soils and solids. Cesspools are common to many older homes built prior to the 1970’s. These structures are no longer approved for new construction and do not meet of Pennsylvania Code, Title 25, Chapter 73 requirements.

f. Seepage Pits

A Seepage Pit is similar to a cesspool; however, the seepage pit follows a septic tank. These pits, which serve only as "overflow" pits from septic tanks, are much more efficient than older systems as they receive much less solid material. Seepage pits are common to many older homes built prior to 1970. These structures are no longer approved for new construction and do not meet of the Pennsylvania Code, Title 25, Chapter 73 requirements.

g. Hybrid Systems

These systems are non-conventional site-specific systems that may not fit the standards of a regular OLDS. The Sewage Needs Identification survey below reported four (4) hybrid systems in the Township.

h. Drip Irrigation Septic Systems

This system is currently listed as an alternative system in Pennsylvania regulations. It is a subsurface disposal system able to distribute effluent from a septic tank, intermittent sand filter, and hydraulic filtration unit into natural soil. This system employs use of small diameter flexible drip tubing to distribute effluent into the upper 12 inches of the soil at a constant rate. Homeowners may prefer drip irrigation to sand mounds for aesthetic reasons. Other advantages include use on steeper slopes with marginal soils, and increased soil oxygen (due to shallow tubing depth) for more efficient renovation. Other than large-scale drip irrigation systems used for publicly owned treatments system, there are no known OLDs drip irrigation systems within the Township.

L. Sewage Needs Identification Survey

As per PADEP Guidance Document, Township sewage needs were evaluated. A Tier I Sewage Survey Needs Survey was performed to gather OLDS information. Data collected was later validated using information collected during the Tier II Sewage Survey; Information from Chester County Health Department (CCHD) OLDS repair database; and the CCHD nitrate well testing database. The Sewage Needs Survey was conducted during Spring, Summer, and Fall 2019.

Project Notification

Prior to conducting the Tier I Survey, the Township notified all property owners of the upcoming project by placing a two-page article in Spring 2019 edition of "*The Milemarker*", a Township quarterly newsletter. "*The Milemarker"* included information regarding timing, importance and overall survey goals relative to development of Act 537 Planning for the Township. A similar notification was placed in Summer 2019 edition describing the Tier II Survey project goals. A copy of both aforesaid editions of "*The Milemarker"* articles are included and can be viewed in Appendix J.

Tier I Sewage Survey

In March 2019, two weeks after project notification in *"The Milemarker",* a Tier I Sewage Survey, cover letter and educational pages were mailed to property owners possessing On-Lot Disposal Systems (OLDS). These documents were also posted on the Township website. Property owners were offered the following options to complete the Tier I Sewage Survey:

1. Complete and return mail survey to the Township or;
2. Complete an online survey with electronic submittal directly into the OLDS database.

1,743 Township property owners were mailed the Tier I Sewage Survey information; garnering an overwhelming 863 responses to the Township for evaluation. Survey response copies are on file with Township. A Response Summary is exhibited in Appendix K.

During the Tier I Sewage Survey two-month period, air temperatures ranged from 29-65 degrees Fahrenheit with approximately 9.9 inches of rainfall averaging approximately 4.9 inches per month in Downingtown, PA as recorded by NOAA National Centers for Environmental Information.

Tier II Sewage Survey

Pertinent data was grouped into three (3) geographic zones from the returned Sewage Survey responses. To confirm Tier I Sewage Survey validity, 60 OLDS parcels were randomly selected from its 863 survey respondents, to include twenty (20) Tier II door-to-door survey participants from each of the three zones. A Tier II Sewage Survey Request Letter including "Permission to Enter Property" form with request to complete "Sketch of On-Lot Disposal System" preceded the Tier II Survey. All aforesaid documents are exhibited in Appendices K and L. See Plate 3-2 for Survey Participants.

During the Tier II Sewage Survey site visits; homeowners, if present, were asked standardized questions regarding their OLDS' general location including treatment tanks and absorption areas. Each site visit documented OLDS type; general topography; site grading; visible condition of tank lid(s) & cleanout(s); presence of lush green grasses or wet spongy areas; ponding or surfacing water or any open pipe discharge. The goal of each site visit was to validate and confirm each homeowner's Tier I Sewage Needs Survey response.

The Tier II Sewage Survey data collected was digitally inserted into an aerial photograph for each OLDS visited. Tier II Site Visit Notes and Tier II Sewage Survey request letters are exhibited in Appendices L and P. See Plate 3-2 for Survey Participants.

The Tier II Sewage Survey period (August to December 2019) saw varied environmental conditions with air temperatures ranging from 29-83 degrees Fahrenheit; approximately 20.24 inches of rainfall, averaging approximately 4.1 inches per month in Downingtown, PA area; as documented by NOAA National Centers for Environmental Information. Below Table 3-11 exhibits Tier II Sewage Survey Summary:

Table 3-11 - Tier II Sewage Survey Summary

Tier II Inspections	Zone 1	Zone 2	Zone 3
Number of Visits	**10**	**7**	**7**
No. of Potential or Suspected Malfunctions	**4**	**3**	**3**
Inspection Dates	**August - September 2019**	**September - November 2019**	**October - December 2019**

A summary of OLDS data collected for Zones 1, 2, and 3 is provided in Appendix O.

Classification of Malfunctions

Malfunctions are categorized per PADEP PA Sewage Facility Act Guide and explained as follows.

"No Malfunction": The system will appear to be generally operating satisfactorily. The system has been constructed since the implementation of system permitting requirements on May 15, 1972 and will appear to have been constructed in accordance with permitting requirements in affect at the time of construction.

"Potential Malfunction": The system will appear to be operating satisfactorily and constructed prior to system permitting requirements (i.e., pre-regulatory systems). The system is in areas unlikely to receive permitting by current standards as well as being constructed in areas having soils mapped as unsuitable or with severe limitations for OLDS. Included as potential malfunctions are permits issued for OLDS repairs that meet Chapter 73 standards. While this needs category does not represent "stand alone" existing needs, the information may be utilized in a needs analysis to locate areas affected by poorly defined adverse circumstances. For example, clusters of legitimate repairs will often indicate areas requiring closer scrutiny.

"Suspected Malfunction": The system will be exhibiting some malfunction characteristics, such as abnormally green grass in the vicinity of an absorption area, pipe discharges from one (or more than one) dwelling without direct evidence of sewage (i.e., no observation of soap suds, food residue, solids, odors, etc.), absorption areas located in known

unsuitable soils (observed wetlands, rock outcroppings, etc.) cesspools (in high density development) and pit (not vault) privies.

"Confirmed Malfunctions": The systems that have malfunctions are documented by dye testing, laboratory test results, observation by a certified Sewage Enforcement Officer or professional with experience in OLDS, "Best Technical Guidance" repair permits, and seasonally wet absorption areas. Also included are piped discharges from a single structure with direct evidence of sewage (i.e., direct observation of soap suds, food residue, solids, odors, etc.), reported system backups, malfunctions with photographic documentation, or other similar evidence. These types of malfunctions are only shown in this Act 537 Plan Update when the CCHD Repair/Replacement data is shown from a certified SEO.

Plate 3-3 shows the Sewage Needs Survey potential and suspected malfunctions-based criteria set forth above from PADEP.

Zone Descriptions

In order to effectively evaluate Tier I Sewage Needs Survey responses, the Township was subdivided geographically. The data was organized into three "zones" exhibited in Plate 3-3; loosely based upon three Township watersheds: Beaver Creek, Culbertson Run, and Brandywine Creek East Branch. Tier I Survey response data and a Results Summary are exhibited in Appendix K. Needs Analysis survey participants having On-Lot Disposal Systems are exhibited in Plate 3-2.

All below data is based on homeowner response to the Sewer Survey. Presence/absence or type of malfunction and type of tank or absorption areas were not verified.

Table 3-12 - Tier I Zones 1, 2, & 3 Response Summary

	Zone 1	Zone 2	Zone 3
Total Parcels	**1,319**	**1,249**	**1,069**
Parcels with OLDS	**591**	**366**	**737**
Survey Responses Parcels	**269**	**223**	**344**
Suspected & Potential Malfunctions	**63/269 (23%)**	**51/223 (23%)**	**69/344 (20%)**
Confirmed Malfunctions	**3/269[(1)]**	**0/223**	**0/334**
Sewage Tank Type[(2)]	**269 Total Responses** • **Septic Tank: 251 (93%)** • **Cesspool: 7 (3%)** • **Holding Tank: 7 (3%)** • **Unsure: 4 (1%)**	**223 Total Responses** • **Septic Tank: 204 (91%)** • **Cesspool: 9 (4%)** • **Holding Tank: 4 (2%)** • **Unsure: 6 (3%)**	**344 Total Responses** • **Septic Tank: 317 (92%)** • **Cesspool: 20 (6%)** • **Holding Tank: 3 (1%)** • **Unsure: 4 (1%)**
Absorption Area Type [(2)] ***(each parcel may have multiple types)***	• **In Ground Bed: 188** • **In Ground Trench: 47** • **Sand Mound: 6** • **Pressure Dosed System: 71** • **Seepage Pit: 8** • **Unsure: 50**	• **In Ground Bed: 152** • **In Ground Trench: 46** • **Sand Mound: 5** • **Pressure Dosed System: 68** • **Seepage Pit: 8** • **Unsure: 33**	• **In Ground Bed: 219** • **In Ground Trench: 71** • **Sand Mound: 7** • **Pressure Dosed System: 92** • **Seepage Pit: 8** • **Unsure: 66**
Focus Areas	**1. Locust Knoll** **2. Brandywine Chase** **3. Northwest Zone 1**	**1. Crosskeys** **2. Keller Way, Kristin Circle, B-W Elementary School, School Lane**	**1.Tunbridge** **2. Cumberland Ridge** **3. Hopewell Road/ Corner Ketch Road**
Notes:	[1]Confirmed malfunctions at Bondsville Mill Area [2]Data shown is based solely on homeowner responses and have not all been verified		

Zone 1 is entirely south of PA Route 322 in the southwestern third of the Township; largely within the Beaver Creek Watershed:

1. Consists of felsic and intermediate Gneiss, amphibolite facies geologic features;
2. Several areas have steep slopes (over 25%);
3. Includes Locust Knoll, Brandywine Chase, and Brandywine Hunt developments;
4. Major soil classifications are Gladstone-Parker (GdB & GdC), Califon (CaA & CaB) and Urban Land (UrlB). These soils are moderately limited for sand mounds and in ground beds, while largely conducive for drip and spray irrigation;
5. Per survey results, based upon ratio of suspected and potential malfunctions; three focus areas were evaluated: Locust Knoll, Brandywine Chase, and Northwest Zone.

Per notification received by the Township, seven (7) townhouses, five (5) apartments, and six (6) single family homes on Bondsville Road (across from the Bondsville Mill Park "Bondsville Mill Area") are suspected of having OLDS malfunctions. A site visit discussion with one homeowner revealed multiple confirmed system malfunctions. Further investigation of OLDS serving the Bondsville Mill Area and surrounding parcels is highly recommended.

Table 3-13 - Zone 1 Focus Areas Summary

Development	**Locust Knoll**	**Brandywine Chase[1]**	**Northwest Zone 1**
Parcels with OLDS	**115**	**57**	**90**
Survey Response Parcels	**79**	**19**	**34**
Suspected and Potential Malfunctioning Parcels[2]	**21 (26.5% of 79 responses)**	**9 (42.1% of 19 responses)**	**13 (38.2% of 34 responses)**
Roads Included in Focus Area	**Locust Knoll Road, Colonial Court, Independence Lane, Constitution Drive, Osborne Road, W. Merion Circle, E. Merion Circle, Tradition Lane, and Raymond Circle**	**Ridgewood Circle, Woodcrest Drive, Bondsville Road, and Laurelwood Drive**	**Raleigh Drive, Gloucester Drive, Clearview Drive**
Notes:	[1]Included three (3) confirmed malfunctions at Bondsville Mill Area, not included in Tier I Survey [2]Based solely on information from homeowner responses		

Zone 2 is located on PA Route 322's north side and west of Corner Ketch Road in the northwestern third of the Township, generally within the Culbertson Run Watershed:

1. Consists of felsic and intermediate Gneiss, amphibolite facies as graphitic felsic Gneiss, amphibolite geologic features;
2. Several steep slope areas (over 25%), largely located in the northeastern section to Hide-A-Way Farms Development east-side, and north of the Quaker Hill Development;
3. Moderately steep slopes (15-25%) in Cross Keys and Keller Way Developments;
4. Major soil classifications: Gladstone-Parker (GdB & GdC), Califon (CaB) and Urban Land (UrmB). These soils are moderately to very limited for sand mounds and in ground beds, while largely conducive to drip and spray irrigation as exhibited in Plates 2-3a through 2-3d;
5. Per responses and percentage of noted suspected and potential malfunctions, two focus areas were evaluated: 1. Cross Keys; 2. Keller Way, Kristin Circle, Brandywine Wallace (B-W) Elementary School and School Lane.

Table 3-14 - Zone 2 Focus Area Summary

Development	**Cross Keys**	**Keller Way, Kristin Circle, Brandywine Wallace (B-W) Elementary School and School Lane**
Parcels with OLDS	**87**	**66**
Survey Response Parcels	**38**	**48**
Suspected and Potential Malfunctions Parcels[1]	**18 (47.4% of 38 responses)**	**15 (31.3% of 48 responses)**
Roads in Focus Area	**Elmwood Drive, Evergreen Drive, Briarwood Drive, Firethorn Drive, Holly Drive, N. Guthriesville Road, Rosewood Court, and Wildbrier Road**	**School Lane, Kristin Circle, Dilworth Road, and Keller Way**
Notes:	[1]Based solely on information from Homeowner responses.	

Zone 3 lies north of PA Route 322 and east of Corner Ketch Road in the eastern third of the Township; generally, within East Branch Brandywine Creek Watershed.

1. Consists of felsic and intermediate Gneiss, amphibolite facies as well as Chickies Quartzite geologic features;

2. Several steep slope areas (over 25%) including the Crawford Ridge development and surrounding parcels adjacent to Brandywine Creek East Branch. Zone 3 southeastern section also has steep slopes between the Tunbridge development and the Brandywine Creek East Branch;
3. Major soil classifications are Edgemont (ExB & ExD), Parker (PaC & PaD), Gladstone-Parker (GeD & GdB), Cokesbury (CpA), and Urban Land (UugB). These soils are moderately to very limiting for sand mounds and in ground beds, while largely conducive to drip and spray irrigation;
4. Per responses and percentage of noted suspected and potential malfunctions, three focus areas were evaluated: Tunbridge, Cumberland Ridge, and Hopewell Road/ Corner Ketch Road.

Previous public complaints reported to the Township suggest that the COLDS serving the Mt. Idy MHP may be a potential malfunction. Further investigation of COLDS serving the Manufactured Home Park should be performed to determine configuration, condition, and resolution. More future sewer alternatives are addressed in Section 4.

Table 3-15 - Zone 3 Focus Area Summary

Development	**Tunbridge**	**Cumberland Ridge**	**Hopewell Road / Corner Ketch Road**
Parcels with OLDS	**144**	**56**	**38**
Survey Response Parcels	**69**	**25**	**22**
Suspected and Potential Malfunctioning Parcels[1]	**26 (38% of 68 responses)**	**7 (28% of 25 responses)**	**12 (55% of 22 responses)**
Roads in Focus Area	**Governors Circle, Blakely Road, Helm Way, Sussex Place, Hessian Court, Hilltop Drive, and Rock Raymond Road**	**Margil Farm Drive, Bowman Court, Englerth Lane, and Cumberland Drive**	**Hopewell Road, La Vida Via, and Corner Ketch Road**
Notes:	[1]Based solely on information from Homeowner Responses.		

OLDS Operation and Maintenance Requirements

Inspection and permitting of OLDS are CCHD regulated and enforced by CCHD Sewage Enforcement Officer. Township Code Chapter 213 “Sewers and Sewage Disposal” states owner responsibilities along with both inspection and pumping requirements. This code

is exhibited in Appendix M. Owners of OLDS must submit application to CCHD for system repair or replacement.

PA Code Title 25 §71.71 mandates local municipal responsibility to assure proper operation and maintenance of sewage facilities within its jurisdiction. Overall development and management of Township sewage treatment facilities are compliant with PA Code Title 25 §71.71. This code does not presently regulate individual and community on lot sewage systems' Service Provider registration or certification.

Chester County Health Department (CCHD) Repair and Replacement Database

This database includes OLDS information recorded by Sewage Enforcement Officers applicable to Chester County municipalities from 1997 to 2018. Applicable database information received from CCHD includes unsatisfactory certifications and malfunctions, system classification, permit type, approval date, and permit number. The Database was applied to evaluate past malfunctions and to create Focus Areas in all three geographic zones. The complete CCHD database is exhibited in Appendix N. CCHD-related malfunctions and unsatisfactory certifications from 2013 to 2018 are exhibited in Plate 3-4.

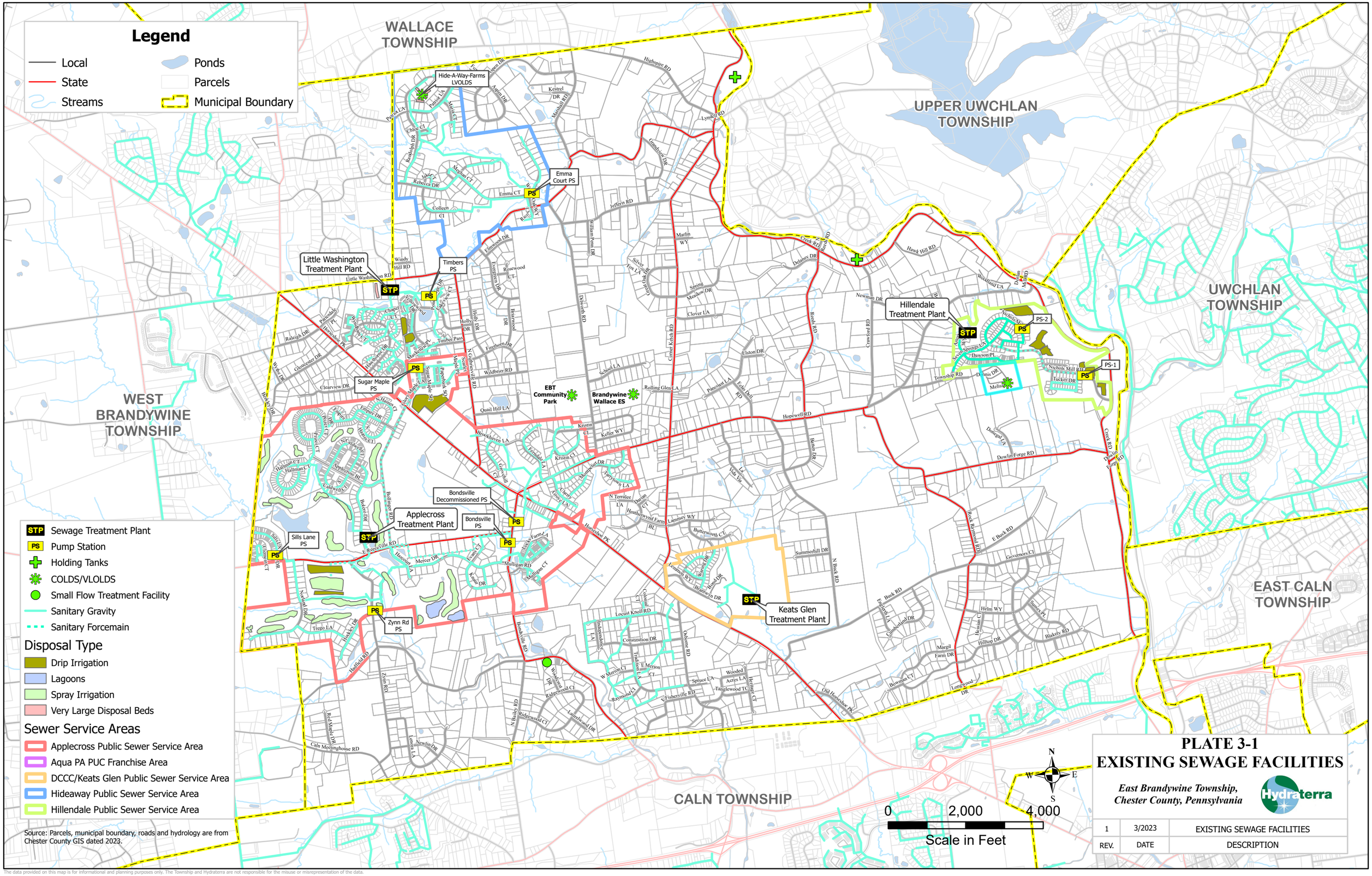
CCHD Nitrate Testing Data

CCHD also provided Township well water nitrate levels from 1999-2018. Nitrates are not a strict indicator of malfunctioning OLDS, and high nitrates could indicate specific agricultural practices. Many Township areas were extensively farmed, likely influencing groundwater quality.

Per the data from 2008-2018, fifty-four (54) parcels yielded pertinent information. Nitrate levels for each geographic zone is presented below in Table 3-16 and exhibited geographically in Plate 3-5.

Table 3-16 - Summary, CCHD Nitrate Levels (2008 - 2018)

Nitrate Level	Zone 1	Zone 2	Zone 3
0-3.9 mg/L	**9**	**4**	**20**
4-7.9 mg/L	**7**	**4**	**3**
8-11.9 mg/L	**2**	**4**	**1**



Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

Zone 1

Zone 2

Zone 3

Survey Participants

- Tier 1
- Tier 2

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

N
W E
S

0 2,000 4,000

Scale in Feet

PLATE 3-2
ON-LOT DISPOSAL SYSTEM SURVEY PARTICIPANTS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	ON-LOT DISPOSAL SYSTEMS SURVEY PARTICANTS

Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

- Potential Malfunctions
- Suspected Malfunctions

Focus Areas

- Brandywine Chase Area
- Bondsville Mill Area
- Corner Ketch
- Crosskeys
- Cumberland Ridge
- Kristin Cir; Keller Wy; BWES; School Ln
- Locust Knolls Area
- Northwest Zone 1
- Mt. IDY MHP Existing/Future
- Tunbridge

Sewer Service Area

- Applecross Public Sewer Service Area
- Aqua PA PUC Franchise Area
- DCCC/Keats Glen Public Sewer Service Area
- Hideaway Public Sewer Service Area
- Hillendale Public Sewer Service Area

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CA TOWNSH

CALN TOWNSHIP

N

W E

S

0 2,000 4,000

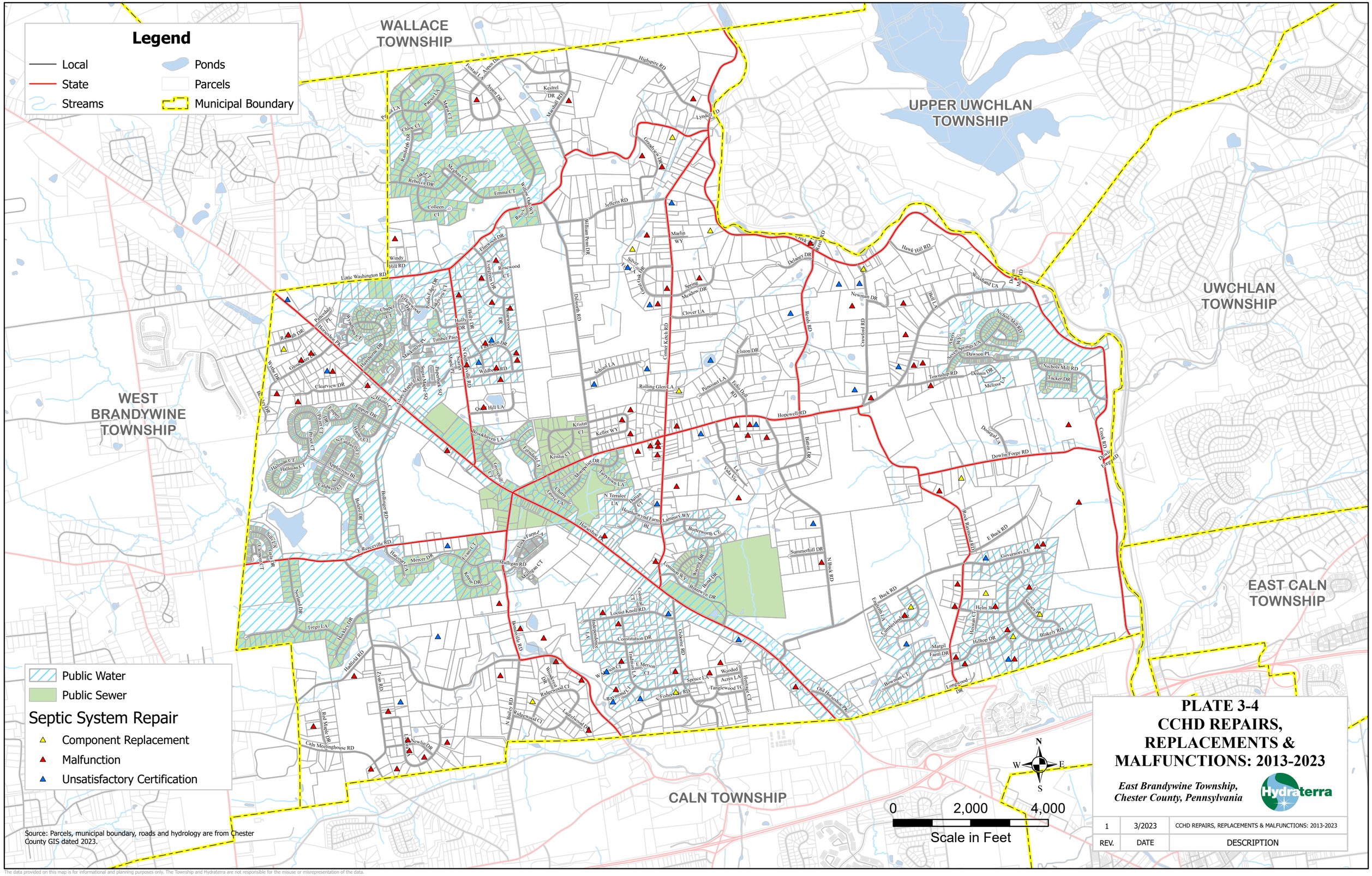
Scale in Feet

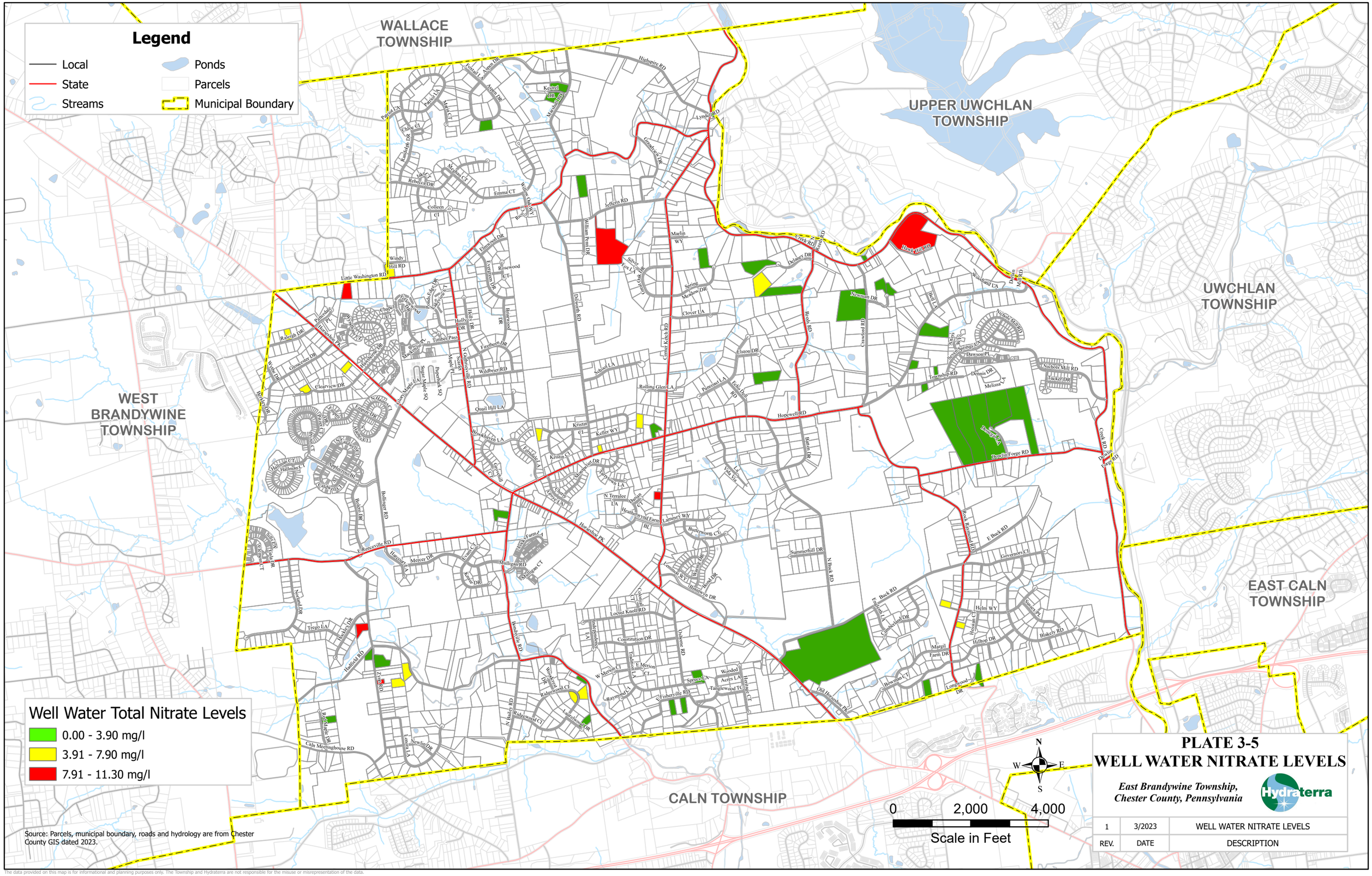
PLATE 3-3
SEWAGE NEEDS SURVEY

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	SEWAGE NEEDS SURVEY





Section 4

Future Growth and Land Development

4. Future Growth and Land Development

A. Municipal and County Planning Documents

Township of East Brandywine Code, Chapter 350 Subdivision and Land Development

Subdivision and land development within the Township are governed by Chapter 350 of Township Land Use Code also known as "The East Brandywine Township Subdivision and Land Development Ordinance" (SALDO). Portions of SALDO were most recently updated in 2019. The ordinance was prepared in accordance with Pennsylvania Municipalities Planning Code and Township Comprehensive Plan to guide development onto sites suitable for building purposes, human habitation, and to assure development is orderly, efficient, integrated, and harmonious.

The SALDO requires submittal of plans to the Township as part of development approval process. This interactive process allows applicants and the Township to share information, and understand design requirements and impact upon environmental resources and public infrastructure. This process also allows the Township to make recommendations and provide approval for acceptable land development plans.

SALDO Section 350-47 governs Township sewage treatment and disposal. General requirements related include connection prohibitions; site suitability of disposal facilities, connection to public sewers, Act 537 planning; feasibility reports for unconventional systems and other general and specific requirements are presented in Section 350-47.

Please refer to Section 2, paragraph P for a summary of the Comprehensive Plan.

Table 4-1 - Zoning Districts

Zoning District/Overlay	Description	Minimum Lot Area	Water/Sewage Requirements
R1 Residential District	Intended to maintain areas of low population density, compatible with existing rural character and pattern of single-family residential land use.	Gross: 130,680 s.f. Net: 55,000 s.f.	DMWA and On-Lot wells and sewer
R2 Residential District	Enables development of stable, well-designed residential neighborhoods with single-family detached dwellings. Allowable densities are considered appropriate to assure compatibility with existing pattern of development, limitations on sewage facilities and water supply	Gross: 100,000 s.f. Net: 45,000 s.f.	Some Aqua PA, mostly On-Lot wells and On-Lot sewer
R3 Residential District	Assures enough opportunities for variety of housing types and densities. District provides for relatively concentrated single-family detached dwellings, two-family and multifamily dwellings.	Gross: 43,560 s.f. Net: 35,000 s.f.	Mostly Aqua PA, some On-Lot wells & Aqua PA or EBTMA public sewer
VC Village Commercial District	Assures new uses or changes in use are compatible with traditional, compact neighborhood commercial character and complementary residential uses within a village. District seeks to manage current and future business uses, including mixed use opportunities.	Minimum gross tract area: 32,000 s.f. Minimum net tract area per individual use: 8,000 s.f.	On-Lot well and On-Lot sewers
TND-1 Traditional Neighborhood Development District	Intended to reflect and support properties predominant in Village of Guthriesville, and to assure uses or changes, and dimensional/design standards are compatible with traditional, compact neighborhood commercial character and complementary residential uses within Village.	1 or 2 Family dwelling units per 5,000 s.f. Combination of uses 3,500 s.f.	Mix of Aqua PA public water & On-Lot wells. Mix of Aqua & EBTMA Sewer & On-Lot septic
Mixed Use Commercial District	Provides opportunities under explicit conditions and standards for commercial, office, and nonresidential development utilizing traffic flows along identified segments of Rt. 322 in the Twp.	Gross: 10 acres Net: 10,000 s.f. per use	Aqua PA water and EBTMA public sewer
CS/LI Commercial Service/ Limited Industrial District	Provides for personal, business service, light industrial and manufacturing utilization in confined area along Route 322 adjacent to Caln Twp. boundary.	Net: not less than 20,000 s.f. Combination of uses net of 10,000 s.f. per use	Mix of Aqua PA water and On-Lot wells. On-Lot septic
I/R Institutional/ Residential District	Provides development in Township area well-suited to combined institutional and residential uses.	Gross: 65,340 s.f. Net: 45,000 s.f.	Aqua PA water and EBTMA public sewer
Floodplain Overlay District	Standards and procedures discuss 100 yr. floodplain.	N/A	N/A

Township of East Brandywine Code, Chapter 399 Zoning

Zoning designations within Township are a result of Chapter 399 of the Township Land Use Code most recently updated in 2019. Established zoning districts and overlay districts exhibited in Plate 4-1: Zoning. The preceding table provides a description of each district, minimum gross and net lot area, and any water or sewer restrictions.

"Balancing preservation and growth remain the central theme of Landscapes. To continue this balance, Landscapes3, which was adopted November 2018, recommits to core principles that will position the county and its municipalities for success:

- Resource Preservation- recommit to protecting the county's open spaces, natural areas, and historic landscapes.
- Revitalized Centers- guide compatible growth to the county's urban and suburban centers.
- Housing Diversity- provide for diverse and affordable housing meeting the needs of all residents.
- Transportation Choices- expand public transit, pedestrian, and bicycle networks.
- Collaboration- promote effective multi-municipal and partner cooperation.
- Resiliency- Respond to the changing markets, technology, community and economy."

B. Existing and Plotted Subdivisions

Existing and plotted Township subdivisions are organized by zones listed in Sewage Needs Identification Survey. Plotted subdivisions are those that the Township has received and for which has approved preliminary land development plans.

Tables 4-2 through 4-4 exhibit existing and plotted subdivisions specific to each of three geographic zones. Each table provides development name, number of development lots, lots served by public sewer and those served by On-Lot Disposal Systems (OLDS).

Table 4-2 - Existing/Plotted Development Parcels – Zone 1

Development	OLDS	Public Sewer	Vacant[3]	Total
Applecross	0	664[1]	0	664
Bondsville Mill Area	**18**	**0**	**0**	**18**
Brandywine Chase	**57**	**0**	**3**	**60**
Brandywine Hunt	22	0	0	22
Greenpoint Farm	32	0	0	32
Guthriesville South	4	18	0	22
Locust Knoll	**115**	**0**	**0**	**115**
Northwest Zone 1	**90**	**0**	**1**	**91**
Pin Oaks	13	0	0	13
Plank Tract	8	0	0	8
Weaver Tract (Brandywine Walk)	1	195[1]	0	1
All Other Parcels	218	0	65	283
Total Zone 1[2]	**596**	**854**[1]	**69**	**1,519**
Notes:	Bold= Focus Area [1] Treatment at Applecross Regional Treatment Plant [2] Winters Tract subdivision not included in this table [3] Includes protected, undeveloped and future development parcels			

Table 4-3 - Existing/Plotted Development Parcels - Zone 2

Development	OLDS	Public Sewer	Vacant[3]	Total
Brandywine Wallace Elem. School	**1**	**0**	**0**	**1**
Cross Keys	**87**	**0**	**1**	**88**
Guthriesville North	3	8	3	14
Hawk's Nest Meadows	5	0	0	5
Heatherwynd East	26	0	0	26
Heatherwynd West	20	0	0	20
Hedgerow / Culbertson Run	0	177[1]	0	177
Hide-A-Way Farms	0	151[1]	0	151
Highland Pointe	7	0	0	7
Hopewell	0	120[2]	0	120
Keller Way	**34**	**0**	**1**	**35**
Kristin Circle	**9**	**31**[2]	**0**	**40**
Mapleview	0	154[2]	0	154
Marshall Creek Farms	37	0	0	37
Pinebrooke Village	0	32[1]	0	32
Quail Hill	10	0	0	10
Quaker Hill	8	0	0	8
Ridgewood West	20	0	0	20
School Lane	**22**	**0**	**0**	**22**
Timbers / Timberlake	12	148[1]	0	160
Watters Commercial	0	0	1	1
All Other OLDS Parcels	65	0	55	120
Total Zone 2	**366**	**821**	**61**	**1,248**
Notes:	Bold= Focus Area [1] Treatment at Little Washington Sewage Treatment Plant [2]Treatment at Applecross Regional Treatment Plant [3]Includes protected, undeveloped and future development parcels			

Table 4-4 - Existing/Plotted Development Parcels - Zone 3

Development	OLDS	Public Sewer	Vacant[3]	Total
Asbury Village	21	0	0	21
Brandywine Pointe	13	0	0	13
Corner Ketch Landing	4	0	0	4
Corner Ketch/Hopewell Road	**38**	**0**	**0**	**38**
Crawford Ridge	6	0	1	7
Cumberland Ridge	**56**	**0**	**2**	**58**
Echo Dell	33	0	0	33
Estates at Dowlin Forge	0	214[1]	0	214
Keats Glen	0	50[2]	0	50
McGettigan	6	0	1	7
Mt. Idy (COLDS)	**40**	**0**	**0**	**40**
Smokehouse Farms	10	0	0	10
Tunbridge	**144**	**0**	**0**	**144**
All other Parcels	366	0	64	430
Total Zone 3	**737**	**264**	**68**	**1,069**
Notes:	Bold= Focus Area [1] Treatment at Hillendale Sewage Treatment Plant [2]Treatment at Keats Glen Sewage Treatment Plant [3]Includes protected, vacant and future development parcels			

Table 4-5 - Existing/Plotted Development Parcels - All Zones

	OLDS	Public Sewer	Vacant	Total
Zone 1	596	854	69	1,519
Zone 2	366	821	61	1,248
Zone 3	737	264	68	1,069
Total	**1,699**	**1,939**	**198**	**3,836**

Table 4-5 exhibits: OLDS; public sewer; undeveloped and total lots of the three Township geographic zones. This information is illustrated geographically on Plates 4-2, 4-3, 4-4.

C. Future Growth Areas

To understand the 5-20-year projection of Township sewer needs, currently proposed plans, population trends and existing zoning areas must be considered. Zoning designations are established by the Township to direct growth and regulate land use patterns. Zoning restrictions and costs associated with extension of public water and sewer facilities are growth constraints.

Table 4-6 exhibits undeveloped land areas by zoning district including potential units served by OLDS or Public Sewer.

Table 4-6 - Future Development Parcels - All Zones (Undeveloped)

Zone/Zoning District	Acres	Existing Parcels	Min. Lot Size (acres)	Potential OLDS Parcels	Potential Public Sewer Parcels	Total Potential Parcels
Zone 1 – R-2[2,3]	89	25	2.3	40	0	40
Zone 1 – R-3[2]	12.5	2	1.0	4	0	4
Zone 1 - TND-2[3]	52.0	6	0.1	0	89	89
Zone 2 – R-2	361.7	24	2.3	144	0	144
Zone 2 – R-3	10	2	1.0	10	0	10
Zone 2 – MU	20.6	1	0.3	0	1[1]	1
Zone 3 – R-1	210.4	22	3.0	61	0	61
Zone 3 – R-2	95.0	11	2.3	35	0	35
Total	851.2	93	N/A	294	90	384
Notes:	[1] Treatment at Applecross Regional Treatment Plant [2] Plank Farm					

Population and Housing Trends

In July 2016 the Delaware Valley Regional Planning Commission (DVRPC) adopted census population data for Chester County, PA. As exhibited in Table 4-7, Chester County's population growth was projected at 3.4%. In comparison to other similarly populated municipalities, East Brandywine Township's projected population growth was significantly greater at approximately 22.9% over a five-year span following the 2010 census.

Table 4-7 - DVRPC - Census Data

County/Municipality	2010 Decennial Census Count	2015 Census Population Estimate	2010-2015 Change	2010-2015 Change
Chester County	498,886	515,939	17,053	3.4%
East Brandywine Township	6,742	8,284	1,542	22.9%
East Coventry Township	6,636	6,746	110	1.7%
Valley Township	6,794	7,625	831	12.2%
Source:	Delaware Valley Regional Planning Commission, 2020-2045 Population Forecasts, Adopted July 28, 2016.			

Table 4-8 - DVRPC - Population Forecasts[1]

County/ Municipality	2015 Census Population Estimate	2025	2035	2045	2015-2045 Change	2015-2045 Change
Chester County	515,939	571,641	624,832	662,283	129,623	25.1%
East Brandywine Township	8,295	9,789	11,201	12,195	3,900	47.0%
East Coventry Township	6,753	7,592	8,385	8,943	2,190	32.4%
Valley Township	7,632	8,740	9,787	10,524	2,892	37.9%
Notes:	[1] According to the Chester County Planning Commission population forecasts may be outdated. Updated population projects may be delayed due to the COVID-19 pandemic.					
Source:	Delaware Valley Regional Planning Commission, 2020-2045 Population Forecasts, Adopted July 28, 2016.					

The DVRPC long-term population forecast for Chester County is exhibited in Table 4-8 above. This table illustrates long-term population growth of 47.0% for East Brandywine Township; significantly higher than other Chester County municipalities with similar populations. According to this population forecast, a 3,900-person Township population increase is projected during years 2015 to 2045.

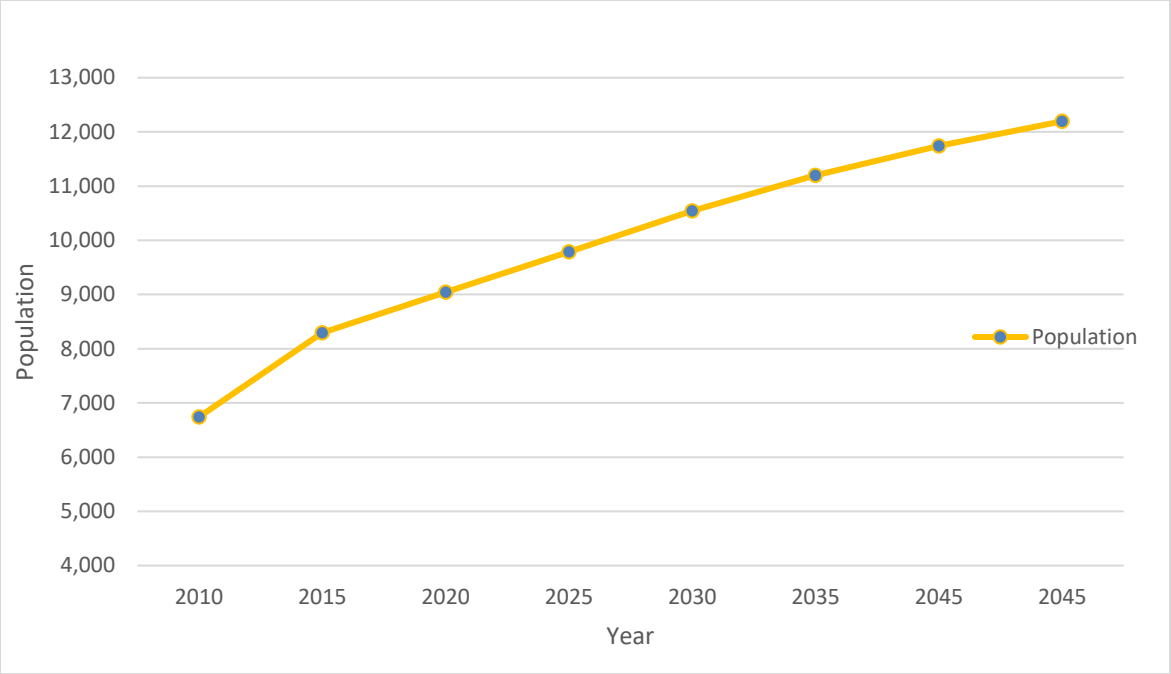


Figure 4-1 - DVRPC Population Projections for East Brandywine Township

Figure 4-1 illustrates DVRPC population projection for Township through year 2045. Thisgrowth rate would significantly increase Township sewage capacity needs.

D. Potential Future Sewage Planning

Future sewage planning should be considered for ten (10) focus areas with noted potential OLDS problems. Needs Analysis discussed in Section 3 demonstrates significant numbers of potential and suspected malfunctions for each focus area. Please refer to Section 3, Tables 3-13, 3-14, and 3-15 and Appendix K for analysis of sewage needs in each area. Additional sewage needs analyses in these areas are suggested. Section 5 of this document outlines possible sewer alternatives for each focus area as follows:

Zone 1- Future Planning

1. Locust Knoll
    - SFH constructed circa 1975-1979;
    - History of OLDS concerns reported to Township;
    - Steep slopes and hilly terrain restrict disposal options;
    - Adjacent to Beaver Creek;
    - Lot size approximately 1 acre.

2. Brandywine Chase
    - SFH constructed circa 1975;
    - Lot sizes in the development are 1-2 acres.
3. Bondsville Mill Area
    - Includes:
        - Seven (7) unit Townhouse constructed circa 1880s, plumbing 1950s;
        - Five (5) unit apartment building and;
        - Six (6) single family homes;
    - Three (3) malfunctions were confirmed during site visit;
    - Townhouse lot sizes are 0.05-0.3 acres;
    - Townhouses have exceedingly small front yards where most sewer systems and drain fields appear to be located;
    - Very limited soil suitability for in-ground beds;
4. "Northwest Zone 1"
    - Includes Raleigh Drive, Gloucester Drive, and Clearview Drive;
    - Homes on Raleigh and Gloucester Drive constructed circa 1960/1970; Clearview Drive 1970/1980;
    - Lot sizes between 1-1.5 acres.

Future Development in Zone 1

Weaver Tract, Plank Farm, and the Winters Tract in the R-1 and R-2 are all considered future Township developments and reviewed in Section 5.

Zone 2- Future Planning

1. Cross Keys
    - Single Family Homes constructed circa 1979;
    - Lot sizes between 1-1.5 acres;
2. Kristin Circle/ Keller Way/ Brandywine Wallace Elementary School/ School Lane
    - Constructed circa 1960 to 1980;
    - Residential lot sizes between 0.5-1.5 acres;
    - Brandywine Wallace Elementary School opened circa 1962;
    - Due to geographic proximity, developments evaluated as one group.

Zone 2 Future Development

Plank Farm parcel (MU), north of U.S. Route 322 is being considered for connection into Applecross Regional Treatment Plant.

Zone 3 - Future Planning

1. Tunbridge
    - Constructed circa 1979;
    - Steep slopes in eastern development section;
    - Lot sizes between 1-3 acres; most 1 acre.

2. Mt. Idy Manufactured Home Park
    - Constructed circa 1960;
    - Potential sewer malfunctions per previous reports;
    - Utilizes COLDS for 40 units.
3. Cumberland Ridge
    - Constructed circa 2005;
    - Lot sizes 1-2 acres;
    - Soil suitability for in-ground beds is very limited;
    - Annual OLDS inspection and pumping completed by Homeowner Association.
4. Corner Ketch/ Hopewell
    - Constructed pre-1993;
    - Lot sizes 1-1.5 acres.

Future Development in Zone 3 – No future development proposed.

Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

Zoning Districts

- CS/LI Commercial Service / Limited Industrial
- I/R Institutional / Residential
- MHP Mobile Home Park
- MU Mixed-Use Commercial
- R-1 Residential
- R-2 Residential
- R-3 Residential
- TND-1 Traditional Neighborhood-1
- VC Village Commercial

Overlay Districts

- AQRC Overlay
- TND-2 Traditional Neighborhood-2
- VE Village Extension Overlay

WALLACE TOWNSHIP

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

WEST BRANDYWINE TOWNSHIP

EAST CALN TOWNSHIP

CALN TOWNSHIP

VC

R-1

R-2

R-3

MHP

MU

VE

TND-1

TND-2

I/R

CS/LI

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

N

W E

S

0 2,000 4,000

Scale in Feet

PLATE 4-1
ZONING MAP

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	ZONING MAP

Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

WEST BRANDYWINE TOWNSHIP

Applecross Treatment Plant
STP
Sills Lane PS
PS
Zynn Rd PS
PS
Bondsville Decommissioned PS
PS
Bondsville PS
PS

CALN TOWNSHIP

Sewer Facilities

- STP Sewage Treatment Plant
- PS Pump Station

Land Use

- Planned/Proposed
- Future Development
- On-Lot Disposal System
- Undeveloped
- Protected
- Public Sewer

Disposal Type

- Drip Irrigation
- Lagoons
- Spray Irrigation

N
W E
S

0 1,500 3,000
Scale in Feet

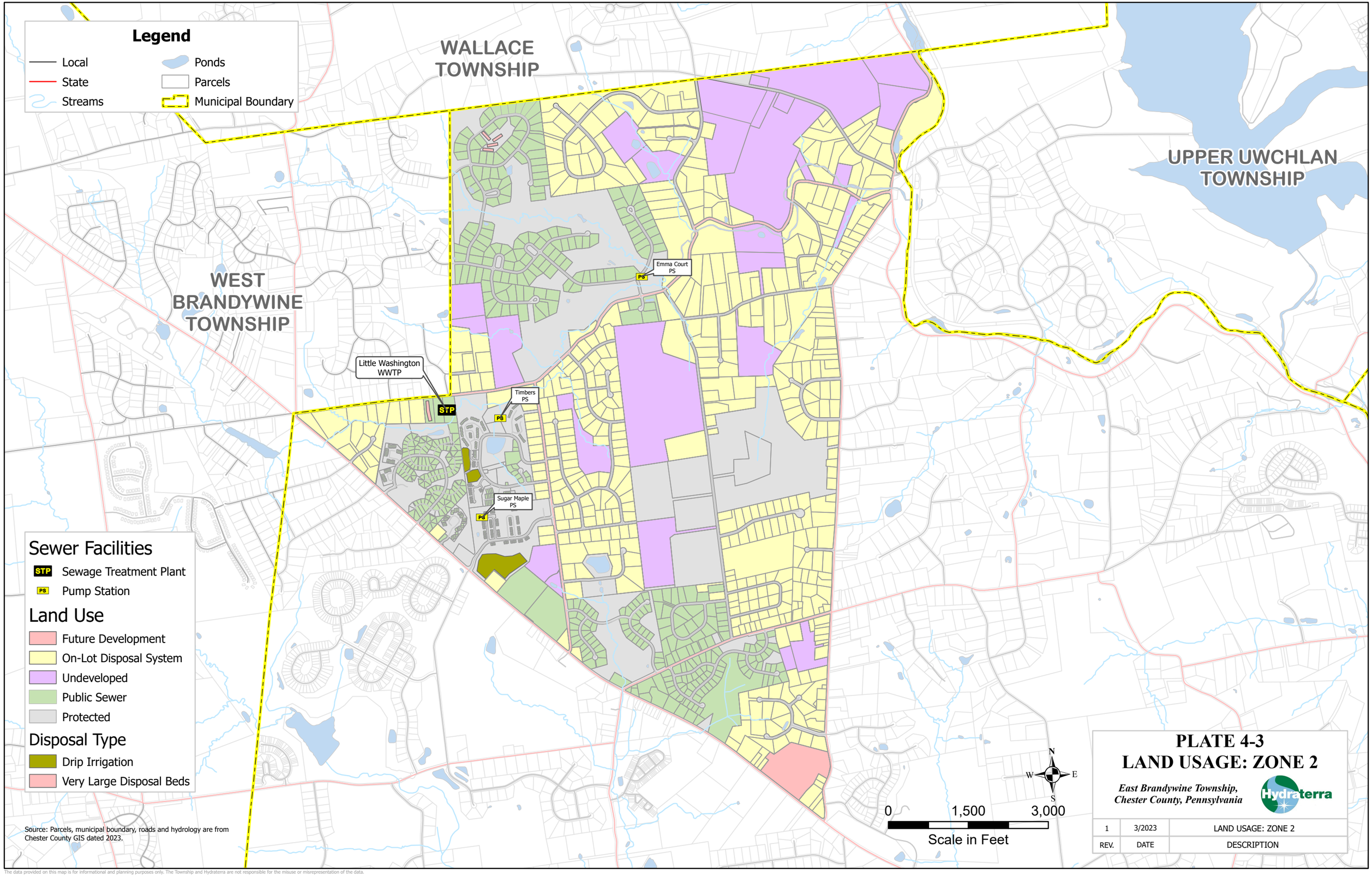
Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

PLATE 4-2
LAND USAGE: ZONE 1

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	LAND USAGE: ZONE 1



Legend

- Local
- State
- Streams
- Ponds
- Parcels
- Municipal Boundary

UPPER UWCHLAN TOWNSHIP

UWCHLAN TOWNSHIP

EAST CALN TOWNSHIP

Hillendale WWTP

STP

PS-1

PS

PS-2

PS

STP

DCCC/Keats Glen WWTP

Sewer Facilities

- STP Sewage Treatment Plant
- PS Pump Station

Land Use

- On-Lot Disposal System
- Undeveloped
- Protected
- Public Sewer

Disposal Type

- Drip Irrigation

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

N

W

E

S

0 1,500 3,000

Scale in Feet

PLATE 4-4
LAND USAGE: ZONE 3

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	LAND USAGE: ZONE 3

Section 5

Alternatives

5. Alternatives to Provide New or Improved Wastewater Disposal Facilities

Based on the Sewage Needs Identification Survey exhibited in Section 3 and Projected Future Growth in Section 4 of this Update, the Township acknowledges requisite existing sewer planning concerns and has evaluated alternatives to address existing Township needs. The following sections discuss the alternatives for areas of existing and future needs.

Alternatives considered for sewer needs include:

- Improvements and additions to public regional and local sewer facilities;
- Use of small flow sewage treatment facilities;
- Use of community On-Lot Land Disposal;
- Implementation of a detailed Sewage Management Program for existing and future Community and On-Lot Disposal Systems;
- *Retaining tanks are restricted in the Township and are not considered viable alternatives.*

Public Regional Sewer Facilities

Two Regional Wastewater Treatment Plants exist within 6 miles of Guthriesville: Downingtown Regional Water Pollution Control Center (DRWPCC) in Downingtown; and PA American Coatesville Wastewater Treatment Plant (PAWC) in South Coatesville. Access to these systems would be through collection systems in neighboring Townships.

Sewer access to the DRWPCC

- East into Uwchlan Township, across the Brandywine Creek East Branch;
- South into Caln Township, along Route 322 and Rock Raymond Road and along Caln Meetinghouse Road intersection with Fishersville Road;
- Connection unlikely. DARA consists of 4 member townships competing for limited capacity; hence, connectivity would require a 4-way member agreement to sell limited capacity. Given these constraints, this alternative is not feasible.

Sewer access to PAWC

- West into West Brandywine Township, along East Reeceville Road;
- Connection requires additional sewage planning to assess potential for extension; available capacity; connection costs; intermunicipal agreements, PUC agreements and intermunicipal agreements;
- Given distance from identified sewer needs and access areas into PAWC public sewer connection, this alternative is not feasible.

Collection, Conveyance and Treatment Facilities within Township

Collection, conveyance, treatment, and disposal facilities within the Township are owned by EBTMA or privately held by Aqua Pennsylvania.

A. Public Sewer to Applecross Regional Treatment Plant

- EBTMA owned;
- In good general condition, less than 20 years old;
- Public collection system generally small diameter, majority eight-inch (8”);
- Pumping stations with pumping capacities less than 300 gallons per minute;
- Permitted for stream discharge, spray or drip irrigation;
- Storage capacity available through lagoon;
- Stream discharge to Beaver Creek (Cold Water Fish / Migratory Fish).

B. Public Sewer to Keats Glenn Sewage Treatment Plant

- EBTMA owned;
- In good general condition, less than 30 years old;
- Public collection system diameter eight-inch (8”);
- No pumping stations;
- Stream discharge to unnamed tributary of Beaver Creek (Cold Water Fish / Migratory Fish)

C. Public Sewer to Hillendale Sewage Treatment Plant

- EBTMA owned;
- In like-new condition, less than 5 years old;
- Public collection system diameter eight-inch (8”);
- Two (2) pumping stations with pumping capacities less than 300 gallons per minute;
- Permitted for drip irrigation, 3-day storage tank incorporated into treatment facility;
- No stream discharge for backup.

D. Public Sewer to Little Washington Wastewater Treatment Plant

- PUC-owned;
- Condition unknown, most facilities greater than 20 years old;
- Public collection system diameter eight-inch (8”);
- Two (2) pumping stations with pumping capacities less than 300 gallons per minute;
- Permitted for stream discharge and subsurface discharge;
- Stream discharge to Culbertson Run (Exceptional Value Waters).

E. Small Flow Treatment Facilities

- Individually owned and operated, maintenance agreements required;
- Permitted for stream discharge;
- Viable for individual homes or a small cluster of homes;
- Most suitable to hydric soils areas where OLDS use is not as feasible;
- Relatively expensive to construct;
- Not well-suited for discharge into high quality and exceptional value streams.

F. Community On-Lot Disposal

- Individually owned and operated;
- Maintenance agreements with owners mandatory;
- Permitted for subsurface discharge, adequate soils;
- Percolation rates required;
- Viable for individual homes or a small cluster of homes
- Most suitable for properties with space constraints;
- Relatively inexpensive;
- Constructed in accordance with PA Code Title 25, Chapter 73.

G. Sewage Management Program

- Individually owned and operated OLDS;
- Program enacted and regulated by municipality to establish operation and maintenance requirements of OLDS;
- Enhances long-term performance of OLDS**;**
- Existing Township Ordinance No. 02-03 establishes a management program for On-Lot Disposal Systems.
    - Requires owners to properly operate and maintain their respective system including removal of septage or other solids from treatment and other storage tanks, once per three (3) years or upon inspection notification;
    - Suggests education program to promote proper use, operation, and maintenance;
    - Requires municipality to establish routine inspection and reporting program;
    - Requires coordination with building permits and occupancy permits;
    - Power to lien property for rehabilitation purposes;
    - Suggests Township establish program administration cost fee schedule;
    - Most provisions of current ordinance have not been implemented.
- Revised ordinance to further enhance the program.
    - Develop three-year (3) inventory of Township OLDS and COLDS;
    - Record keeping through coordinated effort with Township/Engineer/CCHD;
    - Database creation by Township Engineer, CCHD, or other;
    - Township divided into three (3) geographic areas (similar to the Sewage Needs Identification Survey);

- Initial tank pumping and tank and adsorption area observation requirement;
- Reoccurring 3-year pumping program requirement;
- Observation and pumping by Registered Service Provider;
- Registered Service Provider to use, complete, and upload to database, a checklist approved by Township;
- Registered Service Provider to participate in short course describing SMP, checklist completion, along with methods to utilize and input data applicable to OLDS database;
- Township to collect basic information and register each Service Provider;
- Property Owner to schedule all observation and pumping with the Registered Service Provider for their OLDS;
- Property Owner must pay all costs associated with pumping, inspection, operation, and maintenance;
- Educational material provided to homeowners via Township website and physical pamphlets;
- Annual public educational meetings held to review proper maintenance of OLDS;
- Estimated costs to administer Sewer Management Program to be determined;
- Administrative costs will be funded by Township.

H. Alternative Provisions

Alternative provisions regarding new or improved wastewater disposal facilities were evaluated for technical feasibility. Summary of Technically Feasible Alternatives considered for each focus area is exhibited in Table 5-1. Details of Technically Feasible Alternatives considered for each zone and for the Township follow the summary table.

Table 5-1 - Focus Area Alternatives

Zone	Planned and Future Developments /Focus Area	Alt A: Public Sewer to ARTP	Alt B: Public Sewer to KGSTP	Alt C: Public Sewer to HSTP	Alt D: Public Sewer to LWWTP	Alt E: SFTF	Alt F: COLDS	Alt G: SMP
1	Locust Knoll	x						x
1	Brandywine Chase	x						x
1	Northwest Zone 1	x			x			x
1	Bondsville Mill Area	x						x
1	Winters Tract	x						
1	Plank Farm (Residential)	x						
2	KC/KW/BWES/SL	x						x
2	Cross Keys	x			x			x
2	Plank Farm (Mixed-Use)	x	x					
3	Tunbridge							x
3	Cumberland Ridge							x
3	Mt. Idy MHP			x				x
3	Corner Ketch/Hopewell	x						x

Zone 1-Technically Feasible Alternatives

1. Locust Knoll – 115 single family units with potential capacity demand 28,750 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage along Bondsville Road through protected Township parcel to Bondsville Road Pump Station;
     - Conveyance capacity limited by Bondsville Road Pump Station;
     - For Treatment and Disposal capacity refer to Table 5-2;
     - For potential connection points refer to Plate 5-1;
   - Alt G- SMP Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

2. Brandywine Chase –57 Single Family Units; potential capacity demand 14,250 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage along Bondsville Road to the Bondsville Road Pump Station;
     - Conveyance capacity limited by the Bondsville Road Pump Station;
     - For Treatment and Disposal capacity refer to Table 5-2;
     - For potential connection point refer to Plate 5-1;
   - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by a Registered Service Provider.

3. Bondsville Mill Area- 18 Units, potential capacity demand 4,500 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage along Bondsville Road;
     - For treatment and disposal capacity refer to Table 5-2;
     - For potential connection point refer to Plate 5-1.
   - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by a Registered Service Provider.

4. Northwest Zone 1- 89 units, potential capacity demand of 22,250 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage along PA 322 and Bollinger Rd;
     - For treatment and disposal capacity refer to Table 5-2.
   - Alt D- Public Sewer LWWTP
     - Consider low pressure system to convey sewage across Route 322 into existing LWWTP manhole 19, 24 or 58;
     - Enlargement of PUC franchise area required;
     - For treatment and disposal capacity refer to Table 5-3;
     - For potential connection point refer to Plate 5-2.
   - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

5. Plank Farm (Residential) – 103 units, potential capacity of 18,025 gpd:
   - Alt A- Public Sewer ARTP
     - For treatment and disposal capacity refer to Table 5-2;
     - For potential connection point refer to Plate 5-1.

6. Winters Tract – 21 units, potential capacity demand of 5,250 gpd:
   - Alt A- Public Sewer ARTP
     - For treatment and disposal capacity refer to Table 5-2.

Zone 2-Technically Feasible Alternatives

1. Kristin Circle/ Keller Way/ BW Elem. School / School Lane- 66 units, potential capacity demand of 16,500 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage into existing Hopewell sewer manhole 86;
     - For treatment and disposal capacity refer to Table 5-2;
     - For potential connection point refer to Plate 5-1.
   - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

2. Cross Keys – 87 units, potential capacity of 21,750 gpd:
   - Alt A- Public Sewer ARTP
     - Consider low-pressure system to convey sewage into proposed Mapleview manhole S-13A;
     - For treatment and disposal capacity refer to Table 5-2. For potential connection point refer to Plate 5-1.
   - Alt D- Public Sewer LWWTP
     - Consider low pressure system to convey sewage into existing LWWTP manhole 65;
     - For treatment and disposal capacity refer to Table 5-3;
     - An agreement between EBTMA and Aqua PA for expansion of their PUC franchise area would be required to connect into public sewer system;
     - For potential connection point refer to Plate 5-2.
   - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

3. Plank Farm (Mixed-Use); One school, potential capacity of 3,600 gpd:
   - Alt A- Public Sewer ARTP
     - For treatment and disposal capacity refer to Table 5-2;
     - Potential connection to existing Applecross MH B50, refer to Plate 5-1.
   - Alt B- Public Sewer KGSTP
     - For treatment and disposal capacity refer to Table 5-3;
     - Potential connection to existing Keats Glen manhole in McFarlan Drive, refer to Plate 5-1.

Zone 3 – Technically Feasible Alternatives

1. Tunbridge- 144 units, potential capacity of 36,000 gpd:
    - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

2. Cumberland Ridge- 65 units, potential capacity of 16,250 gpd:
    - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.
3. Corner Ketch/ Hopewell – 38 units, potential capacity of 9,500 gpd:
    - Alt A- Public Sewer ARTP
        - Consider low-pressure system to existing Hopewell MH86 with conveyance along Kristin Circle;
        - For treatment and disposal capacity refer to Table 5-2;
        - For potential connection point refer to Plate 5-1.
    - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.
4. Mt. Idy Manufactured Home Park – 40 units existing, potential capacity demand of 10,000 gpd:
    - Alt C- Public Sewer HSTP
        - For treatment and disposal capacity refer to Table 5-4;
        - No backup stream discharge permitted, no additional storage available;
        - For potential connection point refer to Plate 5-3.
    - Alt G- SMP. Enforcement of initial observation and regular pumping of OLDS by Registered Service Provider.

I. Alternative A: Public Sewer to Applecross Regional Treatment Plant

ARTP is projected to possess partial treatment and disposal capacity requisite for service areas. Table 5-2 provides capacity demand estimate regarding each area, along with impact on treatment and disposal capacity at ARTP.

Table 5-2 - Alternative A - Public Sewer to ARTP

Public Sewer Connections	Units	Treatment Capacity and Demand (GPD)	Disposal Capacity (+), and Demand(-)[A]
Permitted Capacity		***300,000***	***231,616***
Existing ARTP Connections[1]		-134,000	-134,000
Brandywine Village Shopping Center[2]	1	-4,250	-4,250
Mapleview[2]	154	-26,950	13,475
Weaver (Brandywine Walk)[2]	294	-45,600	22,800
East Brandywine Center (Watters Commercial)[2]	3	-7,280	-7,280
Capacity after existing, proposed and plotted developments		***81,920***	***122,361***
Plank Farm Residential[3]	103	-18,025	9,012
Plank Farm (MU)[3]	1	-3,600	1,800
Winters Tract[3]	21	-3,675	1,838
Capacity after existing, proposed/planned and future developments		***56,620***	***135,011***
Locust Knoll[3]	115	-28,750	-28,750
Northwest Zone 1[3,5]	89	-22,250	-22,250
Brandywine Chase[3]	57	-14,250	-14,250
Bondsville Mill Area[3]	10	-2,500	-2,500
Crosskeys[3,5]	88	-21,750	-21,750
Kristin Circle, School Lane, Keller Way[3]	66	-16,500	-16,500
Brandywine Wallace Elem Sch[4]	1	-3,600	-3,600
Corner Ketch/Hopewell Rd[3]	38	-9,500	-9,500
Capacity remaining after connections		***-62,480***	***16,511***
Notes:	[A] Assumes that Disposal Capacity is been provided in accordance with Township Code Chapter 350-47, Municipal Authority Resolution 01 of 2017, Section 406. [1]Flow based on ARTP Chapter 94 Report (2022) [2]Flow based on approved SFPM [3]Flow based on 250 GPD/SFH; 175GPD/Twnhs; 150GPD/Age Restrict. or agreed upon rate [4]Flow based on OLDs design [5]Developments also being considered for connection into LWWTP		

J. Alternative B: Public Sewer to Keats Glen Sewage Treatment Plant

Keats Glen Sewage Treatment Plant (KGSTP) may be considered for future public sewer connection of a school at the Plank Farm (Mixed-Use). The proximity to the treatment facility and available capacity makes this a feasible alternative.

Upgrades to KGSTP will be required to treat additional ammonia from the school. Agreement for release of reserve Delaware County Community College (DCCC) capacity will also be required. Table 5-3 provides capacity information.

Table 5-3 - Alternative B - Public Sewer to KGSTP

Public Sewer Connections	Units	Treatment Capacity (GPD)	Disposal Capacity (GPD)[3]
Permitted Capacity		**18,000**	**18,000**
Proposed/Existing KGSTP Connections[1]	*1*	-6,400	-6,400
Plank Farm (MU)[2]	*1*	-3,600	-3,600
Capacity remaining after connections		***8,000***	***8,000***
Notes:	*[1]Flow based on WQM Permit only, development under construction* *[2]Flow based on future connections at 250 GPD/connection*		

K. Alternative C: Public Sewer to Hillendale Sewage Treatment Plant

HSTP may be considered for future public sewer connection of Mt. Idy Manufactured Home Park (forty (40) existing units) per its proximity to the facility. HSTP capacity after buildout of Estates at Dowlin Forge Station is unknown and will require evaluation upon complete occupancy. Table 5-4 provides capacity information.

Table 5-4 - Alternative C - Public Sewer to HSTP

Public Sewer Connections	Units	Treatment Capacity (GPD)	Disposal Capacity (GPD)[3]
Permitted Capacity		**61,338**	**55,387**
Proposed/Existing HSTP Connections[1]		-31,000	-31,000
Mt. Idy MHP[2]	*40*	-10,000	-10,000
Capacity remaining after connections		***20,338***	***20,338***
Notes:	*[1]Flow based on WQM Permit only, development under construction* *[2]Flow based on future connections at 250 GPD/connection*		

L. Alternative E: Public Sewer to Little Washington Wastewater Treatment Plant

LWWTP may be considered for potential connection to Cross Keys and Northwest Zone 1 Developments. Aqua Pennsylvania indicated treatment capacity exists for both focus areas; however, disposal capacity exists for only one development. Also, upgrades to Timbers Pumping Station and effluent discharge pumps may be required. Refer to Table 5-5 for capacities.

Table 5-5 - Alternative D - Public Sewer LWWTP

Public Sewer Connections	Units	Treatment Capacity and Demand (GPD)	Disposal Capacity (GPD)
Original Capacity @ Design[4]		***155,000***	***115,133***
Existing LWWTP Connections[1]		-92,400	-92,400
Northwest Zone 1[2,3]	89	-22,500	-22,500
Crosskeys[2,3]	88	-22,000	-22,000
Capacity remaining after connections		***18,100***	***-21,767***
Notes:	[1]Flow based on Chapter 94 Report for 2019 [2]Flow based on estimates of SFH =250 GPD [3]Developments considered for connection into ARTP as well [4] Disposal Capacity includes Timber Lakes Beds (40,000GPD), On-Site Beds (22,133GPD) and Stream Disposal (53,000GPD)		

M. Alternative E: Small Flow Treatment Facility

There are no considerations for exclusive use of these systems in any of thirteen (13) Township focus areas. Individual parcels outside these areas will be considered on an as-needed basis.

N. Alternative F: Community On-Lot Disposal System

There are no considerations for exclusive use of these systems in any of thirteen (13) Township focus areas. Individual parcels outside these areas will be considered on an as-needed basis.

O. Alternative G: Sewer Management Program

Sewer Management Program (SMP) should be considered for all focus areas identified in this Update. Implementation of any other alternative in the focus areas will require time to perform additional investigation and require continued use of OLDs in the interim. The SMP provides a low-cost alternative that will correct many operational and maintenance problems and allows for OLDS to continue to operate while supplemental information about OLDs and the need for public sewer in the Township is collected.

The SMP will be implemented Township-wide two years after PADEP approval of this Act 537 Plan Update. During the first year of implementation, Township will be divided into zones geographically similar to Sewage Needs Identification Survey for pumping and observing OLDS. SMP will include educating homeowners about system maintenance; development of OLDs inventory and correction of documented problems through enforcement. Once information is obtained and understood for each focus area, an evaluation of problems will be performed and public sewer connections considered. SMP, through enforcement of O&M requirements, is proven to lessen malfunctions probability; hence, typically reducing overall need for public sewer. SMP data acquired through collection the process will be assessed regarding public sewer feasibility.

Legend

- Local
- State
- Streams
- Ponds

Sewer Facilities

- STP — Sewage Treatment Plant
- PS — Pump Station
- Existing Manholes for Potential Connection
- Sanitary Gravity
- Sanitary Forcemain
- Proposed Sewers

Focus Areas

- Brandywine Chase Area
- Bondsville Mill Area
- Corner Ketch
- Cumberland Ridge
- Kristin Cir; Keller Wy; BWES; School Ln
- Locust Knolls Area
- Tunbridge

Disposal Type

- Drip Irrigation
- Lagoons
- Spray Irrigation

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

Applecross WWTP

Bondsville Decommissioned PS

Bondsville PS

DCCC/Keats Glen WWTP

Plank MU2

0 1,000 2,000

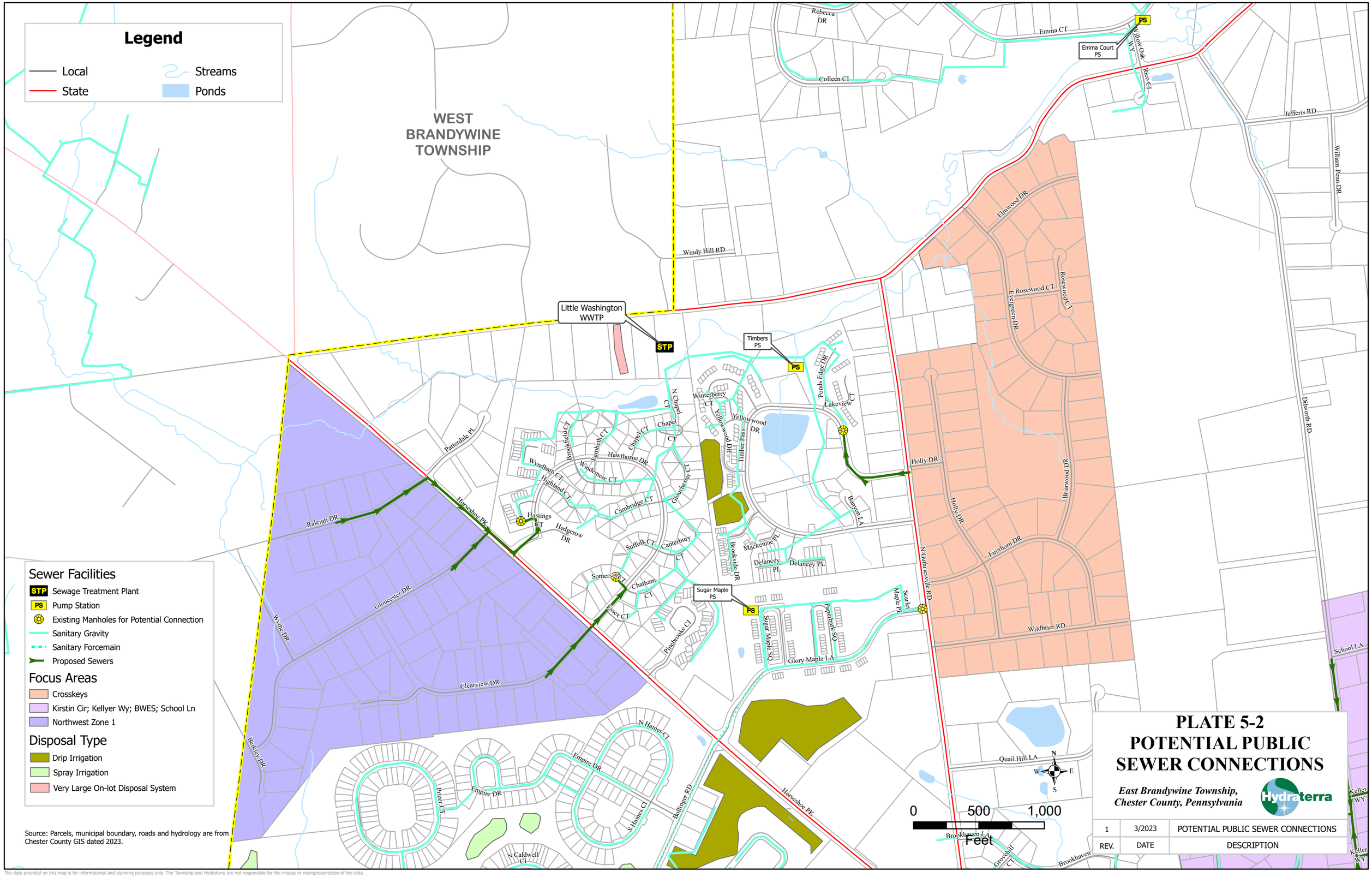
Feet

PLATE 5-1
POTENTIAL PUBLIC SEWER CONNECTIONS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	POTENTIAL PUBLIC SEWER CONNECTIONS



Legend

- Local
- State
- Streams
- Ponds

UWCHLAN TOWNSHIP

Woodland LA
Creek RD
Darlington Mill RD
Newman DR
Bell LA
Hopewell RD
Hillendale WWTP
STP
PS-2
PS
Nichols Mill RD
T B Read WY
Brooklyn Mill PL
Arters WY
Seven Springs LA
Dawson PL
Creek RD
Clayton LA
Dennis DR
Melissa LA
Township RD
Powell CT
Tucker DR
Harner CT
Donegal LA

Sewer Facilities

- STP Sewage Treatment Plant
- PS Pump Station
- Existing Manholes for Potential Connection
- Sanitary Gravity
- Sanitary Forcemain
- Proposed Sewers

Focus Areas

- Mt. IDY MHP Existing/Future

Disposal Type

- Drip Irrigation

N
W E
S

0 500 1,000
Feet

PLATE 5-3
POTENTIAL PUBLIC SEWER CONNECTIONS

East Brandywine Township, Chester County, Pennsylvania

Hydraterra

REV.	DATE	DESCRIPTION
1	3/2023	POTENTIAL PUBLIC SEWER CONNECTIONS

Source: Parcels, municipal boundary, roads and hydrology are from Chester County GIS dated 2023.

Section 6

Evaluation of Alternatives

6. Evaluation of Alternatives

This section's purpose is to refine alternatives identified in Section 5 regarding future focus area needs and to identify potential conflicts between alternatives noted and programs listed below.

A. Clean Streams Law/Clean Water Act

Sections 4 and 5 of the Clean Streams Law requires consideration of water quality management and pollution control in watersheds. Section 208 of the Clean Water Act calls for plan development regarding identification of treatment works.

Comprehensive Water Quality Management Plans (COWAMP) were developed under Sections 4 and 5 of the Clean Streams Law and 208 of the Clean Water Act. COWAMP for Southeastern PA was completed in 1978 and is no longer readily available. However, the State Water Plan includes information applicable to compliance with COWAMP and provisions of Chapters 93 and 16 of the Pennsylvania Code. Alternatives considered are consistent with State Water Plan goals/mandates regarding prevention of water quality degradation.

B. Municipal Wasteload Management Plans

Sewage collection, conveyance, treatment, and disposal facilities are designed per specific volume and strength of wastewater. Sewer facilities management regarding wastewater volume and strength is regulated by PA Code Title 25, Chapter 94. Chapter 94 reports evaluate past facility operation and performance for public sewer facilities and projected capacities to meet needs of future connections.

Applicable Chapter 94 Reports were reviewed regarding wastewater volume and strength, and flow projections. Potential for public sewer connection regarding each focus area was considered.

Alternative A – Public Sewer ARTP: Disposal capacity is planned to be available for all focus areas. Hydraulic and organic treatment is available for some, but not all, focus areas considered for connection. Please refer to Table 5-2 for additional capacity information.

Alternative B – Public Sewer KGSTP: Hydraulic and organic treatment and disposal capacity is minimally available. Equipment upgrades should be considered for any proposed connections. Please refer to Table 5-3 for additional capacity information.

Alternative C – Public Sewer HSTP: Hydraulic and organic capacity is designed only for the constructed 211-unit residential development. Additional available capacity depends on historic flow rates from the Estates at Dowlin Forge Station development once fully occupied. Please refer to Table 5-3 for additional capacity information.

Alternative D – Public Sewer LWWTP: Hydraulic and organic treatment is available; however, disposal capacity is not available for both focus areas. Please refer to Table 5-4 regarding additional capacity information.

Alternative E and F – Not considered a technically feasible alternative.

Alternative G – Not regulated by PA Code Title 25, Chapter 94.

C. Clean Water Act/Water Quality Act

Title II of the Clean Water Act and/or Titles II and VI of Water Quality Act of 1987 established specific planning requirements for wastewater facilities planning, applicable to municipalities applying for federal government financial assistance. The Township is not seeking grants or funding under this program. The Township has been awarded a grant by Pennsylvania Department of Community and Economic Development for preparation of this Act 537 Plan Update.

D. Comprehensive Planning

The 2022 Comprehensive Plan goals are to manage future growth so that it is consistent with the Township Act 537 Sewage Facilities Plan Update and to both protect and enhance the natural resources, agricultural lands, and open spaces in the Township. The Plan Considers groundwater; potable water; treated and untreated wastewater as follows:

1. Adopt and implement the Draft Act 537 Sewage Facilities Plan Update;
2. Implement the Sewer Management Plan (SMP);
3. Continue implementing the Township's MS4: Pollution Reduction plan;
4. Meet federal and state mandates for improving water quality and addressing stormwater management;
5. Incorporate demonstration projects (such as rain barrels, rain gardens, stream restoration, etc.) on Township-owned properties.

Alternatives A through G: Consistent with Comprehensive Planning.

E. Anti-Degradation Requirements

PA Code Title 25, Chapters 93, 95 and 102 consider water quality issues relating to discharge points and erosion and sedimentation control regulations. Aforementioned chapters note maintaining existing water quality standards enforced by NPDES permits.

Alternative A – Public Sewer ARTP: Additional connections into ARTP are proposed for subsurface disposal; therefore, discharged effluent will not affect current stream qualities.

Alternative B – Public Sewer KGSTP: Stream discharge capacity available to meet planned flows.

Alternative C – Public Sewer HSTP: Not permitted for stream discharge. Additional connections should consider additional storage, subsurface disposal, and emergency stream discharge.

Alternative D – Public Sewer LWWTP: Culbertson Run is high-quality stream; therefore, any discharges into it are pursuant to antidegradation laws. Additional connections are proposed for subsurface disposal and will not affect current stream discharge.

Alternatives E and F – Not considered a feasible alternative.

Alternative G – Does not propose a stream discharge, therefore will not affect current stream discharge.

F. State Water Resource Planning

Act 537 Planning, Chapter 94 Reports for Aqua Pennsylvania and EBTMA facilities were reviewed. Since this plan involves expansion of existing service areas and use of existing treatment facilities, no inconsistencies with any State Water Resource Plan are noted. PA Water Resource "Watersheds" was adopted in 2002 and is a primary resource for water resource planning.

G. PA Prime Agricultural Land Policy

East Brandywine Township is committed to protecting prime agricultural land within Township boundaries. Four parcels (UPI No.'s 30-6-3; 30-6-4; 30-6-4.1; 30-6-49) in Zone 3, adjacent to Buck Road, are protected for agricultural use. The Township's adoption of an agricultural security area is a public policy statement for the preservation of agriculture, under PA Act 43. Before action is taken to extend sewer service areas, the Township will consider how extension of sewer could change the character of the Township and potentially impact the agriculture security area. The agricultural security area is shown as "Agricultural Easement" on Plate 6-1 Protected Lands prepared by the Township Open Space Committee.

H. County Stormwater Management Plans

"The Pennsylvania Department of Environmental Protection approved the "County-wide Act 167 Stormwater Management Plan for Chester County, PA" on July 2, 2013 (as submitted). The State, through Act 167, requires that all Chester County municipalities adopt the ordinance requirements included in the Plan.

The county-wide Act 167 Stormwater Management Plan for Chester County, PA fulfills the requirements of PA Act 167. Further, it provides information to assist municipalities with

stormwater planning and management, provides municipalities with stormwater standards and a model ordinance, and assists municipalities with meeting certain National Pollutant Discharge.

County stormwater management plans are extension of Act 167 of 1978, facilitating more localized provisions addressing issues including: existing and future hydrologic conditions; land development patterns; floodplain issues; existing stormwater management issues; and establishing periodic updates to identify concerns and needed improvements. Stormwater Management in the Township is regulated by the Township's "Stormwater Management Ordinance: Chapter 345". There are no inconsistencies with the alternatives noted.

I. Wetland Protection

According to the National Wetlands Inventory Map, wetlands exist within the Township. A majority are located along the Culbertson Run, Beaver Creek, and Brandywine Creek East Branch and their tributaries.

Wetlands represent severe restrictions for sewage facilities for both future development and existing OLDS. Locations of known Township wetlands are exhibited in Plate 2-7, Wetlands Map.

According to NWI Mapper, public sewer alternatives to the following Focus Areas from Section 5 may encroach into wetland areas:

1. Locust Knoll – Potential wetland overlay areas through potential connection point into ARTP;
2. Brandywine Chase (to ARTP) – Freshwater Forested/Shrub Wetland (PFO1A), and a section of Beaver Creek Tributary (Riverine habitat is classified as a R5UBH); and
3. Northwest Zone 1 (to LWWTP) – Potential through the Culbertson Run flood zone (Riverine habitat is classified as a R5UBH).

During the sewer planning process and prior to design of sewer facilities (Alternatives A-D) aforementioned areas would require potential wetland evaluation. Identified wetland areas would be protected accordingly. Individual OLDS would identify hydric or partially hydric soils as part of a soils evaluation for locating an absorption area. No evaluation needed for Alternative G.

J. Protection of Plant and Animal Species of Concern

Concern is designated by the Department of Environmental Protection, Bureau of Forestry, PA Game Commission, PA Fish Commission, and/or Contained in the PA Natural Diversity Inventory (PNDI).

Once the chosen alternative for Focus Areas is established, a "Municipal Request for Pennsylvania Natural Diversity Inventory (PNDI) Data Search" form must be mailed to the appropriate agencies; ensuring no endangered species are impacted by future development or expansion of sewage infrastructure. During design phase of new construction for alternative sewage development, a site-specific PNDI assessment is required to provide requisite accommodations regarding affected locations.

K. Pennsylvania Historical and Museum Commission Site Assessment

Due to the potential impact new sewage updates will have on Township infrastructure, the PA Historical and Museum Commission (PHMC) requires notice for historical and archeological resources. During the design phase of new construction for alternative sewage development, a site-specific PHMC assessment is required to provide necessary accommodations regarding affected locations.

L. Resolution of Inconsistencies

Any inconsistencies noted above are related to extensions of public sewer. Resolution of inconsistencies should be completed during consideration of any public sewer extension.

M. Evaluation of Water Standards

Effluent water quality standards were not evaluated for this Update.

N. Cost Opinions for Alternatives

Public sewer extensions, as discussed in Alternatives A-D, are not projected to occur within 5 years of submittal of the Act 537 Plan Update. Therefore, cost opinions are not provided.

O. Funding/Financing

1. PennVest - PA Infrastructure Investment (PennVest) Authority was formed by the Commonwealth of PA. Combined with other sources of federal and state money. PENNVEST is able to fund eligible costs associated with acquisition, construction, improvement, expansion, extension, repair, rehabilitation, or security measures of all or part of any facility or system; whether publicly or privately owned collection systems, treatment plants, industrial waste, etc.
2. Municipal Bonds - A bond is written promise to repay borrowed money on definitive schedule, usually a fixed rate of interest for the life of the bond, and is the largest source of environmental infrastructure financing. Bonds are the most complex and expensive way to acquire funds, yet are available for immediate capital needs. Bond market matches governments and corporations needing to borrow money from willing investors. This method of funding will be evaluated after all other options have been considered.

3. Bank Loans - Bank Loans are temporary transfers of specific amounts of money requiring repayment in a predetermined amount of time, typically with a specified interest rate. Due to varying interest rates, loan periods, and reporting requirements for loan terms there should be thorough evaluation of loan options. Loans are a viable consideration when the project cost is less than $5 million dollars versus other financing options.
4. Grant Programs - Grants are money transfers requiring no repayment. Municipalities and Authorities may apply for grants with federal, state, corporate, and nonprofit organizations by submitting proposals or funding requests.
    - H_20 PA Grants: Established by the DCED, Commonwealth Financing Authority to provide for single-year and multi-year grants regarding construction of drinking water, sanitary sewer, and storm sewer projects;
    - PA Small Water and Sewer Grants: Established by the DCED, Commonwealth Financing Authority to assist with construction, improvement, expansion or rehabilitation of Sanitary Sewer Systems; and
    - Pennworks: Water Supply and Wastewater Infrastructure Program (Archived Program).

P. Immediate or Phased Implementation

1. All activities necessary to eliminate critical public health hazards in the Township, via alternatives mentioned in Section 5, will be completed with a phased implementation plan.
2. The Sewage Management Program will be a phased approach as explained in Section 5. This phased approach allows data in three (3) zones to be gathered by a Registered Service Provider and analyzed by the Township. Each of the three (3) zones will be evaluated over a course of one (1) year period, taking a total of three (3) years to complete the initial phase. Implementation schedule for SMP is discussed in Section 8.

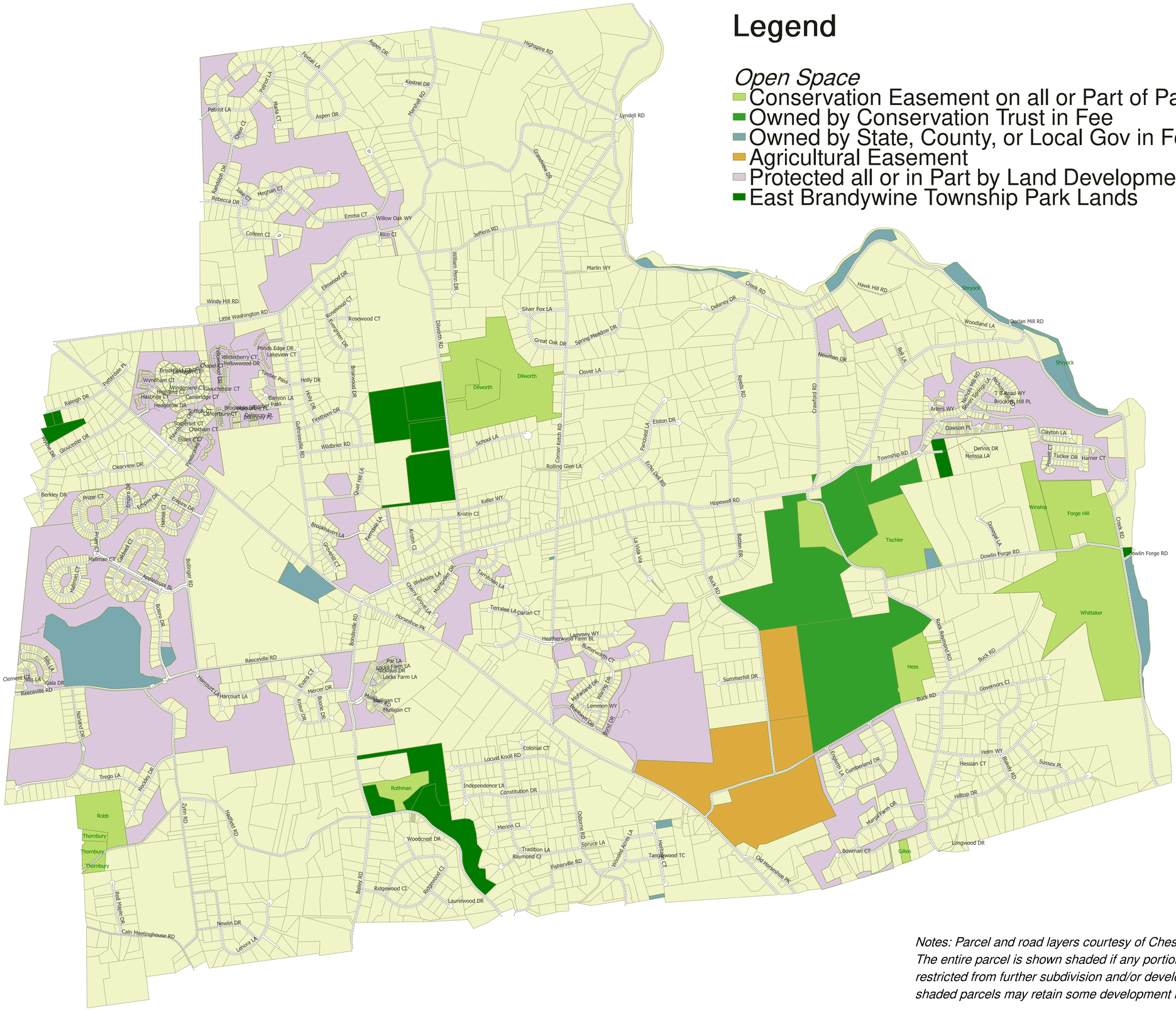
Q. Administrative and Legal Authorities

Administrative organizations include the Township and the Municipal Authority. These organizations have legal authority to expand the public sewer areas (as described in Alternatives A-D) and administer programs to manage sewer facilities (as described in Alternative G). For details regarding finances, staff, and legal authority, see Section 7.

Legend

Open Space

- Conservation Easement on all or Part of Parcel
- Owned by Conservation Trust in Fee
- Owned by State, County, or Local Gov in Fee
- Agricultural Easement
- Protected all or in Part by Land Development
- East Brandywine Township Park Lands



Notes: Parcel and road layers courtesy of Chester County GIS. The entire parcel is shown shaded if any portion of that parcel is restricted from further subdivision and/or development. Owners of shaded parcels may retain some development rights.

EAST BRANDYWINE
TOWNSHIP
Chester County, Pennsylvania

Open Space Committee:

Protected Lands

PLATE 6-1
PROTECTED LANDS

Prepared by Luke Reven
Township Manager
Print Date: April 22, 2021

Section 7

Institutional Evaluation

7. Institutional Evaluation

A. Past Actions and Present Performance of the Township and EBTMA

In April 1999, through Ordinance 99-02, the Township established the five-member EBTMA board in accordance with the Municipality Authorities Act of 1945 to acquire, hold, construct, improve, maintain, operate, own, and lease sewage facilities with the Township. Since the time of incorporation, the service area and extent of sewage facilities owned by the EBTMA have significantly increased. During this entire growth phase, the Township and EBTMA have implemented effective sewage management procedures for all facilities.

Financial and Debt Status

The Township Supervisors and the EBTMA may obtain financing for public improvement projects through powers established in the Second Class Township Code and Municipality Authorities Act. Both the Township and EBTMA are financially audited on an annual basis by a Certified Public Accountant to establish reasonable assurance that financial reports are free from material misstatements.

Available Staff and Administration

The Township maintains full-time staffing including a manager, roadmaster, tax collector, and administrative staff. Consultants provide support services to the Township regarding engineering, code compliance, and legal matters, while the EBTMA maintains a manager and secretary. Consultants also provide support services to the EBTMA for engineering and legal parameters.

The Township and EBTMA have qualified administrative staff to prepare or oversee preparation of the applicable Sewage Management Program described in Alternative G, including the ability to establish an OLDs tracking system for maintenance and repair, utilizing its GIS system.

The Township and EBTMA employ qualified administrative staff to direct the preparation analysis, planning, and design of public sewage facility expansion.

Existing Legal Authority - Township

Commonly referred to as the Second Class Township Code, the Commonwealth of Pennsylvania Act of May 1, 1933 (P.L. 103, No. 69 as amended) establishes general and corporate powers of the Board of Supervisors, including the right to:

- Make and adopt ordinances, bylaws, rules, and regulations;

- Develop regulations related to individual and/or community sewage treatment facilities such as the implementation of system-wide operation and maintenance activities;
- Enter into contracts for purchases of materials and services necessary to implement the Official Plan Update;
- Perform duties and exercise powers as may be imposed or conferred by law or the rules and regulations of any agency of the Commonwealth.

The Township maintains legal authority regarding administration of sewage management programs for all facilities (Alternative G) and to expand the public sewer areas (Alternatives A-D). The Township may enter into agreements with Aqua Pennsylvania pertinent to Alternative D.

Existing Legal Authority - EBTMA

The Municipality Authorities Act of June 19, 2001 (P.L. 287, No. 22) establishes the general purposes and powers of the EBTMA. These powers include the ability to acquire property; finance projects; create bylaws; borrow money; implement system-wide operation and maintenance activities or wastewater planning recommendations; enforce actions against violators; negotiate agreements with other parties; and to raise capital for construction, operation, and maintenance of all sewer facilities.

EBTMA, through the Township, has legal authority to administer sewage management programs (Alternative G) and to expand the public sewer service area regarding all facilities (Alternatives A-D). EBTMA may enter into agreements with Aqua Pennsylvania required to address Alternative D.

Institutional Alternatives Necessary to Implement Alternatives

After the Act 537 Plan Update approval, Alternative G – Sewer Management Program will be implemented jointly by the Township and EBTMA. There is no need for new municipal departments or agencies as requisite organizational structure and legal authority are in place for implementation of this alternative.

Legal Activities Necessary to Implement the Sewer Management Program

A revised ordinance is required to fully implement Alternate A – SMP.

Section 8

Implementation Schedule and Justification for Selected Alternatives

8. Implementation Schedule and Justification for Selected Alternative

A. Selected Technical Alternative

The Sewage Needs Identification Survey as described in Section 3 of this Update classifies the Township into three (3) Zones and identifies the needs of existing On-Lot Disposal Systems (OLDS). The public sewer system was not considered in the survey due to its newness and excellent condition.

This survey identified focus areas having higher than average suspected or potential malfunctions. Some of these focus areas have been considered for connection to the public sewer system. As opposed to forcing parcels within the remaining focus areas into an expensive public sewer connection, the Township has chosen to use an SMP to improve the operation and maintenance of all parcels being served by OLDs.

SMP utilization is the most cost-effective solution for the Township and its property owners, as it will allow for qualified observation of OLDs during pumping while providing data necessary to accurately determine public sewer connection needs throughout the Township. The SMP is also environmentally sound and is consistent with natural resource planning and preservation programs.

Other alternatives, including connection to public sewer tributary to EBTMA or Aqua Pennsylvania may be considered after data from the initial phase of the SMP implementation is collected and analyzed.

B. Capital Financing Plan Chosen to Implement the Selected Technical Alternative(s)

SMP implementation costs will be borne by the Township and paid for through the General Fund. Individual property owners will be responsible for all costs related to observation and pumping of their OLDs. The Township will not incur any program costs; therefore, financing considerations are unnecessary.

C. Schedule for Act 537 Plan Update Submittal and Implementation of SMP

Complete Act 537 Plan Update	November 2020
Public advertisement and submittal to review agencies	December 2020
Address comments from public advertisement and agency review	January 2021
Adopt resolution and Submit Act 537 Plan Update to PADEP for approval	April 2023
Act 537 Plan Update regulatory approval	October 2023
SMP Implementation	Two Years after PADEP Act 537 Plan Update Approval
SMP Zone I Completion. Data Analysis and Public Sewer Extension Consideration for Zone I	One complete growing season after SMP Implementation
SMP Zone II Completion. Data Analysis and Public Sewer Extension Consideration for Zone II	One complete growing season after completion of Zone 1
SMP Zone III Completion. Data Analysis and Public Sewer Extension Consideration for Zone III	One complete growing season after completion of Zone 2