

Act 537 Sewage Facilities Plan Official Plan – Update Revision



Solebury Township
Bucks County, Pennsylvania

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Revised June 2013

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**Solebury Township, Bucks County
Act 537 Sewage Facilities Plan Update Revision**

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Definitions & Abbreviations

Definitions

The following words and terms, when used in this plan, have the following meanings, unless the context clearly indicates otherwise.

Where a definition does not appear in this Sewage Facilities Plan, the Solebury Township Subdivision and Land Development Ordinance, and Zoning Ordinance shall be referenced.

Act 537 – The Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.1—750.20).

Agricultural Areas – Areas used primarily for the production of crops and where the soil is without vegetative cover during certain periods of the year.

Aquifer – An underground geological unit (material, stratum or formation) capable of yielding a sufficient quantity of groundwater of suitable quality to a well or spring.

Carbonate Geology – Limestone or dolomite rock formations formed by carbonate sedimentation in shallow seawaters.

Casing – An impervious durable pipe placed in a well to prevent the walls from caving in and to seal off surface drainage or undesirable water, gas or other fluids and prevent them from entering the well.

Clean Streams Law – The PA Clean Streams Law (35 P. S. §§ 691.1—691.1001).

Clean Water Act – The Federal Water Pollution Control Act (33 U.S.C.A. §§ 1251—1387).

Cluster System – A wastewater collection and treatment system under some form of common ownership and management that provides treatment and dispersal/discharge of wastewater from two or more homes or buildings but less than an entire community.

Coliform – A group of closely related bacteria used to indicate the potential for contamination from pathogenic bacteria. Total coliforms occur naturally in soil and surface water, and in most cases are not harmful to humans. Fecal coliforms are commonly found in waste from warm-blooded animals - humans and animals.

Community Water System (CWS) – A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Decentralized System – Onsite and/or cluster wastewater systems used to treat and disperse or discharge small volumes of wastewater, generally from dwellings and businesses that are located relatively close together. Decentralized systems in a particular management area or jurisdiction are managed by a common management entity. The decentralized concept is the idea that wastewater is most effectively and efficiently managed by treating it—and reusing it—as close to where it is generated as practical.

Delegated Agency – A municipality, local agency, multimunicipal local agency or county or joint county department of health to which the Department was delegated the authority to review and approve subdivisions for new land developments as supplements to the official plan of a municipality in which the subdivision is located. In Solebury Township's case, the Bucks County Department of Health has been delegated this authority from PA DEP.

Disinfection – A process that inactivates pathogenic or other microorganisms by chemical oxidants, such as chlorine, or by other methods, such as ultraviolet light (UV).

Drinking Water Well – Any residential water well that provides or is intended to provide groundwater for human consumption.

Equivalent Dwelling Unit (EDU) – For the purpose of determining the number of lots in a subdivision only as it relates to the determination of planning exemptions and fees for planning module reviews of individual or community onlot systems, that part of a multiple family dwelling or commercial or industrial establishment with flows equal to 400 gpd.

Exceptional Value (EV) Waters – Surface waters of high quality which satisfy 25 Pa. Code § 93.4b(b) (relating to antidegradation).

Groundwater – Water beneath the surface of the ground that exists in a zone of saturation.

High Quality (HQ) Waters – Surface waters having quality that exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water by satisfying 25 Pa. Code § 93.4b(a).

Individual Residential Spray Irrigation System (IRSIS) – An individual sewage system which serves a single dwelling and which treats and disposes of sewage using a system of piping, treatment tanks and soil renovation through spray irrigation.

Karst – A type of topography that is formed over limestone, dolomite, or gypsum by bedrock dissolution, and that is characterized by closed depressions or sinkholes, caves and underground drainage.

Large Volume Onlot Sewage System – An individual or community onlot sewage system with a design capacity to discharge subsurface sewage flows, which are in excess of 10,000 gpd.

Individual Well – A well that is used as a potable water source for residential use and serves less than twenty-five (25) people and/or less than fifteen (15) homes.

Limiting Zone – A soil horizon or condition in the soil profile or underlying strata, which includes one of the following:

(i) A seasonal high water table, whether perched or regional, determined by direct observation of the water table or indicated by soil mottling (redox).

(ii) A rock with open joints, fracture or solution channels, or masses of loose rock fragments, including gravel, with insufficient fine soil to fill the voids between the fragments.

(iii) A rock formation, other stratum or soil condition which is so slowly permeable that it effectively limits downward passage of effluent.

Local Agency – A municipality (or any combination of municipalities acting cooperatively or jointly under the laws of the Commonwealth), county, county department of health or joint county department of health. For Solebury Township, the Bucks County Department of Health is the local agency.

Lot – A part of a subdivision or a parcel of land used as a building site or intended to be used for building purposes, whether immediate or future, which would not be further subdivided. Whenever a lot

is used for a multiple family dwelling or for commercial, institutional or industrial purposes, the lot shall be deemed to have been subdivided into an equivalent number of single family residential lots as determined by estimated sewage flows.

Municipality – A city, incorporated town, township, borough or home rule municipality other than a county.

National Pollutant Discharge Elimination System (NPDES) Permit – A permit issued by DEP to control the discharge of pollutants from point sources into the navigable waters, the contiguous zone and the oceans pursuant to Section 402 of the Act (33 U.S.C. § 1342).

Noncommunity Water System (NCWS) – A public water system which is not a community water system.

Nontransient Noncommunity Water System (NTNCWS) – A noncommunity water system that regularly serves at least 25 of the same persons over 6 months per year.

Official Plan – A comprehensive plan for the provision of adequate sewage systems adopted by a municipality or municipalities possessing authority or jurisdiction over the provision of the systems and submitted to and approved by the Department as provided by the Act and 25 Pa. Code §71.

Official Plan Revision – A change in the municipality’s official plan to provide for additional, newly identified future or existing sewage facilities needs, which may include one or more of the following:

(i) **Update Revision** – A comprehensive revision to an existing official plan required when the Department or municipality determines the official plan or one or more of its parts is inadequate for the existing or future sewage facilities needs of a municipality or its residents or landowners.

(ii) **Revision for New Land Development** – A revision to a municipality’s official plan resulting from a proposed subdivision as defined in the Act.

(iii) **Special Study** – A study, survey, investigation, inquiry, research report or analysis that is directly related to an update revision. The studies provide documentation or other support necessary to solve specific problems identified in the update revision.

(iv) **Supplement** – A sewage facilities planning module for a subdivision for new land development which will not be served by sewage facilities requiring a new or modified permit from the Department under The Clean Streams Law, and which is reviewed and approved by a delegated agency.

(v) **Exception to the Requirement to Revise** – A process established in 25 Pa. Code § 71.55 (relating to exceptions to the requirement to revise the official plan for new land development) which describes the criteria under which a revision for new land development is not required.

Onsite – The same or geographically contiguous property owned or leased or used, which may be divided by public or private right-of-way, if the entrance and exit between the properties is at a crossroads intersection, and access is by crossing, as opposed to going along the right-of-way. Noncontiguous properties owned or leased by the same person or municipality but connected by a right-of-way under the control of the person or municipality and to which the public does not have access, are also considered onsite property.

Percolation – The flow or trickling of a liquid downward through a contact or filtering medium.

Permeability – The ability of a porous medium such as soil to transmit fluids or gases.

Person – An individual, association, public or private corporation for profit or not-for-profit, partnership, firm, trust, estate, department, board, bureau or agency of the United States, Commonwealth, political subdivision, municipality, district, authority or another legal entity which is recognized by law as the subject of rights and duties. The term includes the members of an association, partnership or firm and the officers of a local agency or municipal, public or private corporation for profit or not for profit.

Potable Water – Water for human consumption that meets the biological and chemical standards of 25 Pa. Code § 109 for Safe Drinking Water.

Public Water System (PWS) – A system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Water for human consumption includes water that is used for drinking, bathing and showering, cooking, dishwashing or maintaining oral hygiene.

Residential Subdivision Plan – A subdivision in which at least two-thirds of the proposed daily sewage flows will be generated by residential uses.

Retaining Tank – A watertight receptacle that receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site. The term includes the following types of tanks:

(i) **Chemical Toilet** – A permanent or portable nonflushing toilet using chemical treatment in the retaining tank for odor control.

(ii) **Holding Tank** – A tank, whether permanent or temporary, to which sewage is conveyed by a water carrying system.

(iii) **Privy** – A tank designed to receive sewage where water under pressure is not available.

(iv) **Incinerating Toilet** – A device capable of reducing waste materials to ashes.

(v) **Composting Toilet** – A device for holding and processing human and organic kitchen waste employing the process of biological degradation through the action of microorganisms to produce a stable, humus-like material.

(vi) **Recycling Toilet** – A device in which the flushing medium is restored to a condition suitable for reuse in flushing.

Septage, Residential – Liquid or solid material removed from a septic tank, cesspool or similar treatment works that receives only waste or wastewater from humans or household operations. The term does not include septage that contains either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Sewage – Water that contains the waste products or excrement or other discharge from the bodies of human beings or animals, and contains noxious or deleterious substances being harmful or inimical to the public health, or to animal or aquatic life, or to the use of water for domestic water supply or for recreation. The term includes any substance that constitutes pollution under The Clean Streams Law.

Sewage Enforcement Officer (SEO) – An official of the local agency who reviews permit applications and sewage facilities planning modules, issues permits as authorized by the act and conducts investigations and inspections that are necessary to implement the act and the regulations thereunder.

Sewage Facilities – A system of sewage collection, conveyance, treatment and disposal that will prevent the discharge of untreated or inadequately treated sewage or other waste into waters of this Commonwealth or otherwise provide for the safe and sanitary treatment and disposal of sewage or other waste. The term includes:

(i) ***Individual Sewage System*** – A system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of this Commonwealth or by means of conveyance to another site for final disposal. The term includes:

(A) ***Individual Onlot Sewage System*** – An individual sewage system that uses a system of piping, tanks or other facilities for collecting, treating and disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank.

(B) ***Individual Sewerage System*** – An individual sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

(ii) ***Community Sewage System*** – A sewage facility, whether publicly or privately owned, for the collection of sewage from two or more lots, or two or more equivalent dwelling units and the treatment or disposal, or both, of the sewage on one or more of the lots or at another site.

(A) ***Community Onlot Sewage System*** – A system of piping, tanks or other facilities serving two or more lots and collecting, treating and disposing of sewage into a soil absorption area or retaining tank located on one or more of the lots or at another site.

(B) ***Community Sewerage System*** – A publicly or privately-owned community sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

Sewage Management Program (SMP) – A program authorized by the official action of a municipality for the administration, management and regulation of the disposal of sewage.

Sewer Authority – A municipal authority, established under the Municipality Authorities Act of 1945 (53 P. S. § § 301—401), which provides, maintains, owns or operates sewage facilities.

Small Flow Treatment Facilities (SFTF) – An individual or community sewerage system designed to adequately treat sewage flows not greater than 2,000 gpd for final disposal using a stream discharge or other disposal methods approved by the Department.

Soil Horizon – A layer of soil approximately parallel to the soil surface, the chemical and physical characteristics of which are distinguishable by observation or other method of analysis, from the chemical and physical characteristics in adjacent layers of soil.

Soil Mottling (Redoximorphic Features) – A soil color pattern consisting of patches of different color or shades of color interspersed with the dominant soil color which results from prolonged saturation of the soil.

Soil Profile – The collection of soil horizons, including the natural organic layers on the surface.

Subdivision – The division or redivision of a lot, tract or other parcel of land into two or more lots, tracts, parcels or other divisions of land, including changes in existing lot lines. The enumerating of lots shall include as a lot that portion of the original tract or tracts remaining after other lots have been subdivided therefrom.

Transient Noncommunity Water System (TNCWS) – A public water system that is not a community, nontransient noncommunity, bottled or vended water system, nor a retail water facility or a bulk water hauling system.

Water Reuse – The use of treated wastewater from domestic treatment facilities for nonpotable, but beneficial purposes, such as for agricultural or landscape irrigation, or, if in-house, for toilet flushing. Indirect potable reuse requires advanced treatment.

Waters of the Commonwealth – Rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, wetlands, ponds, springs and other bodies or channels of conveyance of surface and underground water, or of their parts, whether natural or artificial, within or on the boundaries of this Commonwealth.

Well Alteration – Any action which necessitates entering a well with drilling tools; treating a well to increase yield; altering the physical structure or depth of the well; blasting; removal or replacement of well casing; modifications concerning grouting, curbing; or well abandonment.

Wetlands – Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.

Abbreviations

BCDH	Bucks County Department of Health
BCPC	Bucks County Planning Commission
BCW&SA	Bucks County Water & Sewer Authority
CWF	Cold Water Fish
CWS	Community Water System
CRN	Cultural Resource Notice
DCNR	Pennsylvania Department of Conservation and Natural Resources
DRBC	Delaware River Basin Commission
DEP	Pennsylvania Department of Environmental Protection
EDU	Equivalent Dwelling Unit
EPA	United States Environmental Protection Agency
GPD	Gallons per Day
GPM	Gallons per Minute
HARB	Historical Architectural Review Board
HOA	Home Owners Association
HQ	High Quality Waters
LMUA	Lambertville Municipal Utilities Authority
MF	Migratory Fish
MGD	Million gallons per day
MS4	Municipal Separate Storm Sewer System
NPS	National Park Service
NPDES	National Pollutant Discharge Elimination System
NTNCWS	Nontransient Noncommunity Water System
OLDS	Onlot Disposal Systems
PENNVEST	Pennsylvania Infrastructure Investment Authority
PWS	Public Water System or Supplier
SALDO	Subdivision and Land Development Ordinance
SEO	Sewage Enforcement Officer
SMP	Sewage Management Program
SMPO	Sewage Management Program Ordinance
SFTF	Small Flow Treatment Facilities
TMDL	Total Maximum Daily Loading

TNCWS	Transient Noncommunity Water System
TSF	Trout Stocking Fish
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UV	Ultraviolet (Light)
WWF	Warm Water Fish
WWTP	Wastewater Treatment Plant

Plan Content and Environmental Assessment Checklist



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

Act 537 Plan Content and Environmental Assessment Checklist

PART 1 GENERAL INFORMATION

A. Project Information

1. Project Name **Solebury Township Sewage Facilities Official Plan Update Revision**

2. Brief Project Description **Comprehensive revision to the existing official plan to evaluate adequacy of existing sewage facilities, identify needs areas, and to address resource protection and drinking water quality through implementation of a sewage management program.**

B. Client (Municipality) Information

Municipality Name	County	City	Boro	Twp
Solebury Township	Bucks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Municipality Contact Individual - Last Name	First Name	MI	Suffix	Title
Carney	Dennis	H		Manager

Additional Individual Last Name	First Name	MI	Suffix	Title
Rice	Gretchen			Asst. Manager

Municipality Mailing Address Line 1	Mailing Address Line 2
3092 Sугan Road	PO Box 139

Address Last Line -- City	State	ZIP+4
Solebury	PA	18963

Phone + Ext.	FAX (optional)	Email (optional)
215-297-5656	215-297-8402	dcarney@soleburytwp.org

C. Site Information

Site (or Project) Name
Solebury Township, Bucks County Solebury Township Act 537 Plan

Site Location Line 1	Site Location Line 2
Solebury Township, Bucks County	

D. Project Consultant Information

Last Name	First Name	MI	Suffix
Musselman	Judy	F	

Title	Consulting Firm Name
Senior Environmental Scientist	CET Engineering Services-GHD

Mailing Address Line 1	Mailing Address Line 2
1240 North Mountain Road	

Address Last Line -- City	State	ZIP+4	Country
Harrisburg	PA	17112	USA

Email	Phone + Ext.	FAX
judy.musselman@ghd.com	717-541-0622 Ext 159	717-541-8004

PART 2 ADMINISTRATIVE COMPLETENESS CHECKLIST

DEP Use Only	Indicate Page #(s) in Plan	In addition to the main body of the plan, the plan must include items one through eight listed below to be accepted for formal review by the department. Incomplete Plans will be returned unless the municipality is clearly requesting an advisory review.
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- | | | |
|-------|--------------------------|--|
| _____ | <u>TOC-1</u> | 1. Table of Contents |
| _____ | <u>PS-2</u> | 2. Plan Summary |
| _____ | <u>PS-5</u> | A. Identify the proposed service areas and major problems evaluated in the plan. (Reference - Title 25, §71.21.a.7.i). |
| _____ | <u>PS-8</u> | B. Identify the alternative(s) chosen to solve the problems and serve the areas of need identified in the plan. Also, include any institutional arrangements necessary to implement the chosen alternative(s). (Reference Title 25 §71.21.a.7.ii). |
| _____ | <u>PS-8</u> | C. Present the estimated cost of implementing the proposed alternative (including the user fees) and the proposed funding method to be used. (Reference Title 25, §71.21.a.7.ii). |
| _____ | <u>PS-8</u> | D. Identify the municipal commitments necessary to implement the Plan. (Reference Title 25, §71.21.a.7.iii). |
| _____ | <u>PS-9</u> | E. Provide a schedule of implementation for the project that identifies the MAJOR milestones with dates necessary to accomplish the project to the point of operational status. (Reference Title 25, §71.21.a.7.iv). |
| _____ | <u>Appendix A</u> | 3. Municipal Adoption: Original , signed and sealed Resolution of Adoption by the municipality which contains, at a minimum, alternatives chosen and a commitment to implement the Plan in accordance with the implementation schedule. (Reference Title 25, §71.31.f) Section V.F. of the Planning Guide. |
| _____ | <u>Appendix B</u> | 4. Planning Commission / County Health Department Comments: Evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies of the municipality, planning agencies of the county, planning agencies with area wide jurisdiction (where applicable), and any existing county or joint county departments of health. (Reference-Title 25, §71.31.b) Section V.E.1 of the Planning Guide. |
| _____ | <u>Appendix C</u> | 5. Publication: Proof of Public Notice which documents the proposed plan adoption, plan summary, and the establishment and conduct of a 30 day comment period. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide. |
| _____ | <u>Appendix D</u> | 6. Comments and Responses: Copies of ALL written comments received and municipal response to EACH comment in relation to the proposed plan. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide. |
| _____ | <u>PS-9</u> | 7. Implementation Schedule: A complete project implementation schedule with milestone dates specific for each existing and future area of need. Other activities in the project implementation schedule should be indicated as occurring a finite number of days from a major milestone. (Reference-Title 25, §71.31.d) Section V.F. of the Planning Guide. Include dates for the future initiation of feasibility evaluations in the project's implementation schedule for areas proposing completion of sewage facilities for planning periods in excess of five years. (Reference Title 25, §71.21.c). |
| _____ | <u>Appendix E</u> | 8. Consistency Documentation: Documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in 71.21.(a)(5)(i-iii). (Reference-Title 25, §71.31.e). Appendix B of the Planning Guide. |

PART 3 GENERAL PLAN CONTENT CHECKLIST

DEP Use Only	Indicate Page #(s) in Plan	Item Required
_____	<u>I-1</u>	I. Previous Wastewater Planning
_____	<u>I-1</u>	A. Identify, describe and briefly analyze all past wastewater planning for its impact on the current planning effort:
_____	<u>I-1</u>	1. Previously undertaken under the Sewage Facilities Act (Act 537). (Reference-Act 537, Section 5 §d.1).
_____	<u>I-1</u>	2. Has not been carried out according to an approved implementation schedule contained in the plans. (Reference-Title 25, §71.21.a.5.i.A-D). Section V.F of the Planning Guide.
_____	<u>I-1</u>	3. Is anticipated or planned by applicable sewer authorities or approved under a Chapter 94 Corrective Action Plan. (Reference-Title 25, §71.21.a.5.i.A&B). Section V.D. of the Planning Guide.
_____	<u>I-4</u> <u>Exhibit I-1</u>	4. Through planning modules for new land development, planning “exemptions” and addenda. (Reference-Title 25, §71.21.a.5.i.A).
_____	<u>II-1</u>	II. Physical and Demographic Analysis utilizing written description and mapping (All items listed below require maps, and all maps should show all current lots and structures and be of appropriate scale to clearly show significant information).
_____	<u>II-1</u> <u>Plate 1</u>	A. Identification of planning area(s), municipal boundaries, Sewer Authority/Management Agency service area boundaries. (Reference-Title 25, §71.21.a.1.i).
_____	<u>II-1</u>	B. Identification of physical characteristics (streams, lakes, impoundments, natural conveyance, channels, drainage basins in the planning area). (Reference-Title 25, §71.21.a.1.ii).
_____	<u>II-6</u> <u>Exhibit II-1</u> <u>Exhibit II-2</u> <u>Plates 3</u> <u>& 3a</u>	C. Soils - Analysis with description by soil type and soils mapping for areas not presently served by sanitary sewer service. Show areas suitable for in-ground onlot systems, elevated sand mounds, individual residential spray irrigation systems, and areas unsuitable for soil dependent systems. (Reference-Title 25, §71.21.a.1.iii). Show Prime Agricultural Soils and any locally protected agricultural soils. (Reference-Title 25, §71.21.a.1.iii).
_____	<u>II-7</u> <u>Exhibit II-3</u> <u>Exhibit II-4</u> <u>Plate 4</u>	D. Geologic Features - (1) Identification through analysis, (2) mapping and (3) their relation to existing or potential nitrate-nitrogen pollution and drinking water sources. Include areas where existing nitrate-nitrogen levels are in excess of 5 mg/L. (Reference-Title 25, §71.21.a.1.iii).
_____	<u>II-8</u> <u>Plate 5</u>	E. Topography - Depict areas with slopes that are suitable for conventional systems; slopes that are suitable for elevated sand mounds and slopes that are unsuitable for onlot systems. (Reference-Title 25, §71.21.a.1.ii).
_____	<u>II-9</u> <u>Exhibit II-5</u> <u>Plate 1</u>	F. Potable Water Supplies - Identification through mapping, description and analysis. Include public water supply service areas and available public water supply capacity and aquifer yield for groundwater supplies. (Reference-Title 25 §71.21.a.1.vi). Section V.C. of the Planning Guide.

- _____ II-12
Plate 6 G. Wetlands - Identify wetlands as defined in Title 25, Chapter 105 by description, analysis and mapping. Include National Wetland Inventory mapping and potential wetland areas per USDA, SCS mapped hydric soils. Proposed collection, conveyance and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map. (Reference-Title 25, §71.21.a.1.v). Appendix B, Section II.I of the Planning Guide.

- _____ III-1
Plate 1 III. **Existing Sewage Facilities in the Planning Area - Identifying the Existing Needs**
- _____ III-1 A. Identify, map and describe municipal and non-municipal, individual and community sewerage systems in the planning area including:
 - _____ III-1 1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations and force mains including their size, capacity, point of discharge. Also include the name of the receiving stream, drainage basin, and the facility's effluent discharge requirements. (Reference-Title 25, §71.21a.2.i.A).
 - _____ III-1 2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, and the Clean Streams Law permit number. (Reference-Title 25, §71.21.a.2.i.A).
 - _____ III-2 3. A description of problems with existing facilities (collection, conveyance and/or treatment), including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of the NPDES permit, Clean Streams Law permit, or other permit, rule or regulation of DEP. (Reference-Title 25, §71.21.a.2.i.B).
 - _____ III-2 4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Discuss any remaining reserve capacity and the policy concerning the allocation of reserve capacity. Also discuss the compatibility of the rate of growth to existing and proposed wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.i & ii).
 - _____ III-3 5. A detailed description of the municipality's operation and maintenance requirements for small flow treatment facility systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).
 - _____ III-4 6. Disposal areas, if other than stream discharge, and any applicable groundwater limitations. (Reference-Title 25, §71.21.a.4.i & ii).
- _____ III-5 B. Using DEP's publication titled *Sewage Disposal Needs Identification*, identify, map and describe areas that utilize individual and community onlot sewage disposal and, unpermitted collection and disposal systems ("wildcat" sewers, borehole disposal, etc.) and retaining tank systems in the planning area including:
 - _____ III-5 1. The types of onlot systems in use. (Reference-Title 25, §71.21.a.2.ii.A).
 - _____ III-5
Exhibit III-4
Plate 7 2. A sanitary survey complete with description, map and tabulation of documented and potential public health, pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Stream Law or regulations promulgated thereunder. (Reference-Title 25, §71.21.a.2.ii.B).
 - _____ III-7 3. A comparison of the types of onlot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities). (Reference-Title 25, §71.21.a.2.ii.C).

- _____ III-7 4. An individual water supply survey to identify possible contamination by malfunctioning onlot sewage disposal systems consistent with DEP's *Sewage Disposal Needs Identification* publication. (Reference-Title 25 §71.21.a.2.ii.B).
- _____ *NA – BCHD currently governs* OLDs 5. Detailed description of operation and maintenance requirements of the municipality for individual and small volume community onlot systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).
- _____ III-9 C. Identify wastewater sludge and septage generation, transport and disposal methods. Include this information in the sewage facilities alternative analysis including:
 - _____ III-9 1. Location of sources of wastewater sludge or septage (Septic tanks, holding tanks, wastewater treatment facilities). (Reference-Title 25 §71.71).
 - _____ III-9 2. Quantities of the types of sludges or septage generated. (Reference-Title 25 §71.71).
 - _____ III-9 3. Present disposal methods, locations, capacities and transportation methods. (Reference-Title 25 §71.71).
- _____ IV-1 **IV. Future Growth and Land Development**
 - _____ *IV-1 Exhibit IV-1 Exhibit IV-3* A. Identify and briefly summarize all municipal and county planning documents adopted pursuant to the Pennsylvania Municipalities Planning Code (Act 247) including:
 - _____ *IV-2 Exhibit IV-2* 1. All land use plans and zoning maps that identify residential, commercial, industrial, agricultural, recreational and open space areas. (Reference-Title 25, §71.21.a.3.iv).
 - _____ *IV-2 Plate 4* 2. Zoning or subdivision regulations that establish lot sizes predicated on sewage disposal methods. (Reference – Title 25§71.21.a.3.iv).
 - _____ *IV-3* 3. All limitations and plans related to floodplain and stormwater management and special protection (Ch. 93) areas. (Reference-Title 25 §71.21.a.3.iv) Appendix B, Section II.F of the Planning Guide.
 - _____ *IV-3 Exhibit I-1* B. Delineate and describe the following through map, text and analysis.
 - _____ *IV-4 Exhibit IV-1* 1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU's in development, total number of EDU's currently developed and total number of EDU's remaining to be developed (include time schedule for EDU's remaining to be developed). (Reference-Title 25, §71.21.a.3.i).
 - _____ *IV-4 Exhibit IV-1* 2. Land use designations established under the Pennsylvania Municipalities Planning Code (35 P.S. 10101-11202), including residential, commercial and industrial areas. (Reference-Title 25,§71.21.a.3.ii). Include a comparison of proposed land use as allowed by zoning and existing sewage facility planning. (Reference-Title 25, §71.21.a.3.iv).
 - _____ *IV-6* 3. Future growth areas with population and EDU projections for these areas using historical, current and future population figures and projections of the municipality. Discuss and evaluate discrepancies between local, county, state and federal projections as they relate to sewage facilities. (Reference-Title 25, §71.21.a.1.iv). (Reference-Title 25, §71.21.a.3.iii).

- _____ IV-7 4. Zoning, and/or subdivision regulations; local, county or regional comprehensive plans; and existing plans of any other agency relating to the development, use and protection of land and water resources with special attention to: (Reference-Title 25, §71.21.a.3.iv).
 - public ground/surface water supplies
 - recreational water use areas
 - groundwater recharge areas
 - industrial water use
 - wetlands

- _____ IV-8 5. Sewage planning necessary to provide adequate wastewater treatment for five and ten year future planning periods based on projected growth of existing and proposed wastewater collection and treatment facilities. (Reference-Title 25, §71.21.a.3.v).
- _____ Exhibit IV-4

- _____ V-1 **V. Identify Alternatives to Provide New or Improved Wastewater Disposal Facilities**
- _____ V-1 A. Conventional collection, conveyance, treatment and discharge alternatives including:
 - 1. The potential for regional wastewater treatment. (Reference-Title 25, §71.21.a.4).
 - 2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities. (Reference-Title 25, §71.21.a.4.i).
 - 3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following: (Reference-Title 25, §71.21.a.4.ii).
 - a. Repair. (Reference-Title 25, §71.21.a.4.ii.A).
 - b. Upgrading. (Reference-Title 25, §71.21.a.4.ii.B).
 - c. Reduction of hydraulic or organic loading to existing facilities. (Reference-Title 25, §71.71).
 - d. Improved operation and maintenance. Reference-Title 25, §71.21.a.4.ii.C).
 - e. Other applicable actions that will resolve or abate the identified problems. (Reference-Title 25, §71.21.a.4.ii.D).
 - 4. Repair or replacement of existing collection and conveyance system components. (Reference-Title 25, §71.21.a.4.ii.A).
 - 5. The need for construction of new community sewage systems including sewer systems and/or treatment facilities. (Reference-Title 25, §71.21.a.4.iii).
 - 6. Use of innovative/alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.ii.B).
- _____ V-1
- _____ V-1
- _____ V-1
- _____ V-1 *NA – Existing WWTFs not owned by Township and BCHD currently governs OLDS*
- _____ V-1 *NA – Existing WWTFs not owned by Township*
- _____ V-2 B. The use of individual sewage disposal systems including individual residential spray irrigation systems based on:
 - 1. Soil and slope suitability. (Reference-Title 25, §71.21.a.2.ii.C).
 - 2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
 - 3. The establishment of a sewage management program. (Reference-Title 25, §71.21.a.4.iv). See also Part “F” below.
- _____ V-2
- _____ V-2
- _____ V-2
- _____ Exhibit V-1

- _____ V-4 4. The repair, replacement or upgrading of existing malfunctioning systems in areas suitable for onlot disposal considering: (Reference-Title 25, §71.21.a.4).
- _____ V-4
Exhibit V-3 a. Existing technology and sizing requirements of Title 25 Chapter 73. (Reference-Title 25, §73.31-73.72).
- _____ V-4
Exhibit V-2 b. Use of expanded absorption areas or alternating absorption areas. (Reference-Title 25, §73.16).
- _____ V-10 c. Use of water conservation devices. (Reference-Title 25, §71.73.b.2.iii).
- _____ V-5 C. The use of small flow sewage treatment facilities or package treatment facilities to serve individual homes or clusters of homes with consideration of: (Reference-Title 25, §71.64.d).
- _____ V-5 1. Treatment and discharge requirements. (Reference-Title 25, §71.64.d).
- _____ V-2 2. Soil suitability. (Reference-Title 25, §71.64.c.i).
- _____ V-2 3. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.64.c.2).
- _____ V-2 4. Municipal, Local, Agency or other controls over operation and maintenance requirements through a Sewage Management Program. (Reference-Title 25, §71.64.d). See Part "F" below.
- _____ V-6 D. The use of community land disposal alternatives including:
- _____ V-6 1. Soil and site suitability. (Reference-Title 25, §71.21.a.2.ii.C).
- _____ V-6 2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
- _____ V-2 3. Municipality, Local Agency or Other Controls over operation and maintenance requirements through a Sewage Management Program (Reference-Title 25, §71.21.a.2.ii.C). See Part "F" below.
- _____ V-6 4. The rehabilitation or replacement of existing malfunctioning community land disposal systems. (See Part "V", B, 4, a, b, c above). See also Part "F" below.
- _____ V-6 E. The use of retaining tank alternatives on a temporary or permanent basis including: (Reference- Title 25, §71.21.a.4).
- _____ V-6 1. Commercial, residential and industrial use. (Reference-Title 25, §71.63.e).
- _____ V-6 2. Designated conveyance facilities (pumper trucks). (Reference-Title 25, §71.63.b.2).
- _____ V-6 3. Designated treatment facilities or disposal site. (Reference-Title 25, §71.63.b.2).
- _____ V-6 4. Implementation of a retaining tank ordinance by the municipality. (Reference-Title 25, §71.63.c.3). See Part "F" below.
- _____ V-6
Exhibit V-4 5. Financial guarantees when retaining tanks are used as an interim sewage disposal measure. (Reference-Title 25, §71.63.c.2).
- _____ V-7 F. Sewage Management Programs to assure the future operation and maintenance of existing and proposed sewage facilities through:
- _____ V-7 1. Municipal ownership or control over the operation and maintenance of individual onlot sewage disposal systems, small flow treatment facilities, or other traditionally non-municipal treatment facilities. (Reference-Title 25, §71.21.a.4.iv).
- _____ V-8 2. Required inspection of sewage disposal systems on a schedule established by the municipality. (Reference-Title 25, §71.73.b.1.).

- _____ V-7 & V-10 3. Required maintenance of sewage disposal systems including septic and aerobic treatment tanks and other system components on a schedule established by the municipality. (Reference-Title 25, §71.73.b.2).
- _____ V-7 4. Repair, replacement or upgrading of malfunctioning onlot sewage systems. (Reference-Title 25, §71.21.a.4.iv) and §71.73.b.5 through:
 - a. Aggressive pro-active enforcement of ordinances that require operation and maintenance and prohibit malfunctioning systems. (Reference-Title 25, §71.73.b.5).
 - b. Public education programs to encourage proper operation and maintenance, and repair of sewage disposal systems.
- _____ Exhibit V-1
- _____ V-8
Exhibit V-6 5. Establishment of joint municipal sewage management programs. (Reference-Title 25, §71.73.b.8).
- _____ V-11 6. Requirements for bonding, escrow accounts, management agencies or associations to assure operation and maintenance for non-municipal facilities. (Reference-Title 25, §71.71).
- _____ V-11 G. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including: (Reference-Title 25, §71.21.a.4).
 - 1. Modification of existing comprehensive plans involving:
 - a. Land use designations. (Reference-Title 25, §71.21.a.4).
 - b. Densities. (Reference-Title 25, §71.21.a.4).
 - c. Municipal ordinances and regulations. (Reference-Title 25, §71.21.a.4).
 - d. Improved enforcement. (Reference-Title 25, §71.21.a.4).
 - e. Protection of drinking water sources. (Reference-Title 25, §71.21.a.4).
 - 2. Consideration of a local comprehensive plan to assist in producing sound economic and consistent land development. (Reference-Title 25, §71.21.a.4).
 - 3. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal that consider lot sizes and protection of replacement areas. (Reference-Title 25, §71.21.a.4).
 - 4. Evaluation of existing local agency programs and the need for technical or administrative training. (Reference-Title 25, §71.21.a.4).
- _____ V-11
- _____ V-11
- _____ V-11
- _____ V-11
- _____ V-11
- _____ V-11
- _____ V-14 H. A no-action alternative which includes discussion of both short-term and long-term impacts on: (Reference-Title 25, §71.21.a.4).
 - 1. Water Quality/Public Health. (Reference-Title 25, §71.21.a.4).
 - 2. Growth potential (residential, commercial, industrial). (Reference-Title 25, §71.21.a.4).
 - 3. Community economic conditions. (Reference-Title 25, §71.21.a.4).
 - 4. Recreational opportunities. (Reference-Title 25, §71.21.a.4).
 - 5. Drinking water sources. (Reference-Title 25, §71.21.a.4).
 - 6. Other environmental concerns. (Reference-Title 25, §71.21.a.4).
- _____ V-10
- _____ NA
- _____ NA
- _____ NA
- _____ NA
- _____ NA
- _____ NA
- _____ NA
- _____ VI-1 VI. **Evaluation of Alternatives**
 - A. Technically feasible alternatives identified in Section V of this checklist must be evaluated for consistency with respect to the following: (Reference-Title 25, §71.21.a.5.i.).

- | | | |
|-------|---|---|
| _____ | <u>VI-2</u> | 1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act (33 U.S.C.A. 1288). (Reference-Title 25, §71.21.a.5.i.A). Appendix B, Section II.A of the Planning Guide. |
| _____ | <u>VI-3</u> | 2. Municipal wasteload management Corrective Action Plans or Annual Reports developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, §71.21.a.5.i.B). The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report. Appendix B, Section II.B of the Planning Guide. |
| _____ | <u>VI-3</u> | 3. Plans developed under Title II of the Clean Water Act (33 U.S.C.A. 1281-1299) or Titles II and VI of the Water Quality Act of 1987 (33 U.S.C.A. 1251-1376). (Reference-Title 25, §71.21.a.5.i.C). Appendix B, Section II.E of the Planning Guide. |
| _____ | <u>VI-3</u>
<u>Exhibit VI-1</u> | 4. Comprehensive plans developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, §71.21.a.5.i.D). The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan. Appendix B, Section II.D of the Planning Guide. |
| _____ | <u>VI-5</u> | 5. Antidegradation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference-Title 25, §71.21.a.5.i.E). Appendix B, Section II.F of the Planning Guide. |
| _____ | <u>VI-5</u> | 6. State Water Plans developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, §71.21.a.5.i.F). Appendix B, Section II.C of the Planning Guide. |
| _____ | <u>VI-6</u> | 7. Pennsylvania Prime Agricultural Land Policy contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, §71.21.a.5.i.G). Appendix B, Section II.G of the Planning Guide. |
| _____ | <u>VI-7</u> | 8. County Stormwater Management Plans approved by DEP under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, §71.21.a.5.i.H). Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the county Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists. Appendix B, Section II.H of the Planning Guide. |
| _____ | <u>VI-7</u> | 9. Wetland Protection. Using wetland mapping developed under Checklist Section II.G, identify and discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of any proposed wastewater facilities. (Reference-Title 25, §71.21.a.5.i.I) Appendix B, Section II.I of the Planning Guide. |
| _____ | <u>VI-7</u>
<u>Exhibit VI-2</u>
<u>Exhibit VI-3</u> | 10. Protection of rare, endangered or threatened plant and animal species as identified by the Pennsylvania Natural Diversity Inventory (PNDI). (Reference-Title 25, §71.21.a.5.i.J). Provide DEP with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department of Conservation and Natural Resources' Bureau of Forestry regarding the findings of the PNDI search. Appendix B, Section II.J of the Planning Guide. |

- _____ VI-9 11. **Historical and archaeological resource protection** under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, §71.21.a.5.i.K). Provide the department with a completed copy of a Cultural Resource Notice request of the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP. Appendix B, Section II.K of the Planning Guide.
- _____ *NA – Appendices B & E* B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting a letter from the appropriate agency stating that the agency has received, reviewed and concurred with the resolution of identified inconsistencies. (Reference-Title 25, §71.21.a.5.ii). Appendix B of the Planning Guide.
- _____ VI-9 C. Evaluate alternatives identified in Section V of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. (Reference-Title 25, §71.21.a.5.iii).
- _____ VI-10 D. Provide cost estimates using present worth analysis for construction, financing, on going administration, operation and maintenance and user fees for alternatives identified in Section V of this checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of plan submission. (Reference-Title 25, §71.21.a.5.iv).
- _____ VI-10 E. Provide an analysis of the funding methods available to finance the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is the most cost-effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of the plan submission. (Reference-Title 25, §71.21.a.5.v).
- _____ VI-10 F. Analyze the need for immediate or phased implementation of each alternative proposed in Section V of this checklist including: (Reference-Title 25, §71.21.a.5.vi).
 - _____ VI-10 1. A description of any activities necessary to abate critical public health hazards pending completion of sewage facilities or implementation of sewage management programs. (Reference-Title 25, §71.21.a.5.vi.A).
 - _____ VI-10 2. A description of the advantages, if any, in phasing construction of the facilities or implementation of a sewage management program justifying time schedules for each phase. (Reference-Title 25, §71.21.a.5.vi.B).
- _____ VI-11 G. Evaluate administrative organizations and legal authority necessary for plan implementation. (Reference - Title 25, §71.21.a.5.vi.D.).
- _____ VII-1 **VII. Institutional Evaluation**
- _____ VII-2 A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance including:
 - _____ VII-2 1. Financial and debt status. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 2. Available staff and administrative resources. (Reference-Title 25, §71.61.d.2)
 - _____ VII-2 3. Existing legal authority to:
 - _____ VII-2 a. Implement wastewater planning recommendations. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 b. Implement system-wide operation and maintenance activities. (Reference-Title 25, §71.61.d.2).

- _____ VII-2 c. Set user fees and take purchasing actions. (Reference-Title 25, §71.61.d.2).
- _____ VII-2 d. Take enforcement actions against ordinance violators. (Reference-Title 25, §71.61.d.2).
- _____ VII-2 e. Negotiate agreements with other parties. (Reference-Title 25, §71.61.d.2).
- _____ VII-2 f. Raise capital for construction and operation and maintenance of facilities. (Reference-Title 25, §71.61.d.2).
- _____ VII-2 B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed technical alternatives including:
 - _____ NA 1. Need for new municipal departments or municipal authorities. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 2. Functions of existing and proposed organizations (sewer authorities, onlot maintenance agencies, etc.). (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 3. Cost of administration, implementability, and the capability of the authority/agency to react to future needs. (Reference-Title 25, §71.61.d.2).
- _____ VII-2 C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:
 - _____ NA 1. Incorporation of authorities or agencies. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 2. Development of all required ordinances, regulations, standards and inter-municipal agreements. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 3. Description of activities to provide rights-of-way, easements and land transfers. (Reference-Title 25, §71.61.d.2).
 - _____ NA 4. Adoption of other municipal sewage facilities plans. (Reference-Title 25, §71.61.d.2).
 - _____ VII-2 5. Any other legal documents. (Reference-Title 25, §71.61.d.2).
 - _____ VIII-1 6. Dates or timeframes for items 1-5 above on the project's implementation schedule.
- _____ VII-2 D. Identify the proposed institutional alternative for implementing the chosen technical wastewater disposal alternative. Provide justification for choosing the specific institutional alternative considering administrative issues, organizational needs and enabling legal authority. (Reference-Title 25, §71.61.d.2).

VIII. Implementation Schedule and Justification for Selected Technical & Institutional Alternatives

A. Identify the technical wastewater disposal alternative which best meets the wastewater treatment needs of each study area of the municipality. Justify the choice by providing documentation which shows that it is the best alternative based on:

- _____ VIII-1 1. Existing wastewater disposal needs. (Reference-Title 25, §71.21.a.6).
- _____ VIII-1 2. Future wastewater disposal needs. (five and ten years growth areas). (Reference-Title 25, §71.21.a.6).
- _____ VIII-1 3. Operation and maintenance considerations. (Reference-Title 25, §71.21.a.6).
- _____ VIII-1 4. Cost-effectiveness. (Reference-Title 25, §71.21.a.6).
- _____ VIII-1 5. Available management and administrative systems. (Reference-Title 25, §71.21.a.6).

_____	<u>VIII-1</u>	6. Available financing methods. (Reference-Title 25, §71.21.a.6).
_____	<u>VIII-1</u>	7. Environmental soundness and compliance with natural resource planning and preservation programs. (Reference-Title 25, §71.21.a.6).
_____	<u>VIII-1</u>	B. Designate and describe the capital financing plan chosen to implement the selected alternative(s). Designate and describe the chosen back-up financing plan. (Reference-Title 25, §71.21.a.6)
_____	<u>VIII-1</u>	C. Designate and describe the implementation schedule for the recommended alternative, including justification for any proposed phasing of construction or implementation of a Sewage Management Program. (Reference – Title 25 §71.31d)
_____	<u>NA</u>	IX. Environmental Report (ER) generated from the Uniform Environmental Review Process (UER)
_____		A. Complete an ER as required by the UER process and as described in the DEP Technical Guidance 381-5511-111. Include this document as “Appendix A” to the Act 537 Plan Update Revision. Note: <i>An ER is required only for Wastewater projects proposing funding through any of the funding sources identified in the UER.</i>

ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS

Municipalities that propose to implement their official sewage facilities plan updates with PENNVEST funds must meet six additional requirements to be eligible for such funds. See A Guide for Preparing Act 537 Update Revisions (362-0300-003), Appendix N for greater detail or contact the DEP regional office serving your county listed in Appendix J of the same publication.

DEP Use Only	Indicate Page #(s) in Plan	Item Required
_____	_____	1. Environmental Impact Assessment. (Planning Phase) The Uniform Environment Review (UER) replaces the Environmental Impact Assessment that was a previous requirement for PENNVEST projects.
_____	_____	2. Cost Effectiveness (Planning Phase) The cost-effectiveness analysis should be a present-worth (or equivalent uniform annual) cost evaluation of the principle alternatives using the interest rate that is published annually by the Water Resources Council. Normally, for PENNVEST projects the applicant should select the most cost-effective alternative based upon the above analysis. Once the alternative has been selected, the user fee estimates should be developed based upon interest rates and loan terms of the selected funding method.
_____		3. Second Opinion Project Review. (Design Phase)
_____		4. Minority Business Enterprise/Women's Business Enterprise (Construction Phase)
_____		5. Civil Rights. (Construction Phase)
_____		6. Initiation of Operation/Performance Certification. (Post-construction Phase)

I/A TECHNOLOGIES

PARTIAL LISTING OF INNOVATIVE AND ALTERNATIVE TECHNOLOGIES

TREATMENT TECHNOLOGIES

Aquaculture
Aquifer Recharge
Biological Aerated Filters
Constructed Wetlands
Direct Reuse (NON-POTABLE)
Horticulture
Overland Flow
Rapid Infiltration
Silviculture
Microscreens
Controlled Release Lagoons
Swirl Concentrator

SLUDGE TREATMENT TECHNOLOGIES

Aerated Static Pile Composting
Enclosed Mechanical Composting (In vessel)
Revegetation of Disturbed Land
Aerated Windrow Composting

ENERGY RECOVERY TECHNOLOGIES

Anaerobic Digestion with more than 90 percent
Methane Recovery
Cogeneration of Electricity
Self-Sustaining Incineration

INDIVIDUAL & SYSTEM-WIDE COLLECTION TECHNOLOGIES

Cluster Systems
Septage Treatment
Small Diameter Gravity Sewers
Step Pressure Sewers
Vacuum Sewers
Variable Grade Sewers
Septic Tank Effluent Pump with
Pressure Sewers

Plan Summary

Plan Summary

The Solebury Vision



It is our choice to protect and preserve the beauty, unique character and natural resources of Solebury Township for our residents, both now and in the future.

While balancing the rights of the individual property owner with the good of the community as a whole, we will manage growth to promote sustainability of our natural resources, preserve our land, and protect and revere our historic heritage.

Solebury Township Comprehensive Plan

Solebury Township is predominantly a rural community with abundant historic resources, villages and farmsteads, an agricultural and milling heritage, and a captivating landscape of streams and winding roads all in close proximity to major metropolitan areas.

Solebury Township's 2002 *Comprehensive Plan* (available online¹), revised and developed with substantial community participation in accordance with the Municipalities Planning Code² and adopted in December 2002, sets forth the community's vision and objectives to sustain the community, its resources and quality of life.

Water resources are central to a sustainable community. Solebury Township is completely dependent on groundwater for water supply, and approximately 2,500 lots (70% of the total lots) use onlot septic systems for wastewater disposal.

The 2002 *Comprehensive Plan* identified water resource protection goals to conserve, protect and enhance the quality and quantity of water resources for reasonable uses by the residents (p. 13), and to ensure wastewater disposal services can be maintained indefinitely on any developed property, without endangering public health, safety and welfare, and to avoid discharge of wastewater to surface waters (p. 14). To expand on these goals, the 2002 *Comprehensive Plan* describes and recommends these specific objectives:

- To protect and maintain the processing capacity of soils for wastewater renovation (p. 15).
- To prevent groundwater contamination in limestone aquifers due to inappropriate placement of onlot septic systems.
- To promote the recharge of the groundwater to sustain the local water budget.
- To abandon connections to the public wastewater treatment plant in Lambertville (p. 20) and to investigate alternative wastewater solutions (p. 24).

Long-term protection of groundwater supplies can be achieved by addressing how the water supply and wastewater facilities are managed.

¹ [2002 Solebury Township Comprehensive Plan](#)

² [Pennsylvania Municipalities Planning Code](#)

In the section entitled ‘Community Facilities Plan’, which is included in **Exhibit PS-1** of this Plan, it states, “The Township wants to insure that its current and future wastewater management practices protect and preserve the quantity and quality of groundwater and surface water resources. Regular maintenance and rehabilitation of failing systems is required.”

Solebury Township, as described by the *2002 Comprehensive Plan*’s goals and objectives, recognizes the constraints and impacts to successful wastewater management, which includes the physical environment (soils, slopes, geology, surface waters including wetlands, groundwater source and supply, and floodplains), land use through zoning and development regulations, and facilities operation and maintenance.

To achieve and implement the goals, the *2002 Comprehensive Plan* recommends that the Township’s Act 537 Sewage Facilities Plan be brought up-to-date to reflect the sustainable community objectives.

Solebury Township Act 537 Official Plan Update Revision

As recommended in the *2002 Comprehensive Plan*, Solebury Township is proactively updating its Act 537 Sewage Facilities Plan in accordance with the Pennsylvania Sewage Facilities Act and 25 Pa. Code § 71 of the Department of Environmental Protection’s (DEP) regulations.³

As required by 25 Pa. Code § 71.21, Solebury Township determined the planning elements necessary to meet the specific needs of the Township and submitted a Plan of Study and Task Activity Report to DEP, which was approved in September 2004. The Plan of Study was revised and submitted, and approved by DEP on June 22, 2006. Both documents can be found in **Exhibit PS-2** of this Plan.

The purpose of this Update Revision is to evaluate the adequacy of existing sewage facilities, to identify needs areas, and to identify and evaluate alternatives, as necessary, for the continued use of existing facilities, including the implementation of a sewage management program in Solebury Township. The Plan has been conducted and prepared on behalf of the Township by CET Engineering Services-GHD (CET-GHD).

A. Service and Planning Areas

In Solebury Township, community sewer service is provided to approximately 750 lots within a public sewer service area owned and operated by the Bucks County Water and Sewer Authority (BCW&SA), to about 215 lots in a community sewage system served by Aqua Pennsylvania, Inc., and by a few individual or non-municipal DEP-permitted sewage systems. The remainder of Solebury Township, consisting of approximately 2,500 lots, is served by individual onlot sewage disposal systems permitted by the Bucks County Department of Health (BCDH) and DEP.

The BCW&SA sewer system provides collection and conveyance from specific areas in Solebury Township identified through zoning. The BCW&SA sewer collection system continues through the New Hope Borough and across the Delaware River for treatment at the Lambertville (NJ) Municipal Utilities Authority (LMUA) wastewater treatment plant. Both BCW&SA and LMUA completed upgrades to their facilities in 2011 through approved Act 537 planning, and are currently conducting infiltration and inflow studies of their sewer collection systems. The Solebury portion of the BCW&SA sewer system

³ [Pennsylvania Sewage Facilities Act](#)

contributes an average of 200,000 Gallons per Day (GPD). No other known conveyance, treatment or capacity issues have been identified by either Authority. No further evaluation of these collection or treatment facilities was conducted by Solebury Township.

To determine the quality of the groundwater and the condition of the existing onlot sewage disposal systems, the focus of this Plan Update Revision is a needs analysis conducted in accordance with DEP's guidance document⁴, a copy of which is included in **Exhibit III-1**. More than 300 onlot sewage disposal systems are located on lots equal to or greater than 10 acres in size and another 200 lots are larger than 5 acres. Larger lots generally are not associated with unresolved onlot sewage disposal system problems.

The needs assessment focuses on lots smaller than five acres in areas of higher-density housing, problem areas identified by the BCDH's sewage enforcement officer (SEO), and within watersheds with suspected surface water or groundwater quantity or quality imbalances as identified through the Township's watershed studies.

With more than 1,000 onlot sewage disposal systems, DEP suggests surveying 15% of the systems. A total of 320 sanitary and 310 well surveys were conducted by the Township's environmental consultants in 12 defined areas along with scattered surveys throughout the Township. In addition, the BCDH and Township files were reviewed to tabulate onlot sewage disposal system repairs (of absorption area only) and other available information for 72 additional lots.

Table PS-1 summarizes the number of surveys conducted in each area along with information gathered from the files.

The sanitary survey and public records data are tabulated in three categories of malfunction status based on DEP's criteria for public health effects and environmental impacts. The well water survey data are used to identify non-potable drinking water sources. A summary of the categories, their criteria, and the total number of systems meeting the criteria are on **Table PS-2**.

Table 3-4 in Section III of the Plan summarizes the category status for each study area. **Exhibit III-4** contains the data for each survey and from the BCDH and Township files. The sanitary and well survey results are mapped on **Plate 7**. The entire Township is separated into four quadrants to show more detail of the study areas on **Plates 7a, 7b, 7c and 7d**.

Holding tanks are used when an onlot repair option is not available due to soil conditions or spacial limitations. Of the 37 confirmed malfunctions, 11 are holding tanks, the majority of which are in use by commercial lots in the villages. The Township supports the continued use of holding tanks until a viable non-stream discharge system is available.

The BCDH actively investigates malfunctions and issues repair permits when possible, or issues a holding tank permit where needed.

⁴ [Act 537 Sewage Disposal Needs Identification](#)

Table PS-1. Study Areas & Surveys Conducted					
Study Area		# Lots in Area	Well Surveys	Sanitary Surveys	% of Sanitary Surveys per Area
1	Carversville	57	26	31	54.4%
2	Centre Bridge	60	14	16	26.7%
3	Lumberville	85	16	18	21.1%
4	Solebury	55	19	14	25.4%
5	Solebury Mountain	53	36	17	32.1%
6	New Hope Hills	78	20	23	29.5%
7	Bridlewood	41	8	10	24.4%
8	Cottageville	24	7	7	29.2%
9	Aquetong Watershed	73	14	13	17.8%
10	Hidden Valley	258	40	50	19.4%
11	Pidcock Watershed	230	28	34	14.8%
12	Primrose Watershed	89	34	49	55.1%
13	Township (142 in Study Areas)	142	49	110	77.5%
Totals		1,245	311	392	
Approx. 2,500 lots – 500 lots larger than 5 acres = ~2,000 lots <5 acres; only those <5 acres surveyed for this study *1,245 lots in 12 study areas + the canal walk area of the Township (see Exhibit III-4); therefore 2,000 – 1,245 = 755 Township-wide lots not included in study					

Table PS-2. Sanitary & Well Survey Summary				
Needs Analysis Categories	Confirmed Malfunctions Including Holding Tanks	Suspected Malfunctions	Potential Malfunctions Substandard Systems or Unsuitable Siting	Nonpotable Sources Total Coliform >0 Nitrate >10 mg/L
# OLDS / Wells	36	18	176	Total Coliform – 46 Nitrate – 3
% of Surveyed	2.9%	1.4%	14.1%	3.9%

Factors that influence the potential for the continued use of onlot sewage disposal systems and the impact on the groundwater are the lot size, site soils and slopes, limestone geology, condition and location of the well, age of existing system, and the use, operation and maintenance of the system. These factors are revealed during the sanitary survey:

- To provide an isolation distance of 100 feet from an absorption area to a well, a new or replacement onlot sewage disposal system requires a minimum lot size of approximately ¼ acre. In Solebury Township, about 600 lots are less than 1 acre in size, with 65 lots mostly in villages that are smaller than ¼ acre in size.
- Current regulations require a dual compartment septic tank with a minimum size of 900 gallons. Cesspools and seepage pits do not provide the level of treatment that can be obtained by current technologies and are no longer permitted. Of the systems surveyed where the system type was

known or identified, or the system was known to be over 35 years old, 59 systems or 28% do not meet current standards or are suspected as substandard.

- While 15% of the sources at the time of sampling are nonpotable due to bacteria or nitrate contamination, only 8 wells or 3% are contaminated with fecal coliform. Subsurface wellheads and wells less than 50 feet deep, which may allow contaminants to enter a well, are identified on 25% of the nonpotable wells.
- The effect of excessive water use, such as from numerous loads of laundry, or the impact of solids from a garbage disposal, are not well understood by some users.
- While 70% of owners claim to have had their systems pumped at some time ranging from one time to every two years, no official record or confirmation of this data is available.
- Almost 60% of the lots surveyed are occupied by one or two people only. Limited loading could explain the low number of malfunctions found. In fact, all malfunctions found during the survey are on lots with more use.

B. Selected Alternative

1.0 Continued Use of Existing & New Onlot Sewage Disposal Systems

In accordance with the Township’s 2002 *Comprehensive Plan*, and consistent with Federal, state and county policies and objectives, the following action alternatives are selected to ensure the continued use of onlot sewage disposal systems include the following:

1.1 Sewage Management Program

A sewage management program (SMP) assures the future operation and maintenance of existing and proposed sewage facilities, which protects the water resources, public health and homeowner investment. **Exhibit PS-3** contains a Fact Sheet from DEP that describes the minimum requirements of a SMP in accordance with 25 Pa. Code §§ 71.71—71.75.

Table PS-3 lists each step and current responsible party for sewage management for all non-municipal sewage systems in Solebury Township.

Table PS-3. Existing Sewage Management Roles	
Task	Responsible Party
Siting	BCDH SEO or DEP
Design	Consultant to Homeowner / Developer / Builder
Permitting	BCDH SEO or DEP
Installation & Maintenance Agreement	Owner / Association & Township
Construction	Homeowner / Developer / Builder
Inspection	BCDH SEO or DEP
Operation	Owner or Association
Maintenance	Owner or Association

Solebury Township proposes to implement a sewage management program to improve the operation and maintenance of existing and future systems, specifically including, maintenance and inspection requirements and reminders, and a systems inventory. System owners will be required to provide proof of pumping to the Township. The Township will maintain an inventory of system maintenance service and inspection information, and catalog system information on an established database. The implementation of a sewage management program will provide a mechanism whereby systems are inspected and evaluated for needed repairs or upgrades. The Township believes that the requirement to pump tanks and inspect systems will extend the life of systems thereby protecting the water resources. The inventory of this information will then identify areas of failing or marginal systems needing further analysis through a Sewage Facilities Special Study.

Solebury Township proposes to adopt and enforce a Sewage Management Program Ordinance that includes the following required provisions:

- The removal of septage to avoid the carry-over of solids into the absorption area. Septic tanks are required to be pumped at least once every three (3) years, or whenever a tank inspection reveals that the tank is filled in excess of $\frac{1}{3}$ the liquid depth of the tank with scum or solids.
- Documentation of septage pumping and hauling that indicates proper final disposal.
- Requirements for water conservation devices if systems are found to be malfunctioning due to hydraulic overload.

A draft Sewage Management Program Ordinance is contained in **Exhibit V-1**. Solebury Township also proposes to adopt a retaining tank ordinance in accordance with 25 Pa. Code § 71.63. A draft Retaining Tank Ordinance based on DEP guidance is found in **Exhibit V-4**.

If the Township complies with 25 Pa. Code § 72.44, enclosed as **Exhibit PS-4** to this Plan, regarding documentation and employment requirements, the costs associated with the staffing and administration of a sewage management program is eligible for an annual reimbursement of 50% of the administrative costs from DEP.

In areas of elevated nitrate and carbonate geology, a preliminary hydrogeologic study is typically required. Since the Township has a history of agricultural activity, permit-exempt systems will no longer be allowed. **Exhibit PS-5** is a draft Preemption of 10-Acre Permit Exemption Ordinance, which the Township proposes to adopt.

1.2 Public Education

Solebury Township proposes to disseminate public education information to Township residents through its website, newsletter and brochures available at the Township office regarding operation and maintenance of onlot sewage disposal systems. This public education information is also available from the Bucks County Department of Health and DEP.

While water conservation will be required for malfunctioning onlot sewage disposal systems, water conservation measures described in this Plan may help extend the life of those onlot sewage disposal systems that are not malfunctioning but are located on small lots, have inadequate soils or some other limitation. Water conservation information will be available on the Township website and at the Township office for general distribution.

In addition, a Homeowner's Guide to Septic Systems and Recordkeeping Folder will be available from the Township office.

1.3 Well Alteration

Solebury Township adopted a Well Construction Ordinance, which is appended to the Township SALDO. Any well not meeting the construction standards in the Well Construction Ordinance will need to be upgraded in accordance with applicable rules.

1.4 Administrative Component

Solebury Township proposes to revise their Subdivision and Land Development Ordinance (SALDO) requirements to include GIS survey information about adjacent landowner well and septic system locations, sizes and other conditions. This GIS information will be integrated into the aerial survey GIS database completed in 2006.

1.5 Sewage Management Program Data Analysis to Identify Other Needs Areas

As data are collected and tabulated from the sewage management program, Solebury Township will further evaluate the condition of all onlot sewage disposal systems. With increased public education and regular inspections and maintenance, the proper functionality of all onlot sewage disposal systems will be assured.

Concerns regarding septic systems located on lot sizes of less than ¼ acre, unsuitable soils, steep slopes, or in areas of high density remain. The systems inventory and other actions implemented as part of the sewage management program will quantify the magnitude of these concerns thus enabling more appropriate and cost-effective actions to be made on an educated and scientific basis. New or replacement onlot sewage disposal systems will be scrutinized for full compliance with DEP design criteria especially regarding soil and geologic suitability.

If needs areas are identified, or, if local residents make a request, a special study would be conducted to investigate local community alternatives. Decentralized community systems provide consistency between municipal land use planning and wastewater planning, and allow for the coordination with water supply planning so that groundwater recharge is supported by the use of land application systems.

As a possible scenario, an identified future potential Needs Area could be designated as a Groundwater Quality District to include existing developed lots only. If a community system is recommended, it would be designed to treat flow not only from the malfunctioning lots and from other existing lot owners who request to abandon their onlot sewage disposal system, but all dwellings in the proposed community system. The community system will also be designed to include future potential growth in the immediate area. Upon the completion of construction, the community system would be at design and no other users could connect into it. Each District would construct, operate and maintain any facilities through funds provided by the users. The Township may assist the District to obtain financing, if needed.

The District would be established as a properly chartered association, trust or other private legal entity, or a sewage management agency established through a municipal ordinance with the responsibility to manage the system. The Township would require the District to enter into an Installation and Maintenance Agreement ensuring long-term operation and maintenance.

To preserve Solebury Township's natural resources – open space, riparian buffers, groundwater – the Township proposes to implement and enforce this Plan to prevent degradation of groundwater from pollutants from malfunctioning onlot sewage disposal systems and from other development on the property, such as impervious surfaces, landscaping fertilizers and other chemicals. Wastewater is most effectively and efficiently managed by treating it and reusing it as close to where it is generated when a decentralized concept is employed.

C. Estimated Cost & Funding Sources to Implement Alternative

Continued use of individual onlot sewage disposal systems and holding tanks are financed by the property owners. System pump out and inspection costs are borne by the owner at the 3-year frequency or other appropriate schedule.

The Township is responsible for enforcing the Sewage Management Program. The estimated costs to implement the proposed program, 50% of which are currently reimbursable through a DEP grant program, include:

- The administrative cost to set up the sewage management program, which involves establishing a database of on-lot sewage disposal system pump-outs and inspections, is estimated at approximately \$5 per lot or \$12,500.
- Public Education Program: The administrative cost to develop a public education program, which includes updates to the Township website, preparation and distribution of the Township newsletter and printing brochures, is approximately \$6,000.

The Township will manage and administer these programs using General Budget funds supported by user fees and other sources.

In Year 1 of the sewage management program, the public education program requires Township staff to implement and monitor the following goals:

- Involve residents and stakeholder groups by making the Act 537 Sewage Facilities Plan – Update Revision available on the Township website for review.
- Adopt and implement the sewage management ordinance and other related ordinances; and make the ordinance requirements publicly available.
- Distribute educational materials through the Township office.
- Provide information and access using the Township's website and a quarterly newsletter.

D. Municipal Commitment to Implement Plan

Solebury Township has been actively implementing and funding the *2002 Comprehensive Plan* goals. While no critical public health hazards have been identified, malfunctioning onlot sewage disposal systems have been recorded. As inspections are conducted, the information gathered will further the Township's ability to identify clusters of malfunctions and to develop specific plans to protect the water resources.

E. Implementation Schedule

The schedule on **Table PS-4** will be implemented over a 3 to 5-year period upon approval of this Plan.

Table PS-4. Implementation Schedule	
Sewage Management Program Component	Milestone Schedule
Year 1:	1 – 3 Years
• Adopt Sewage Management Ordinance	
• Adopt Retaining Tank Ordinance	
• Adopt Preemption of 10-Acre Permit Exemption Ordinance	
• Revise Zoning Ordinance to Incorporate OLDS Site Constraints identified in Section II of Plan	
• Update SALDO as needed	
• Review BCDH OLDS & Well Records	
• Setup Inventory Database & Input Existing Data	
• Enter Onlot System Pumping Schedules in Database	
• Provide Public Education Materials through Township Office and Website	
Year 2:	2 – 3 Years
• Catalog OLDS Conditions for Malfunctions	
• Review BCDH Septage Hauler Records	
Year 3:	3 – 5 Years
• Evaluate Data to Determine Need for Special Study Areas	

Appendices

A. Municipal Adoption

Appendix A contains the original, signed and sealed Resolution of Adoption by Solebury Township that describes the selected alternatives and a commitment to implement this Plan in accordance with the implementation schedule.

B. Planning Commission / County Health Department Comments

Appendix B contains documentation that Solebury Township has requested, reviewed and considered comments by the Township’s Planning Commission, Bucks County Planning Commission and the Bucks County Department of Health.

C. Public Notice – Proof of Publication

Appendix C contains the Proof of Public Notice documenting the proposed plan adoption, plan summary and the 30-day comment period.

D. Comments and Responses

Appendix D contains copies of all written comments received from the Township and County Planning Commissions, and the County Department of Health, and the Township's response to each comment regarding the proposed plan.

E. Consistency Documentation

Appendix E contains documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in accordance with 25 Pa. Code § 71.21.(a)(5)(i-iii), as described in Section III of the Plan.

Exhibit PS-1

Community Facilities Plan

VII

Community Facilities Plan

The sustainable community objective of the 2002 Solebury Township Comprehensive Plan calls for growth management and development over the twenty-year planning horizon through provision of adequate public and semi-public facilities, services, and utilities while observing natural resource limits. Population projections from the year 2000 to 2010 will add 1,257 new residents to the township. New development will place additional demands on existing utilities and community facilities and services and on natural resources such as groundwater.

The township wants to insure that its current and future water supply, stormwater, and wastewater management practices protect and preserve the quantity and quality of ground water and surface water resources upon which its residents, businesses, and plant and animal communities depend. What its neighbors do in terms of impacts on township resources is also relevant. New supportive policies related to rural, suburban and village development are necessary to guide the township in this direction.

A sustainable community requires careful management of growth and development based on the ability of natural and built systems to retain their functional capacities. It also requires a greater balance between new residential and commercial/industrial land uses.

Integrated Water Resources Planning: Guidelines for Stormwater, Water Supply and Wastewater Policy

Individual actions must be evaluated on both an incremental and cumulative impact basis to protect the water resources of the township.

Proposed on-lot wells should not significantly draw down existing wells on adjoining properties, or reduce the low flow levels of nearby creeks and streams. For the township's suburban lands and villages, the need increases for a more system-based infrastructure management application. Community water system wells should not result in a depletion of groundwater resources or a significant draw down of existing wells on adjoining properties. As part of the township's environmental impact assessment process, groundwater and surface water impact

studies should be required of all new major subdivisions and multifamily, commercial, and industrial land developments prior to township application approvals.

On-lot sewage disposal systems such as septic fields and sand mounds provide a ground water recharge benefit, yet new on-lot wastewater disposal systems should not pollute or otherwise contaminate underlying aquifers or surface water resources. Regular maintenance and rehabilitation of failing systems is required.

Direct discharge of wastewater effluent from on-lot or small community systems into creeks, streams and the Delaware River should be strongly discouraged. This is especially relevant in Exceptional Value (EV) and High Quality (HQ) designated streams and streams that feed into the Delaware Canal, although certainly applicable to all surface water features.

The township can promote recharge of its ground water resources by requiring innovative stormwater management practices as part of all new development. Surrounding municipalities have already enacted requirements for infiltration of stormwater. Where low-density residential development is proposed, innovative stormwater management approaches which limit impervious areas, limit clearing of natural vegetation, and utilize natural features to control run-off and encourage pollutant uptake by plants and recharge of stormwater should be mandated. Conservation design at the planning stage can help. In suburban and urban village settings, a combination of non-structural and structural controls for achieving infiltration of stormwater runoff may be necessary due to the relatively high amount of impervious area typically associated with medium and high density development. Infiltration of stormwater into ground water should be required wherever feasible.

Conveyance and discharge of Solebury and New Hope sanitary wastewater effluent to the Lambertville Sewage Treatment Plant for direct discharge into the Delaware River is a lost opportunity for recharge of the township's groundwater resources. The potential environmental impacts to the Delaware River, and expenditure of resource energy required to convey untreated effluent to the plant are contrary to the sustainable community approach.

The Comprehensive Plan recommends that the township's Act 537 Sewage Facilities Plan be brought up to date to reflect the sustainable community objectives.

Exhibit PS-2 Plan of Study

**Solebury Township
Bucks County**

**Act 537 Sewage Facilities Plan
Plan of Study
August 2004**

Introduction

The Township's Comprehensive Plan (December 2002) sets forth the community's vision for sustainable growth and plan for land use. One of the important themes of the plan is that groundwater supply and wastewater management are intimately related and that long-term protection of groundwater is achieved by addressing how water is used and conserved today.

Recognizing the need to develop wastewater planning to meet the objectives of its Comprehensive Plan, the Township of Solebury is updating its Act 537 Sewage Facilities Plan in accordance with the Act of 1965, P.L. 1535, No. 537, generally referred to as "*Act 537*" or the "*Pennsylvania Sewage Facilities Act*". The objective of this sewage facilities plan update is to provide a plan for wastewater management that will facilitate implementation of the Township's vision to "establish and maintain a Sustainable Community that balances the rights of property owners to reasonably use their land with the community's expressed goal to conserve and preserve its natural and historical character for the benefit of all present, and future residents".

The Plan will address the adequacy of the existing sewage collection facilities and the establishment of a sewage management plan for the onlot systems. The last revision of the 1975 plan was approved in 1992.

Public sewers serve neighborhoods and commercial users adjacent to the Borough of New Hope in the eastern portion of the Township with treatment provided by the Lambertville (NJ) Sewerage Authority Treatment Plant. The public facilities are owned and operated by the Bucks County Water and Sewer Authority. A privately owned package plant serves a mobile home park in the northeastern portion of the Township. All other residences and nonresidential users in the Township are served by individual onlot sewage systems. Six distinct villages of clustered homes are located in the Township.

A unique feature of Solebury's Task Activity Report is the proposed method to provide and facilitate public education. Beyond the public meetings scheduled with each of the six villages, the Township intends to develop a separate link on its existing website to explain the 537 Plan Update, list and update the work in progress, and provide the capability for public comment via the web. The work task also includes responses to questions from the public, and/or assistance to Solebury Township in the preparation of responses. The meetings and the website will serve to educate the public of the need for the 537 Plan Update, and to explain the work plan, sampling requirements, and to address specific issues that may be particular to the individual village.

The estimated budget for this 537 Plan is \$101,000, including engineering services and subconsultant's fees, legal review, laboratory fees, as set forth in the attached Task Activity Report. The Township intends to request DEP reimbursement for fifty (50) percent of the actual planning costs upon approval of the Act 537 Plan Update.

Solebury Township's intent for conducting this 537 Plan Update is summarized task-by-task in this Plan of Study.

Plan Format and Content

Task Activities are identified by the Planning Checklist categories from the Guidelines as follows:

I. Previous Wastewater Planning

CET will collate and review data regarding previous wastewater planning approvals. This plan, however, represents a departure from the previous 537 Plan Update of 1992, which focused on expanding public wastewater collection and conveyance facilities and public wastewater service areas in the Township. For this reason, attention must be given to changes in current objectives with those of prior wastewater planning. In addition to the review of previous wastewater planning, CET will identify municipal and county planning documents, including land use plans, zoning maps, subdivision regulations and limitations due to floodplains, wetlands and stormwater management that impact wastewater management.

II. Physical and Demographic Analysis

This task includes the review of mapping to identify geology, soil types and slopes, wetlands, water supply and capacity, subdivisions, zoning, land uses and agricultural zones. Existing mapping developed for the Comprehensive Plan will be used in this 537 Plan. In addition, onlot malfunctions and well sampling sites will be identified and mapped.

III. Existing Sewage Facilities in the Planning Area – Identifying the Existing Needs

A database will be developed to catalog sewer facilities within the Township. In accordance with DEP's "Sewage Disposal Needs Identification" guidance, a sanitary survey using field and mail surveys to identify pre and post 1972 development and to determine any onlot problems will be conducted, including testing of wells on a proportion of the properties with onlot systems. Any community systems will be inspected and data reviewed for compliance with discharge requirements and design loading. A matrix of malfunction status will be prepared to determine the extent of existing needs. Sludge and septage sources, quantities and disposal methods will be identified. An onlot management program will be developed.

The existing wastewater collection and conveyance systems to New Hope / Lambertville including pumping stations and force mains will be evaluated based on a review of existing data. A description of the systems, including the type and capacity of system components will be tabulated. If it is determined that metering is needed to assess infiltration/inflow and its effect on system capacity, a revision to this Plan of Study will be submitted to DEP for approval.

IV. Future Growth and Land Development

Projections of population and future growth areas will be developed in accordance with the Township's Comprehensive Plan for the purposes of assessing future wastewater needs. Zoning,

land use and land development ordinances will be reviewed to assess whether wastewater requirements for allowable development are consistent with the Township's current goals and needs as expressed in the Comprehensive Plan, and recommendations will be presented.

V. *Identify Alternatives to Provide New or Improved Wastewater Disposal Facilities*

The plan must evaluate wastewater management alternatives on both an incremental and cumulative impact basis to resolve any existing sewage problems and provide adequate future facilities to serve anticipated and sustainable growth in the Township. Where public facilities exist or are warranted, alternatives for providing future, environmentally sound, collection, conveyance and treatment capacity to recharge ground water must be developed.

Onlot systems must be managed to ensure long-term use that will not pollute underlying aquifers. Sewage management programs adopted by the Township would detail the required pre-installation testing, inspection and maintenance intervals along with homeowner education regarding responsible operation of their onlot system. Direct discharge of treated effluent to surface waters will be discouraged in favor of groundwater recharge system alternatives.

Where appropriate, decentralized systems that provide collection, treatment and disposal near the source of water supply origin will be investigated to eliminate the need for extensive collection systems and to provide groundwater recharge where possible. Decentralized systems can be cost-effective both in capital expenditures and in annual operating and maintenance costs. In addition, small systems can be designed with remote monitoring for effective management and control.

Development of alternatives using new innovative technologies will be an important aspect of this task. The use of alternative effluent discharge systems (e.g. drip irrigation) allow for land-based treatment and discharge where conventional onlot systems may not be appropriate. Other new treatment technologies, such as textile filters, provide high levels of treatment, including denitrification, for both individual residential onlot and commercial/community applications. These types of technologies are an important component of wastewater management plans that have the objective of preserving both the quality and quantity of groundwater resources.

VI. *Evaluation of Alternatives*

Advantages and disadvantages of specific alternatives that are being considered will be evaluated. Recommendations will be discussed with Solebury Township prior to finalization. Best available technology, capital costs, ongoing annual costs for operation and maintenance, and administrative costs will be considered. Viable, cost-effective, environmentally sound alternatives will be developed and evaluated. Conflicts with water quality designations, geological restrictions, land use policies, protected environmental and historical resources, and County or State water management plans will be resolved.

VII. Institutional Evaluation

This task involves an analysis of the Township's financial and administrative resources to fund proposed projects and to manage the program, including fee collection and ordinance enforcement. Solutions to weaknesses along with an implementation plan will be developed, including the recommendations for adoption of ordinances, staffing and budget requirements, and identification of funding sources.

VIII. Justification for Selected Technical & Institutional Alternatives

Documentation that justifies the technical alternative selected will be prepared for inclusion in the plan. The best alternative is the alternative that meets existing and future needs, considers operation and maintenance, is cost-effective, manageable, environmentally sound, and in the case of the Township of Solebury, facilitates the implementation of the "Solebury Plan".

TASK ACTIVITY REPORT

Solebury Township
Municipality

Bucks
County

Entire Township
Proposed Planning Area (Attach Map)

May 2006
Date of Report

Date completed plan will be submitted to DEP

December 2006

Estimated Cost of Plan \$191,000

TASK/ACTIVITY Number from Appendix I	Principal		Sr. Proj. Mgr.		Sr.Env.Sci.		Env. Sci.		GIS Analyst		Technician		Sec.		Task/ Activity Subtotal
		\$/hr \$129		\$/hr \$116		\$/hr \$90		\$/hr \$71		\$/hr \$72		\$/hr \$77		\$/hr \$38	
I Previous Wastewater Planning		\$0	2	\$232		\$0	24	\$1,704		\$0		\$0	2	\$76	\$2,012
II Physical/Demographic Analysis		\$0		\$0		\$0	8	\$568	16	\$1,152		\$0	2	\$76	\$1,796
III Existing Sewage Facilities / Needs ID		\$0	56	\$6,496		\$0	250	\$17,750	8	\$576		\$0	2	\$76	\$24,898
							200	\$14,200			170	\$13,090			\$27,290
IV Future Growth/Development		\$0	20	\$2,320		\$0	40	\$2,840		\$0		\$0	2	\$76	\$5,236
V Identification of Alternatives	2	\$258	20	\$2,320		\$0	56	\$3,976		\$0		\$0	2	\$76	\$6,630
VI Evaluation of Alternatives	2	\$258	4	\$464	8	\$720	16	\$1,136		\$0		\$0	2	\$76	\$2,654
VII Institutional Evaluation	2	\$258	4	\$464	8	\$720	8	\$568		\$0		\$0	2	\$76	\$2,086
VIII Justification / Financing	8	\$1,032	8	\$928	8	\$720	8	\$568					2	\$76	\$3,324

Engineering Hourly Fees	\$75,926
Direct Expenses (Mileage, Travel, Copies)	\$7,500
Direct Expenses (Printing)	\$1,500
Project Management	\$5,500
Client Meetings	\$10,000
DEP Meetings	\$2,500
Coordination with Water / Traffic Studies	\$7,400
Public Education (meetings)	\$15,000
Public Education (webpage)	\$7,020
Subtotal Engineering Contract	\$132,346
Hydrogeologist	\$9,000
Task III - well + stream survey work by others	\$25,000
Legal (review of ordinances)	\$8,000
Laboratory Services	\$16,250
Total 537 Plan	\$190,596
SAY	\$191,000
Aerial Survey (if approved)	\$55,605
	\$246,605

Stanley J. Chilson, P.E. - CET Engineering Services
Name of Person Completing Report

Signature

Project Manager
Title

Municipal Secretary Signature

Exhibit PS-3
Sewage Management
Program Fact Sheets



Fact Sheet

Commonwealth of Pennsylvania • Department of Environmental Protection **Act 537 #3**

SEWAGE MANAGEMENT PROGRAMS Ensuring Long-Term Use of Onlot Systems Through Proper Operation and Maintenance

The Pennsylvania Sewage Facilities Act (Act 537) requires all municipalities to develop and maintain an up-to-date sewage facilities official plan to protect public health from diseases, prevent future sewage treatment problems and protect the quality of the state's surface water and groundwater. As part of an official plan update, the municipality should consider developing a sewage management program. Such a program to ensure the operation and maintenance of onlot sewage systems should be established before malfunctions are widespread in an area. Malfunctioning onlot treatment systems can endanger public health, degrade the environment and reduce property and community value by discharging onto public areas, private property or contaminating receiving waters including drinking water supplies.

Properly designed and installed onlot treatment systems function better and longer with regular maintenance. Sewage management programs ensure that onlot sewage treatment systems are properly operated and maintained. If operation and maintenance activities are neglected, systems can either fail completely or may function well below their capabilities. This can quickly negate the efforts of a municipality in assuring public health protection through requirements for proper design and installation of these systems.

Municipal sewage management programs can be as simple or as comprehensive as needed and may be based on each municipality's particular needs and resources. This fact sheet explains the importance of municipal sewage management programs and how they are developed by municipalities to meet their needs for individual and community onlot sewage systems.

Why should my municipality manage onlot systems?

Most municipalities have areas that can never be physically or cost-effectively served by public sewer facilities. Areas may contain suitable soils but have scattered malfunctioning onlot treatment systems that can cause public health and other hazards. Malfunctioning individual onlot systems will also often be found in areas that have poor soils and/or small lot sizes. It may become impossible to repair or replace these systems on an individual lot-by-lot basis. If your municipality is faced with this latter situation, you can assess your options for using community onlot systems to meet your long-term needs. In any case, repairing onlot systems as they malfunction typically will not solve the problem permanently until regular management and maintenance of onlot systems is established to help keep the problems that lead to malfunctions from recurring.

What options are available for establishing a Sewage Management Program?

Municipalities have established numerous approaches to sewage management in

Pennsylvania. While existing management maintenance permit programs to more complex municipal inspection programs, you should base your sewage management program on the specific needs and resources in your municipality.

In developing a sewage management program for your municipality, you may choose from a variety of possible management service options and administrative alternatives. Management options for onlot systems may include such services as:

- Public and homeowner education;
- Regular pumping of tanks;
- Operation and maintenance activities tailored to specific onlot systems or treatment components;
- Testing and monitoring procedures to assess the quality of effluent treatment; and/or
- Periodic inspections to determine system integrity and operational performance and more.

Administrative alternatives for delivering or ensuring your program's management services can range from:

- Maintenance contracts established between a homeowner and the manufacturer or a third-party maintenance provider;
- Operating permits issued by the municipality based on the system's compliance with particular quality or operating standards;
- Direct provision of management services by the municipality or an established service utility; or
- Direct ownership and management of onlot systems by the municipality or an established utility.

There are many examples and variations of these management service options and administrative alternatives in use in municipalities across Pennsylvania. Your local DEP representative can help you learn more about existing sewage management programs.

How can my municipality begin managing onlot systems?

The first step in the process is for your municipality to assess available administrative, technical, financial and management options by preparing an update revision to its Act 537 official plan. The update revision should provide for identification of all onlot systems and a determination of their operational status. Such factors as the suitability of soils, underlying geology and any peculiar environmental conditions that could impact the continued long-term use of onlot systems are also examined.

Using this information, the various options to ensure performance of routine operation and maintenance for new and existing onlot systems are identified and compared.

Ultimately, the specific options and alternatives for a sewage management program that best fits with your municipality's resources and needs are selected for implementation. In connection with the management program, the plan should also evaluate required needs for septage handling (septage haulers, septage disposal options, etc.) and develop appropriate administrative and legal procedures.

Finally, to allow implementation, your official plan must establish an ordinance that legally authorizes the municipality's program to manage onlot systems.

What other steps are there to developing a Sewage Management Program?

There are several additional steps that should occur together with sewage facilities planning in considering and developing the service options, administrative alternatives, legal procedures, ordinances and other pieces that will make up your municipality's sewage management program. These steps primarily involve gaining understanding and consensus from the residents in your municipality who will be impacted by the proposed management program.

It is important that opportunities be afforded for homeowners and the public to learn what onlot systems are, how they work and why management and maintenance of these systems is so important. Public education meetings, civic events or programs provided at local schools can be excellent ways to get the word out.

The citizens in your municipality will better accept the management program if they have a voice in its planning and development. Surveys or questionnaires, public forums for exchanging questions and opinions, as well as citizen representation on advisory or planning groups can all be very helpful.

Residents need to be informed about the details of the proposed program, how it will affect them and what actions they need to take. Mailings, newsletters, articles or announcements in the local media, websites and public information sessions are just some of the ways Pennsylvania municipalities have educated and involved their citizens.

Are there minimum requirements for Sewage Management Programs?

There are minimum requirements only if a sewage management program is required by regulation. Maintenance standards are listed in Title 25 of the Pennsylvania Code, Chapter 71 §71.73 to make sure that management programs carry out at least the minimum activities necessary to maintain onlot systems (this DEP regulation, as well as others, can be found on-line at www.pacode.com).

Minimum standards include:

- Removal of septage from the treatment tanks once every three years or following a tank inspection that reveals the need for septage removal (when the tank is determined to be more than 1/3 full);

- Maintenance of surface contouring around the system to divert stormwater and to protect the system from damage;
- Water conservation requirements;
- Provisions for septage pumping and disposal; and
- Requirements for holding tank maintenance.

Can municipalities work together through Sewage Management Programs?

Yes. Municipalities in many parts of the state have banded together to form “joint local agencies.” These agencies then implement sewage management programs consistently throughout the service areas of their member municipalities.

Can sewage management be administered through existing municipal structures?

Yes. Some municipal governments are already involved in the permitting of onlot sewage systems through programs administered by agencies such as joint sewage committees, county health departments, etc. These existing onlot permitting programs involve testing proposed sites, reviewing designs and addressing adequate system construction through final inspections of installed onlot systems. Unfortunately, in many cases, system installation marks the boundary of the permitting program.

Sewage management programs, administered by joint local agencies, or even municipal sewer authorities, can extend municipal oversight for these permitted systems to include regular operation, maintenance, testing and/or inspection. Such actions assure that the special care and attention taken to properly design and install onlot systems is not negated by the lack of system management and oversight.

Is management of onlot treatment systems cost-effective?

Yes. Maintaining properly installed sewage systems can extend the life of these systems and may save the homeowner the cost of repairing or replacing an abused, malfunctioning onlot system. Sewage management programs can also help prevent future problems from occurring with systems that have been repaired following malfunction.

Municipalities confronting areas with numerous malfunctioning systems often opt to extend sewer

lines for great distances. This action may solve the problem, but can be very costly to the municipality and the affected property owners. Sewer lines can inadvertently promote unwanted development. Municipalities might also attempt to deal with areas of malfunctioning individual onlot systems by connecting the affected homes to a single immediate problem; however, there is still the potential for future malfunctioning of the resulting community systems unless the municipality has a management program that commits it to oversee proper operation and maintenance of these larger systems.

Is financial and technical assistance available for my municipality to develop or update its sewage facilities official plan?

Yes. Municipalities can apply to DEP for a planning grant to reimburse up to 50 percent of the cost of preparing a sewage facilities official plan.

Additionally, to assist municipalities in the development of their sewage management programs, DEP has several model ordinances that reflect the requirements typical of the different programs. The “pump” model ordinance reflects the simplest approach to a sewage management program, while the ordinance for a municipal inspection program is the most complex approach. You should keep your municipality’s management program as simple and effective as possible to meet your special needs.

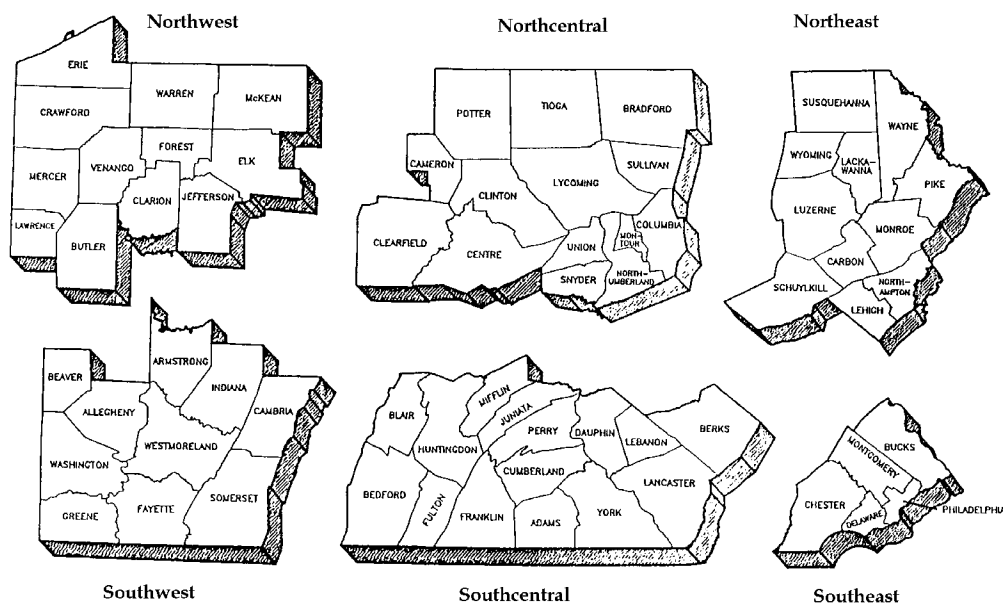
Is there financial assistance available to my municipality to establish and administer a Sewage Management Program?

Yes. Sewage management program costs of staffing and administration are eligible costs of the sewage enforcement reimbursement program. Your management program is expected to charge reasonable fees to cover the costs of the activities you conduct. If revenue does not adequately cover all these costs, your municipality may recover monies from the state to eliminate this deficit amount, up to 50 percent of the total cost of the enforcement program. Local agencies qualifying for 85 percent sewage permitting enforcement reimbursement also qualify for the same method of calculating reimbursement for their sewage management program’s activities.

For more information, visit DEP’s Web site at www.depweb.state.pa.us, Keyword: “Wastewater.”

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Standards and Facility Regulation
Division of Planning and Permits
P.O. Box 8774
Harrisburg, PA 17105-8774
(717) 787-8184



DEP Regional Offices

Southeast Region

2 E. Main St.
Norristown, PA 19401
Main Telephone: 484-250-5900
24-Hour Emergency: 484-250-5900

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Southwest Region

400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-Hour Emergency: 412-442-4000

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Southcentral Region

909 Elmerton Ave.
Harrisburg, PA 17110
Main Telephone: 717-705-4700
24-Hour Emergency: 1-877-333-1904

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northwest Region

230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 1-800-373-3398

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Northeast Region

2 Public Square
Wilkes-Barre, PA 18711-0790
Main Telephone: 570-826-2511
24-Hour Emergency: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Northcentral Region

208 W. Third St., Suite 101
Williamsport, PA 17701
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union

Exhibit PS-4
25 Pa. Code §72.44

under the direction of another certified sewage enforcement officer selected by the Department for a time period established by the Department.

(1) The Department may require this training as an alternative to suspension or as a requirement for reinstatement of a suspended certification.

(2) The local agency employing the training sewage enforcement officer shall authorize that officer to provide the training services within the jurisdiction of that local agency.

(3) The costs of Department-required training incurred by the training sewage enforcement officer and the local agency employing the training sewage enforcement officer shall be paid by the Department from funds made available under section 13.2 of the act (35 P. S. § 750.13b).

(l) The Department may delegate the review of certain alternate sewage systems as designated by the Department to sewage enforcement officers, within the area of their jurisdiction, qualified by the Department to review the systems.

(m) The Department has the duty to require local agencies to take necessary action to provide timely service, including, but not limited to, utilizing the services of an alternate sewage enforcement officer, employing temporary sewage enforcement officers and entering into contracts for service.

Authority

The provisions of this § 72.43 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

Source

The provisions of this § 72.43 amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221892) to (221894).

Cross References

This section cited in 25 Pa. Code § 72.25 (relating to issuance of permit); and 25 Pa. Code § 72.52 (relating to conditions of certification).

§ 72.44. Reimbursement.

(a) Reimbursement may not exceed the total program cost minus total program income.

(b) Except as provided in subsection (c) the Department will reimburse local agencies to the extent of the appropriations made by the General Assembly for that purpose. Reimbursement shall be made annually in an amount equal to 1/2 of eligible expenses of administering and enforcing sections 7, 8, 12, 13, 13.1, 14, 15 and 16 of the act (35 P.S. §§ 750.7, 750.8, 750.12, 750.13, 750.13a and 750.14—750.16), as defined by subsections (h)—(j).

(c) A local agency complying with the act in a manner deemed satisfactory by the Department will be reimbursed in an amount equal to 85% of the cost of the expenses incurred in the administration and enforcement of the act from funds

specifically appropriated by the General Assembly for this purpose if the local agency submits documentation which supports that it qualifies for the increased reimbursement as provided in subsection (d). Eligible expenses are defined in subsections (h)—(j).

(d) To qualify for 85% reimbursement, a local agency shall:

(1) Document the acceptance, delegation or transfer of the administration of sections 7, 8, 12, 13, 13.1, 14, 15 and 16 of the act from one or more municipalities.

(2) Employ or contract with at least one sewage enforcement officer actively engaged in activities related to the administration of the act in that local agency at least 1,200 hours per year, including leave and holidays.

(3) Employ or contract with adequate administrative support staff.

(4) Employ or contract with one alternate sewage enforcement officer.

(5) Employ or contract with a qualified soil scientist.

(6) Submit to the Department for review and comment administrative procedures, permit procedures, ordinances of the member municipalities related to the administration of the act, rules, regulations, permit-related fee schedules and contracted services proposed for use in the local agency.

(7) Employ or have a contractual arrangement with sufficient technical staff to provide for local agency response to signed written requests for service within the time frames established by the administrative procedures and regulations of the local agency.

(e) Applications for reimbursement shall be in quadruplicate, on the appropriate form supplied by the Department, and received by the Department of Environmental Protection, Post Office Box 8466, Harrisburg, Pennsylvania 17105-8466, no later than March 1 each year for expenses incurred during the prior calendar year. Upon cause shown, the Secretary may extend the March 1 deadline for the filing of applications for reimbursement for not more than 60 days.

(f) Applications for reimbursement shall include the following:

(1) An itemized statement in the form of an employe time and activity record.

(2) A report of total fees, fines and other money collected by the local agency during the calendar year in the enforcement of the act.

(3) The Department central file copies of the Application for Sewage Disposal System permit denials, final inspections and expirations during the prior calendar year.

(4) Municipal ordinances, acts, regulations or procedures used in enforcing the act for local agencies applying for reimbursement for the first time or when major changes are made.

(5) Copies of additions, deletions and amendments made during the preceding calendar year to municipal ordinances, acts or procedures used in enforcing the act.

- (6) Proof of payment of expenses claimed, as specified in subsection (k).
- (7) A copy of the schedule of fees charged to the permit applicant.
- (g) An employe time and activity record shall be kept by the local agency. This is an itemized record noting the employe's name, the date of duty and application number for each task performed, the complaint or malfunction investigated, related administrative or clerical duties performed, hours spent, miles travelled and applicable hourly rate of pay, not including fringe benefits.
- (h) Costs associated with the following are eligible for reimbursement, when related to enforcement and administration of the sewage facilities permitting program:
 - (1) Permit application processing activities, including soil evaluation and testing procedures.
 - (2) Administrative, management or clerical activities.
 - (3) Postage, office supplies and duplicating.
 - (4) Nonmechanically powered tools for the sewage enforcement officer's use.
 - (5) Costs of purchasing office equipment and maintaining offices, including building maintenance and utilities prorated on an equitable basis with other services.
 - (6) Employer costs for social security, workers' compensation, unemployment compensation and the following fringe benefits:
 - (i) Health care.
 - (ii) Pension programs.
 - (iii) Life insurance.
 - (iv) Errors and omissions insurance written specifically and billed separately to cover the sewage enforcement officer's enforcement responsibilities where the defense of official immunity, under 42 Pa.C.S. § 8546 (relating to defense of official immunity), is not applicable to the sewage enforcement officer.
 - (7) Mileage expenses at the Commonwealth rate for application processing, complaint and malfunction investigations, and required Department training courses or other related meetings or functions required by the Department. The reimbursement of mileage expenses at the Commonwealth rate includes the cost to maintain automotive insurance coverage, and shall be the exclusive means for reimbursement of the costs.
 - (8) Expenses for sewage enforcement officers to attend required Department training courses or other related meetings or functions required by the Department including:
 - (i) Regular rate of pay for the actual hours of attendance at the course.
 - (ii) Lodging, meals and subsistence at the Commonwealth rate when the course is outside a 50-mile radius of both the sewage enforcement officer's place of employment and residence and no course has been scheduled within that 50-mile radius.

- (9) Chemical and bacteriological supplies and analysis for confirming violations.
- (10) The legal daily rate and mileage expenses for subpoenaed witnesses at a hearing.
- (11) Legal services costs incurred for:
 - (i) Prosecuting or restraining violations and defending against appeals.
 - (ii) Preparing ordinances consistent with and necessary for enforcement of the act and this part.
 - (iii) Preparing for and conducting hearings.
- (12) The legal daily rate and mileage expenses for subpoenaed witnesses at a hearing before a magistrate, when the witnesses are essential to substantiate a violation.
- (13) Fees for special consultants retained by the local agency for technical consultation on specific permits.
- (14) Investigations and inspections related to complaints and malfunctions.
 - (i) Costs associated with the staffing and administration of a sewage management program under Chapter 71, Subchapter E (relating to sewage management programs) are eligible costs.
- (g) Ineligible costs include, but are not limited, to the following:
 - (1) Retainer fees.
 - (2) Legal fees resulting from an appeal or suit against the Commonwealth.
 - (3) Expenses for use of earth moving or excavating equipment.
 - (4) Clothing purchase or allowance.
 - (5) Development or duplication of maps.
 - (6) Payment for surveillance activities by employees other than sewage enforcement officers.
 - (7) Sewage enforcement officer certification or renewal fees and other related expenses, such as mileage and travel expenses to the certification examination.
 - (8) Activities and costs associated with improper administration of the act.
 - (9) Cost to the local agency to maintain insurance coverage in the following areas:
 - (i) Errors and omissions except as provided in subsection (h)(6)(iv).
 - (ii) Liability.
 - (10) Expenses for activities resulting from the submission of additional information to supplement a reimbursement application or from activities performed as a result of a Department audit.
 - (11) Expenses for employee attendance at local agency meetings which do not pertain to administration of section 7, 8, 12, 13, 13.1, 14, 15 or 16 of the act.
 - (12) Fixed or indirect costs other than those in subsection (h)(5).
- (k) Proof of payment of expenses claimed shall, at a minimum, include the following:

- (1) Payroll records or copies of both sides of cancelled checks stating the gross amount paid or a statement from the sewage enforcement officer certifying that he has received salaries or wages from the municipality of which he is a full-time employe.
 - (2) One copy of the time and activity record or receipted itemized invoices.
 - (3) Proof of attendance at training courses required by the Department. Reimbursable expenses for attendance at the courses shall be identified separately under "other expenses" in the reimbursement application.
 - (4) Copies of hotel receipts for overnight lodging.
 - (5) Minutes of local agency meetings for which employe attendance is claimed as a reimbursable expense which reflect discussions involving the administration of section 7, 8, 12, 13, 13.1, 14, 15 or 16 of the act.
- (1) The Department may withhold reimbursement for falsification of information included in or submitted in support of the application, or for intentional omission of information required to be submitted with the application.

Authority

The provisions of this § 72.44 amended under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9); The Clean Streams Law (35 P. S. §§ 691.1—691.1001); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20).

Source

The provisions of this § 72.44 amended November 7, 1997, effective November 8, 1997, 27 Pa.B. 5877. Immediately preceding text appears at serial pages (221894) to (221897).

Cross References

This section cited in 25 Pa. Code § 71.58 (relating to delegation of new land development planning); and 25 Pa. Code § 71.73 (relating to sewage management programs for sewage facilities permitted by local agencies).

Subchapter D. CERTIFICATION OF SEWAGE ENFORCEMENT OFFICERS

- Sec.
- 72.51. Requirement for certification.
- 72.52. Conditions of certification or reinstatement of certification.
- 72.53. Certification examination.
- 72.54. Applications for certification.
- 72.55. Certification renewal.
- 72.56. Change of address.
- 72.57. Secretary of the Certification Board.
- 72.58. Certification Board hearings and procedures.

**Exhibit PS-5
Preemption of 10-Acre
Permit Exemption
Ordinance**

PREEMPTION OF 10-ACRE PERMIT EXEMPTION ORDINANCE

TOWNSHIP OF SOLEBURY
BUCKS COUNTY
COMMONWEALTH OF PENNSYLVANIA
ORDINANCE NO. _____

AN ORDINANCE PROVIDING FOR THE PERMITTING OF ALL ONLOT SEWAGE DISPOSAL SYSTEMS PROPOSED TO BE INSTALLED ON ALL LOTS IN SOLEBURY TOWNSHIP, REGARDLESS OF LOT SIZE, AND PROVIDING PENALTIES AND ENFORCEMENT REMEDIES.

WHEREAS, the General Assembly of the Commonwealth of Pennsylvania adopted, and the Governor of said Commonwealth approved, under the date of January 124, 1966, P.L. 1535, No. 537 (35 P.S. §§750.1—750.20), known as the Pennsylvania Sewage Facilities Act, which Act has been subsequently amended and is referred to hereinafter as the “Act”;

WHEREAS, Section 4 of the Act of December 14, 1994 (P.L. 1250, No. 149) contains an amendment to Section 7(a) of the Act which provides that, except where a local agency or municipality requires a permit by ordinance, certain owners of lots 10 acres or larger are exempt from the requirements of the Act to obtain a permit for the installation of an onlot sewage disposal system on such person’s lot:

WHEREAS, the Township of Solebury is a municipality as defined in Section 2 of the Act.

WHEREAS, Section 7(a)(1) of the Act, as amended by the Act of December 14, 1994, authorizes the Township to enact an ordinance requiring a permit for the installation of all onlot sewage disposal systems within the Township, including those proposed to be installed on lots 10 acres or larger, irrespective of whether any such lot 10 acres or larger otherwise qualifies for an exemption from the permitting requirements of the Act; and

WHEREAS, the Township of Solebury desires that permits be required for the installation of onlot sewage disposal systems on all lots 10 acres or larger which lots otherwise qualify for an exemption from the permitting requirements of the Act;

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of Solebury Township, Bucks County, Pennsylvania, as follows:

Section I. Short Title, Statutory Basis, Purpose

1. This ordinance shall be known as the “Solebury Township Onlot Sewage Disposal System Permit Ordinance.”

2. This ordinance is adopted pursuant to Section 7(a)(1) of the Pennsylvania Sewage Facilities Act, as amended (35 P.S. §740.7(a)(1)).

3. The purpose of this Ordinance is to provide for the permitting of all onlot sewage disposal systems within the Township in accordance with the standards and regulations of 25 Pa. Code §§ 72 and 73, including those systems otherwise eligible for an exemption from the permitting requirements of the Act, as authorized by Section 7(a)(1) of the Act.

Section II. Permit Requirements

1. From and after the effective date of this ordinance, all persons proposing to install an onlot sewage disposal system on any lot within the Township, including those persons proposing to install such a system on a lot 10 acres or larger and who are otherwise qualified for a permit exemption in accordance with the provisions of Section 7(a)(1) of the Act, shall apply to the Bucks County Department of Health for a permit for the installation of such system.

2. No person shall install or commence construction of any onlot sewage disposal system for which a permit is required until such permit has been issued by a Sewage Enforcement Officer contracted to the Township.

Section III. Enforcement

1. Any person violating any of the provisions of this ordinance shall be subject to the civil and criminal penalties authorized pursuant to Sections 13 and 13.1 of the Act, as amended. Upon conviction thereof, such person shall be sentenced to pay a fine of not less than five hundred dollars (\$500), nor more than five thousand dollars (\$5,000), plus costs, or to imprisonment not to exceed ninety days, or both.

2. In addition to the penalties for non-compliance set forth in subsection 1 above, it is further provided that all of the civil and equitable remedies set forth in Sections 12, 14 and 15 of the Act (35 P.S. §§750.12, 750.14 and 750.15), as amended, shall be applicable to violations of this ordinance.

3. In addition to proceeding under any other remedy available at law or in equity for a violation of any provision of this act or any rule or regulation promulgated under this act or any order or permit issued by the department, municipality or local agency pursuant to this act, the Township, after notice and hearing, may assess a civil penalty against any person for that violation. In addition, the Township may assess the cost of damages caused by such violation and the cost of correcting such violation. Before assessing a civil penalty or such costs, the Township shall provide a violator with a notice of proposed assessment which cites the violation of the Act, regulation, permit or order issued thereunder and offer to conduct an assessment hearing to evaluate the violation and the amount of the penalty or cost. The notice of proposed assessment shall contain an explanation of the right to a hearing and appeal. The Township shall assign a representative to hold the assessment hearing. The assessment hearing shall not be governed by requirements for formal adjudicatory hearings and may be held at any time at the convenience of the parties. The civil penalty may be assessed whether or not the violation was willful. The civil penalty so assessed shall not be less than three hundred dollars (\$300) and not more than two thousand five hundred dollars (\$2,500) for each violation. In determining the amount of the penalty, the Township shall consider:

- (a) The willfulness of the violation;
- (b) Damage to water, land or other natural resources or their uses, cost of restoration and abatement;
- (c) Savings resulting to the person in consequence of the violation;
- (d) Deterrence of future violation; and
- (e) Other relevant factors.

4. If a person against whom costs or a civil penalty has been assessed after notice and hearing pursuant to paragraph 3 of this Section fails to pay the assessed costs or penalty in full or to perfect an appeal de novo under paragraph 5 of this Section within thirty (30) days following assessment

of the civil penalty, such failure to pay or perfect an appeal shall constitute a separate violation for which an additional civil penalty may be assessed pursuant to paragraph 3 of this Section. Additional violations shall be deemed to occur and additional civil penalties may be assessed pursuant to paragraph 3 of this Section each time a person fails to pay or perfect an appeal under paragraph 5 of this Section.

5. When the department, municipality or local agency has assessed costs or a civil penalty pursuant to paragraphs 3 or 4 of this Section, the person assessed with the costs or civil penalty shall then have thirty (30) days to pay the costs or penalty in full. If the person wishes to contest the penalty or the fact of the violation, the person shall have a right to an appeal de novo pursuant to Section 16 of the Act. The person shall forward the amount of the civil penalty to the Township within the thirty-day period for placement in an escrow account with the State Treasurer or any bank in this Commonwealth, post an irrevocable letter of credit issued by a Federal or Commonwealth-chartered lending institution or post an appeal bond to the agency or entity assessing the civil penalty within such thirty (30) days in the amount of the assessed civil penalty or other such amount as may be approved by a court of competent jurisdiction or the Environmental Hearing Board. The bond must be executed by a surety licensed to do business in this Commonwealth and in a form satisfactory to the agency or entity assessing the civil penalty. If through administrative or final judicial review of the proposed assessed penalty it is determined that no violation occurred or that the amount of the penalty is reduced, the agency or entity which assessed the civil penalty shall, within thirty (30) days, remit the appropriate amount to the person. Failure to make the required deposit in escrow or submit an irrevocable letter of credit or a surety bond as provided in this paragraph shall result in a waiver of all legal rights to appeal the violation or the amount of the penalty.

6. In any case where the Township determines that damage resulting from the violation is of a continuing nature, the Township may impose a weekly assessment of not more than two thousand five hundred dollars (\$2,500) per week for each week the violation continues unabated by the violator. The weekly assessment shall accrue indefinitely after the date of notice of the assessment to the violator.

7. Costs and civil penalties shall be payable to the Township and shall be collectable in any manner provided by law for the collection of debts. If any person liable to pay these costs or penalty neglects or refuses to pay the same after demand, the amount of the costs or civil penalty, together with interest and any costs that may accrue, shall constitute a judgment in favor of the Township upon the real property of the person from the date it has been entered and docketed on record by the prothonotary of Bucks county. The Township may, at any time, transmit to the Bucks County prothonotary certified copies of these judgments, and it shall be the duty of the Bucks County prothonotary to enter and docket them and to index the same as judgments are indexed without requiring the payment of costs as a condition precedent to the entry thereof.

Section IV. Repealer

All ordinances or parts of Ordinances inconsistent with the provisions of this Ordinance are hereby repealed to the extent of such inconsistency.

Section V. Severability

If any section or clause of this Ordinance shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions of this Ordinance which shall be deemed severable therefrom.

Section VI. Effective Date

This ordinance shall be effective immediately upon enactment.

ENACTED AND ORDAINED into an ordinance this _____ day of _____ A.D. 20____, by the Board of Supervisors of Solebury Township, Bucks County in Lawful Session duly Assembled.

TOWNSHIP SUPERVISORS

CERTIFICATION OF ADOPTION

I hereby certify the foregoing to be an exact copy of an ordinance adopted by the Supervisors of Solebury Township , Bucks County, Pennsylvania, at a regular meeting of the Board on _____.

SECRETARY

Appendix A Township Resolution of Adoption

SOLEBURY TOWNSHIP
BUCKS COUNTY, PENNSYLVANIA
RESOLUTION FOR ACT 537 PLAN REVISION
RESOLUTION NO. 2012 159

RESOLUTION OF THE SUPERVISORS OF SOLEBURY TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA (hereinafter "the municipality").

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, requires the municipality 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 municipality, and

WHEREAS, Solebury Township has prepared an "Act 537 Plan Update Revision" which provides for sewage facilities in Solebury Township, and

The selected alternative to be implemented is a Sewage Management Program.

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

NOW, THERE, BE IT RESOLVED that the Supervisors of the Township of Solebury hereby adopt and submit to the Department of Environmental Protection for its approval as a revision to the "Official Plan" of the municipality, the above referenced Facility Plan. The municipality hereby assures the Department of the complete and timely implementation of the said plan as required by law. (Section 5, Pennsylvania Sewage Facilities Act as amended).

I, Gretchen K. Rice, Secretary, Solebury Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Township's Resolution No. 2012-159, adopted August 21, 2012.

SOLEBURY TOWNSHIP
BOARD OF SUPERVISORS:

TOWNSHIP SEAL


Robert Heath Jr., Chair

Attest:


Edward McGahan Jr., Vice-Chair


Gretchen K. Rice


Dominic Marano


James Searing


Paul Cosdon

Appendix B
Planning Comments
Received & Responses

Appendix B. Response to Planning Agency Comments

1.0 Bucks County Planning Commission

Comments were received from the Bucks County Planning Commission in a letter dated July 11, 2012. Modifications were made to the Solebury Township Act 537 Plan Update Revision prior to submission to DEP in response to the Bucks County Planning Commission comments as follows:

1. Water Conservation: updated Section V.F.6.2 of Plan and Section VI.B of draft Sewage Management Ordinance to incorporate recommended language.
2. Sewage Management Ordinance:
 - Added new Section XIII.D to incorporate recommended language about O&M Agreement.
 - Modified Section IV.F to state only BCHD SEO may issue permits.
 - Added new Section IV.I to reference 25 Pa Code §73 for planning, design, siting, construction, operation, maintenance, repair and replacement of OLDs.
 - Modified Section VII, Operations to incorporate BCDH recommended language.
 - Added new Section X, OLDs Alternatives per BCDH recommended language.
 - Add new Section V for Replacement Areas.
3. Added new Section V.H for Selection of Sewage Disposal Alternatives per BCDH recommended language.
4. Consistency with Comprehensive Plans: Replaced the 1993 excerpts from the Bucks County Comprehensive Plan in Exhibit VI-1 with excerpts from the 2011 Bucks County Comprehensive Plan.

2.0 Bucks County Department of Health

Comments were received from the Bucks County Department of Health on December 19, 2012. Modifications will be made to the Solebury Township Act 537 Plan Update Revision in response to the Bucks County Department of Health comments after DEP has reviewed the Act 537 Update Revision as follows:

1. Plan Summary, Paragraph 1.1, Page 6: The Township is aware that DEP may or may not have funds available to reimburse administration costs for implementation of a Sewage Management Program and intends to proceed with such implementation regardless of reimbursement from DEP.
 2. Plan Summary, Paragraph 1.5, Page 7: Paragraph will be revised to include all dwellings in the proposed community system instead of only those lots with malfunctioning onlot sewage disposal systems and those owners who wish to connect to the community system.
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3. Plan Summary, Paragraph E, Page 9: Table PS-4 and Table 8-1 will be modified to add “...Site Constraints **identified in Section II of Plan...**”
4. Plan Summary, Exhibit PS-2, Page 4: BCDH commented on Plan of Study, which was already approved by DEP.
5. Section I, Paragraph 2.0, Page I-4: BCDH commented that Component 2 planning modules are not needed for IRSIS or retaining tanks, however, the DEP Component 2 planning module is used for such onlot systems except if exempted under Component 1. Therefore, no change will be made to this section.
6. Section II, Paragraph 2.0, Page II-5: Aquetong Watershed will be replaced with Primrose Watershed.
7. Section III, Paragraph 2.0, Page III-6: Regulatory malfunctions are defined in the proposed Sewage Management Ordinance in Exhibit V-1 and will be included in this section below Table 3-2, as follows: Regulatory malfunctions represent conditions which occur when an onlot sewage disposal system discharges inadequately treated sewage onto the surface of the ground, into the groundwater or surface waters, or causes the contamination of public or private drinking water supplies, nuisance problems or hazard to human health. Examples of non-regulatory malfunctions may include, but are not limited to, unsuitable locations per current requirements such as onlot sewage disposal systems situated in wetlands, rock or other impervious areas, saturated absorption areas, and high green grass.
8. Section III, Page III-6: Well contamination impacts are discussed in Section V, Paragraph 5.0 on page V-5.
9. Section V, Exhibit V-1, Page 11: Solebury Township Engineer recommends and DEP regulations at 25 Pa. Code §71.72 provide for the ability to establish escrow requirements.
10. Section V, Paragraph 3.2, Page V-4: Peat filter will be added to the A/B Soil System description.
11. Section V, Paragraph 6.1, Page V-10: This paragraph will be revised to read: Regular inspections extend the life of an onlot sewage disposal system and help the homeowner avoid unnecessary and expensive repair and replacement costs. Solebury Township will make public education materials available to homeowners, such as EPA’s *A Homeowner’s Guide to Septic Systems* in Exhibit V-6. Such guidance provides information to help homeowners understand their systems. It is the homeowner’s responsibility to maintain their onlot sewage disposal system and part of this responsibility may involve periodic inspections by a trained professional, such as a PSMA (Pennsylvania Septage Management Association) certified inspector, to make sure the system is working properly.
12. Section V, Paragraph 3.1, Page V-3: Planning module Components 1, 2 and 4 will be added to the bulleted statement with Component 3 reviews and approvals.

3.0 Solebury Township Planning Commission

Comments were received from the Solebury Township Planning Commission in a memo dated August 1, 2012. The Township Planning Commission comments focused primarily on the Sewage Management Ordinance in Exhibit V-1. No additional modifications were made to this Ordinance as the comments

were received after the 60-day public agency comment period. In addition, the Township prefers to have DEP comments before making any other modifications to the Ordinance. Other Township Planning Commission comments deal with specific nuances of Plan implementation, which the Township will develop following DEP approval.



May 24, 2012

Lynn T. Bush, Executive Director
Bucks County Planning Commission
The Almshouse, Neshaminy Manor Center
1260 Almshouse Road
Doylestown, PA 18901

Re: Draft Act 537 Sewage Facilities Plan
Solebury Township, Bucks County

Dear Lynn:

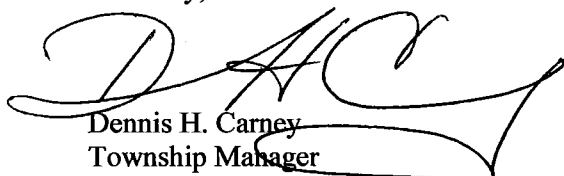
Enclosed is a draft copy of the Solebury Township Act 537 Sewage Facilities Plan, Official Plan – Update Revision for your review and comment. The Act 537 Plan addresses proposed sewage management program alternatives for onlot sewage disposal systems in Solebury Township.

Solebury Township proposes to adopt the Act 537 Plan after addressing any comments received from the public or appropriate planning commissions.

As you are aware, one of the requirements of the Act 537 Plan submission to DEP is to provide evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies. We are forwarding the enclosed document to you to meet this requirement. All comments will be considered and written responses will be provided to the Commission and included in the Act 537 Plan before submission to DEP for review and approval. In accordance with DEP guidance, you are entitled to a 60-day review period.

Please contact us if you have questions or need additional information.

Sincerely,



Dennis H. Carney
Township Manager

Enclosure

cc: Judy Musselman, CET-GHD



BUCKS COUNTY PLANNING COMMISSION

The Almshouse Neshaminy Manor Center 1260 Almshouse Road
Doylestown, Pennsylvania 18901 215.345.3400 FAX 215.345.3886
E-mail: bcpc@co.bucks.pa.us

COUNTY COMMISSIONERS:

Robert G. Loughery, *Chairman*
Charles H. Martin, *Vice Chairman*
Diane M. Ellis-Marseglia, *LCSW*

PLANNING COMMISSION:

Edward Kisselback, *Chairman*
David R. Nyman, *Vice Chairman*
Walter S. Wydro, *Secretary*
Joseph A. Cullen, *ESQ.*
James J. Dowling
Raymond W. Goodnoe
Darrin Hoffman, *CFP**
Robert M. Pellegrino
Carol A. Pierce

Lynn T. Bush, *ACD*
Executive Director

July 11, 2012
BCPC #41-12-WS1

MEMORANDUM

TO: Solebury Township Board of Supervisors
Solebury Township Planning Commission

FROM: Bucks County Planning Commission

SUBJECT: Proposal for an Update to the Official Act 537 Sewage Facilities Plan
Applicant: Board of Supervisors
Received: May 25, 2012
Hearing Date: Not indicated

In accordance with the provisions of the Pennsylvania Sewage Facilities Planning Act (Act 537) and Section 304 of the Pennsylvania Municipalities Planning Code, this proposal was sent to the Bucks County Planning Commission for review. The following review was prepared by the staff and endorsed by the Bucks County Planning Commission at a meeting held on July 11, 2012.

GENERAL INFORMATION

Proposed Action: Update the official Act 537 Sewage Facilities Plan of Solebury Township. The purpose of the plan is to comply with Pennsylvania Department of Environmental Protection requirements under Act 537, the Pennsylvania Sewage Facilities Act, with respect to township-wide sewage facilities planning. The plan analyzes the existing sewage flow characteristics in the township and uses information relative to known proposed development to determine the ability of existing sewage facilities to meet future collection, conveyance, treatment and disposal needs. The plan is intended as a tool for the township to use in the land development process to determine the most effective and environmentally sound method of wastewater management throughout the township, including both sewer and non-sewered areas.

This draft of the Act 537 plan update includes, in Exhibit V-1, the Solebury Township draft ordinance Governing Management of Onlot Sewage Disposal Facilities.

COMMENTS

We commend township officials for undertaking this update of the township's official sewage facilities plan. The plan is comprehensive, well-prepared, and contains informative maps. It explains past Act 537 planning and describes the township's sewage facility planning issues in a clear and concise presentation. The plan provides a useful planning tool that, if used properly, will address the township's short-term and long-range sewage disposal needs. Additionally, the plan will help continue the township's protection and preservation of both groundwater resources, which the township is completely dependent upon for water supply, and surface water resources. We note the following issues for the township's consideration:

1. **Water Conservation**—Section V.F.6.2 discusses the need for low-flow plumbing fixtures, faucets, and showerheads to minimize the amount of water entering on-lot sewage disposal systems. We recommend this section be revised to read as follows:

The township will require use of water conservation devices on all new construction as required by the Delaware River Basin Commission, and more recently required by the Uniform Commercial Code (UCC). Low flow plumbing fixtures, faucets, and showerheads minimize the amount of water entering on-lot sewage disposal systems, thereby helping to ensure proper operation of the system.

2. **On-Lot Sewage Disposal Facilities Management Ordinance (Exhibit V-1)**—We commend the township for including a draft ordinance (Exhibit V-1) for the management of on-lot disposal systems (OLDS). Properly designed and installed OLDS function better and last longer with regular maintenance. Sewage management programs, including public education and an implementing ordinance, ensure that OLDS are properly operated and maintained. Various options are available to municipalities for ensuring performance of routine operation and maintenance for new and existing OLDS. Although the draft ordinance is comprehensive, we would recommend that the draft ordinance be revised as follows:

- Include a requirement specifying that prior to the execution of an agreement of sale for any property or lot containing an on-lot sewage disposal facility, that the Seller provide the Buyer with a copy of the township maintenance requirements of the system and a copy of the Maintenance and Repair record. In the Agreement of Sale the Buyer's acknowledgment of the receipt of the Sewage Maintenance Agreement should be provided.
- Section IV—Permit Requirements

We suggest amending subsection "F" as follows:

Individual or community sewage disposal permits may be issued only by a Sewage Enforcement Officer employed by the Bucks County Department of Health per the requirements of PA Code Title 25, Chapter 72.

We suggest adding a new subsection "I" as follows:

The planning, design, siting, construction, maintenance, repair, and replacement of any On-lot Sewage Disposal System shall be done in accordance with the

requirements of PA Code Title 25, Chapter 73, and Standards for On-lot Sewage Treatment Facilities.

- Section VI—Operation

We suggest subsection “A” be amended to read as follows and that this same wording be used in the development of On-Lot Sewage Maintenance Agreements:

In accordance with the requirements of PA Code Title 25, Chapter 73, Standards for On-Lot Sewage Treatment Facilities, only normal domestic wastes including kitchen, bathroom, and laundry waster and water softener backwash water shall be discharged to any On-Lot Sewage Disposal System. Sewage which contains any of the following shall not be discharged into any individual or community sanitary sewage disposal system:

- i. Industrial waste (without appropriate pretreatment)
- ii. Automobile oil and other non-domestic oil
- iii. Toxic or hazardous substances or chemicals, including but not limited to pesticides, disinfectants (excluding household cleaners), acids, paints, paint thinners, herbicides, gasoline and other solvents
- iv. Clean surface or ground water, including water from roof or cellar drains, springs, basement sump pumps and French drains
- v. Wastewater resulting from hair treatment at beauty shops
- vi. Any non-biodegradable materials
- vii. Following or during pumping, backflow from the absorption area
- viii. Surface discharge, ponding or other signs of malfunction in the vicinity of the absorption area

We suggest adding a new subsection “C” as follows:

The use of garbage disposals connected to On-Lot Sewage Disposal Systems is prohibited for new construction and is strongly discouraged for existing systems as they increase the solids in the treatment tank which may necessitate more frequent pumping or may cause improper functioning of the treatment unit.

We suggest adding a new subsection “D” as follows:

All new construction must comply with the Uniform Construction Code (UCC) requirements for water conserving plumbing fixtures and fittings. The township may require the installation of water conservation devices, consistent with the UCC, and other operation and/or maintenance procedures to improve the performance of malfunctioning On-Lot Sewage Disposal Systems.

- We suggest the township include a new Section that outlines the priority of alternatives to be considered for both new and malfunctioning on-lot sewage disposal systems. The language of this new Section might include language similar to the following:
 - A. All lots, existing or proposed, must employ individual or community sewage disposal. The highest priority method of sewage disposal set listed in Section B below that can be technically and administratively implemented on the subject

property must be utilized. If disposal cannot be provided by a higher-rank method than proposed, the applicant must submit a written explanation of the reasons why the given lot is not suitable for these higher-ranked methods, along with the appropriate supporting data. A decrease in the number of dwelling units, businesses, and/or establishments that could be served by a certain method of sewage disposal upon the subject property shall not constitute a valid reason why a higher ranked method is not utilized in favor of a lower priority method. An applicant must show the higher rank methods of sewage disposal will not function upon the subject property before proposing to employ a lower-ranked method.

- B. Sewage Management Priority Table (*Please note the following is provided as an example. The township would need to identify and rank the alternatives they would want to include in this table based on consultation with the municipal engineer.*)

Sewage Management Priority Table (Ranked from High to Low)

1. Individual on-lot sub-surface sewage disposal.
2. Individual on-lot elevated or at-grade sandmound.
3. Individual on-lot residential spray irrigation system (IRSIS).
4. Individual on-lot alternate system.
5. Community on-lot sub-surface sewage disposal.
6. Community on-lot elevated sandmound.
7. Community on-lot spray irrigation system.
8. Individual on-lot A/B soil system (repair only).
9. Experimental system or other system not listed above.
10. Holding tank (Only per BCDH and PaDEP requirements).

- Replacement Areas

Although we recognize that much of the township is comprised of lots of 10 acres or more, we encourage the township to consider including a new Section addressing replacement sewage disposal areas. This proposed section would outline the requirements relative to replacement areas for on-lot sewage disposal facilities including easement requirements, proposed activities within identified replacement areas, and the need to identify a replacement area for new development.

3. **Section V – Alternatives Evaluation**—We suggest renaming the existing Section V.H as section V.I. We suggest incorporating a new Section V.H for the purpose of establishing a process to identify sewage disposal methods that will best protect surface and groundwater sources, including special protection waterways, and provide public utilities to areas zoned for growth. The language of this new Section might include language similar to the following:

Within the designated public sewage area, the recommended alternative is continued use of public sewage collection and treatment. Progression of public sewer within the designated service area shall be consistent with service agreements, proposed development, and need to address areas with public health concerns as determined by the township in consultation with Bucks County Department of Health and/or Pennsylvania Department of Environmental Protection.

Areas outside of the public sewage area shall continue to utilize on-lot sewage disposal systems and shall comply with the provisions of the proposed Onlot Sewage Disposal Facilities Ordinance included as part of this plan (Exhibit V-1). Extension of public sewage collection into a non sewerred area shall be permitted only to abate an existing public health concern.

In conjunction with the adoption of the Onlot Sewage Disposal Facilities Ordinance (Exhibit V-1), the following hierarchy of system types shall be established and are ranked based on their ability to best meet the environmental, financial, and administrative limitations present in Solebury Township. The highest ranking is given to land based disposal type systems which provide the greatest potential for groundwater recharge, and are generally common system types which have a proven history of reliability and minimum required maintenance. The expense and maintenance increases for community systems are preferred where appropriate. The remaining system types are lowest rank as they generally do not provide for groundwater recharge, and tend to be more expensive to install and maintain. Developers will be required to submit documentation to confirm that higher ranked options are not feasible prior to choosing a lower ranked option.

1. Individual on-lot sub-surface sewage disposal.
2. Individual on-lot elevated or at-grade sandmound.
3. Individual on-lot residential spray irrigation system (IRSIS).
4. Individual on-lot alternate system.
5. Community on-lot sub-surface sewage disposal.
6. Community on-lot elevated sandmound.
7. Community on-lot spray irrigation system.
8. Individual on-lot A/B soil system (repair only).
9. Experimental system or other system not listed above.
10. Holding tank (Only per BCDH and PaDEP requirements).

(Please note the list above is provided as an example. The township would need to identify and rank the alternatives they would want to include in this table based on consultation with the municipal engineer.)

4. **Consistency with Comprehensive Plans**—The proposed Act 537 Plan appears to be consistent with the *2002 Solebury Township Comprehensive Plan*. As the township is currently in the process of updating its comprehensive plan, care should be taken to ensure that the proposed Act 537 Plan and the new comprehensive plan are also consistent as they are designed to complement each other. The two tools used together should provide for adequate land use and sewage facilities planning in Solebury Township for the foreseeable future.

However, we would also noticed a discrepancy in the proposed Act 537 Plan relative to consistency with the Bucks County Comprehensive Plan. Exhibit VI-1 of the proposed Act 537 Plan includes a reference to and information from the *Bucks County 1993 Comprehensive Plan*. In 2011, Bucks County adopted a new comprehensive plan, *Bucks County Comprehensive Plan (2011)*. Based on this, the township should update this section of the proposed Act 537 Plan to reflect adoption of this plan. We have provided copies of the Wastewater section of the newly adopted plan for your reference.

Once the plan is approved by the Pennsylvania Department of Environmental Protection, we request that the township send a final copy of the Act 537 plan to the Bucks County Planning Commission in accordance with Section 306(b) of the Pennsylvania Municipalities Planning Code.

PWG:glg

Attachment

cc: Peter Nelson, Esq., Municipal Solicitor
C. Robert Wynn P.E., Municipal Engineer
Scott Cressman, Bucks County Department of Health
Elizabeth Mahoney, PA DEP
Bucks County Water & Sewer Authority
Lambertville, New Jersey Municipal Utilities Authority
Dennis Carney, Township Manager (via email)



May 24, 2012

Bill Roth
Bucks County Department of Health
The Almshouse, Neshaminy Manor Center
1282 Almshouse Road
Doylestown, PA 18901

Re: Draft Act 537 Sewage Facilities Plan
Solebury Township, Bucks County

Dear Mr. Roth:

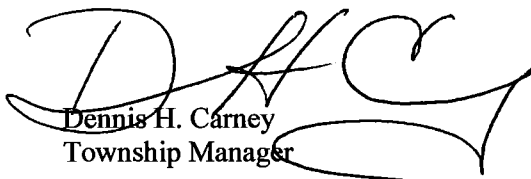
Enclosed is a draft copy of the Solebury Township Act 537 Sewage Facilities Plan, Official Plan – Update Revision for your review and comment. The Act 537 Plan addresses proposed sewage management program alternatives for onlot sewage disposal systems in Solebury Township.

Solebury Township proposes to adopt the Act 537 Plan after addressing any comments received from the public or appropriate planning commissions.

As you are aware, one of the requirements of the Act 537 Plan submission to DEP is to provide evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies. We are forwarding the enclosed document to you to meet this requirement. All comments will be considered and written responses will be provided to the Commission and included in the Act 537 Plan before submission to DEP for review and approval. In accordance with DEP guidance, you are entitled to a 60-day review period.

Please contact us if you have questions or need additional information.

Sincerely,



Dennis H. Carney
Township Manager

Enclosure

cc: Judy Musselman, CET-GHD



CET ENGINEERING SERVICES

October 2, 2012

A Subsidiary of



CLIENTS | PEOPLE | PERFORMANCE

William J. Roth, Bureau Director Environmental Health
Bucks County Department of Health
1260 Almshouse Road
Doylestown, PA 18901

Re: Draft Act 537 Sewage Facilities Plan
Solebury Township, Bucks County

CERTIFIED MAIL NO. 7011 2970 0000 7487 6890
RETURN RECEIPT REQUESTED

Dear Mr. Roth:

Enclosed is a draft copy of the Solebury Township Act 537 Sewage Facilities Plan, Official Plan – Update Revision for your review and comment. The Act 537 Plan addresses proposed sewage management program alternatives for onlot sewage disposal systems in Solebury Township.

As you are aware, one of the requirements of the Act 537 Plan submission to DEP is to provide evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies. We are forwarding the enclosed document to you to meet this requirement. All comments will be considered and written responses will be provided to the BCDH and included in the Act 537 Plan for submission to DEP for review and approval. In accordance with DEP guidance, you are entitled to a 60-day review period.

Please contact us if you have questions or need additional information.

Sincerely,

Judy F. Musselman, QEP
Senior Environmental Scientist

Enclosure

cc: Dennis Carney, Solebury Township wo/Encl
Kelly Sweeney, DEP wo/Encl
Stan Chilson, CET-GHD wo/Encl



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Mr. William J. Roth
 Bucks County Dept. of Health
 1260 Almshouse Road
 Doylestown, PA 18901

PS Form 3800

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. William J. Roth
 Bucks County Dept. of Health
 1260 Almshouse Road
 Doylestown, PA 18901

COMPLETE THIS SECTION ON DELIVERY

A. Signature Agent
 COUNTY OF BUCKS MAILROOM Addressee

B. Received by (Printed Name) C. Date of Delivery

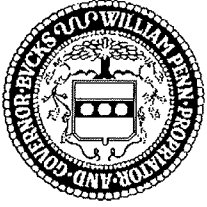
D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

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 Certified Mail Express Mail
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4. Restricted Delivery? (Extra Fee) Yes



2. Article Number (Transfer from service label) 7011 2970 0000 7487 6890



COUNTY OF BUCKS

DEPARTMENT OF HEALTH

Neshaminy Manor Center, 1282 Almshouse Road, Doylestown, PA 18901 - 215-345-3318

FIELD OFFICES

Bucks County Government Services Center, 7321 New Falls Road, Levittown, PA 19055 – 267-580-3510

Bucks County Government Services Center, 261 California Road, Suite #2, Quakertown, PA 18951 – 215-529-7000

County Commissioners

ROBERT G. LOUGHERY, Chairman

CHARLES H. MARTIN, Vice-Chairman

DIANE M. ELLIS-MARSEGLIA, LCSW

Director

DAVID C. DAMSKER, M.D., M.P.H.

December 19, 2012

Solebury Township

P.O. Box 139

Solebury, PA 18963

Notes on the Solebury Township Act 537 Update

The following are comments from the Health Department on the review of the Solebury Township Act 537 Update. Page and Section numbers are indicated prior to the comment.

1. Page 6- The Township will be reimbursed 50% of administrative cost involved in implementing a Sewage Maintenance Program if it complies with 25 PA Code 27.44. *(The township should verify this or get a commitment that this money will be available before starting a program they may not be able to maintain without DEP's cost offsetting.)*
2. Plan Summary Page 7- The construction of a community sewage system should be sized to include ALL dwellings in the community/historic district.
3. Plan Summary Page 9- In the Implementation Schedule (table PS-4 what constitutes site constraints.
4. Exhibit PS-2 Page 4- On lot system... this is supported by DEP.
Where appropriate... a system matrix is a deterrent to the use of new and innovative technology.
5. Section 1, Page 4- Component 2.
Component 2 not needed for IRSIS, or retaining tanks, etc.
6. Section 2, Page 5-
Should read Primrose affected by quarry.
7. Section 3, Page 6 - Regulatory versus non regulatory malfunction.
Discuss types of malfunctions.

8. Section 3, Page 6- Coordinate the numbering (III v 3) to avoid confusion.
Was well construction taken into account for contamination?

9. Section 5, Page 11-Ordinance providing for the OSMP
I strongly disagree with the escrow requirement!
Alternate systems have been tested and approved for use by DEP.
Escrow would be appropriate for Experimental

10. Section 5 Alternatives Evaluation, Page 4- Also peat filter for A/B.

11. Section 5 Alternatives Evaluation, Page 10- To what extent is the inspection done. (PSMA standards?)

12. Section 5, Page V-3- BCDH also reviews Component 1, 2 & component 4.

If you have any questions you can contact me at (215) 345-3323.

A handwritten signature in cursive script that reads "Richard Pasqua" followed by "S.E.O. 01669".

Richard Pasqua
S.E.O. 01669



May 21, 2012

Solebury Township Planning Commission
c/o Jane Wilson, Chair
3092 Sugas Road, P.O. Box 139
Solebury, PA 18963

Re: Draft Act 537 Sewage Facilities Plan
Solebury Township, Bucks County

Dear Ms. Wilson:

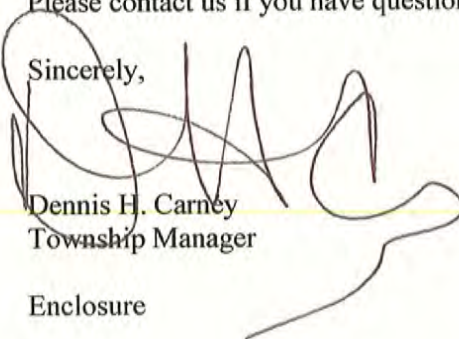
Enclosed is a draft copy of the Solebury Township Act 537 Sewage Facilities Plan, Official Plan – Update Revision for your review and comment. The Act 537 Plan addresses proposed sewage management program alternatives for onlot sewage disposal systems in Solebury Township.

Solebury Township proposes to adopt the Act 537 Plan after addressing any comments received from the public or appropriate planning commissions.

As you are aware, one of the requirements of the Act 537 Plan submission to DEP is to provide evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies. We are forwarding the enclosed document to you to meet this requirement. All comments will be considered and written responses will be provided to the Commission and included in the Act 537 Plan before submission to DEP for review and approval. In accordance with DEP guidance, you are entitled to a 60-day review period.

Please contact us if you have questions or need additional information.

Sincerely,



Dennis H. Carney
Township Manager

Enclosure

cc: Judy Musselman, CET-GHD

To: Solebury Township Board of Supervisors

From: Planning Commission

Date: August 1, 2012

CONCERNING: Comments on the Draft Ordinance Governing Management of On lot Sewage Disposal Facilities

The Planning Commission has reviewed the CD packet of information which contained not only the draft ordinance, but also the background analysis. At our June meeting, J. Chilson, PE, was present on behalf of the Act 537 Sewage Facilities Plan review and we had further discussions at our July meeting. Robert Wynn, Township Engineer, assisted at both meetings.

General Comments on the Ordinance and Assumptions

- The Commission understands that it is a State requirement to have a plan in place and we have reviewed the Ordinance. Our comments on the language and details of the Ordinance are included in this letter.
- The Commission understands that Bucks County Health Department is responsible for the monitoring of the systems and the issuing of permits for system implementation and rehabilitation. The Township doesn't have, and doesn't intend on having, in-house expertise on the systems.
- One of the Commissions major concerns is the expense for the property owner, particularly for elderly residents who live in older homes. The three year interval pumping and inspection could uncover issues that "could" require expensive rehabilitation. The Commission considers it imperative that property owners are protected from pumpers who may take advantage of them – particularly those who are less able to understand the inspection reports and their options.
- Economically, times are pretty tough for a lot of people now especially those on fixed incomes. In Solebury, many older people are owners of older homes, with, in many cases, older septic systems. Many of these systems may not be up to current standards but have worked fine for years and will continue to do so. We realize it's a careful balance between preserving our resources i.e. water and the needs of the community.
- As the requirements of the Ordinance would benefit pumpers, the Commission suggests that the Township investigate ways to lower the pumping costs for homeowners.
- Education on the benefits of the Ordinance as well as options to pay for any required rehabilitation should be a primary goal for the Township. We had some discussion that Home warranty may cover some of the expenses and that there are low interest rate loans may be available from the State. Free documentation would be helpful as a hand-out to residents on how to handle their system, normal care and general maintenance, as well as suggestions for securing funds for any major rehabilitation.
- The Township should have clearly documented procedures for residents to follow when dealing with septic issues once they have been discovered.

- Act 537 is a mandate and required by law for all properties in the community. What would be the consequences of not complying?
- On lot systems are prevalent in our community and, when functioning well, provide water recharge into our area. There is nothing in the Ordinance that speaks to water lost with our communal systems that are treated by the Lambertville plant. Is this concern being addressed in the current review of the Comprehensive Plan?

Comments on the Draft Ordinance.

Section I. Short Title: Introduction: Purpose

No comments.

Section II. Terms and Definitions

No comments.

Section III. Applicability

No comments.

Section IV. Permit Requirements

- This section places the responsibility for permits and construction inspections with the Bucks County Department of Health. As they have the experts and the expertise, the Commission agrees with this.
- The Commission would like an explanation of point H – “Ten acre exemptions are not permitted”. We have had discussions on this, but would like to be informed of the issues that resulted in this point being included in the Ordinance.

Section V. Inspections

- There are no instigating reasons given for the Township to request an inspection. These should be outlined in the Ordinance to protect the propriety owner’s rights to privacy.
- It is not clear from the Draft Ordinance the extent of “testing” could be required during the inspection. The Ordinance describes the physical, but not the chemical testing limits.
- If the acknowledged experts are the Bucks County Department of Health, should they not be stated as the inspectors or entities authorized by them rather than by the Township?

Section VI. Operation

- There is no acknowledgement that there are systems and fixtures in the Township that do not currently comply. Should the language of the Ordinance speak of the permitting of future systems and fixtures, not leaving it open to the Township to require that a functioning system or fixtures be replaced with compliant ones?

Section VII. Maintenance

- Pumping of the resident’s system every three years. We understand that pumping a private on lot system every three years is, on average, a good interval to keep the majority of the systems in good working order. Our understanding is that this recommendation, if followed, will benefit property owners over time by extending the life of their system.

- There is not a clear indication of the ‘testing’ required at time of pumping. The Commission has serious concerns that an overzealous pumper might prey on property owners lacking knowledge of the system requirements and standards and charge for testing and rehabilitation that is not required. If the requirement of periodic pumping is complied with, testing should be done when a problem is observed, and therefore, testing should be excluded from this section.
- Should Point A. also include that the 3-year period begins with the adaptation of the Ordinance to require existing systems to conform?
- As serious septic problems become a health issue for the community, the ordinance should clearly document what steps should and can be taken by the Township and what are the responsibilities of the Bucks County Health Department.
- Point E. : Grading specifics should be for ‘new’ systems only, or if a grading permit is applied for near the system for an unrelated project.

Section VIII. System Rehabilitation

- Point D. – The Township should alert BCDH if they observe any malfunction. What are the steps that they should take if they receive information from a resident about a malfunction on another’s property?

Section IX. Liens

No comment

Section X. Disposal of Septage

No comment

Section XI. Operation and Maintenance Agreements

No comment

Section XII. Administration

- The Commission understands that the Township is assuming the responsibility of maintaining a database of properties and ensuring that property owners comply with the ordinance. This responsibility will only be record keeping and issuing reminders to property owners. The Township already has in use a property database that can be amended to fulfill the necessary record keeping functions.

Section XIII. Appeals

No comment

Section XIV. Penalties

- Should Point B clarify that the person failing to comply is required to start the process, not necessarily to remediate fully the problem. As an example, it would take much longer than 60 days to find an engineer to design a new system, get a loan for the system, find a contractor to do the work and get the approvals and inspections.

Appendix C
Public Notice
Proof of Publication

PUBLIC NOTICE
SOLEBURY TOWNSHIP, BUCKS COUNTY
ACT 537 SEWAGE FACILITIES PLAN UPDATE REVISION

Section 5 of Act 537 of January 24, 1966, P.L. 1535, known as the “Pennsylvania Sewage Facilities Act”, as amended, and Chapter 71.31 of Title 25 of the Pennsylvania Code of the Pennsylvania Department of Environmental Protection Rules and Regulations, requires that this Public Notice be published as a service to the public.

Notice is hereby given that the Board of Supervisors of Solebury Township (Township), Bucks County, has prepared an Act 537 Sewage Facilities Plan Update Revision (Act 537 Plan) for the Township with the stated purpose to protect public health, to prevent sewage disposal problems and to protect groundwater and surface waters of the Commonwealth, especially since there are several high quality watersheds located in the Township.

Treatment alternatives were evaluated as part of the Act 537 Sewage Facilities Plan Update Revision. Alternatives evaluated include expansion of existing public sewer service areas, regionalization of wastewater treatment facilities, ongoing infiltration and inflow efforts, water reuse such as irrigation in public areas and for non-food crops or industrial reuse, small flow treatment facilities with stream discharge, decentralized community treatment facilities with stream discharge, and individual and community onlot sewage disposal systems.

In keeping with the goals of the Solebury Township comprehensive plan, the Township proposes to implement a Sewage Management Program to inventory, operate, inspect, maintain, repair, upgrade or replace onlot sewage disposal systems throughout the Township. Solebury Township’s selected alternative for the purpose of this Act 537 Plan is to continue use of existing and new onlot sewage disposal systems, which may include individual and community subsurface sewage disposal, individual and community elevated or at-grade sand mound beds, individual onlot residential spray irrigation systems, community onlot spray irrigation systems, individual onlot alternate systems, experimental systems or holding tanks, all which must be approved by DEP and permitted by the Bucks County Department of Health.

The Act 537 Plan is available to the public for review and comment for thirty (30) days from publication of this notice. A draft copy of the Act 537 Plan is available for public inspection Monday through Friday, from 8:00 AM through 4:00 PM, at the Solebury Township Building, 3092 Sungan Road, Solebury, PA. Appointments can be made for the public’s convenience by calling the Township.

Additional print copies are available at the following locations for review during their regular business hours:

- Carversville Post Office, 6208 Fleecy Dale Road
- New Hope Post Office, 325 West Bridge Street
- Solebury Post Office, 2996 Sungan Road
- Free Library of New Hope and Solebury, 93 West Ferry Street, New Hope
www.nhslibrary.org/nucleus/

The draft Act 537 Plan is also posted on the Township’s website at www.soleburytwp.org.

Residents of Solebury Township and other interested parties should submit their written comments to Solebury Township, PO Box 139, Solebury, PA 18038. If you are a person with a disability who wishes to review and comment on the proposed Act 537 Plan and require an accommodation to do so, please contact the Township at (215) 297-5656 to discuss how we may best accommodate your needs.

Dennis H. Carney
Township Manager

RECEIVED
JUN 01 2012
SOLEBURY
TOWNSHIP

**PUBLIC NOTICE
SOLEBURY TOWNSHIP,
BUCKS COUNTY
ACT 537 SEWAGE
FACILITIES PLAN
UPDATE REVISION**

Section 5 of Act 537 of January 24, 1966, P.L. 1535, known as the "Pennsylvania Sewage Facilities Act", as amended, and Chapter 71.31 of Title 25 of the Pennsylvania Code of the Pennsylvania Department of Environmental Protection Rules and Regulations, requires that this Public Notice be published as a service to the public.

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The Act 537 Plan is available to the public for review and comment for thirty (30) days from publication of this notice. A draft copy of the Act 537 Plan is available for

public inspection Monday through Friday, from 8:00 AM through 4:00 PM, at the Solebury Township Building, 3092 Sugas Road, Solebury, PA. Appointments can be made for the public's convenience by calling the Township.

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Dennis H. Carney
Township Manager
Solebury Township
11 M 29

Laurie Clark being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the CALKINS NEWSPAPER INCORPORATED, Publisher of The Intelligencer, a newspaper of general circulation, published and having its place of business at Doylestown, Bucks County, Pa. and Horsham, Montgomery County, Pa.; that said newspaper was established in 1886; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

May 29, 2012

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

Laurie Clark

LEGAL BILLING CO-ORDINATOR

Affirmed and subscribed to me before me this 29th day of May 2012 A.D.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Laura Lucisano, Notary Public
Tullytown Boro, Bucks County
My Commission Expires March 16, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Laura Lucisano

**Appendix D
Public Comments
Received & Responses**

Appendix D. Public Comments

No comments were received from the public following the May 29, 2012 public notice placed in The Intelligencer, based in Doylestown, Bucks County.

Appendix E Consistency Documentation

Appendix E. Consistency Documentation

Refer to planning agency comments in Appendix B for support of the Solebury Township Act 537 Sewage Facilities Plan, Official Plan – Update Revision and the Plan’s consistency with various municipal and County laws, programs and policies, which include, but may not be limited to, Comprehensive Plans developed pursuant to the Municipalities Planning Code, Prime Agricultural Land Policy, Stormwater Management Plans, Wetland Protection, and Floodplain regulations.

In addition, Section VI.B of the 537 Plan provides a more thorough description of federal, state, county and municipal consistency reviews. References to some regulations, plans and policies are found throughout the Plan, including links to available documents in the footnotes.



August 3, 2012

Judy Musselman
CET Engineering Services
1240 North Mountain Road
Harrisburg, PA 17112

Dear Ms. Musselman:

This letter serves as clarification that the Draft Act 537 Sewage Facilities Plan dated March 2012, prepared by CET Engineering has been reviewed by the Township administration and Township Engineer for consistency with current SALDO, Zoning and Stormwater regulations.

The plan as presented appears to be in line with current Township regulations.

Should you need anything further, please do not hesitate to contact me.

Thank you

Sincerely,

Dennis H. Carney,
Township Manager

DHC:jmw

cc: Bob Wynn, Township Engineer

**Section I.
Previous
Wastewater Planning**

I. Previous Wastewater Planning

A. Plans & Status of Implementation

The Pennsylvania Sewage Facilities Act (P.L. 1535 No. 537 of January 24, 1966, effective January 1, 1968, as amended, and enforced upon promulgation of rules and regulations) requires that all Commonwealth municipalities develop and implement comprehensive official plans that provide adequate sewage systems for the resolution of existing sewage disposal problems, and for the future sewage disposal needs of new land development and the municipality. Act 537 planning has been a municipal requirement since 1971 in accordance with 25 Pa. Code §§ 71.11—71.44, Official Plan Requirements.

Bucks County has regulated onlot sewage disposal systems since 1956 with permits issued by the Bucks County Department of Health (BCDH). The Bucks County Planning Commission (BCPC) has developed and updated planning documents which are policy-oriented. Bucks County is unable to implement its Plans through ordinances, but presents findings to municipalities for their support and use. Planning Module Components 2 and 3 are reviewed by the BCPC for compliance with the Bucks County Plan.

The following description is a chronological accounting of Bucks County plans and Township 537 plans.

1.0 1970 Bucks County Official Sewage Facilities Plan

In 1970, the Bucks County Commissioners and Planning Commission prepared an Official Sewage Facilities Plan for the County. The plan was an update of the 1960 Master Plan, *Water Supply and Sewage Facilities*, which led to the chartering of the Bucks County Water & Sewer Authority (BCW&SA) in 1962 to implement the plan.

The following recommendations are found in the 1970 Plan for Solebury Township and their resolution to date:

- Construct a small interim treatment plant or provide a sewer extension from New Hope to serve the village of Lahaska.
 - ⇒ In 1975, Solebury Township proposed connecting the village of Lahaska to The Peddler's Village wastewater treatment facility.
- Provide sewer extensions into Solebury Township from facilities in the Borough of New Hope.
 - ⇒ In 1975, Solebury Township adopted a zoning ordinance establishing districts to be served by public sewer extensions from New Hope.
- Consider constructing an interceptor along the Delaware Canal from the Solebury Township boundary with Plumstead Township to a proposed regional treatment plant near Washington Crossing State Park. The main interceptor would receive flows from tributary interceptors along Paunacussing, Aquetong and Pidcock Creeks.
 - ⇒ In 1975, Solebury Township deleted the proposal to consider the interceptor.

2.0 1975 Solebury Township Revision Study

An Official Sewage Facilities Plan Revision Study was prepared by Betz Environmental Engineers for Solebury Township as a revision to the County’s 1970 Plan, and was adopted in 1975. The Study contained the following revisions:

- Investigate the impact of additional discharge from the existing interim treatment plant serving Peddler’s Village to the dry swale and through soil infiltration with the inclusion of wastewater from the village of Lahaska.
 - ⇒ The Peddler’s Village wastewater facility was replaced by the Buckingham Village wastewater facility in Buckingham Township that also incorporated Lahaska Village. This facility is at capacity.
- Local zoning established a “Development District” along Route 202 to be served by sewer extensions from New Hope. Existing services included gravity sewer, a pumping station and force main. Development, anticipated to occur in five to ten years, would be served by new sewer extensions.
 - ⇒ An Agreement was signed in 1983 between Solebury Township and the BCW&SA to provide public sewer service.
- Delete the proposal to consider constructing an interceptor system since no need is projected.
- Serve all areas beyond the “Development District” with on-site sewage disposal systems.

3.0 1975/1982 Lambertville Municipal Utilities Authority 201 Plan

The Lambertville Municipal Utilities Authority (LMUA) initiated a 201 Wastewater Facility Plan in 1975 under the federal construction grants program that resulted in an expansion to 1.5 MGD in 1982. The expansion allowed for sewer extensions in Solebury Township along Route 202 from Old York Road to Kitchens Lane, and the areas along Route 202 between the intersections with Old York Road, along Old York Road, and along Sukan Road from the New Hope Borough boundary to Mechanic Street. The expansion also allowed for the disposal of septage at the LMUA wastewater treatment plant. (Lambertville no longer accepts septage.)

The plan also identified three other suspected problem areas – Centre Bridge, New Hope Hills and along Reeder (Mill) Road – but the incidents of malfunctions were minimal. The plan recommended that the Township implement an OLDS (onlot disposal system) management program.

This plan, approved by DEP on March 8, 1982, is identified on DEP’s website¹ “Act 537 Official Plan Aging for Southeastern Pennsylvania” under MCD Code #09944 as the Township’s current plan.

4.0 1989/1990 Bucks County Wastewater Facilities Plan Update

The Bucks County Planning Commission published a Wastewater Facilities Plan in 1989 as an update to the 1970 County Plan. The 1989 plan established county wastewater facility policies as an element of the county’s Comprehensive Plan update subsequently published in 1993. Volume II of the Wastewater

¹ [Act 537 Official Plan Aging for Southeastern Pennsylvania](#)

Facilities Plan published in 1990 provides analysis and recommendations for the New Hope/Solebury area. The major recommendations specific to Solebury Township include:

- Evaluate extending sewer service to the Sugan Road/Chapel Road Village Center District and the Limited Industrial District.
- Require the evaluation of wastewater alternatives such as community systems for median density development outside the Districts. Incorporate this recommendation in the Subdivision and Land Development Ordinance (SALDO). Solebury Township is encouraged to accept management of community systems.
- Require hydrogeologic analyses for lots less than one acre proposing to use an onlot system especially in areas zoned commercial, industrial or village/residential.
 - ⇒ Solebury Township adopted an ordinance requiring hydrogeologic analyses.
- Provide monitoring and inspection in high density zoning areas without public sewers.
- Ensure coordination between the municipalities and the BCW&SA.
- Adopt water conservation and onlot management programs and ordinances, including the permitting of septage haulers.

These recommendations are addressed in this Update Revision.

5.0 1999 New Hope Borough Act 537 Plan Revision

A revision to the 537 Plan for New Hope and Solebury Township was proposed in 1992 and further expanded in 1998 by Carroll Engineering Corporation for the BCW&SA to provide for improvements and extensions to the BCW&SA's sewer system in Solebury Township and the Borough of New Hope. The plan stated that the sewage flows could be expected to increase by 100 GPD per EDU or 130,000 GPD when a public water system is constructed in New Hope. In addition, the plan addressed methods to relieve an existing blockage in the sewer under the canal.

DEP approved the Plan Revision in August 1999 that provided for the following projects:

- Relocation of the main transmission Pump Station No. 3 from Randolph Street to site adjacent to the Delaware River Bridge in New Hope; increase capacity from 450 GPM to 1,090 GPM; and add an emergency generator.
- Construction of a 12-inch force main from the relocated Pump Station No. 3 across the Delaware River directly to the LMUA wastewater treatment plant.
- Upgrade of Pump Station No. 2 at Waterloo Street to increase capacity to 530 GPM.
- Upgrade of Pump Station No. 6 in Solebury Township to increase capacity to 540 GPM; add a new 80 kW generator; and extend the 8-inch force main 1,100 feet from Pump Station No. 6 to the Pump Station No. 8 force main.

These sewer projects were completed in 2005. The BCW&SA began installing public water service lines in New Hope Borough in 2005.

B. Bucks County Water & Sewer Authority Planning

Both BCW&SA and the LMUA completed upgrades to their facilities recently. The BCW&SA is currently conducting infiltration and inflow studies in New Hope Borough, and LMUA is conducting infiltration and inflow studies in Lambertville. No other known conveyance, treatment or capacity issues have been identified by either Authority.

No extensions to BCW&SA's sewer system are planned at this time. Therefore, no further evaluation of these collection or treatment facilities is conducted for this Update Revision.

C. Solebury Township 537 Plan Revisions, Supplements & Exemptions

DEP reviews and approves new land development sewage facilities planning modules. A developer/landowner's first task is to submit a Sewage Facilities Planning Module Application Mailer to DEP, who will determine which planning forms are appropriate for the project. DEP will assign a project-specific DEP code number and provide the appropriate planning module forms to the developer/landowner for completion. Such planning modules are reviewed first by the Bucks County Department of Health (BCDH) and the Bucks County Planning Commission (BCPC), and then by Solebury Township, which either approves or disapproves the submission. If approved, the planning module is sent to DEP for review and action. Upon final approval, the new developments will be added to the Solebury Township Official Plan.

Exhibit I-1
Subdivision & Water
Quality Permits

Exhibit I-1
Solebury Township
Subdivision & Water Quality Permits

DEP eFacts Name	Subdivision Name	Address	Component / Permit	Issued/ Built	eMap	Acres	# Lots	TMP No.
Residential Onlot Subdivision								
Fox Run Preserve		Route 202	1-09944-315-E	4/2/2001				
Diane Glossman		2820 River Road	1-09944-338-E	10/31/2003				
Solebury Partners	Logan Square	6542 York Road	1-09944-366-E	3/26/2009				
Olya Piccirillo		3087 Creamery Road	1-09944-368-E	10/20/2009				41-13-35
Rosa Project		3533 Windy Bush Road	1-09944-369-2 1-09944-369-E	12/7/2009 3/11/2010				41-36-20-1
Flitter		Windy Bush				45	5	41-35-10
Zaveta Construction	Highland Woods	Aquetong Road	Water Resources	1998-99		120	9	41-36-16
Horn / Pitner	-	6021 Upper Mountain Rd	?			10.5	2	41-21-2-1 to 3
Durham Ridge	Landseer		Water Resources					
George Yerkes	Amroc		Blasting	2002		24		41-18-21
	Stoney Hill Estates	Devonshire Drive	Lower Makefield	1987 / 1995		49	18	41-21-36
Trow		Aquetong Road	1-09944-272-1	10/31/1997				
Zaveta Construction	Barrington Meadows Fay Tract	6062 Lower Mountain Road	1-09944-278-1 PAS10-D108	9/2/1998 9/29/1998		29	7	41-22-84
O'Donnell Tract		Lower Mountain Road	1-09944-279-1	12/30/1998		83	8	41-21-14
Vonzelowitz		Paxson Road	1-09944-276-1	2/6/1998		82	7	41-13-55
Worth		Stovers Mill Road	1-09944-274-1	3/4/1998				
Sylvester		6292 Sawmill Road	1-09944-321-1	8/26/2002		0.67	1	41-2-93-3
Trojnacki	Canterbury Woods?	3005 Aquetong Road	1-09944-320-1	11/18/2002		27	7	41-13-9
Biddington		1180 Street Road	1-09944-328-1	12/29/2003		70+	9	41-21-34
Lucas		Aquetong Road	1-09944-332-1	9/4/2003				
Gateshead North			1-09944-336-1 1-09944-336-1	4/12/2004 6/10/2004		30		41-2-50
Gateshead South	Rolling Green 2	Route 202 at Aquetong Road	1-09944-339-1	6/10/2004		40		41-2-50
Steven Grabowski	Grabowski	Meetinghouse Road	PAI010904011	11/24/2004	x	24		41-22-175-1
Michael Welch	Crosscreek Farm	6356 Meetinghouse Road	PAI010905018 1-09944-346-1	9/15/2005 2/28/2006		96.3	2	41-22-51
Raymond Farm		Pidcock Creek Road	1-09944-351-1	2/17/2006		133		41-36-62
The Stone Foundation		2581 Street Road	1-09944-348-1	3/7/2005		29.7	1 + 3	41-3-555
McArdle	McArdle	3425 Aquetong Road	1-09944-361-1	5/6/2008				41-2-85
JC Realty Group LLC	Chiesa Tract	7056 Ely Road	1-09944-364-1	2/6/2009				41-18-125
108 Autumn Trace Drive		108 Autumn Trace Drive	1-09944-367-1	5/8/2009				
George E Michael Inc.	Avignon	Street Road	1-09944-270-2	7/30/1999		64	38	41-8-10

Exhibit I-1
Solebury Township
Subdivision & Water Quality Permits

DEP eFacts Name	Subdivision Name	Address	Component / Permit	Issued/ Built	eMap	Acres	# Lots	TMP No.
Residential Onlot Subdivision								
Benjamin Newman	Newman Tract	Aquetong Road	1-09944-283-2	7/25/2000		72	36	41-2-87
Estate at Woods Edge	(Symphony)	Woods End Drive	1-09944-314-2	11/24/2003			11	41-44-3
Watson Tract	Sage Meadows (5991?)	4991 Pidcock Creek Road	1-09944-319-2 1-09944-319-2A	3/24/2004 2/15/2005		85		41-21-33
Bernard E. Berlinger Jr	Berlinger	6066 Saw Mill Road	1-09944-349-2J PAI010904002	8/26/2005 4/20/2004	x	64		41-1-26
Zaveta Construction	Rockwood Farms	1780 Aquetong Road	1-09944-337-2J	1/10/2005		117+	13+2	41-36-108
Waldman Tract		6415 Meetinghouse Road	1-09944-356-2	3/18/2008				41-22-3-1
Cannon Tract		3588 North Sugan Road	1-09944-360-2	12/31/2008				
Roeser Conservation	Roeser Conservation	2101 Street Road	1-09944-365-2L	5/19/2009				41-21-006
Marshall	Marshall	Route 202	1-09944-266-3H	8/20/1999				
Darlington SRSTP (Tributary to Rabbit Run)	(Stephen & Jesse Darlington)	65 Bogle Drive	1-09944-358-3S	12/29/2008				41-31-45
North Pointe	Marshall Tract		PAS10-D111	4/5/2000				
Jonathan Brown	Tuckwimensign Farm Tract	3161 Creamery Road	PAS10-D121	1/17/2002	x	116		41-13-33
Zaveta Construction	Swan Tract	Sawmill Road	PAS10-D122	1/17/2002	x	70.5	30	41-2-60
Antoinette & Peter Schwalm		Old York Rd	PAI010903011	1/12/2004				
Jon Spivak		3745 Aquetong Road	PAI010903010	1/12/2004				41-2-54-4
Anthony Salvo		Sugan & Meetinghouse Roads	PAI010904018	3/17/2005				41-22-4-2
Carversville Hunt	Carversville Hunt (Guiliano Tract Withdrawn)	6095 Stovers Mill Road	PAI010906040	Pending 2006				
JC McGinn Construction	Rolling Green II - Lot 2	Aquetong Road	PAI010905028	5/10/2007				
Benjamin Miller	Miller Property	Sugan Road	PAI010906038	5/14/2007				
Zalepa Custom Builder	Zalepa Property	3211 North Sugan Road	PAI010907004	Withdrawn				
Stevenson Builder	Aquetong Preserve - Lot 3	Aquetong Road	PAI010906012	7/26/2007				
Robert Mockoviak	Mockoviak Property	2727 Aquetong Road	PAI01091002	8/12/2010				
Alex Yuchkovski	Yuchkovski Property	Aquetong Road	PAI010907002	3/6/2008				
Zaveta Construction	Lot 5 - Indian Ridge	5536 Indian Ridge	PAI010907024	3/11/2008				
Residential NPDES Stream Discharge								
Rossi SRSTF (Tributary to Rabbit Run)		2472 River Road	PAG040041	2/1/06				
Anderson		2472 River Road	PA0055298	3/10/04	500 gpd	0.78	1	41-28-62-1
Dan Todd		3211 North Sugan Road	?					

**Exhibit I-1
Solebury Township
Subdivision & Water Quality Permits**

DEP eFacts Name	Subdivision Name	Address	Component / Permit	Issued/ Built	eMap	Acres	# Lots	TMP No.
Nonresidential Land Application								
Bucks County Housing Development Corp.	New Hope Senior Housing	Sugan Road	1-09933-035-E PAS10-D118	8/8/2001 8/28/2001				
AAA Solebury		439 Lower York Road	1-09944-362-E	5/16/2008				
Holly Hedge B&B		6987 Upper York Road	1-09944-306-2	12/31/2001				
Bridgeway Office Park		Route 202 & Chapel Road	1-09944-324-2	3/14/2005	3500 gpd, 9 EDUs			41-28-67-3
Laurel Park	(Commercial)	3092 Sugan Road	1-09944-352-2	9/29/2006				
Black Bass Hotel		Route 32	1-09944-287-31	Pending 9/16/2002				
Solebury School	12,400 gpd	6832 Phillips Mill Road	1-09944-309-3 WQM No. 0996401	10/9/2001 2006				41-18-79
Fountainhead		6626 Lower York Road	1-09944-327-3J PAI010903003	2/12/2008 4/16/2008		20.3		41-2-54-4
Buckingham Properties, LP	Bank (Onlot via Drip Irrigation)	6444 Lower York Road		2008				41-22-113-1
Aqua PA/Little Washington Wastewater Co.	Peddlers View	Route 202	WQM No. 0993408	pending 02				
Paunacussing Creek Watershed Stream Restoration		Aqueton Road, Logus Lane & Sawmill Road	PAI010909008	1/14/2010				
Peco Energy Inc.	Peco 220 - 12 Right-of-Way	Route 202 Shire Drive	PAI01091008	1/25/2011				
Pungaya Ltd.		11 West Mechanic Street	Industrial Onlot		x			
Questar	Library?	6171 Stony Hill Road	Industrial Onlot		x			41-22-88
Royden Leathers		PO Box 119	Industrial Onlot		x			41-17-11
Schlotter Precision Prod		295 Windy Bush Road	Industrial Onlot		x			
Honey Hollow Farm B&B	Phillips	2799 Creamery Road						41-13-83
Hotel Du Village		2535 River Road						
Lexington House		6171 Upper York Road						41-13-9-1
Nakashima Woodworker		1847 Aquetong Road						
New Hope Crushed Stone								
Rice's Market	30 acres 15,000 visitors	6326 Greenhill Road						41-13-28-2
Grooming Den/Still A Farm		6824 Upper York Road						
Gaybird Farms Kennel		Sawmill Road						
Bucks County SPCA		1665 Street Road						41-21-12
New Hope Auto Body		3757 Windy Bush Road						41-36-32

**Exhibit I-1
Solebury Township
Subdivision & Water Quality Permits**

DEP eFacts Name	Subdivision Name	Address	Component / Permit	Issued/ Built	eMap	Acres	# Lots	TMP No.
Nonresidential NPDES Stream Discharge								
Delaware Canal State Park	(PA DCNR)		1-09944-277-3S WQM No. 0999418 NPDES PA0057738	3/31/1999 9/20/1999 2004				
PHMC	Washington Crossing Park		NPDES PA0042978 WQM No. 0911401	1999 Pending 2011	0.025	MGD		
Texas Eastern Time II Eagle Discharge			NPDES					
Public Sewers - Subdivisions & Permits								
BCWSA Pump Station No. 6 at Rt 202 at 320 gpm			WQM No. 0900402	8/17/2000				
	Highway Commercial						84	
	Aquetong Preserve	Route 202		2001				
	Fox Run	Silver Tail Lane		2001/2002	x		95	
	Fieldstone	Kitchens Lane					202	41-22-81
Pump Station No. 7 at 50 gpm								
	Hermitage						49	
	Ingham Mews	Parchment					69	
	Kingswood II Ph II	Murfield Drive & Stone Hill Road	1-09944-326-2	1/21/2003				
	Logan Square							41-22-143
	North Pointe	Kitchens Lane	3	1999	x		264	41-22-63/66/82
	Wilshire Hunt	Sugan					91	
	Yorkshire Meadows	Route 202					72	
	Dunkin Donuts	Route 202 @ Logan Square					72	41-22-144
Component E: Exemption Component 1: Onlot Systems on Subdivisions <10 lots >1 acre Component 2: IRSIS, All Other Subdivisions not Component 1; Holding Tanks; Composting Toilets; Community Onlot; >10,000 gpd Onlot Component 3: Treatment Facilities; Sewer Extensions >1 Lot								

Section II.
Physical Impacts on
Water & Wastewater
Resources

II. Physical Impacts on Water Resources & Wastewater Systems

This section discusses the effects and constraints on water supply and wastewater disposal by land use activities and the natural environment – planning, surface water, groundwater, soils, geology, topography, potable water supplies, wetlands and floodplains. Site constraints specific to on-lot sewage systems are detailed in 25 Pa. Code §73 and may include, but not be limited to, the following:

- Slope of proposed absorption area or spray field must not be greater than 25 percent.
 - Proposed absorption area or spray field should not be located in a floodway.
 - Proposed absorption area or spray field should not contain one or more rock outcrops.
 - Proposed absorption area or spray fields in areas underlain by limestone should not contain depressions left by earlier sinkholes.
 - Proposed absorption area or spray field may not be placed in or on fill unless the fill has remained in place for more than 4 years to allow restoration of natural permeability.
 - Proposed absorption area or spray field should not be sited in or on undisturbed soils.
 - Minimum horizontal isolation distances between the features named and treatment tanks, dosing tanks, lift pump tanks, filter tanks and chlorine contact/storage tanks shall comply with the following:
 - ⇒ Property line, easement or right-of-way—10 feet.
 - ⇒ Occupied buildings, swimming pools and driveways—10 feet.
 - ⇒ An individual water supply or water supply system suction line—50 feet.
 - ⇒ Water supply line under pressure—10 feet.
 - ⇒ Streams, lakes or other surface waters—25 feet.
 - ⇒ A cistern used as a water supply—25 feet.
 - Minimum horizontal isolation distances shall be maintained between the features named and the perimeter of the aggregate in the absorption area:
 - ⇒ Property line, easement or right-of-way—10 feet.
 - ⇒ Occupied buildings, swimming pools and driveways—10 feet.
 - ⇒ An individual water supply or water supply system suction line—100 feet.
 - ⇒ Water supply line under pressure—10 feet.
 - ⇒ Streams, water courses, lakes, ponds or other surface water—50 feet (for the purposes of this chapter wetlands are not surface waters).
 - ⇒ Other active onlot systems—5 feet.
 - ⇒ Surface drainageways—10 feet.
 - ⇒ Mine subsidence areas, mine bore holes or sink holes—100 feet.
 - ⇒ Rock outcrop or identified shallow pinnacle—10 feet.
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- ⇒ Natural or manmade slope greater than 25%—10 feet.
- ⇒ A cistern used as a water supply—25 feet.
- ⇒ Detention basins, retention basins and stormwater seepage beds—10 feet.
- Minimum horizontal isolation distances shall be maintained between the features named and the wetted perimeter of the spray field:
 - ⇒ Property lines, easements or right of ways—25 feet.
 - ⇒ Occupied buildings and swimming pools—100 feet.
 - ⇒ An individual water supply or water supply suction line—100 feet.
 - ⇒ A cistern used as a water supply—25 feet.
 - ⇒ Water supply line under pressure—10 feet.
 - ⇒ Streams, watercourses, lakes, ponds or other surface waters—50 feet (for the purposes of this chapter wetlands are not surface waters).
 - ⇒ Mine subsidence, boreholes, sinkholes—100 feet.
 - ⇒ Roads or driveways—25 feet.
 - ⇒ Unoccupied buildings—25 feet.
 - ⇒ Rock outcrop—25 feet.
- The area within the wetted perimeter of the spray field may not be sited over an unsuitable soil profile.

A. Planning Areas, Municipal Boundaries & Service Area Boundaries.

Solebury Township's *Planning Area* consists of all the land within the municipal boundaries of the Township.

Solebury Township, a Township of the Second Class, settled in 1690 and incorporated in 1702, and located in east central Bucks County, comprises 26.6 square miles of land and 0.6 square miles of surface water. Bordered by Buckingham Township to the west following Street Road, Plumstead Township to the north and Upper Makefield Township to the south, Solebury Township surrounds the 1 square mile Borough of New Hope on the north, west and south. The Delaware River forms the remainder of the eastern boundary of the Township.

Two areas within Solebury Township of high and medium density development are served by public sewers. In 1983, an agreement between Solebury Township and the Bucks County Water & Sewer Authority (BCW&SA) was executed to provide water and sewer service to a commercial and high-density residential area. The BCW&SA service area is restricted by zoning to the Solebury Residential Development District, the Highway Commercial District, and a portion of the Residential Development Conservation District, comprising 700 acres, all adjacent to the Borough of New Hope along Route 202. Three developments and several commercial users continue to operate their own water systems, while connected to the sewer system for a total of approximately 770 units. The Solebury portion of the BCW&SA sewer system contributes approximately 200,000 GPD of wastewater.

Community water and sewer services are provided to 214 connections in the Peddler’s View development along Street Road and Route 202 near the village of Lahaska. This system was constructed by the developer, and is now owned and operated by Aqua Pennsylvania, Inc. but it is built out; no further connections will occur.

These public and community sewer service areas are shown on **Plate I** of this Plan.

All other lots – approximately 2,500 – are served by individual or community onlot sewage disposal systems or DEP permitted systems as detailed in Chapter III – Existing Needs.

Commercial activities are scattered throughout the Township in residential areas, and are concentrated in some of the Villages. The wastewater characteristics of the nonresidential discharges to residential onlot sewage disposal systems is not currently known.

B. Water Resources

1.0 Surface Water Resources

Surface waters include springs, streams, the Delaware River, impoundments (ponds) and wetlands. Most of Solebury Township’s surface waters lie within the Delaware River Basin, the Middle Delaware-Musconetcong Watershed, USGS Cataloging Hydrologic Unit 02040105. A small area near the western border of the Township identified as the Lahaska Creek Watershed is part of the Crosswicks-Neshaminy Watershed, USGS Cataloging Hydrologic Unit 02040201. The Lower Delaware River corridor, which includes the Solebury Township boundary, is designated a Wild and Scenic River.

The Delaware Canal, constructed in 1832, parallels the River for the entire length of the Township. River water is pumped into 3.3 miles of the canal from Centre Bridge into New Hope for recreational purposes.

Table 2-1 lists the Delaware River Basin watersheds in Solebury that drain toward the river in order from upstream to downstream. The DEP protected use designations are for streams discharging to the Delaware River, as found in 25 Pa. Code § 93.9e. **Plate 2** of this Plan displays the watersheds in the Township.

Table 2-1. Streams in Solebury Township				
Stream	Stream Code¹	Drainage, Square Miles	Acres	25 Pa. Code § 93.9e²/ eMapPA
Paunacussing Creek	03093	7.78	5,086	HQ-CWF, MF
Coppernose (Milton) Creek			362	TSF
Cuttalossa Creek	03090	2.3	1,525	HQ-CWF, MF
Laurel Run			614	TSF
Centre Bridge				TSF
Ely				TSF
Primrose Creek		2.7	1,717	TSF / Non-Attainment
Rabbit Run			268	TSF, MF
Aquetong Creek	03039	8.01	4,929	HQ-CWF, MF
Dark Hollow Run			432	TSF, MF
Leaf Run				TSF

Table 2-1. Streams in Solebury Township				
Stream	Stream Code ¹	Drainage, Square Miles	Acres	25 Pa. Code § 93.9e ² / eMapPA
Pidcock Creek	03002	12.7	8,140	WWF, MF
Lahaska Creek				CWF, TMDL
¹ Streams without a designation discharge into the Delaware Canal ² HQ-CWF – High Quality-Cold Water Fish, TSF – Trout Stream Fish, WWF – Warm Water Fish, MF – Migratory Fish				

Lahaska Creek, a cold water fish stream, also classified as a TMDL stream, is a tributary to the North Branch of the Neshaminy Creek watershed, and drains to the southwest in the far west central area of Solebury Township.

DEP has an ongoing program to assess the quality of waters in Pennsylvania and to identify streams and other bodies of water that are not attaining designated and existing uses as “impaired.” Water quality standards are comprised of the uses (including antidegradation) that waters can support and goals established to protect those uses. Uses include, among other things, aquatic life, fish consumption, recreation, and potable water supply, while the goals are numerical or narrative water quality criteria that express the instream levels of substances that must be achieved to support the uses.

Section 303(d) of the Clean Water Act requires states to list all impaired waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The *2010 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*¹ distributes the waters of the Commonwealth into use attainment categories. None of the streams located in Solebury Township are considered to be impaired by DEP, which means that the waters are attaining their assessed use by aquatic life in accordance with 25 Pa. Code § 93 and are listed in Category 2 of the *2010 Report*.

A Watershed Restoration Action Strategy (WRAS) was developed for the State Water Plan Subbasin 02E “Pidcock Creek and Mill Creek and Tributaries to the Delaware River in Lower Bucks County” in 2004². The WRAS report discusses geology, soils, land use, natural resources, protected habitats and state lands, water quality stream classifications and impairment, future threats, watershed restoration, public outreach, advocacy groups, and available funding of the watershed. WRAS documents are dynamic documents that are to be updated regularly as more information becomes available and as remediation measures are implemented and water quality improvements are documented.

Solebury Township’s watershed consultant has documented riparian conditions, water temperature variations, and other water quality parameters, such as Nitrate and sediment loadings, to determine watershed health within Solebury Township. To maintain and improve the waterways use status, watershed restoration initiatives have been undertaken, including, but not limited to, the following:

- Develop nonpoint source pollution management plan for the Paunacussing Creek Watershed by the Partnership for Land Use Management through a Growing Greener Grant I of \$48,000, awarded in 2000.
- Develop awareness in Paunacussing Creek Watershed so effective land use practices are adopted minimizing effects of nonpoint source pollution; including seminars, development of nonpoint

¹ [2010 Pennsylvania Integrated Water Quality Monitoring Assessment Report](#)

² [WRAS Pidcock Creek and Mill Creek and Tributaries to the Delaware River in Lower Bucks County](#)

source association, develop brochure, and encourage countywide collection of hazardous waste by the Partnership for Land Use Management through a Growing Greener Grant I of \$4,990, awarded in 2000.

- Prepare a comprehensive rivers conservation plan for the Paunacussing Creek Watershed by the Partnership for Land Use Management through a DCNR Rivers Conservation Grant of \$23,000 in 2000.
- Streambank stabilization of 200 feet along the Delaware Canal State Park in 2000.
- Assessment of the 17 square mile Pidcock, Mill and Common Creeks Watershed, preparation of restoration and protection plan and public education and outreach by the Bucks County Planning Commission through a Growing Greener Grant I of \$30,000, awarded in 2001.
- Conduct hydrogeomorphic survey of 7.9 square mile Paunacussing Creek Watershed, develop master restoration plan, and streambank restoration recommendations by the Delaware Riverkeeper Network through a Growing Greener Grant I of \$60,000, awarded in 2001
- Organization of the Pidcock Creek Watershed Association awarded in 2002.
- Streambank stabilization of approximately 800 feet of Curl's Run, a tributary to Pidcock Creek, by the Bucks County Conservation District through a Growing Greener Grant I of \$20,639, awarded in 2005.
- Issuance of a report on the Aquetong Creek by the Bucks County Chapter of Trout Unlimited describing the feasibility of reestablishing a sustainable cold water fishery in the watershed in November 2006.
- Organization of the Aquetong Watershed Association by the Bucks County Conservation District through a Growing Greener Grant I of \$6,408, awarded in 2008.
- Prepare a master site development plan for the 114-acre Honey Hollow site by the Heritage Conservancy through a DCNR Community Conservation Partnerships Program (C2P2) grant of \$16,000, awarded in 2008.
- Assessment of the Aquetong Watershed, including training, education and outreach by the Bucks County Conservation District through a Growing Greener Grant I of \$47,000, awarded in 2009.
- Organization of the Primrose Creek Watershed Association by the Bucks County Conservation District through a Growing Greener Grant I of \$6,457, awarded in 2010.

Contaminants that may be present in surface waters or groundwaters include:

- Viruses and bacteria that may come from sewage, septic systems, livestock operations, pets and wildlife.
 - Inorganic substances, such as salts and metals from natural erosion, or from stormwater runoff, household wastes, industrial production or farming activities.
 - Pesticides and herbicides from a variety of sources, such as agriculture, stormwater and residential uses.
 - Organic chemicals from stormwater runoff, household wastes and septic systems.
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DEP has prepared a State Water Plan,³ which offers guidance to those who make decisions that affect water resources in their communities and who make decisions based upon the availability of water of adequate quantity and quality. The Delaware Region is one of six major drainage basins in Pennsylvania. Each of the six regions has established Regional Water Resources Committees. The Delaware Regional Water Resources Committee has established two main priorities as follows:

- Link land use decisions and water resources management.
- Improve management of water resources, including stormwater and wastewater, and waterway corridors to reduce damage from extreme conditions, such as floods and drought.

In addition, a Pennsylvania Water Atlas⁴ of the State Water Plan has been developed for each of the six regions.

The source of Aquetong Creek is Ingham Spring, the largest spring in southeastern Pennsylvania, flowing at 2,000 GPM, which is impounded by a dam built in the 1870s that creates the 15-acre Aquetong Lake. The Township is actively pursuing the improvement to Ingham Spring and Aquetong Lake.

Several other impoundments in Solebury Township are also regulated by DEP, Sukan Lake and Solebury Farm Dam, which is designated by DEP as a high-hazard dam on a tributary to the Paunacussing Creek. A study of the five major watersheds conducted by the Township's watershed consultant inventoried over 250 ponds.

Plate 2 of this Plan shows the water bodies, streams and watershed boundaries within Solebury Township.

2.0 Groundwater Resources

Solebury Township is completely dependent on groundwater for water supply. As of the first quarter of 2011, the Pennsylvania Topographic and Geologic Survey has cataloged over 1,200 wells in Solebury Township, mostly from data supplied by well drillers.⁵ The oldest wells drilled date back to the 1930s and 1940s.

Since the introduction of water under pressure, residential use of water has increased from 5 to 62 gallons a day per person, straining the water source to meet the demand. Solebury Township's watershed consultant continues to conduct studies, including groundwater and surface water monitoring, to determine whether current and projected groundwater withdrawals exceed or threaten to exceed the sustainable yields of local groundwater aquifers. Two distinct areas of the Township have been identified to date as being impacted by water withdrawals. Groundwater extracted at the New Hope Crushed Stone and Lime Company quarry has potential negative impacts in the Primrose Watershed. Extensive water withdrawals along the Route 202 corridor have been found to result in a net water loss from the Aquetong Watershed.

³ [State Water Plan](#)

⁴ [Delaware Region Water Atlas](#)

⁵ [PA Groundwater Inventory System](#)

Groundwater recharge – the return of surface water to the aquifer – is affected by the infiltration and runoff rates of soils, the fracturing of the underlying geologic formations (bedrock), and the runoff from various land uses such as woodlots or development, and the quality of stream banks (riparian corridor).

Groundwater quality is affected by chemical uses such as pesticides, herbicides and fertilizers, and by well depth, location and construction, well abandonment, and well water withdrawal rates. Sources of groundwater contamination may include underground storage tanks, onlot sewage disposal systems, agricultural runoff and stormwater runoff.

The Middle Delaware River Conservation Plan,⁶ prepared by The Heritage Conservancy in conjunction with 12 municipalities in Pennsylvania and New Jersey, including Solebury Township, and funded through DCNR, was published in March 2004, and states:

“The conservation of groundwater resources through proper sewage facilities planning was one of the primary objectives identified by the Middle Delaware River Conservation Plan. Communities should monitor existing systems and educate residents on the benefits of regular inspection and maintenance of their individual systems. In areas undergoing new development, alternative methods of wastewater treatment and disposal should be investigated and encouraged to best meet the restrictions of underlying soils characteristics. Alternative dispersal methods might include drip irrigation, sand mounds or evapotranspiration trenches.”

C. Soils

Soil characteristics, such as depth to rock, depth to saturated soil conditions, slope and permeability are used to determine suitability for onlot sewage disposal systems. A list of the soil types in Solebury Township and their physical and restrictive characteristics, as found in the 2008 Soil Survey of Bucks County is contained in **Exhibit II-1**.

The soils without limits are generally suitable for conventional septic tank and drain field systems. Soils with limitations on the use of conventional systems due to slope, depth to rock, high water table or redoximorphic features, and permeability may be suitable for alternate systems, such as drip irrigation or peat filters. Severe limitations, such as hydric soils and slopes greater than 25%, prohibit the use of any type of land application of sewage.

These designations, however, only describe general suitability of the soils group. Conditions of suitability may vary within a particular group. A site-specific evaluation is necessary, therefore, to determine suitability according to the standards found at 25 Pa. Code § 73, ‘Standards for Onlot Sewage Treatment Facilities’⁷ and DEP’s *Alternate Systems Guidance*⁸. Due to the variability in soils and the many possible “limiting zones” due to the site-specific hydrology, soil disturbance, soil formation, etc., all-encompassing suitability statements are not possible. In fact, although soils in Solebury Township generally have limitations for onlot sewage disposal systems, onlot sewage disposal systems have been, and are currently being, approved in the Township when they comply with the site requirements.

⁶ [Middle Delaware River Conservation Plan](#)

⁷ [25 Pa. Code § 73. Standards for Onlot Sewage Treatment Facilities](#)

⁸ [Alternate Systems Guidance](#)

As described in the *Instructions for Completing Component 2, Individual and Community Onlot Disposal of Sewage* (3800-FM-WSFR0352)⁹, DEP requires additional efforts during planning for project sites that are considered marginal for short-term or long-term sewage facilities needs of an area due to one or more of the following conditions:

- Areas of suitable soils intermixed with areas of unsuitable soils as documented by soil profile examinations.
- Areas suitable for sand mounds with slopes over 12%.
- Areas suitable for in-ground systems with areas of slopes over 20%.
- Development densities of more than one dwelling per acre.

Where marginal conditions occur, the following options are presented to ensure the long-term adequacy of the proposed sewage facilities:

- An approved and operating sewage management program.
- Replacement area testing as approved by DEP with documentation.
- Replacement with a community sewage system within five years.
- Subdivide project area into larger lots.

Plate 3, Soils, details the soil suitability, with hydric soils and slopes greater than 25% considered unsuitable for any onlot sewage disposal system. Soils designated as Prime Farmland are detailed on **Plate 3a**. Approximately 6,600 acres or 39% of Solebury Township is classified as Prime Farmland.

In 1986, Solebury Township established an Agricultural Security Area that with amendments now encompasses more than 5,400 acres of active farms, or about one-third of the land area. Another 1,100 acres are currently committed to agricultural uses. **Plate 3a** shows the current Agricultural Security Areas within the Township.

D. Geology

Geology influences the soils, landscape, fracture density and aquifer permeability. The principal consolidated bedrock geologic units underlying Solebury Township are:

- Sandstones and quartz conglomerates in the northern part.
- Carbonate rocks – limestone and dolomite – in the central part (Buckingham Valley).
- Diabase in the higher elevations at Solebury Mountain.
- Mudstone, siltstone and shale (Brunswick Formation) in the southern part.

An unconsolidated geologic unit of sand, gravel, silt and clay forms a thin band along the Delaware River. The lithology of Solebury Township is shown in **Table 2-2**.

⁹ [Instructions for Completing Component 2, Individual and Community Onlot Disposal of Sewage](#)

Table 2-2. Geologic Lithology		
Symbol	Geologic Unit	Geologic Description
Cal	Allentown Formation	Dolomite / Limestone / Chert / Siltstone
Ob	Beekmantown Group	Limestone / Dolomite / Chert
TRb	Brunswick Formation	Mudstone / Shale / Siltstone / Argillite
Jd	Diabase	Igneous Rock
Clv	Leithsville Formation	Dolomite / Shale / Chert / Sand
TRl	Lockatong Formation	Argillite / Shale / Limestone / Black Shale
TRs	Stockton Formation	Arkose / Siltstone / Sandstone / Mudstone
TRsc	Stockton Conglomerate	Conglomerate / Sand / Sandstone
Qt	Trenton Gravel	Sand / Clay or Mud / Silt / Gravel / Alluvium

From Lahaska to the Delaware River at Phillips Mill, Solebury Township is bisected by a mile wide band of Cambrian and Ordovician Age older rocks of the Allentown Formation. Smaller areas of limestone and dolomite in the Beekmantown and Leithsville Formations are adjacent to the Allentown Formation.

Limestone and dolomite are the raw materials used in construction, agriculture and manufacturing industries. The New Hope Crushed Stone and Lime Company operates a quarry in the Primrose Creek watershed. Abandoned historical limestone mines and kilns can be found throughout the Aquetong Creek watershed.

North of the limestone band, the Stockton Formation of sandstone is moderately fractured. Delaware Quarries operates a sandstone quarry in Lumberville.

South of the limestone band, the Brunswick Formation of mudstone, siltstone and shale is bisected by a diabase dike that consists of hard rock with few fractures and low water yield in wells. The diabase underlies the largely wooded Solebury Mountain, which is one of the largest interconnected woodland habitats in Bucks County and was identified as a site for conservation in the *Natural Areas Inventory of Bucks County*.

Plate 4, Geology & Nitrate Development Limitations, shows the geologic features and boundaries in Solebury Township. The Furlong Fault, oriented southwest to northeast, provides a distinct contact between the carbonate rocks and the Brunswick Formation. Another fault line follows the northeast boundary of the Township.

Ingham Spring, identified as an outstanding scenic geological feature of Pennsylvania, is located along the Furlong Fault in the central part of the Township south of Route 202. The spring, with flows of 2,000 GPM, forms the headwaters of Aquetong Creek. The Bucks County Commissioners approved the open-space acquisition of the 45-acre Ingham Spring and Aquetong Lake property in 2009 through a Natural Areas Program Grant. Solebury Township also contributed toward the purchase of the property to preserve open space within the Township. The Township is characterized by many lower yielding springs in both the carbonate rocks and other bedrock units.

The permeable nature of the carbonate rocks also makes them natural conduits for conveying solid and liquid wastes. Using these conduits, contaminants can rapidly enter the groundwater system and travel long distances underground over a relatively short period of time. Therefore, it is important to be

particularly careful in conducting industrial, agricultural or construction activities in limestone-dolomite areas to prevent the contamination of groundwater resources.¹⁰ A DCNR map showing these areas is included as **Exhibit II-3** to this Plan. Rainwater quickly moves through the crevices into the ground, sometimes leaving the surface soil parched between rains.

Plate 4, Geology & Nitrate Development Limitations, also includes well water survey results with Nitrates >5 mg/L that dictate the planning on lots within the ¼ mile of shaded boundary shown due to the potential for Nitrate contamination to the drinking water source. All known public water supply wells with Nitrate concentrations exceeding 5 mg/L, as discussed in paragraph F, Potable Water Supplies, of this section and as listed in **Exhibit II-5**, are also shown on **Plate 4**.

E. Topography – Suitable Slopes

Solebury Township lies within the Gettysburg-Newark Lowland Section of the Piedmont Physiographic Province.¹¹ A map of the Physiographic Provinces is included as **Exhibit II-4** of this Plan. The dominant topographic landforms are rolling lowlands, shallow valleys and isolated hills ranging in elevation above sea level from 20 feet along the Delaware River to 142 feet at the summit of Solebury Mountain.

Plate 5, Topography & Slopes, highlights the three slope ranges indicating suitability for onlot sewage disposal systems. Slopes up to 15% are suitable for conventional onlot sewage disposal systems, while slopes of 15% to 25% can accommodate alternate systems. Slopes greater than 25% are considered unsuitable for onlot sewage disposal systems. The soil survey map unit descriptions are used to delineate slopes, which are shown as 0-15%, 15-25% and >25%, where possible. Refer to **Exhibit II-1** for a list of soils and their corresponding slopes.

Karst topography is generally the result of mildly acidic rainfall acting on soluble limestone or dolomite bedrock. The process of subsurface rock dissolution results in a topography with distinctive features, including sinkholes or dolines (closed basins), vertical shafts, disappearing streams and springs. Sinkholes have developed in the Primrose Creek watershed, especially where the water table levels have been lowered more than 100 feet due to the New Hope Crushed Stone & Lime Quarry's withdrawal rates. Sinkholes in Solebury Township as catalogued on DEP's eMapPA website are shown on **Plate 4**, Geology & Nitrate Development Limitations.

Groundwater in karst areas is just as easily polluted as surface streams. All too often, sinkholes have been used as farmstead or even community trash dumps. In karst areas, where onlot sewage disposal systems are the main sewage disposal system, overloaded or malfunctioning systems may discharge wastewater directly into underground channels.

F. Potable Water Supplies

All potable water supplies in Solebury Township are provided by groundwater wells.

1.0 Community Water Systems

The Bucks County Water and Sewer Authority (BCW&SA) is the largest community water system in Solebury Township and provides water service to an area that is approximately the same service area as

¹⁰ [DCNR, Map 15 – Limestone and Dolomite Distribution in Pennsylvania, 2000](#)

¹¹ [DCNR, Map 13 – Physiographic Provinces of Pennsylvania, 2000](#)

the public sewer system, although some of the users in the Highway Commercial district continue to use individual wells. See **Plate 1** for the boundaries of the BCW&SA’s water service area. BCW&SA uses the groundwater sources identified on **Table 2-3** of this section. These sources are located in the Brunswick Aquifer.

Table 2-3. BCW&SA Sources of Water in Solebury Township			
Water Service Area PWSID No. 1090129 Fieldstone / North Pointe / Solebury	Population	No. of Connections	Storage Tank
	1,500	530	500,000 Gal
Water Source – Wells:	Depth, ft.	Safe Yield GPD	Pumping Capacity, GPD
S-1 at Sугan Road (1981)	400	49,400	86,400
S-2 at Wilshire Drive (1988)	500	46,800	93,600
S-3 at Creekside Drive (2000)	555	208,800	216,000
Water Service Area PWSID No. 1090160 Fox Run	Population	No. of Connections	Storage Tank
	378	108	294,000 Gal
Water Source – Well:	Depth, ft.	Safe Yield GPD	Pumping Capacity, GPD
FRP1 at Bob White Road (1999)	319	144,000	144,000

Pumping capacities and safe yields of the permitted wells have been compiled from BCW&SA’s 2010 Annual Water Quality Reports¹² and from DEP’s ‘Drinking Water Reporting System’ website¹³ on **Table 2-3** of this section. The BCW&SA’s 30-day withdrawal in Solebury Township is limited to about 500,000 GPD, with actual use averaging about 125,000 GPD.

BCW&SA also owns and operates PWSID No. 1090310 for the New Hope water service area in New Hope Borough. This water system consists of a surface water withdrawal from the Delaware River at Rabbit Run, Riverwood Wells 1 and 2 located near Village II, a well located at the rear of New Hope Manor, and two wells located off Route 202 in New Hope Borough.

Aqua Pennsylvania, Inc. owns and operates a community water system (PWSID No. 1090147) as well as a public sewer system in the Peddler’s View development near Lahaska. Aqua PA’s Well 3, constructed in 1990, has a safe yield of 109,000 GPD and a current use of about 34,000 GPD.

Six other community water systems in Solebury Township have pumping capacities in excess of 800,000 GPD and currently serve more than 2,000 people. These water systems are owned and operated by the Hermitage Condominium Association (PWSID No. 1090102), Ingham Mews Condominium Association (PWSID No. 1090103), Peddler’s Village (PWSID No. 1090153), which is also in Buckingham Township, Solebury School (PWSID No. 1090030), Village 2 Homeowners Association (PWSID No. 1090040), and the Yorkshire Meadows Condo Association (PWSID No. 1090101). More detailed information about the abovementioned community water systems is provided on **Exhibit II-5** to this Plan.

¹² [BCW&SA 2011 Annual Water Quality Reports](#)

¹³ [DEP Drinking Water Reporting System](#)

2.0 Noncommunity Water Systems

Exhibit II-5 also contains a list of the Nontransient Noncommunity Water Systems (NTNCWS) and the Transient Noncommunity Water Systems (TNCWS) in Solebury Township. NTNCWS are defined as those water systems that serve a minimum of 25 of the same persons for at least 6 months out of the year. A TNCWS is a public water system that is not a community, nontransient noncommunity, bottled or vended water system, nor a retail water facility or a bulk water hauling system. The locations of the noncommunity permitted wells are shown on **Plate I** of this Plan.

3.0 Aquifer Yields for Groundwater Supply

Groundwater flow in the Gettysburg-Newark Lowland Section of the Piedmont Physiographic Province, the area of which is depicted on **Exhibit II-4** of this Plan, is dominated by local flow largely controlled by topography, as shown on **Figure 2-1**. The shallow system discharges locally to nearby streams and springs. Deeper, regional groundwater flow is directed to the major streams such as the Delaware River. Groundwater divides may not coincide with surface water divides and may be different for each major water-bearing zone (aquifer) of groundwater flow. Precipitation is the principal source of water that enters the groundwater flow systems. Much of the recharge to groundwater is from late fall to early spring, resulting in a rising water table. During the remainder of the year, rapid plant growth contributes to high evapotranspiration rates, creating soil-moisture deficits that greatly reduce the recharge reaching the groundwater systems, resulting in a lower water table. The water table surface is a subdued replica of the land surface. Water levels generally are closest (shallowest) to land surface in valleys (discharge areas) and deepest on hilltops (recharge areas). Commonly, the water table more closely replicates topography in aquifers with low permeability and storage than in aquifers with high permeability and storage.

As noted on **Plate 4**, Geology & Nitrate Development & Limitations, the aquifer formations present in Solebury Township include those shown on **Table 2-4** of this section. The groundwater yield for wells in each of these aquifers is also provided on **Table 2-4**. As previously mentioned, the wells for the BCW&SA's water service area in Solebury Township are all located in the Brunswick Formation. Other known community water suppliers have wells in the Allentown Formation, Beekmantown Formation and Stockton Formation. In addition to the above named formations, noncommunity water systems and individual residential wells may also be found in the Lockatong Formation.

Most of the more productive aquifers are in carbonate rocks, primarily limestone. Although the water-yielding character of the carbonate rocks depends on the degree of fracturing and development of solution cavities in the rock, the limestone formations generally yield moderate to large volumes of water. Well yields in the carbonate rock aquifers in Solebury Township can range from a few gallons per minute up to hundreds of gallons per minute.

Because of the development of solution cavities in carbonate rocks, these rock formations may contain and yield large quantities of underground water. Areas underlain by limestone and dolomite may supply the water needs of a community through the proper development of the subsurface water resources. Those involved in the planning and development of water supplies should recognize this valuable underground water source.

Diabase consists of hard rock with few fractures and low water yield in wells. Most of the non-carbonate rock formations underlying Solebury Township experience low recharge rates during dry years that result in lowered water tables and diminished stream flows.

Figure 2-1. Topographic, Geologic & Hydrologic Features of Gettysburg-Newark Lowland¹⁴

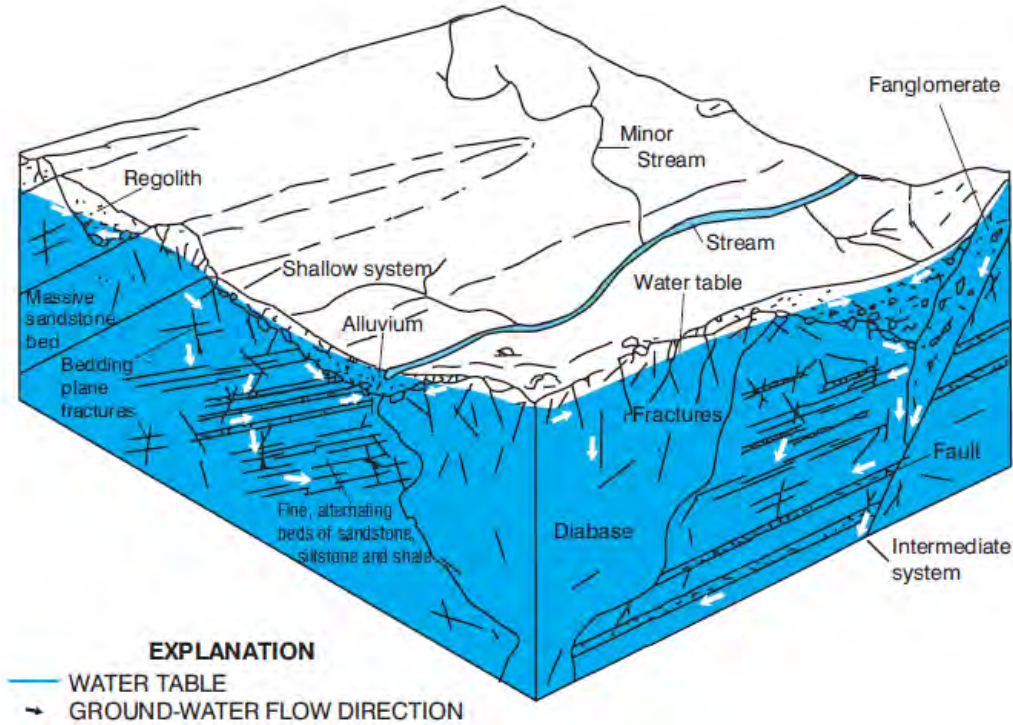


Table 2-4. Groundwater Well Yields

Geologic Formation Name	Reported Well Yields, GPM ^{15,16}	Known PWS Wells in Solebury Township, GPM
Allentown (Cal)	60 – 1,000	55 – 75
Beekmantown (Ob)	Median 50	
Brunswick (TRb)	0.3 – 1,500	60 – 150
Diabase (TRd)	0 – 100	
Leithsville (Clv)	Median 100	
Locketong (TRl)	1.0 – 1,000	
Stockton (TRs)	1.5 – 1,370	

¹⁴ [Geohydrology of Southeastern Pennsylvania](#) by Dennis J. Lowe, Daniel J. Hippe and Dawna Yannacci, USGS, USDI and PADCNr, 2002.

¹⁵ [Geohydrology of Southeastern Pennsylvania](#) by Dennis J. Lowe, Daniel J. Hippe and Dawna Yannacci, USGS, USDI and PADCNr, 2002.

¹⁶ [Middle Delaware River Conservation Plan](#)

G. Wetlands & Floodplains

Plate 6, Wetlands & Floodplains, depicts wetlands identified by the 2010 National Wetlands Inventory (NWI) mapping,¹⁷ hydric soils identified using the 2008 NRCS Soil Survey of Bucks County¹⁸ and floodplains as delineated by FEMA¹⁹.

Hydric soils, comprising over 3,200 acres, are generally found along watercourses coinciding with wetlands and/or floodplains, although hydric soils are often more extensive than wetland areas.

The NWI mapping was compiled by the U.S. Fish and Wildlife Service using color infrared aerial photos indicating soil moisture content. The quality of the maps varies depending on the quality of the photos, the time the photos were taken, and the type of wetlands being identified. Field confirmation can determine the extent of wetlands within Solebury Township. Wetlands delineated during the preparation of subdivision plans can be added to the Township's GIS database. Any proposed new or replacement facilities should avoid wetlands or potential wetlands.

Storm events have caused flooding along the river in Lumberville, Carversville and the Delaware canal, and flash floods in some of the watersheds. Flooding of the Delaware River was recorded in September 2004, April 2005 and June 2006. Flooding on Coppernose (Milton) Creek washed out the Route 32 bridge in June 2006. During flood events, onlot sewage disposal systems and wells have been submerged, people have been evacuated, and PECO Energy has been known to turn off gas and electric power in the area. Potential contamination to wells may occur during flooding events.

¹⁷ [National Wetlands Inventory](#)

¹⁸ [2008 NRCS Soil Survey of Bucks County](#)

¹⁹ [FEMA Map Service Center](#)

Exhibit II-1
NRCS 2008 Soils Data

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	o n l o t	Due to:	Soil Survey Rating ¹
AbA	Abbottstown	silt loam	0-3	—	SI	None	6"-18"	40"-60"	Alt	Water / Bedrock / Permeability	Very Limited
AbB	Abbottstown	silt loam	3-8	—	SI	None	6"-18"	40"-60"	Alt	Water / Bedrock / Permeability	Very Limited
AbC	Abbottstown	silt loam	8-15	1% Knauers	SI	None	6"-18"	40"-60"	Alt	Water / Bedrock / Permeability / Slope	Very Limited
AIA	Alton	gravelly loam	0-3	—	PF	None	>80"	60"-99"	Conv	Permeability	Slightly Limited
AmA	Amwell	silt loam	0-3	3% Croton 3% Doylestown	SI	None	12"-30"	40"-99"	Alt	Water / Permeability	Moderately Limited
AmB	Amwell	silt loam	3-8	3% Croton 1% Doylestown	SI	None	12"-30"	40"-99"	Alt	Water / Permeability	Moderately Limited
AmC	Amwell	silt loam	8-15	1% Croton 1% Doylestown	SI	None	12"-30"	40"-99"	Alt	Water / Slope / Permeability	Moderately Limited
BeA	Bedington	channery silt loam	0-3	—	PF	None	>80"	60"-99"	Conv	Permeability	Slightly Limited
BeB	Bedington	channery silt loam	3-8	—	PF	None	>80"	60"-80"	Conv	Permeability	Slightly Limited
BeC	Bedington	channery silt loam	8-15	—	SI	None	>80"	60"-80"	Conv	Permeability / Slope	Moderately Limited
Bo	Bowmansville-Knauers	silt loam	0-3	40% Knauers	—	Occasional	0"-18"	72"-99"	No	Hydric Soil	Very Limited
BsA	Brownsburg	silt loam	0-3	2% Croton 1% Doylestown	PF	None	>80"	40"-60"	Conv	Permeability / Bedrock	Slightly Limited
BsB	Brownsburg	silt loam	3-8	1% Croton 1% Doylestown	PF	None	>80"	40"-60"	Conv	Permeability / Bedrock	Slightly Limited
BsC	Brownsburg	silt loam	8-15	—	SI	None	>80"	40"-60"	Alt	Permeability / Bedrock / Slope	Moderately Limited
BwB	Buckingham	silt loam	3-8	2% Croton 2% Knauers	SI	None	6"-18"	80"-99"	Alt	Permeability / Water	Very Limited
CbA	Chalfont	silt loam	0-3	7% Doylestown	SI	None	6"-18"	42"-99"	Alt	Permeability / Water	Very Limited

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
CbB	Chalfont	silt loam	3-8	5% Doylestown	SI	None	6"-18"	42"-99"	Alt	Permeability / Water	Very Limited
CmB	Clarksburg	silt loam	3-8	5% Thorndale	PF	None	18"-36"	60"-99"	Alt	Permeability / Water	Moderately Limited
CwA	Croton	silt loam	0-3	90% Croton	—	None	0"-6"	42"-99"	No	Hydric Soil	Very Limited
CwB	Croton	silt loam	3-8	90% Croton	—	None	0"-6"	42"-99"	No	Hydric Soil	Very Limited
CwxB	Croton	silt loam; extremely stony	0-8	85% Croton	—	None	0"-6"	42"-99"	No	Hydric Soil	Very Limited
CyB	Culleoka-Weikert	channery silt loam	3-8	—	SI	None	>80"	20"-40"	Alt	Bedrock	Slightly Limited
CyC	Culleoka-Weikert	channery silt loam	8-15	—	SI	None	>80"	10"-20"	Alt	Bedrock / Slope	Moderately Limited
DaA	Delaware	fine sandy loam	0-3	1% Hatboro	PF	Rare	>80"	72"-99"	Conv	Flooding	Very Limited
DaB	Delaware	fine sandy loam	3-8	2% Hatboro	PF	Rare	>80"	72"-99"	Conv	Flooding	Very Limited
DdA	Doylestown	silt loam	0-3	85% Doylestown	—	None	0"-6"	60"-72"	No	Hydric Soil	Very Limited
DdB	Doylestown	silt loam	3-8	85% Doylestown	—	None	0"-6"	60"-72"	No	Hydric Soil	Very Limited
DfB	Duffield	silt loam	3-8	2% Thorndale	PF	None	>80"	48"-120"	Conv	Permeability	Slightly Limited
DgC	Duffield-Ryder	silt loam	8-15	3% Thorndale	SI	None	>80"	48"-120"	Alt	Permeability / Slope	Moderately Limited
DuA	Duncannon	silt loam	0-3	3% Doylestown	PF	None	>80"	60"-99"	Conv	Permeability	Slightly Limited
DuB	Duncannon	silt loam	3-8	1% Doylestown	PF	None	>80"	60"-99"	Conv	Permeability	Slightly Limited
EcB	Edgemont	channery loam	3-8	3% Andover	PF	None	>80"	42"-84"	Conv	Bedrock	Slightly Limited

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
EcC	Edgemont	channery loam	8-15	3% Andover	SI	None	>80"	42"-84"	Alt	Bedrock / Slope	Moderately Limited
EdD	Edgemont	channery sandy loam; extremely	8-25	3% Andover	—	None	>80"	42"-84"	Alt	Bedrock / Slope	Very Limited
FI	Fluvaquents		0-2	85% Fluvaquents	—	Frequent	0"-6"	72"-99"	No	Hydric Soil	Very Limited
FoB	Fountainville	silt loam	3-8	1% Doylestown	PF	None	18"-30"	40"-60"	Alt	Water / Bedrock / Permeability	Moderately Limited
FoC	Fountainville	silt loam	8-15	1% Doylestown	SI	None	18"-30"	40"-60"	Alt	Water / Bedrock / Permeability / Slope	Moderately Limited
GrB	Glenville	silt loam	3-8	5% Baile	PF	None	6"-36"	60"-99"	Alt	Water / Permeability	Moderately Limited
Ha	Hatboro	silt loam	0-3	95% Hatboro	—	Frequent	0"-6"	60"-99"	No	Hydric Soil	Very Limited
KIB	Klinesville	very channery silt loam	3-8	1% Croton	SI	None	>80"	10"-20"	Alt	Bedrock	Very Limited
KIC	Klinesville	very channery silt loam	8-15	1% Croton	—	None	>80"	10"-20"	Alt	Bedrock / Slope	Very Limited
KID	Klinesville	very channery silt loam	15-25	1% Croton	—	None	>80"	10"-20"	Alt	Bedrock / Slope	Very Limited
KIE	Klinesville	very channery silt loam	25-45	1% Croton	—	None	>80"	10"-20"	No	Bedrock / Slope	Very Limited
LgA	Lansdale	loam	0-3	—	PF	None	>80"	42"-72"	Conv	Bedrock	Slightly Limited
LgB	Lansdale	loam	3-8	—	PF	None	>80"	42"-60"	Conv	Bedrock	Slightly Limited
LgC	Lansdale	loam	8-15	—	SI	None	>80"	42"-60"	Alt	Bedrock / Slope	Moderately Limited
LgD	Lansdale	loam	15-25	—	—	None	>80"	42"-60"	Alt	Bedrock / Slope	Very Limited
LhB	Lansdale	loam; extremely stony	2-8	—	—	None	>80"	42"-72"	Conv	Bedrock	Slightly Limited

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
LhD	Lansdale	loam; extremely stony	8-25	—	—	None	>80"	42"-72"	Alt	Bedrock / Slope	Very Limited
LhE	Lansdale	loam; extremely stony	25-50	—	—	None	>80"	42"-72"	No	Bedrock / Slope	Very Limited
LkA	Lawrenceville	silt loam	0-3	4% Doylestown	PF	None	18"-36"	48"-99"	Alt	Water / Permeability	Moderately Limited
LkB	Lawrenceville	silt loam	3-8	3% Doylestown	SI	None	18"-36"	48"-99"	Alt	Water / Permeability	Moderately Limited
LmA	Lehigh	channery silt loam	0-3	3% Croton 1% Doylestown	PF	None	12"-24"	40"-60"	Alt	Water / Bedrock / Permeability	Very Limited
LmB	Lehigh	channery silt loam	3-8	3% Croton 1% Doylestown	PF	None	6"-36"	40"-60"	Alt	Water / Bedrock / Permeability	Very Limited
LmC	Lehigh	channery silt loam	8-15	2% Croton 1% Doylestown	SI	None	6"-36"	40"-60"	Alt	Water / Bedrock / Permeability / Slope	Very Limited
Lt	Linden	loam	0-3	3% Holly	PF	Rare	36"-72"	72"-100"	Alt	Water / Flooding	Very Limited
MIA	Mount Lucas	silt loam	0-3	7% Towhee	PF	None	12"-30"	48"-99"	Alt	Water / Permeability	Moderately Limited
MIB	Mount Lucas	silt loam	3-8	6% Towhee	PF	None	12"-30"	48"-99"	Alt	Water / Permeability	Moderately Limited
MIC	Mount Lucas	silt loam	8-15	5% Towhee	SI	None	12"-30"	48"-99"	Alt	Water / Slope / Permeability	Moderately Limited
MmB	Mount Lucas	silt loam; extremely stony	0-8	9% Towhee	—	None	6"-36"	48"-99"	Alt	Water / Permeability	Moderately Limited
MmD	Mount Lucas	silt loam; extremely stony	8-25	9% Towhee	—	None	6"-36"	48"-99"	Alt	Water / Slope / Permeability	Very Limited
NbB	Neshaminy	silt loam	3-8	3% Towhee	PF	None	>80"	48"-72"	Conv	Permeability	Moderately Limited
NbC	Neshaminy	silt loam	8-15	5% Towhee	SI	None	>80"	48"-72"	Alt	Permeability / Slope	Moderately Limited

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
NhB	Neshaminy	gravelly silt loam; extremely bouldery	0-8	5% Towhee	—	None	>80"	48"-72"	Conv	Permeability	Moderately Limited
NhD	Neshaminy	gravelly silt loam; extremely bouldery	8-25	3% Towhee	—	None	>80"	48"-72"	Alt	Permeability / Slope	Very Limited
NhF	Neshaminy	gravelly silt loam; extremely bouldery	25-60	3% Towhee	—	None	>80"	48"-72"	No	Permeability / Slope	Very Limited
PeA	Penn	channery silt loam	0-3	3% Croton	PF	None	>80"	20"-40"	Conv	Bedrock	Slightly Limited
PeB	Penn	channery silt loam	3-8	3% Croton	PF	None	>80"	20"-40"	Conv	Bedrock	Slightly Limited
PeC	Penn	channery silt loam	8-15	3% Croton	SI	None	>80"	20"-40"	Alt	Bedrock / Slope	Moderately Limited
PeD	Penn	channery silt loam	15-25	3% Croton	—	None	>80"	20"-40"	Alt	Bedrock / Slope	Very Limited
PkB	Penn-Klinesville	channery silt loam	3-8	1% Croton	SI	None	>80"	20"-40"	Alt	Bedrock	Slightly Limited
PkC	Penn-Klinesville	channery silt loam	8-15	2% Croton	SI	None	>80"	20"-40"	Alt	Bedrock / Slope	Moderately Limited
PkD	Penn-Klinesville	channery silt loam	15-25	5% Croton	—	None	>80"	20"-40"	Alt	Bedrock / Slope	Very Limited
PIE	Penn-Klinesville	channery silt loam; extremely stony	25-45	1% Croton	—	None	>80"	20"-40"	No	Bedrock / Slope	Very Limited
PnB	Penn-Lansdale	silt/silt loam	3-8	—	PF	None	>80"	20"-40"	Conv	Bedrock	Slightly Limited
PnC	Penn-Lansdale	silt/silt loam	8-15	—	SI	None	>80"	20"-40"	Alt	Bedrock / Slope	Moderately Limited
PnD	Penn-Lansdale	silt/silt loam	15-25	1% Croton	—	None	>80"	20"-40"	Alt	Bedrock / Slope	Very Limited
Pr	Pits; Quarry			—	—	—	—	—	—	—	—

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
ReA	Readington	silt loam	0-3	3% Croton	PF	None	18"-36"	40"-70"	Alt	Water / Bedrock / Permeability	Moderately Limited
ReB	Readington	silt loam	3-8	6% Croton	SI	None	18"-36"	40"-70"	Alt	Water / Bedrock / Permeability	Moderately Limited
ReC	Readington	silt loam	8-15	2% Croton	SI	None	18"-36"	40"-70"	Alt	Water / Bedrock / Permeability / Slope	Moderately Limited
RIA	Reaville		0-3	1% Croton 1% Knauers	SI	None	6"-36"	20"-40"	Alt	Water / Bedrock / Permeability	Very Limited
RIB	Reaville		3-8	1% Croton 1% Knauers	SI	None	6"-36"	20"-40"	Alt	Water / Bedrock / Permeability	Very Limited
RIC	Reaville		8-15	1% Croton 1% Knauers	SI	None	6"-36"	20"-40"	Alt	Water / Bedrock / Permeability / Slope	Very Limited
Ro	Rowland	silt loam	0-3	8% Knauers	PF	Occasional	12"-36"	60"-99"	No	Hydric Soil	Very Limited
StB	Steinsburg	gravelly loam	3-8	—	SI	None	>80"	20"-40"	Conv	Bedrock	Slightly Limited
StC	Steinsburg	gravelly loam	8-15	—	SI	None	>80"	20"-40"	Alt	Bedrock / Slope	Moderately Limited
StD	Steinsburg	gravelly loam	15-25	—	—	None	>80"	20"-40"	Alt	Bedrock / Slope	Very Limited
ToA	Towhee	silt loam	0-3	96% Towhee	—	None	0"-6"	48"-96"	No	Hydric Soil	Very Limited
ToB	Towhee	silt loam	3-8	88% Towhee 2% Watchung	—	None	0"-6"	48"-96"	No	Hydric Soil	Very Limited
TrB	Towhee	silt loam; extremely stony	0-8	88% Towhee	—	None	0"-6"	48"-96"	No	Hydric Soil	Very Limited
Ub	Udorthents	loamy		—	—	None	12"-36"	>80"	Alt	Water	Very Limited
UdB	Udorthents	shale and sandstone		1% Croton	—	None	~60"	20"-99"	Alt	Filtering Capacity / Bedrock	Very Limited
UfuB	Urban Land		0-8	—	—	—	—	10"-98"	No	—	—

**Solebury Township, Bucks County Soils
NRCS Data 2008**

Soil Series		Description	% Slope <25% for Alt	Hydric Soil % / Component	Prime Farmland (PF) or Statewide Importance (SI)	Flood Frequency	>48" Depth to Water >10" for Alt	>48" Depth to Bedrock >16" for Alt	O n l o t	Due to:	Soil Survey Rating ¹
Ufw	Urban Land	occasionally flooded		—	—	Occasional	—	10"-98"	No	Flooding / Bedrock	Very Limited
UgB	Urban Land-Abbottstown Complex		0-8	—	—	None	6"-18"	40"-60"	No	—	—
UmB	Urban Land-Doylestown Complex		0-8	25% Doylestown	—	None	0"-6"	42"-72"	No	—	—
UrB	Urban Land-Lansdale Complex		0-8	—	—	None	>80"	42"-99"	No	—	—
UrC	Urban Land-Lansdale Complex		8-15	—	—	None	>80"	42"-99"	No	—	—
UsB	Urban Land-Lawrenceville Complex		0-8	5% Doylestown	—	None	18"-36"	48"-99"	No	—	—
UxB	Urban Land-Penn Complex		0-8	4% Croton	—	None	>80"	20"-40"	No	—	—
UxD	Urban Land-Penn Complex		8-25	4% Croton	—	None	>80"	20"-40"	No	—	—
UzaB	Urban Land-Udorthents	gravelly	0-8	—	—	None	30"-72"	72"-99"	No	—	—

**All hydric soils are coded with 2B3 criteria described as poorly or very poorly drained with a water table at a depth of 1 foot or less during the growing season.

¹ Soil Survey Rating based on use of conventional sand mound bed or trench septic system.

Conv = Conventional onlot system potentially suitable; additional investigation necessary.

Alt = Site investigation can determine suitable onlot system technologies.

Alt = Site investigation to determine additional treatment required to overcome limitations, if possible.

No = Unsuitable for onlot systems due to the restrictive soil features highlighted.

**Solebury Township, Bucks County
per Soil Survey of Bucks County & NRCS Data 2008**

Unsuitable Slope >25%	Alternate System Soils			Conventional System Soils Prime Farmland
	Depth to Water	Depth to Bedrock	Slope	
KIE Klinesville	AbA Abbottstown	AbA Abbottstown	AbC Abbottstown	AIA Alton
LhE Lansdale	AbB Abbottstown	AbB Abbottstown	AmC Amwell	BeA Bedington
NhF Neshaminy	AbC Abbottstown	AbC Abbottstown	BsC Brownsburg	BeB Bedington
PIE Penn-Klinesville	AmA Amwell	BsA Brownsburg	CyC Culleoka-Weikert	BeC Bedington
Hydric Soils	AmB Amwell	BsB Brownsburg	DqC Duffield-Ryder	BsA Brownsburg
Bo Bowmansville-Knauers	AmC Amwell	BsC Brownsburg	EcC Edgemont	BsB Brownsburg
CwA Croton	BwB Buckingham	CyB Culleoka-Weikert	EdD Edgemont	DaA Delaware
CwB Croton	CbA Chalfont	CyC Culleoka-Weikert	FoC Fountainville	DaB Delaware
CwxB Croton	CbB Chalfont	EcB Edgemont	KIC Klinesville	DfB Duffield
DdA Doylestown	CmB Clarksburg	EcC Edgemont	KID Klinesville	DuA Duncannon
DdB Doylestown	FoB Fountainville	EdD Edgemont	LqC Lansdale	DuB Duncannon
Fl Fluvaguents	FoC Fountainville	FoB Fountainville	LqD Lansdale	EcB Edgemont
Ha Hatboro	GrB Glenville	FoC Fountainville	LhD Lansdale	LqA Lansdale
Ro Rowland	LkA Lawrenceville	KIB Klinesville	LmC Lehigh	LqB Lansdale
ToA Towhee	LkB Lawrenceville	KIC Klinesville	MIC Mount Lucas	NbB Neshaminy
ToB Towhee	LmA Lehigh	KID Klinesville	MmD Mount Lucas	NhB Neshaminy
TrB Towhee	LmB Lehigh	LqA Lansdale	NbC Neshaminy	PeA Penn
Flooding	LmC Lehigh	LqB Lansdale	NhD Neshaminy	PeB Penn
Ufw Urban Land	Lt Linden	LqC Lansdale	PeC Penn	PnB Penn-Lansdale
Urban Lands Not Rated	MIA Mount Lucas	LqD Lansdale	PeD Penn	Suitable
UfuB Urban Land	MIB Mount Lucas	LhB Lansdale	PnD Penn-Lansdale	LhB Lansdale
UqB Urban Land-Abbottstown	MIC Mount Lucas	LhD Lansdale	PkC Penn-Klinesville	StB Steinsburg
UmB Urban Land-Doylestown	MmB Mount Lucas	LmA Lehigh	PkD Penn-Klinesville	
UrB Urban Land-Lansdale	MmD Mount Lucas	LmB Lehigh	PnC Penn-Lansdale	
UrC Urban Land-Lansdale	ReA Readington	LmC Lehigh	PnD Penn-Lansdale	
UsB Urban Land-Lawrenceville	ReB Readington	PeA Penn	ReC Readington	
UxB Urban Land-Penn	ReC Readington	PeB Penn	RIC Reaville	
UxD Urban Land-Penn	RIA Reaville	PeC Penn	StC Steinsburg	
UzaB Urban Land-Udorthents	RIB Reaville	PeD Penn	StD Steinsburg	
	RIC Reaville	PkB Penn-Klinesville		
	Ub Udorthents	PkC Penn-Klinesville		
	Flooding	PkD Penn-Klinesville		
	DaA Delaware	PnB Penn-Lansdale		
	DaB Delaware	PnC Penn-Lansdale		
		PnD Penn-Lansdale		
		ReA Readington		
		ReB Readington		
		ReC Readington		
		RIA Reaville		
		RIB Reaville		
		RIC Reaville		
		StB Steinsburg		
		StC Steinsburg		
		StD Steinsburg		
		UdB Udorthents		

Note: Some soils may be listed under more than one restriction and still qualify for an Alternate Onlot System.

Exhibit II-2
Identification of
Important Farmlands

Identification of Important Farmlands

Soil Map Units considered important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. The listing of these soils does not constitute a recommendation for a particular land use. In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service (NRCS), in cooperation with other interested Federal, State and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

“Prime Farmland” is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture (USDA) recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the USDA in 7 CFR § 657.5, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and is also available for these uses. It could be cultivated land, pastureland, forest land, or other land, but not urban built-up land or water areas. The soil quality, growing season and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, are conducted according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded or is protected from flooding. Slope ranges mainly from 0 to 7 percent.

More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service. For some of the soils identified as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. A recent trend in land use in some areas has been the loss of prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty and less productive, and cannot be easily cultivated.

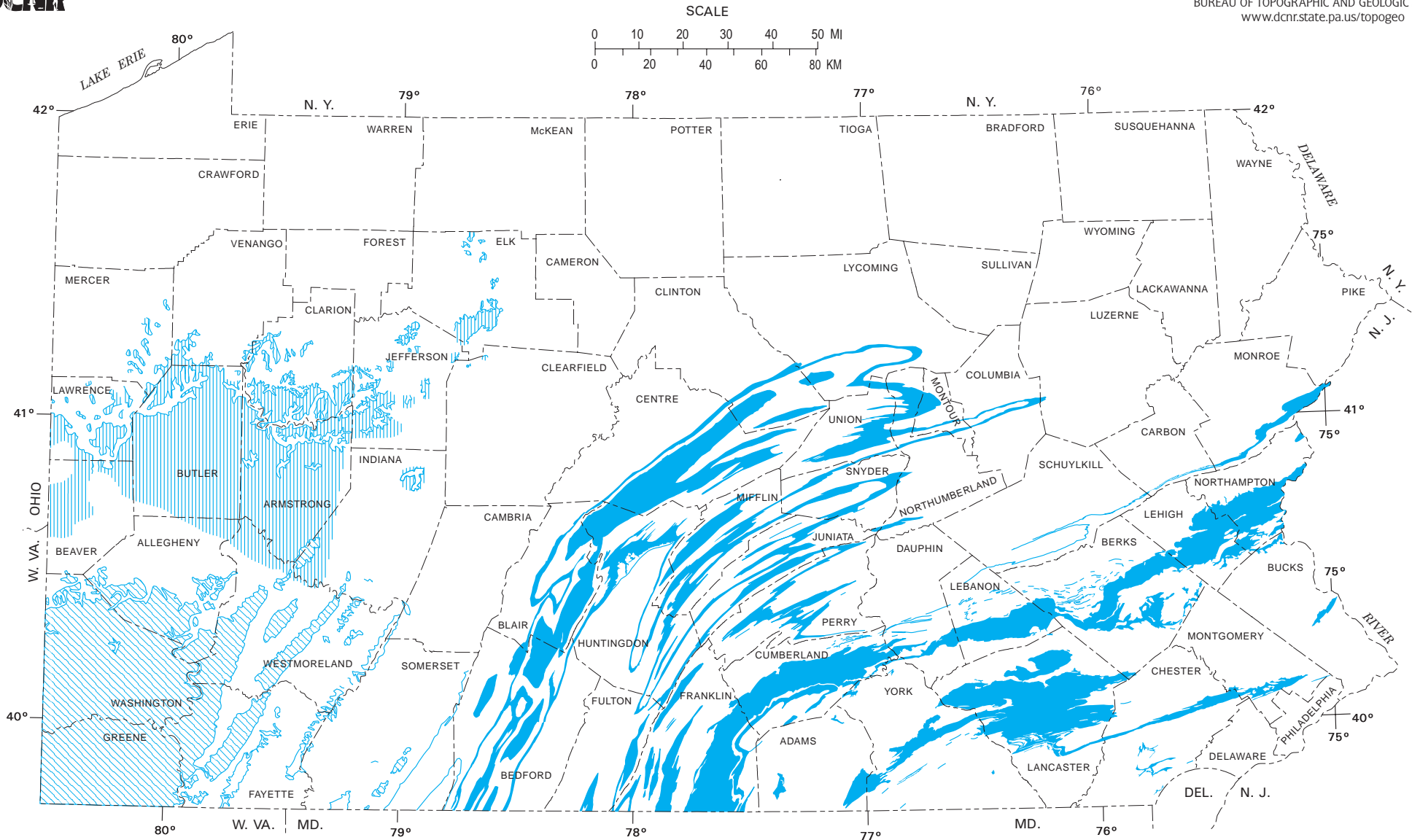
“Unique Farmland” is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries and other fruits and vegetables. It has the special combination of soil quality, location, growing season, moisture supply, temperature, humidity, air drainage, elevation and aspect needed to economically produce sustained high quality and/or high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be **“Farmland of Statewide Importance”** for the production of food, feed, fiber, forage and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

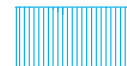
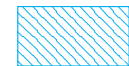
In some areas that are not identified as having national or statewide importance, land is considered to be **“Farmland of Local Importance”** for the production of food, feed, fiber, forage and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

**Exhibit II-3
Limestone & Dolomite
Distribution in PA**

LIMESTONE AND DOLOMITE DISTRIBUTION IN PENNSYLVANIA



EXPLANATION



Area where limestone, dolomite, or both are at the surface. Layers are usually strongly folded and steeply dipping. Includes economically important high-calcium limestones of the Kinzers, Annville, Benner, and Keyser Formations and the Cockeysville Marble, as well as the high-magnesian dolomites of the Ledger Formation and the Cockeysville Marble. This area is most susceptible to sinkhole development.

Area underlain by flat-lying, generally thin, but locally thick, limestone beds, which are discontinuous in places and are commonly interbedded with shale.

Area underlain by the generally flat lying Pennsylvania Vanport Limestone, a high-calcium limestone. This limestone is generally overlain by less than 100 feet of sedimentary rocks, except in the southern part of the area.

LIMESTONE AND DOLOMITE DISTRIBUTION IN PENNSYLVANIA

Carbonate rocks, consisting of limestone and dolomite, are significant among the great variety of rock types in Pennsylvania. These rocks affect man's activities in three major ways: as hazards, as mineral resources, and as groundwater reservoirs. This map shows the distribution of limestone and dolomite in Pennsylvania and will be of assistance to those engaged in planning and development in these carbonate areas.

HAZARDS—Carbonate rocks can present potential construction problems and hazards due to the presence of solution cavities and bedrock irregularities in the subsurface and sinkholes at the surface. The cavities are the result of the gradual dissolving of the rock by water, particularly along fractures or joints. In turn, joints and cavities are enlarged and can form caves. Related features, such as surface depressions and sinkholes, are caused by the movement of surficial materials into the cavities shaped by the dissolving process. Sinkholes also can result from the collapse of the roof of a cave. Because the potential exists for sinkhole development in most of the carbonate rocks of Pennsylvania, areas underlain by these rocks should receive a thorough subsurface investigation prior to construction so that remedial measures may be designed to cope with these hazards. These investigations should include local geologic mapping, test borings, and possibly geophysical surveys to establish subsurface conditions for such structures as highways, dams, bridges, disposal sites, transmission lines, and buildings.

RESOURCES—Limestone (CaCO_3 -rich) and dolomite (MgCO_3 -rich) are major sources of mineral raw materials for the construction, agricultural, and manufacturing indus-

tries of the Commonwealth. Except for coal, carbonates are the major rock type mined in Pennsylvania, accounting for about 80 percent of all nonfuel mineral production. Significant uses of mined limestone and dolomite in Pennsylvania include (1) crushed stone for roads, concrete, and railroads; (2) agricultural lime and grit; (3) the manufacture of cement; (4) fluxstone and refractory materials for the steel industry; (5) acid neutralization; (6) raw material for the glass industry; and (7) mineral fillers and whiting. Thus, the carbonates in various parts of Pennsylvania should be recognized as a valuable mineral resource, and land use planners should take this into account.

WATER—Because of the development of solution cavities in carbonate rocks, these rock formations may contain and yield large quantities of underground water. Areas underlain by limestones and dolomites may supply the water needs of a community through the proper development of the subsurface water resources. Those charged with the planning and development of water supplies should recognize the existence of this valuable underground water source.

The permeable nature of the carbonate rocks also makes them natural conduits for conveying solid and liquid wastes. Using these conduits, contaminants can rapidly enter the groundwater system and travel long distances underground over a relatively short period of time. Therefore, it is important to be particularly careful in conducting industrial, agricultural, or construction activities in limestone-dolomite areas to prevent the contamination of valuable groundwater resources.

STATEWIDE REFERENCES

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- G 66 *Geology and biology of Pennsylvania caves*, W. B. White, ed., 1976, 103 p.
- Map 1 *Geologic map of Pennsylvania*, T. M. Berg, W. E. Edmunds, A. R. Geyer, and others, compilers, 2nd ed., 1980. Scale 1:250,000 (1 inch=4 miles), 3 sheets.
- M 20 *Limestones of Pennsylvania*, B. L. Miller, 1934, 729 p.
- M 50 *Atlas of Pennsylvania's mineral resources*.
Part 1, Limestones and dolomites of Pennsylvania, B. J. O'Neill, Jr., 1964, 40 p., 6 maps, scale 1:250,000.
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Part 1, Supplement, Limestones and dolomites of Pennsylvania, G. F. Deasy, P. R. Griess, R. F. Balazik, and J. W. Burtnett, 1967, 83 p.
- Part 4, The distribution of limestones containing at least 90 percent CaCO_3 in Pennsylvania*, B. J. O'Neill, Jr., 1976, 2 p., 1 map, scale 1:500,000.
- M 83 *Reconnaissance survey of potential carbonate whiting sources in Pennsylvania*, S. W. Berkheiser, Jr., 1983, 53 p.

OTHER PUBLICATIONS

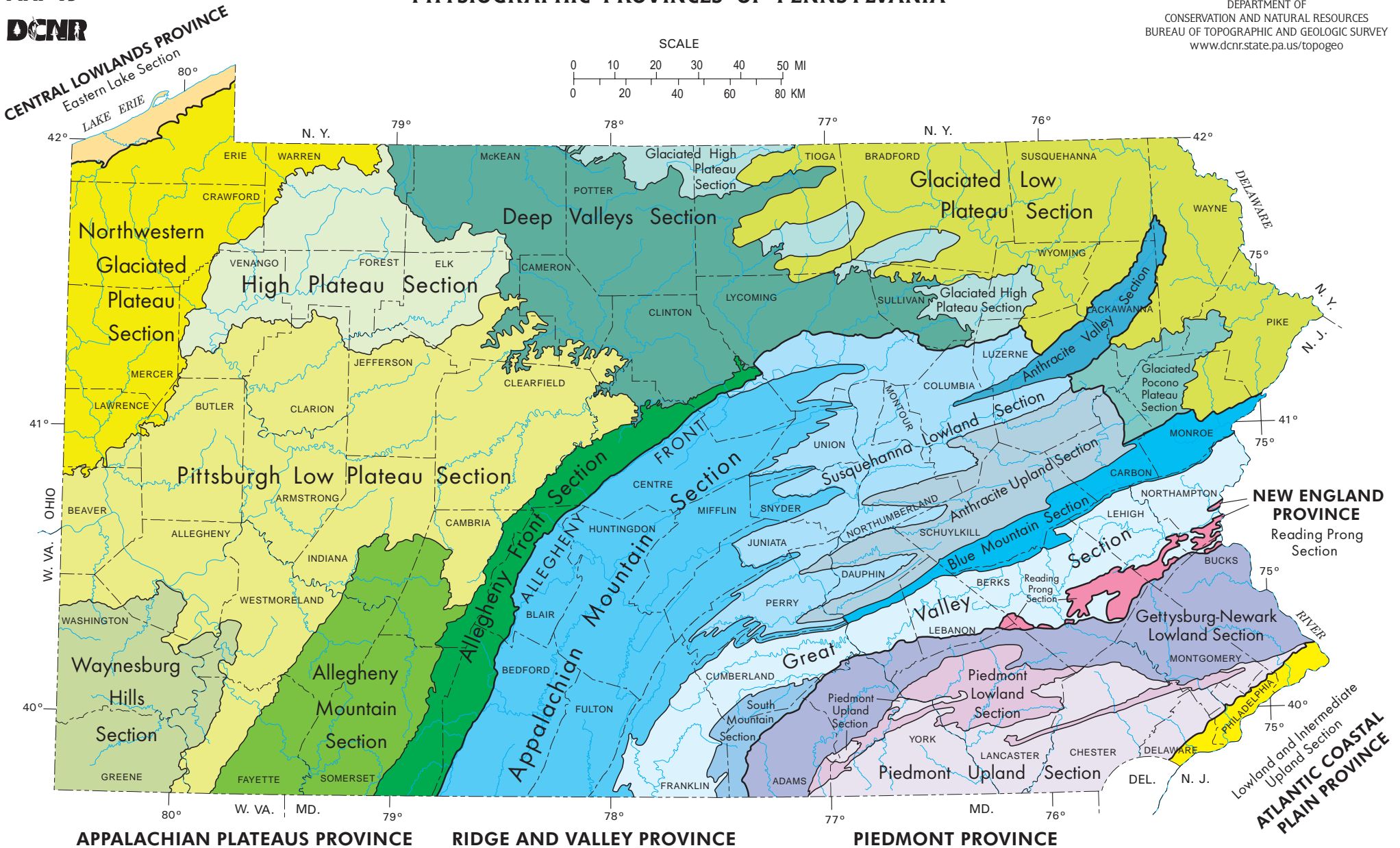
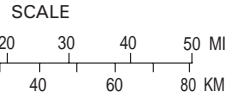
PUBLICATIONS ON LIMESTONES AND DOLOMITES—For publications dealing with limestones and dolomites in local areas of Pennsylvania, please refer to *Pennsylvania Geological Publications*, available on-line at www.dcnr.state.pa.us/topogeo/pub/pub.htm, and upon request from the Pennsylvania Geological Survey, Department of Conservation and Natural Resources, P. O. Box 8453, Harrisburg, Pa. 17105-8453.

OPEN-FILE REPORTS—Open-file reports on sinkholes and karst-related features of various counties in central and southeastern Pennsylvania are available for inspection at the Pennsylvania Geological Survey office in Harrisburg; copies of these county reports are also available for a price to cover copying and handling. For further information, please contact the Survey at the address listed in the previous paragraph.

**Exhibit II-4
Physiographic
Provinces of PA**

PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
www.dcnr.state.pa.us/topogeo



EXPLANATION

CENTRAL LOWLANDS PROVINCE											APPALACHIAN PLATEAUS PROVINCE				RIDGE AND VALLEY PROVINCE							NEW ENGLAND PROVINCE	PIEDMONT PROVINCE			ATLANTIC COASTAL PLAIN PROVINCE	SYMBOLS
Eastern Lake Section	Northwestern Glaciated Plateau Section	High Plateau Section	Pittsburgh Low Plateau Section	Waynesburg Hills Section	Allegheny Mountain Section	Allegheny Front Section	Deep Valleys Section	Glaciated High Plateau Section	Glaciated Low Plateau Section	Glaciated Pocono Plateau Section	Appalachian Mountain Section	Susquehanna Lowland Section	Anthracite Valley Section	Anthracite Upland Section	Blue Mountain Section	Great Valley Section	South Mountain Section	Reading Prong Section	Gettysburg-Newark Lowland Section	Piedmont Lowland Section	Piedmont Upland Section	Lowland and Intermediate Upland Section	Approximate boundary between physiographic provinces	Approximate boundary between physiographic sections			

PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

PHYSIOGRAPHIC PROVINCE	PHYSIOGRAPHIC SECTION	DOMINANT TOPOGRAPHIC FORM	LOCAL RELIEF ¹	UNDERLYING ROCK TYPE	GEOLOGIC STRUCTURE	APPROXIMATE ELEVATION ²		DRAINAGE PATTERN	BOUNDARIES	ORIGIN
						Min.	Max.			
APPALACHIAN PLATEAUS	Eastern Lake	Northwest-sloping, lake-parallel, low-relief ridges.	Very low to low.	Shale and siltstone.	Beds either horizontal or having low south dip.	570	1,000	Parallel.	Northwest: Lake Erie. Southeast: Base of escarpment.	Glacial, lake, and fluvial deposition and erosion.
	Northwestern Glaciated Plateau	Broad, rounded upland and deep, steep-sided, linear valleys partly filled with glacial deposits.	Very low to moderate.	Shale, siltstone, and sandstone.	Subhorizontal beds.	900	2,200	Dendritic.	Northwest: Base of escarpment. Southeast: Glacial border.	Fluvial and glacial erosion; glacial deposition.
	High Plateau	Broad, rounded to flat uplands having deep, angular valleys.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Low-amplitude, open folds.	980	2,360	Dendritic.	Northwest: Glacial border. Northeast: Margins of deep valleys. South: Arbitrary along drainage divides between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
	Pittsburgh Low Plateau	Smooth to irregular, undulating surface; narrow, relatively shallow valleys; strip mines and reclaimed land.	Low to moderate.	Shale, siltstone, sandstone, limestone, and coal.	Moderate- to low-amplitude, open folds, decreasing in occurrence northwestward.	660	2,340	Dendritic.	Northwest: Glacial border. Elsewhere: Arbitrary at topographic changes with adjacent sections.	Fluvial erosion; periglacial mass wasting; strip mining.
	Waynesburg Hills	Very hilly with narrow hilltops and steep-sloped, narrow valleys.	Moderate.	Sandstone, shale, red beds, and limestone.	Horizontal beds.	848	1,638	Dendritic.	Arbitrary at change of topography.	Fluvial erosion and landslides.
	Allegheny Mountain	Wide ridges separated by broad valleys; ridge elevations decrease to north.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some limestone and coal.	Large-amplitude, open folds.	775	3,210	Dendritic.	East: Arbitrary between coal and noncoal areas. West: Base of west flank of Chestnut Ridge. North: Approximates northeast terminus of large-amplitude, open folds.	Fluvial erosion; some periglacial mass wasting.
	Allegheny Front	East: Rounded to linear hills rising by steps to an escarpment; hills cut by narrow valleys. West: Undulating hills sloping away from escarpment.	Moderate to high.	Shale, siltstone, and sandstone.	South: Broad fold. Elsewhere: Beds having low northwest dip; some faults.	540	2,980	Parallel and trellis.	East: Stream at base of hills below escarpment. West: Arbitrary between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
	Deep Valleys	Very deep, angular valleys; some broad to narrow uplands.	Moderate to very high.	Sandstone, siltstone, shale, and conglomerate.	Moderate-amplitude, open folds that control valley orientations.	560	2,560	Angulate and rectangular.	Arbitrary at margins of deep valleys, either at top of valley slope or along drainage divide.	Fluvial erosion; periglacial mass wasting.
	Glaciated High Plateau	Broad to narrow, rounded to flat, elongate uplands and shallow valleys.	Low to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Moderate-amplitude, open folds.	620	2,560	Angulate and dendritic.	East: Base of escarpment. Elsewhere: Arbitrary with margins of deep valleys.	Fluvial and glacial erosion; glacial deposition.
	Glaciated Low Plateau	Rounded hills and valleys.	Low to moderate.	Sandstone, siltstone, and shale.	Low-amplitude folds.	440	2,690	Dendritic.	Base of escarpments of adjacent uplands; base of Pocono escarpment. Elsewhere: Arbitrary.	Fluvial and glacial erosion; glacial deposition.
Glaciated Pocono Plateau	Broad, undulatory upland surface having dissected margins.	Low to moderate.	Sandstone, siltstone, and shale; some conglomerate.	Beds having low north dip; some small folds.	1,200	2,320	Deranged.	South and east: Base of Pocono escarpment. North: Crest of drainage divide. West: Arbitrary.	Fluvial and glacial erosion; glacial deposition.	
RIDGE AND VALLEY	Appalachian Mountain	Long, narrow ridges and broad to narrow valleys; some karst.	Moderate to very high.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs; variety of faults.	440	2,775	Trellis, angulate, and some karst.	Southeast: Base of slope change on southeast side of Blue Mountain. West and northwest: Center of valley bottom west of westernmost linear ridge. Elsewhere: Base of slope change of eastern ridges; arbitrary between ridges.	Fluvial erosion; solution of carbonate rocks; periglacial mass wasting.
	Susquehanna Lowland	Low to moderately high, linear ridges; linear valleys; Susquehanna River valley.	Low to moderate.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs.	260	1,715	Trellis and angulate.	Base of slope change to higher ridges of all surrounding areas; arbitrary in valley areas.	Fluvial erosion; some glacial erosion and deposition in northeast.
	Anthracite Valley	Narrow to wide, canoe-shaped valley having irregular to linear hills; valley enclosed by steep-sloped mountain rim.	Low to moderate.	Sandstone, siltstone, conglomerate, and anthracite.	Broad, doubly-plunging syncline, faults and smaller folds.	500	2,368	Trellis and parallel.	Outer base of surrounding mountain.	Fluvial and glacial erosion; some glacial deposition.
	Anthracite Upland	Upland surface having low, linear to rounded hills, strip mines, and waste piles; upland surrounded by an escarpment, a valley, and a mountain rim.	Low to high.	Sandstone, shale, conglomerate, and anthracite.	Many narrow folds having steep limbs; many faults.	320	2,094	Trellis.	Northeast: Arbitrary between coal and noncoal areas. Elsewhere: Outer base of surrounding mountain.	Fluvial erosion; some glacial erosion and periglacial mass wasting.
	Blue Mountain	Linear ridge to south and valley to north; valley widens eastward and includes low linear ridges and shallow valleys.	Moderate to high.	Sandstone, siltstone, and shale; some limestone and conglomerate.	Southwest: South limb of broad fold. Northeast: Small folds north of Blue Mountain.	300	1,680	Trellis.	Southeast: Base of slope change on southeast side of Blue Mountain. Northwest: Base of mountain; base of Pocono escarpment. Northeast: Arbitrary.	Fluvial erosion; some glacial erosion and deposition in northeast.
	Great Valley	Very broad valley. Northwest half: Dissected upland. Southeast half: Low karst terrain.	Low to moderate.	Northwest: Shale and sandstone; slate at east end. Southeast: Limestone and dolomite.	Thrust sheets, nappes, overturned folds, and steep faults; many third- and fourth-order folds.	140	1,100	Dendritic and karst.	North: Base of slope change on southeast side of Blue Mountain. South: Base of slope change to adjacent uplands.	Fluvial erosion; solution of carbonate rocks; some periglacial mass wasting.
	South Mountain	Linear ridges, deep valleys, and flat uplands.	Moderate to high.	Metavolcanic rocks, quartzite, and some dolomite.	Major anticlinorium having many second- and third-order folds.	450	2,080	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion of highly variable rocks; some periglacial mass wasting.
NEW ENGLAND	Reading Prong	Circular to linear, rounded hills and ridges.	Moderate.	Granitic gneiss, granodiorite, and quartzite.	Multiple nappes.	140	1,364	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.
PIEDMONT	Gettysburg-Newark Lowland	Rolling lowlands, shallow valleys, and isolated hills.	Low to moderate.	Mainly red shale, siltstone, and sandstone; some conglomerate and diabase.	Half-graben having low, monoclinal, northwest-dipping beds.	20	1,355	Dendritic and trellis.	Base of slope changes with adjacent uplands and lowlands. Elsewhere: Arbitrary.	Fluvial erosion of rocks of variable resistance.
	Piedmont Lowland	Broad, moderately dissected, karst valleys separated by broad, low hills.	Low.	Dominantly limestone and dolomite; some phyllitic shale and sandstone.	Complexly folded and faulted.	60	700	Dendritic and karst.	South: Base of slope change to adjacent upland. North: Mesozoic red rocks.	Fluvial erosion; some periglacial mass wasting.
	Piedmont Upland	Broad, rounded to flat-topped hills and shallow valleys.	Low to moderate.	Mainly schist, gneiss, and quartzite; some saprolite.	Extremely complexly folded and faulted.	100	1,220	Dendritic.	East: Base of low to vague Fall Line escarpment. North: Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.
ATLANTIC COASTAL PLAIN	Lowland and Intermediate Upland	Flat upper terrace surface cut by shallow valleys; Delaware River floodplain.	Very low.	Unconsolidated to poorly consolidated sand and gravel; underlain by schist, gneiss, and other metamorphic rocks.	Unconsolidated deposits underlain by complexly folded and faulted rocks.	0	200	Dendritic.	Northwest: Base of low to vague Fall Line escarpment. East: Arbitrary.	Fluvial erosion and deposition.

¹Local relief: 0 to 100 feet, very low; 101 to 300 feet, low; 301 to 600 feet, moderate; 601 to 1,000 feet, high; >1,000 feet, very high.

(Relief categories listed here for Pennsylvania do not necessarily apply to other states or countries.)

²Elevations are in feet.

Exhibit 11-5
Public Water Supply
Permits

Public Water Supply Permits in Solebury Township										
Name	Address	PWSID	Source ID	Source Name	Population	No. Connections	Pumping Capacity GPD	Safe Yield GPD	Use GPD	GPCD
Community Water Systems (CWS)										
Aqua Pennsylvania, Inc. Peddler's View	Route 202, Lahaska	1090147	002	Well 3	540	214	216,000	109,000	33,600	62
BCW&SA - Fox Run	Bob White Road, New Hope	1090160	001	Well 1	378	108	144,000	144,000	34,100	90
BCW&SA - Fieldstone / North Pointe / Solebury	Sugan Road, New Hope	1090129	001	Well S1	1,500	530	86,400	49,350	88,500	59
	Wilshire Drive, New Hope		002	Well S2			93,600	46,800		
	Creekside Drive, New Hope		003	Well S3			216,000	208,800		
BCW&SA - New Hope	328 South River Road, New Hope	1090130	001	Delaware River	2,300	1,116	108,000	108,000	159,100	69
			002	Riverwood Well 1						
			003	Riverwood Well 2						
			004	Well MB						
			005	Well MC						
			006	NH Manor Well						
			007	Emergency Interconnect Purchased from Village 2 PWSID 1090040						
Hermitage Condominium Association	Route 202, New Hope	1090102	001	Well 1	190	75	64,800		4,200	22
			002	Well 2			64,800			
Ingham Mews Condominium Association	Route 202, New Hope	1090103	001	Well 1	160	64	64,800		9,200	58
			002	Well 2			64,800			
Peddler's Village	Route 202 & Street Road, Lahaska	1090153	001	Well 1	880	76	108,000		105,100	119
			002	Well 3			79,200	79,200		
Solebury School	6832 Phillips Mill Road, New Hope	1090030	002	Faculty Well	300	20			7,000	23
			003	Boys' Dorm			50,400			
Village 2 Homeowners Association	PO Box 106, New Hope	1090040	001	Well 1	650	311	108,000	100,000	70,000	108
			002	Well 2			70,000	65,000		
			003	Well 7			65,000			
Yorkshire Meadows Condo Association	Route 202, New Hope	1090101	001	Well 1	180	72	64,800	20,000	24,000	133
			002	Well 2			64,800	20,000		
Non-Transient Non-Community Water Systems (NTNCWS)										
Clubhouse for Kids Only Inc.	2712 North Sugan Road, New Hope	1090892	002	Well 2	56	1				
Jamie Hollander Gourmet Food & Catering	415 South York Road, New Hope	1090329	001	Well 1	150	1				
Logan Square Shopping Center	PO Box 106, New Hope	1091091	001	Well 1	1,000	14	28,800		20,000	20
			002	Well 2			72,000			
New Hope Solebury Elementary School	180 West Bridge Street, New Hope	1090885	001	Well 1	300	1				

Public Water Supply Permits in Solebury Township										
Name	Address	PWSID	Source ID	Source Name	Population	No. Connections	Pumping Capacity GPD	Safe Yield GPD	Use GPD	GPCD
Non-Transient Non-Community Water Systems (NTNCWS)										
Solebury United Methodist Childrens Learning Center	2536 Aquetong Road, New Hope	1090335	001	Well 1	100	1				
Tiny Tots Nursery School	PO Box 337, Lahaska	1091102	001	Well 1	37	1				
Union Square (George E. Michael, Inc.)	PO Box 59, New Hope	1090302	001	Well 1	300	8				
			002	Well 2						
Transient Non-Community Water Systems (TNCWS)										
1740 House	3690 River Road, Lumberville	1090982	001	Well 1	50	1				
			002	Well 2						
Black Bass Hotel	3774 River Road, Lumberville	1090911	001	Well 1	50	1				
Bowman's Tavern	1600 River Road, New Hope	1091106	001	Well 1	75	1				
Carversville General Store	6208 Fleecy Dale Road, Carversville	1090853	001	Well 1	50	1				
Carversville Inn	6205 Carversville Road, Carversville	1091096	001	Well 1	50	1				
Centre Bridge Inn	Box 74 HC, New Hope	1091135	001	Well 1	200	2				
Deer Park	6290 Lower Mountain Road, NH	1090893	001	Well 1	150	1				
Delaware Canal State Park	11 Lodi Hill Road, Upper Black Eddy	1090937	001	Well 450-01	100	1				
			002	Well 450-02						
Dilly's Corner	2998 River Road, New Hope	1090921	001	Well 1	100	1				
Eagle Diner	463 York Road, New Hope	1091190	001	Well 1	500	1				
First National Bank of Newtown	408 Old York Road, New Hope	1090356	001	Well 1	35	1				
Guiseppe's Pizza Restaurant	473 Lower York Road, New Hope	1090877	001	Well 1	100	1				
Holly Hedge B&B	6987 Upper York Road, Solebury	1090883	001	Well 1	100	2				
Hotel Du Village	2535 North River Road, New Hope	1090909	001	Well 1	100	2				
Inn at Phillips Mill	2590 River Road, New Hope	1090839	001	Well 1	100	3				
Lumberville Store	3741 River Road, Lumberville	1091272	001	Well 1	50	2				
New Hope & Ivyland Railroad	32 West Bridge Street, New Hope	1090318	001	Well 1	300	1				
New Hope Winery	6123 Lower York Road, New Hope	1091383	001	Well 1	25	2				
Rice's Flea Market	6323 Greenhill Road, New Hope	1090902	001	Well 1	100	4				
Solebury School Gym	6832 Phillips Mill Road, New Hope	1090802	004	Maint & Gym	300	22			7,000	23
The Nevermore	6426 Lower York Road, New Hope	1090896	003	Well 3	400	1				
Thompson Memorial Presbyterian Church	1680 Aquetong Road, New Hope	1091013	001	Well 1	150	1				
Waterlilies Restaurant	5738 Route 202, Lahaska	1090901	001	Well 1	150	1				

Section III.
Existing Sewage Facilities
in Planning Area –
Identifying Existing
Needs

III. Existing Sewage Facilities in Planning Area – Identifying Existing Needs

A. Sewer Service Areas

1.0 New Hope-Solebury Public Sewer Service Area

Plate 1, Solebury Public Water & Sewer Service Areas, shows the location of the New Hope–Solebury public sewer service area including interceptors, pump stations and force mains in Solebury Township, as well as the location of the Lambertville Municipal Utilities Authority (LMUA) wastewater treatment plant.

1.1 Bucks County Water & Sewer Authority

The public sewer collection and transmission facilities in Solebury Township and New Hope Borough are owned and operated by the Bucks County Water & Sewer Authority (BCW&SA), which was established by the Bucks County Commissioners in 1960. The BCW&SA sewer system consists of 9 pump stations, 3 miles of force main and 6 miles of gravity sewer serving users in Solebury Township and New Hope Borough.

In Solebury Township, the public sewers serve residential subdivisions and commercial users adjacent to the Borough of New Hope along Route 202. The Residential Development district includes the Fox Run, Ingham Mews, Yorkshire Meadows, North Pointe, Wilshire Hunt and Fieldstone subdivisions of medium and high-density development.

Pump Station No. 6 on Route 202 (Lower York Road) east of Reeder Road in Solebury Township discharges to the force main of Pump Station No. 8 on West Bridge Street in New Hope Borough. Gravity sewer serves the Highway Commercial district users for about 1,400 feet on West Bridge Street from the intersection with Route 202 to the New Hope Borough line. Another gravity sewer serving the Fieldstone development crosses the New Hope Borough line at Route 202 and Sukan Road. The public sewer serves approximately 950 commercial and residential users in Solebury Township with an estimated average flow of 200,000 GPD based on water supply withdrawals.

The sewer collection system conveys the wastewater through New Hope Borough to the east across the Delaware River to the LMUA wastewater treatment plant in Lambertville, NJ.

1.2 Lambertville Municipal Utilities Authority

LMUA, created in 1955, treats wastewater from the City of Lambertville, NJ, the Borough of Stockton, NJ and the BCW&SA New Hope-Solebury sewer system under NJPDES Permit No. NJ0020915 with discharge to the Delaware River. The LMUA wastewater treatment plant consists of an aerated grit chamber, influent pumping station, two primary clarifiers, 8 rotating biological contactors, two secondary clarifiers, disinfection with sodium hypochlorite, and dechlorination with sodium bisulfite. Biosolids are processed in a holding tank, dewatered by a belt filter press and then transported to another plant for incineration. The LMUA wastewater treatment plant is permitted for 1,500,000 GPD, with flows currently averaging 855,000 GPD.

1.3 Existing Facilities Condition

LMUA had several NJPDES discharge permit violations for Ammonia Nitrogen and BOD during 2008 and 2009. As a result of these permit exceedances; LMUA was issued an Administrative Consent Order by NJDEP on June 1, 2009 to remedy the discharge violations. LMUA received ARRA grant funds and a loan through the New Jersey Environmental Infrastructure Trust in 2010 for improvements to their wastewater treatment plant and a pumping station. The construction project consisted of primary clarifier improvements, replacement of eight (8) rotating biological contactors, replacement of existing air lines and blowers, installation of new dissolved oxygen probes, secondary clarifier improvements, a new filtration conditioning system, chlorine contact tank improvements, construction of a relocated magnesium hydroxide feed system, electrical system improvements, a new reclaimed water for beneficial reuse system, installation of a water coupled heat pump for the administration building and the sludge pumping station using plant water system, instrumentation improvements, and emergency bypass piping for the Swan Street Pumping Station. Final completion of the construction project was accomplished in November 2011. No permit violations have been noted since March 2009.

The LMUA wastewater treatment facility experiences infiltration and inflow (I/I) during rain events and is conducting I/I work in Lambertville.

BCW&SA is currently conducting an Infiltration/Inflow (I/I) program in New Hope Borough. No permit violations have been reported for the BCW&SA sewer system.

1.4 Upgrades & Expansions; Reserve Capacity

In 2005, BCW&SA replaced the main transmission Pump Station No. 3 on East Randolph Street with a new 1,090 GPM pump station along the river on East Bridge Street in New Hope Borough. In addition, a new 12-inch force main was installed to route the discharge directly into the LMUA wastewater treatment plant.

A separate construction project was completed in 2005 at the LMUA wastewater treatment plant that provided improvements to the headworks to accommodate the BCW&SA sewer force main and the installation of a fine screen, conversion of the anaerobic digester to a sludge holding tank, installation of an odor control system, upgrades to pump stations, and replacement of the belt filter press. Additional improvements were made from 2010 through 2011 as described in paragraph 1.3 of this section.

In 1992, the BCW&SA held a capacity allocation in LMUA's sewer system of 597,300 GPD, including a flow contribution of 246,000 MGD from Solebury Township's sewer service area. In 1998, the BCW&SA negotiated an increased flow allocation to 625,000 GPD to accommodate proposed development in the Solebury Township sewer service area. Flow capacity allocations and typical flow contributions are shown in **Table 3-1**.

Because of the recent improvement projects, no other known conveyance, treatment or capacity issues have been identified by BCW&SA or LMUA, and no further evaluation of the wastewater treatment facilities has been conducted as part of this Plan.

Table 3-1. Allocations & Flows					
Sewer System	Allocation		Typical Average Flows		
	GPD	%	GPD	%	% of Allocation
Lambertville	770,000	51.3	305,000	36.3	39.6
Stockton	105,000	7.0	75,000	8.9	71.4
BCW&SA	625,000	41.7	461,000	54.8	73.8
Totals	1,500,000		841,000		

2.0 Non-Municipal DEP Permitted Systems

Several non-municipal, community and individual wastewater treatment facilities permitted by DEP are located in Solebury Township.

2.1 NPDES Stream Discharge Systems

- 2.1.1 Washington Crossing Historic Park, administered by the PA Historical and Museum Commission (PHMC), and the 100-acre Bowman’s Hill Wildflower Preserve in Solebury Township are served by a sewer collection system consisting of five pump stations and a 25,000 GPD extended aeration plant in Upper Makefield Township. The treated effluent is discharged to the Delaware River under NPDES Permit PA0042978 issued in 2009. Due to operational problems in 2005, the Preserve had been using portable toilets and holding tanks. The Preserve is now discharging to the plant. PHMC is proposing to replace the 5 pump stations and construct modifications to the wastewater treatment plant in 2011.
- 2.1.2 Delaware Canal State Park, administered by the Pennsylvania Department of Conservation and Natural Resources (DCNR), is served by a comfort station with a recirculating sand filter treatment plant that is permitted at 800 GPD. This wastewater treatment facility discharges to the Delaware River under NPDES Permit PA0057738, which was reissued in 2009 with an effective permit date of January 1, 2010.
- 2.1.3 General NPDES permit No. PAG040041 for Small Flow Treatment Facilities (<2,000 GPD) was issued to Lawrence and Andrea Rossi in January 2006 at 2472 River Road in Solebury Township for a 400 GPD aerobic treatment unit with stream discharge to Rabbit Run, Watershed 2D.
- 2.1.4 General NPDES permit No. PAG040111 for Small Flow Treatment Facilities (<2,000 GPD) was issued to Stephen and Jesse Darlington in April 2009 with discharge to an unnamed tributary (UNT) to Rabbit Run, Watershed 2E.
- 2.1.5 NPDES Permit No. PA0595853, under the Mining NPDES program, was reissued in December 2007 to New Hope Crushed Stone & Lime Company for discharge of treated mine drainage from a quarry operation to Primrose Creek. Solebury Township appealed this permit several times since 2002 to the Environmental Hearing Board.

2.2 Community Onlot Systems

- 2.2.1 Solebury School, a private boarding school, is served by an extended aeration plant with land application using spray irrigation. The school received a Water Quality Management (WQM) Permit in April 2006 to modify its wastewater treatment plant from 7,000 GPD to 12,400 GPD. The disposal area is located on suitable soils in the Primrose Creek watershed underlain by a limestone geologic foundation. As required, a hydrogeologic study was conducted as part of the permit application process.
- 2.2.2 Peddlers View wastewater treatment plant was built by the developer. It is currently owned and operated by Aqua Pennsylvania, Inc., doing business as the Little Washington Wastewater Company, since 2007. A lagoon treatment system with spray irrigation serves two housing developments along Street Road with approximately 214 connections. A WQM Permit application has been pending since 2002.
- 2.2.3 Several commercial lots in Solebury Township associated with Peddler’s Village in Lahaska, Buckingham Township are served by the 236,000 GPD Buckingham Village wastewater treatment plant (WWTP) that discharges to Mill Creek from November 1 to April 30 under NPDES Permit PA0052353. The discharge from the Buckingham Village WWTP is diverted to offsite spray irrigation fields associated with Buckingham Township’s Furlong WWTP when not discharged to Mill Creek.
- 2.2.4 An individual residence (TMP 41 028 064 -002) at 6786 Chapel Road uses an aerobic wastewater treatment unit with discharge to a covered evapotranspiration bed, as reported in 1990 by the Bucks County Planning Commission.

B. Individual Onlot Sewage Disposal Systems

1.0 Types of Onlot Systems in Use

The Bucks County Health Department adopted onlot sewage disposal system regulations in 1956 requiring design plans and permits. According to the 2000 Census, more than 1,200 housing units in Solebury Township were built before 1970.

Solebury Township contains numerous lots of ten acres or more that are exempt from sewage facilities planning and permitting in accordance with 25 Pa. Code § 72.22. Permit-exempt systems are not required to be approved or to meet standards for the siting (except for isolation distances), design or installation of onlot sewage disposal systems. To protect the groundwater resources, Solebury Township needs to develop and adopt an ordinance requiring planning and permitting for all lots for onlot sewage disposal systems.

Conventional onlot bed or trench systems, and elevated sand mounds are used throughout Solebury Township. Cesspools, seepage pits and separate greywater systems are common to older houses. With the issuance of DEP’s Alternate Systems Guidance¹ in 2003, the BCDH also has been permitting peat filters, A-B soil classification, and aerobic drip irrigation systems.

¹ [Alternate Systems Guidance](#)

Several holding tanks are in use in Solebury Township as identified through a review of the BCDH files and from the door-to-door survey conducted for this Plan Update Revision. These locations are shown on **Plate 7 – Sanitary and Well Water Survey Results** and are enlarged on **Plates 7a North, 7b East, 7c South** and **7d West**.

2.0 Sanitary Survey

To document sewage needs identified as pollution, system malfunctions and violations, a door-to-door sanitary survey was conducted in accordance with DEP's guidance document *Act 537 Sewage Disposal Needs Identification*². A copy of the DEP guidance is attached in **Exhibit III-1**.

In an effort to accurately document and evaluate system conditions and provide closer scrutiny in specific areas of the Township, and due to the number of larger lots, representative sanitary surveys and well water sampling were conducted in twelve delineated areas. Study areas of higher density development in villages or neighborhoods, as identified by the BCDH Sewage Enforcement Officer (SEO), and in environmentally sensitive areas identified by Solebury Township's watershed and hydrogeologic consultants were selected to be surveyed. Other surveys dispersed throughout Solebury Township were also completed. Of the combined 1,245 lots in the study areas, the sanitary survey rate is 32%.

The survey revealed substantial information about owners' habits and knowledge about their onlot sewage disposal systems that provide a reasonable indicator of the status of onlot sewage disposal systems in Solebury Township. The sanitary survey and well water sampling were conducted in accordance with methods described in DEP's guidance document, *Act 537 Sewage Disposal Needs Identification*. The field surveys were conducted by personnel from the Township's consultant, CET Engineering Services, with assistance from personnel from Environmental Planning Consultants. Each Study Area was sent a post card mailer requesting voluntary participation in the survey. In most instances, appointments were made to conduct the surveys.

A door-to-door survey and well water sampling was completed for 110 properties from May through November 2005 and another 170 properties in January through March 2006. In June and August 2006, additional surveys were done in Canal Walk and the Aquetong watershed. The sanitary survey form was modified and expanded during the project to collect additional site information. A copy of the final version of the sanitary survey form is included in **Exhibit III-2** of this Plan. As interest was shown, some homeowners were provided with a brochure containing Frequently Asked Questions about Act 537 sewage facilities planning, which is contained in **Exhibit III-3** of this Plan. This information is also included on the Township's website as part of their public education goals for this Plan.

The consultants reviewed the BCDH's paper files to tabulate a list of repair permits. These files appear to contain information about onlot sewage disposal systems inspected since the late 1980s. Older files stored on microfiche have not been reviewed. Repair permits issued, according to the BCDH files, to replace the absorption area have been included in the tabulation of the data as potential malfunctions. The repair permit lots are mapped on **Plate 7** to indicate areas where malfunctions potentially may occur due to the preponderance of historical repairs. A summary of the sanitary survey findings is presented in **Table 3-2**.

Holding tanks are used by five commercial establishments and six residences for an estimated total wastewater flow of 8,500 GPD. This wastewater is hauled to local municipal wastewater treatment plants.

² [Act 537 Sewage Disposal Needs Identification](#)

Documentation is found that one user has been on a holding tank since 1965.

Several disposal areas are located beneath a parking area. EPA research projects have demonstrated that disposal areas perform best when installed within three feet of undisturbed soil surface.

Table 3-2. Sanitary Survey & BCDH File Search – Township-Wide Summary of Findings			
Township Onlot Sewage Disposal Systems on <5 acres (Est. 2,000)	# OLDS Surveyed	# Found in BCDH / Township Files	% of Surveyed OLDS
Malfunction Criteria	321	71	
Confirmed Malfunction			
• Absorption Area Wet or Ponded	9	8	4.3%
• Backups / Overflows	3	4	1.8%
• Best Technical Guidance Permit	0	1	0.3%
• Holding Tank	7	4	2.8%
Subtotal	19	17	9.2%
Suspected Malfunction			
• Green Grass	7	0	1.8%
• In Wetlands or Rock	3	0	0.8%
• Cesspools in High Density Development	8	0	2.0%
Subtotal	18	0	4.6%
Potential Malfunction			
• Pre 1972	85	5	23.0%
• Repair Permits for Absorption Area	45	41	21.9%
Subtotal	130	46	44.9%

Regulatory malfunctions represent conditions which occur when an onlot sewage disposal system discharges inadequately treated sewage onto the surface of the ground, into the groundwater or surface waters, or causes the contamination of public or private drinking water supplies, nuisance problems or hazard to human health. Examples of non-regulatory malfunctions may include, but are not limited to, unsuitable locations per current requirements such as onlot sewage disposal systems situated in wetlands, rock or other impervious areas, saturated absorption areas, and high green grass.

Some instances of malfunctions may be attributed to unintentional homeowner misuse, such as hydraulically overloading the system with too many users or too much laundry, and excavating near the disposal area. Proper use and maintenance to avoid system problems can be addressed through a Township-sponsored public education program implemented as part of a Sewage Management Program.

Three homeowners could produce a drawing of their onlot sewage disposal system. While 22% did not know any details about their systems, and 31 owners or 11% have never had their tanks pumped, 70% have had their tanks pumped at some time. Many of those regularly schedule pumping. Information about garbage disposals was collected – most owners understand that the solids and organic loadings from disposals are not suitable for use with onlot sewage disposal systems. At least two homeowners indicated that repairs were done without the benefit of a permit.

Other information, such as lot size and substandard system components, was also collected. The Township's watershed study consultant walked the streambeds of the three main streams – Aquetong, Paunacussing and Primrose Creeks. No stream discharges or pipes were sighted.

Potential malfunctions include onlot sewage disposal systems constructed before 1972 when the 25 Pa. Code § 73 regulations became effective. However, the BCDH had been regulating onlot sewage disposal systems since 1956. Of the 98 systems with known ages, 24 systems or 25% preceded the BCDH permits. System repairs were reported by 44 owners.

General statistics about unsuitable soils are noted for each study area. The survey results are shown on **Exhibit III-4**, which provides details for each onlot sewage disposal system surveyed.

3.0 System Suitability

A comparison of the onlot sewage disposal systems in use with current standards was documented. Substandard systems identified through the sanitary survey included cesspools, undersized or single chamber septic tanks, seepage pits and separate greywater systems with and without treatment. The sanitary survey found 55 (16%) substandard systems.

Holding tanks are being used primarily on lots too small to allow onlot sewage disposal systems. To provide an isolation distance of 100 feet from an absorption area to a well, new or replacement onlot sewage disposal systems require a minimum lot size of approximately ¼ acre. Solebury Township's Zoning Ordinance requires a minimum lot size of ½ acre in Village districts and 1 to 1½ acres in other districts. Solebury Township has about 600 lots that are less than 1 acre in size, with 65 lots smaller than ¼ acre in size.

Groundwater limitations to the potential use or continued use of onlot sewage disposal systems include carbonate (limestone and dolomite) geology and unsuitable soils. **Plate 4** of this Plan shows the areas of Solebury Township with carbonate geology. **Plate 3** of this Plan shows soil limitations for the types of onlot sewage disposal systems that may be installed.

4.0 Water Supply Survey

In conjunction with the door-to-door sanitary survey, well supply surveys were conducted to collect data for parameters of concern to the public health — Total Coliform, Fecal Coliform and Nitrate.

The Total Coliform group of bacteria is naturally present in the environment in soil or vegetation. A Total Coliform test result that is not negative, therefore, which is greater than zero, exceeds the Safe Drinking Water Standards and is considered not potable for human consumption. Fecal Coliform bacteria, while generally not pathogenic (causing diseases and illnesses), are found in fecal matter from humans and animals. Fecal coliform is an indicator organism, which means it may indicate the presence of pathogenic bacteria. If only Total Coliform bacteria are detected in well water, the source is probably environmental and fecal contamination is not likely. However, if Total Coliform can enter the well, then other bacteria, including pathogens, may also enter the well.

Nitrate in groundwater originates primarily from fertilizers, septic systems, manure storage or spreading operations, natural decay of organic matter, precipitation, and mineral weathering. Excessive Nitrate in drinking water is a health concern for infants through 6 months of age and for women during pregnancy. EPA's Drinking Water Standards set the maximum permissible level for Nitrate at 10 mg/L.

The water supply survey included the collection of water samples from 310 wells and one spring source. One sample (#302) was collected at a springhouse on Old Mill Road, where animal activity was noted. The results included Total Coliform >200, a positive Fecal Coliform test and a Nitrate concentration of 5.65 mg/L. Three property owners supplied previous test data.

Some properties have two units sharing one well. Three wells are currently treating for Nitrate removal using reverse osmosis. Ultraviolet (UV) disinfection is used on 24 wells, with one residential well treated with chlorine. Numerous owners are using water softeners, neutralizers and/or filters. To determine the quality of the groundwater, samples were collected from a tap prior to water treatment, if possible. The faucet was disinfected with an alcohol swab and the water was allowed to run for 3 to 5 minutes to purge the supply line and to ensure a fresh sample from the well.

The laboratory reports were forwarded to the owners by Solebury Township, and included a cover letter. Total Coliform results below five were considered suspect and the homeowners were advised to retest at their convenience. Methods to shock treat a well with chlorine were included with Total Coliform results greater than 10 colonies/100 mL.

The well data is mapped on the overall **Plate 7** and is enlarged on the specific North (**7a**), East (**7b**), South (**7c**) and West (**7d**) Plates of this Plan. The survey found evidence of Total Coliform and Nitrate, especially in areas of previous farming activities or of concentrated development. Well contamination from Total Coliform is found in documented shallow wells, in wells with subsurface wellheads or located in or near wetlands. Inadequate well construction appears to be the cause of these incidences of well contamination. A summary of the results is shown on **Table 3-3**.

Table 3-3. Well Water Survey Results Summary		
Parameter	# of Exceedances	% of 311 Samples
Total Coliform >0 (SDWA Standard)	46	14.8%
Total Coliform >5	26	8.4%
Fecal Coliform	10	3.2%
Nitrate >5 mg/L (Limits Development)	68	21.9%
Nitrate >10 mg/L (SDWA Standard)	3	1.0%
Non-Potable for Human Consumption	49	15.8%

5.0 Study Area Ratings

DEP provides a priority rating system used by PENNVEST in their *Handbook for PENNVEST Wastewater Projects*³ to rate project eligibility for funding. Projects are prioritized based on their impacts on public health, the environment, economic development, compliance and other factors.

DEP's rating system defines well contamination in a study area as the presence of Total Coliform bacteria in which 20% of sites are also positive for Fecal Coliform. Well contamination suspected to be caused by inadequate well construction is disregarded. Of the 46 samples that tested positive for Total Coliform, 10 samples had a positive Fecal Coliform result for a 22% contamination rate. However, 4 of the 10 are from wells with subsurface wellheads, and if disregarded, a 13% contamination rating exists.

³ [Handbook for PENNVEST Wastewater Projects](#)

The highest rating for public health impacts is given to areas with >50% confirmed malfunctions or well contamination. Survey results can then be ranked at >25% and >10% to determine the degree of sewage disposal needs. No study area was determined to be experiencing more than 25% confirmed malfunctions. No apparent correlation between age, observed malfunction and repair history can be discerned. **Table 3-4** details the malfunction and well contamination status for each of the study areas.

Table 3-4. Malfunction & Contamination Status in Each Study Area							
Study Area	Name	# Lots in Area	# Surveys Conducted	Confirmed	Suspected	Potential	Positive Fecal Coliform
1	Carversville	57	31	5	3	13	2
2	Center Bridge	60	16	1	5	11	0
3	Lumberville	85	18	4	3	11	0
4	Solebury	55	14	2	0	12	2
5	Solebury Mountain	53	17	2	0	9	0
6	New Hope Hills	78	23	1	2	11	1
7	Bridlewood	41	10	0	0	4	0
8	Cottageville	24	7	0	0	2	1
9	Aquetong Watershed	73	13	0	0	7	0
10	Hidden Valley	258	50	1	2	25	0
11	Pidcock Watershed	230	34	4	1	11	0
12	Primrose Watershed	89	49	4	1	20	2
13	Township (in General)	142	110	12	1	40	2
	Totals	1,245	392	36	18	176	10

C. Sludge and Septage Information

Septage is generated from the approximately 2,500 existing onlot sewage disposal systems in Solebury Township. Assuming an average tank size of 1,000 gallons, at a cycled pumping frequency of 830 tanks per year, at least 830,000 gallons of septage is estimated for removal annually, or an average of 3,200 gallons per weekday.

The organic strength of septage is typically about 6,500 mg/L, measured as BOD₅ or 54 Lbs/1,000 Gallons. The disposal of 3,200 GPD or 173 Lbs/Day BOD₅, compared to the same amount of wastewater from 13 connections entering a treatment plant at 250 mg/L BOD₅ or 6.7 Lbs/Day, contributes the equivalent of 336 connections per day.

Local haulers currently dispose of septage at various municipal wastewater treatment plants, one of which is the Hatfield Township Municipal Authority wastewater treatment plant.

As more Townships in Bucks County adopt and implement sewage management programs, the disposal facilities' capacities to handle these quantities of septage may be exceeded. Solebury Township may choose to investigate the land application of treated septage from Township residents on appropriate available lands.

Exhibit III-1
Act 537 Sewage Disposal
Needs Identification

ACT 537

SEWAGE DISPOSAL NEEDS IDENTIFICATION



COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection

For more information, visit DEP's Web site at
www.depweb.state.pa.us, keyword: Sewage.

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PREFACE

Act 537, the Pennsylvania Sewage Facilities Act, requires that all municipalities develop, revise and implement Official Sewage Facility Plans ("Act 537 Plan" or simply "Official Plan"). A fundamental part of this Act 537 Plan is the identification and documentation of the sewage disposal needs in a municipality. The purpose of this document is twofold: first, to provide methods that clearly identify and document existing wastewater disposal needs and second, to provide general guidance for summarizing and presenting the identified needs.

INTRODUCTION

When preparing an Act 537 Plan, a community's wastewater disposal "needs" must be documented. Adequate documentation of these sewage disposal needs is considered fundamental for all following work involving sewage disposal alternatives and solutions. The cost of identifying and documenting sewage disposal needs is normally an expense that is eligible for the planning grant under Pennsylvania Code Title 25, Chapter 71.41 (DEP Regulations). Ensure that adequate cost estimates for this important work are included in the *Task/Activity Report* form (3800-FM-WSFR0005) available on DEP's Web site at www.depweb.state.pa.us that is submitted to DEP for approval. These activities are presently included in the *Act 537 Plan Content and Environmental Assessment Checklist* form (3800-FM-WSFR0003) also available on DEP's Web site under Section III B. Additionally, adequate needs documentation is required when competing for "needs" prioritized funding, such as PENNVEST.

Generally, documentation of needs will involve both data collection and an assessment of various factors relating to soils, sewage malfunctions, polluted wells, zoning, etc. This guideline is organized into two general sections:

- I. Identification of sewage associated malfunctions and environmental contamination; and
- II. Summary of identified "needs" documentation.

I. IDENTIFICATION OF SEWAGE ASSOCIATED MALFUNCTIONS AND ENVIRONMENTAL CONTAMINATION

The identification and documentation of sewage associated problems involves the collection and tabulation of information, much of which currently exists in the form of reports, surveys and administrative actions, and then verifying the data with actual field work.

There are two general needs categories relating to sewage disposal that must be considered:

- Public Health Needs
- Water Pollution Needs

Information obtained in these categories must be subjected to field surveys in order to verify specific needs. Field surveys are instrumental to obtain documentation for inclusion in the Act 537 Plan.

A. Public Health Needs

1. Public health needs are considered to be those health hazards and water pollution problems that involve discharging untreated or inadequately treated sewage to the surface of the ground or to the waters of the Commonwealth (including groundwater). Most commonly, these needs are found to be malfunctioning onlot disposal systems (OLDS) and malfunctioning community onlot disposal systems (COLDS). Onlot disposal system malfunctions are classified into three categories: confirmed, suspected and potential. Properly functioning onlot systems are added to these groups forming a fourth category. When determining the public health needs of an area using OLDS/COLDS, all systems inventoried, mapped and analyzed must be placed into one of these four categories:
 - a. **Confirmed Malfunctions:** Those malfunctions documented by dye testing, laboratory test results, observation by a certified Sewage Enforcement Officer or a 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.
 - b. **Suspected Malfunctions:** Those systems exhibiting some malfunction characteristics such as abnormally green grass in the vicinity of an absorption area, piped 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 outcropping, etc.), cesspools (in high density development) and pit (not vault) privies.

- c. **Potential Malfunctions:** Those systems that appear to be operating satisfactorily but were constructed prior to system permitting requirements (i.e., preregulatory systems), systems located in areas extremely unlikely to receive permitting by current standards, systems constructed in areas having soils mapped as unsuitable or with severe limitations for OLDS and systems located on exceptionally steep slopes greater than 25 percent. 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.
 - d. **No Malfunction:** Those systems that appear to be operating satisfactorily, were constructed since the implementation of system permitting requirements, and appear to have been constructed in accordance with the permitting requirements in effect at the time of construction. For the purpose of needs identification, OLDS permitting under Act 537 became effective on May 15, 1972.
2. Several other situations exist that must also be inventoried, mapped and analyzed when identifying public health needs for an Act 537 Official Plan or Plan Update Revision. These include: wildcat sewers, borehole disposal, holding tanks, public complaints and sanitation related illnesses.
- a. **Wildcat Sewer:** Collection systems (community sewers) serving more than one equivalent dwelling unit (EDU) and discharging untreated or partially treated sewage to the surface of the ground, storm sewers or other waters of the Commonwealth. An EDU is equal to a sewage flow of 400 gallons per day. The number of EDUs connected to a wildcat sewer is used to "convert" the wildcat sewer into an equivalent number of confirmed malfunctions. (For example, four residential dwellings, each with sewage flows of 400 gallons per day (GPD) will equal four EDUs. One restaurant with a sewage flow of 1,200 GPD will equal three EDUs. If all were connected to a wildcat sewer, they would be the equivalent of and reported as seven EDUs, or seven malfunctioning OLDS.)
 - b. **Borehole Disposal:** Individual or community systems discharging to a borehole, abandoned water well, drywell, ventilation shaft or other subterranean structure. As in the previous example, the number of EDUs connected to a borehole is used to "convert" borehole disposal into an equivalent number of confirmed malfunctions.
 - c. **Holding Tanks:** A watertight receptacle designed to retain sewage for disposal at another location. All holding tanks installed as repairs are

counted as "needs." Specifically excluded are holding tanks installed to serve new land development or low flow commercial facilities. While not actually spewing sewage into the environment, properly maintained holding tanks, when used in OLDS repair situations, are included in the confirmed malfunction category.

- d. **Public Complaints:** Any legitimate complaint received by DEP or the municipality concerning improper sewage disposal. The number, nature and location of public complaints concerning improper sewage disposal are important, yet often overlooked indicators of sewage disposal problem areas.
 - e. **Sanitation Related Illness:** Any reported illness, either resulting from or suspected to be resulting from improper sewage disposal. Records and incidents in which polluted water supplies have been suspected or confirmed as the cause of disease is documentation establishing a community's wastewater treatment needs. Confirmed or suspected vectorborne disease that may be attributed to surface ponding of sewage also should be considered.
3. The following paragraphs represent methods that may be used to obtain public health needs information:
- a. **Sewage Sanitary Survey:** These randomly verified field surveys may be conducted in two "tiers" (or steps), depending on the scope of the Act 537 Official Plan revision being prepared. For "municipality-wide" or large area plans, a general or "tier one" approach is appropriate, especially with a goal of identifying and prioritizing sub-areas for closer scrutiny or simply gathering generic information for a large area. The "tier two" survey provides a much closer scrutiny of a study area and is more appropriate for smaller scale (less than municipality-wide) plans, for accurately defining and documenting suspected problem areas, and for prioritizing the severity of problems found in several areas. The "tier two" survey might also be appropriate for municipal-wide planning where the municipality is uniformly developed throughout or where it is anticipated that the rate of sewage disposal problems will be similar in both densely and less densely developed portions of municipalities that have variable development patterns.

Most "tier one" surveys use a minimum sampling rate of 15 percent; while for the "tier two" survey, representative sampling rates vary with the size of the area. In both cases, obtaining this representative sampling is important, as well as random selection of sampling points and sampling in a pattern that provides accurate, complete coverage of the survey area. Please note that a generic "tier one" 15 percent sampling rate will NOT be sufficient to assign a PENNVEST project priority rating for any project smaller than 1,000 units.

A door-to-door survey conducted by consultant or municipal personnel is the preferred method of conducting a sewage sanitary survey. While a "mail-in" questionnaire survey, with provisions for specific confirmation of reported malfunctions or even a combination of methods that involve both detection and confirmation of sewage disposal problems, may provide helpful information to augment the data gathering process, they are generally considered less reliable and less accurate and may not be substituted for a "door-to door" survey when determining the sewage disposal "needs" of a study area.

"Mail-in" survey results may not be used to prepare PENNVEST project priority ratings. When conducting sewage sanitary surveys, the percent of OLDS or EDUs inventoried in a door-to-door survey, the return rate of mail-in questionnaires and the percentage rate of the questionnaires subjected to field verification must all be reported. Specific examples of survey procedures and sample survey forms are included as Appendix A for "door-to-door" surveys, and Appendix B for "mail-in" surveys.

It is also highly recommended that your local DEP regional office be contacted to discuss appropriate survey methodology for specific situations.

- b. **Existing Sanitary Surveys:** Sanitary surveys completed by DEP, a county health department or other professional organization are acceptable provided that both methodology and results are included in the survey by the latter organizations.
- c. **Well Water Surveys:** Well water surveys may also be completed in similar fashion to Sewage Sanitary Surveys using two tiers (or steps). In "tier one," a minimum of 15 percent of the wells in the general study area must be sampled. In the second tier, potential sewer service areas are again subjected to closer scrutiny. A representative sampling of wells within these smaller, more defined areas must be completed. As a general rule, representative sampling will be required in subareas where total coliform contamination rates are ten percent or greater and fecal coliform contamination rates for those samples testing positive for total coliform are 20 percent or more. In both tier procedures, all wells sampled must be tested for total coliform, fecal coliform and nitrate-nitrogen contamination. (Testing for additional contaminants may be completed at the municipality's or DEP's discretion. Testing for fewer contaminants or lower sampling rates may be coordinated with DEP.)

A representative sample is defined as:

<u>Wells in Service Area</u>	<u>Percent Sampling Required</u>
Up to 50	50 percent
51 to 100	35 percent
101 to 500	25 percent
501 to 1,000	20 percent
Greater than 1,000	15 percent

These wells must be randomly selected and distributed throughout the study area for the results to be valid. Additional wells above these figures may be sampled to further define specific needs areas. In all cases, it is mandatory that comments concerning well construction (dug vs. drilled) be included for all wells sampled. Public water service areas also must be identified and delineated since well samples will not normally be taken from these areas. (If private wells are available for sampling in public water service areas, then they should be included in the survey.)

- d. **Windshield Surveys:** Windshield surveys can be useful and productive, but have great limitations for "needs" documentation. This method is usually an inexpensive and efficient utilization of staff, however, such surveys are limited to what observations may be made from streets or roads. All observations made during such a survey must be meticulously recorded and normally will require a site visit to adequately document a need. It is recommended that the windshield survey be utilized only in conjunction with other surveys or data gathering efforts. Under no circumstances may a windshield survey be considered as the sole source of documented information.

B. Water Pollution Needs

Water pollution needs are violations of either the National Pollutant Discharge Elimination System (NPDES) discharge criteria or the Clean Streams Law. In sewage facilities planning, any suspected water pollution, whether originating from existing sewage treatment facilities or malfunctioning OLDS, migrating into surface waters must be confirmed by appropriate sampling of the discharges or the receiving waters. Facts to consider when reporting such sample results are: (1) frequency and duration of discharge; (2) effect on receiving body of water; and (3) flow character of receiving body of water.

1. **NPDES Violations:** When dealing with NPDES issues, DEP regional field office water management programs may provide this data. Information of this type is often available as part of existing data management systems or through file review.

2. **Non-NPDES Contamination:** To establish water pollution needs for non-NPDES situations, stream water samples must be obtained from all suspect area waterways clearly above and clearly below the suspected contamination source area. The same bacterial and chemical testing regime utilized in the well testing program is appropriate for stream testing. Additional well known tests such as pH, MBAS, NH₃, etc., may be included at the municipality's discretion. Any stream analysis must evaluate the likelihood of other sources for the observed contamination (i.e., is there a livestock operation straddling the stream in the test area). Of particular interest is any adverse impact on downstream users. Analysis must also include any impact on downstream community water supply intakes; include any raw water sample test reports for community water systems. Livestock watering, fishing, scenic and recreational opportunities are examples of often overlooked downstream users. Do not concentrate ONLY on the obvious downstream community water intakes.

II. SUMMARY OF IDENTIFIED NEEDS DOCUMENTATION

The data from the sewage disposal needs documentation must be incorporated into a form easily interpreted by others. Since this documentation is frequently utilized to justify construction of a public project or to determine a priority for funding a project, it is most often used by someone not involved in the data gathering. Proper summarizing of needs data is critical to this decision making process.

There are two parts of a data summary: the narrative and the maps.

A. The Narrative Summary

1. Provide a short narrative containing information on who conducted the survey, when it was conducted and under what environmental conditions (freezing, drought, raining, etc.) it was conducted. Include the methodology used to conduct the survey.
2. Organize the data into easily evaluated groupings. No one single formula or technique is considered the correct and only way to accomplish this function. The summary should clearly support the stages of the Act 537 planning process. It must be clear and concise. In addition to a verbal picture of a study area's needs, data obtained from surveys should be reported in percentages for reviewing and evaluating authorities. Compiling the data into appropriate groupings is extremely important. Two general examples are provided below to illustrate some desired data groupings.
 - a. When a study area contains needs that will be addressed by more than one method of sewage disposal (i.e., a municipal plan that proposes continued use of OLDS in some areas and a community sewer system in others), group the data to enable separate evaluations. In this example, data must be grouped for the entire municipality, the OLDS area only and the project area only.
 - b. When a study area contains needs that will obviously be addressed by one method of sewage disposal (i.e., a study area originally defined as a potential sewer expansion area), the data may be compiled into one data group for the entire area.

In general for all groupings, include the number of structures surveyed, the number of structures with known disposal problems (conversely the number without disposal problems), and what kind of problems the structures have. Present the data in descending order of severity from the most significant problems (wildcat sewers and direct discharges) to the least significant needs (no problems). The use of tables or charts for organizing survey results is highly encouraged. For example, a table should include the house number, show the

number of EDUs (for motels, apartments, commercial, industrial, etc.), indicate whether it has a malfunctioning OLDS or not and provide a brief description of the problem. A table including this information is extremely helpful to all agencies utilizing the plan. Be sure to include any observations that may contribute to recognition of the types of problems located that cannot be expressed in hard numbers. For example, "virtually all the homes down by the stream have surface malfunctions" provides valuable insight to the situation, although it may contribute virtually no quantitative data upon which a comparative evaluation or rating might be based.

3. Retain in narrative form all observations that were not included with the previous groupings. These "odds and ends" will often contain valuable information.

B. The Map Summary

The summary should also be presented in map form. Maps help identify areas of greater concern and help to properly analyze the available alternatives for each identified area. Malfunction percentages may seemingly justify a large scale project, but adequate mapping may clearly show that all of the problems are located in one concentrated area. Data in the summary should be displayed and keyed or color coded to the map. The detail should be sufficient to support a general description of the needs in the study area. Maps should be of the same scale as those found in the rest of the Act 537 Official Plan. Refer to Appendix C for additional guidance concerning mapping requirements.

Appendix A

The Door-to-Door Survey

The most desirable method of assessing sewage disposal needs in an area is with a door-to-door survey. Specific surveying procedures may vary from one project location to another, but generally, surveys should proceed along the following guidelines. Surveys may be divided into three phases: (A) survey preparation; (B) survey execution; and (C) survey completion.

A. Survey Preparation

1. Identify the study area on a map of sufficient scale to show desired detail. The map should clearly depict each sewage generating structure. Topographical maps or tax maps are good starting points.
2. Contact the municipal solicitor to determine what local protocols exist pertaining to "right-of-entry" situations.
3. Check all available background records, such as municipal OLDS permit applications and complaint investigations, for a history of malfunctions, repairs and complaints in the study area. Interview the Sewage Enforcement Officer (SEO), municipal road crews and municipal secretary to help identify specific problem areas. Often the information obtained from such individuals will save valuable time by pinpointing problem areas upon which to concentrate during actual field work.
4. Develop a survey sheet questionnaire with a list of questions to be asked during the survey. The questions must be phrased to obtain pertinent information needed to complete the plan. Keep the questions brief and provide preformatted answers or "check the block" answers where possible. Fit it all on one side of a sheet of paper (sample is included in Appendix A).
5. Copy an area map on the reverse side of the questionnaire developed in number 4 (the survey taker will use this map to mark the location that samples were taken).
6. Develop a plan to collect well water samples. Ensure that a representative sample is obtained. All samples must be collected from the raw water side of any water treatment or purification device serving the structure. See the "Well Water Surveys" portion of this publication for additional information.
7. Locate stream water sampling points. Obtain samples upstream and downstream of the study area. See the Water Pollution Needs, Non-NPDES Contamination section of this publication for additional information.

8. Dye testing is generally not used in a survey. However, dye test procedures are not specifically excluded from surveys, and their results may prove useful. Dye testing may confirm multiple discharges, hidden discharges or document a pathway between sewage disposal systems and contaminated wells or waterways. A negative dye test, however, does not preclude the existence of a malfunction.
9. A Representative Survey is defined as a survey of sample points that includes data confirmed by the minimum number of field-verified survey reports required to validate a Sewage Sanitary Survey. Sample points for field verification are randomly selected. The percentage of field verified survey reports required to validate a Sewage Sanitary Survey will vary with the total size of the survey in accordance with the following table:

OLDS in the Project Area	Percent OLDS Sampling Required
Up to 50	50 percent
51 to 100	35 percent
101 to 500	25 percent
501 to 1,000	20 percent
Greater than 1,000	15 percent

B. Survey Execution

1. Contact the local police department and inform them of the date, time and place the survey will be conducted. It is also desirable to make a public announcement of this same information. Placing notices on community bulletin boards in local markets is often helpful.
2. Choose a logical route, traveling door to door and complete a survey questionnaire data sheet for each structure. Locate the structure on the map and identify it with an identification system that coordinates the map location, the survey form and any samples taken.
3. Field personnel should clearly identify themselves. Indicate that you are working for and represent the municipality. Carry identification and have a telephone number for the municipality available for confirmation of your identity. **UNDER NO CIRCUMSTANCES** give the impression you represent DEP. DEP cannot address issues that may arise during a sanitary survey conducted by non-state employees.
4. Using the questionnaire to guide the information gathering, inquire about both the structure and the neighborhood. Clarify any answers that are not understood, unusual, unexpected or easily misunderstood.

5. Ask permission to look around the property:
 - A. If permission is refused, proceed to the next property. Make notes on any apparent needs visible from off the property. In a survey, never attempt to force, bluff or deceive to gain permission to enter property.
 - B. If permission is granted, proceed to step 6.
 - C. If no one is home or data collection is denied because the owner is not present on the property, leave a note, like the one immediately below, on the door that seems to be the usual entry to the house. DO NOT PLACE THIS NOTE IN OR ON ANY MAILBOX -- placing anything other than mail in or on a house mailbox is a violation of federal law.

To: The owner of [property address]

Date: / /

Sorry we missed you. Could we get together soon so that data on your property can be included in our township's survey of sewage disposal needs and methods? This survey is conducted every so often to assist your supervisors as they carry out their duties under Act 537. The survey obtains information needed for considering future decisions on this subject when it may affect our township.

We'll try to stop back today. If we do not see you, would you call [surveyor's name] at [survey office phone number] between [hours], so that we can make an appointment with you?

Signature

6. When walking around the property, watch for dogs, geese, bison and any other dangerous livestock; record all observations relating to sewage disposal on the survey form, and; make note of any evidence of an apparent malfunction, such as the type and location of the apparent malfunction. If no evidence of a malfunction is observed, make note of that information. Since the purpose of the walk around is not only to confirm what has been reported, but also to identify problems of which people may be unaware, the walk around should be conducted by individuals with knowledge of proper onlot system operation.

C. Survey Completion

When data gathering is complete:

1. Conduct a thorough debriefing of all survey takers. Have them summarize their experiences, observations and impressions. (This information is quickly lost with the passage of time.)

2. Mark the project map with the location of identified malfunctions or any other "public health needs" found in Section A of this publication.
3. Record and assess both the frequency and severity of malfunctions, identify localized areas of clustered problems and list the probable causes of the malfunctions (soils, slopes, etc.).

**DOOR-TO-DOOR
NEEDS SURVEY**

Munic.: _____ Co.: _____ Study Area: _____ Date: _____

General weather conditions: _____

A survey is being conducted to determine if there are any sewage problems in this area. This is a general survey and the results are intended to be used in evaluating the need for community wide solutions.

(CIRCLE OR FILL IN AS APPROPRIATE; ADD COMMENTS AS NEEDED)

NAME: _____ STREET: _____ CITY: _____

ZIP: _____ PHONE #: _____ OWNER OR RENTER? NUMBER OF RESIDENTS: _____

What kind of water system do you have? WELL? SPRING? CISTERN? PUBLIC? OTHER?

If you have a well: Is it DUG or DRILLED? HOW DEEP? _____ ft. Cased? Y / N

How far is the well or spring from the drain field? _____ ft. Is well UP/DOWNHILL? _____

Do you treat your water? Y / N How? CL/UV DISINFECTION, SOFTENER, ION, OTHER _____

Was the water ever tested? Y / N When? _____

Any contamination? Y / N What? (TC, FC, N, etc.) _____

How large is your lot? _____ No. of dwelling units? _____

One or more sewage systems? _____ COMMERCIAL/RESIDENTIAL?

What kind of sewage system do you have? (CIRCLE ALL THAT APPLY)

- | | | |
|--------------|---------------------|-----------------|
| SEPTIC TANK | INGROUND BED | COMMUNITY SEWER |
| CESSPOOL | INGROUND TRENCH | STORM SEWER |
| OLD WELL | ELEVATED SAND MOUND | PIPE TO DITCH |
| HOLDING TANK | SEEPAGE PIT | PIPE TO STEAM |
| PRIVY | BORE HOLE | PIPE TO SURFACE |
| OTHER _____ | | |

Where does your laundry and/or sink water go? (CIRCLE ALL THAT APPLY)

- | | | |
|--------------|---------------------|-----------------|
| SEPTIC TANK | INGROUND BED | COMMUNITY SEWER |
| CESSPOOL | INGROUND TRENCH | STORM SEWER |
| OLD WELL | ELEVATED SAND MOUND | PIPE TO DITCH |
| HOLDING TANK | SEEPAGE PIT | PIPE TO STEAM |
| PRIVY | BORE HOLE | PIPE TO SURFACE |
| OTHER _____ | | |

How old is your system? _____ Was it permitted? Y / N When? _____

Have you every noticed any of the following near your septic system? _____

- | | | |
|----------------------------|----------------------------------|-------|
| GREEN LUSH GRASS | WETNESS OR SPONGY AREAS | ODORS |
| WATER PONDING OR SURFACING | SYSTEM OVERFLOW | |
| SLUGGISH DRAINS | WASTEWATER BACKING INTO THE HOME | |
| OTHER _____ | | |

If you noticed any of the above, are they seasonal or year-round? _____

Have you ever had your system pumped out? Y / N How often? _____ Last time? _____

If it was pumped, was it inspected for cracks or broken baffles? Y / N What part? _____

Has the system every been repaired? Y / N When? _____ By permit? Y / N What part? _____

TANK: REPAIRED/REPLACED LINE: REPAIRED/REPLACED DRAIN FIELD: REPAIRED/REPLACED

COMMENTS: _____

DO I/WE HAVE YOUR PERMISSION TO CONFIRM THIS INFORMATION BY LOOKING AROUND? Y / N

Appendix B

The Mail Survey

1. Identify the study area on a map of sufficient scale to show desired detail. The map should clearly depict each sewage generating structure. Topographical maps or tax maps are good starting points.
2. Coordinate with municipal officials to obtain the appropriate names and addresses to contact study area residents or landowners.
3. Draft a cover letter explaining the purpose of the survey and include the procedures to complete and return the survey form. Include all necessary addresses. A response time of 30 to 60 days is suggested.
4. Draft a mail-in questionnaire designed to obtain an accurate picture of the study area needs. If possible, include a map and have individuals mark their structure on the map for easy identification. Avoid use of the word "malfunction" where possible, in favor of concentrating on obtaining data about the type of OLDS, location of OLDS and any problems with the system. Ask about other systems in the neighborhood.
5. Mail questionnaires and receive the return documents. Including a self-addressed, stamped return envelope will enhance the chances of receiving an adequate survey response.
6. Compute the survey response rate as a percent to determine if the minimum response has been received. The minimum response rate necessary to effectively use the mail-in survey data is equal to the same minimum sampling required to obtain a representative survey in the door-to-door survey. For example, if a survey has 150 questionnaires sent and 80 are returned the return rate is 53 percent. This return rate meets the minimum criteria and the survey results may be used.
7. The results of mail-in surveys must be randomly validated in order to obtain the greatest benefit from the results. To validate mail-in survey results, a certain number of returned questionnaires selected at random must be field-verified. The percentage of field-verified questionnaires required to validate a survey will vary with the total size of the survey in accordance with the following table:

OLDS in the Project Area	Percent OLDS Field Verifications Required
Up to 50	50 percent
51 to 100	35 percent
101 to 500	25 percent
501 to 1,000	20 percent
Greater than 1,000	15 percent

As can be seen from this table, if a mail-in survey receives only the minimum response computed in step 6, then all returned questionnaires must be field verified. If a response is greater than the minimum, only the minimum must be verified. It is not necessary to verify all reported problems. Field verification should be completed for a random selection of the responses.

Example 1

SEWAGE NEEDS MAIL SURVEY

_____/_____/_____

_____ (Boro./Twp.) is conducting a survey to determine what sewage problems may exist in this area. The survey results will be used to determine if sewage problems exist, and the best and most economical way of correcting the problems. Please help us locate and circle your property on the accompanying map. Please complete the form to the best of your ability and return it by ____/____/_____ to the municipal office at:

If you have any questions please contact _____ at (____) _____ - _____.
Please note: this survey may be followed by a partial or whole door-to-door survey.

(CIRCLE OR FILL IN AS APPROPRIATE; ADD COMMENTS AS NEEDED)

NAME: _____ PHONE: (____) _____ - _____.
ADDRESS: _____

1. How many people live in your house? _____ SEASONAL / ALL YEAR
2. How large is your lot? _____
3. Do you have more than one sewage system on your lot? Y / N
If yes, explain: _____
4. What kind of water system do you have? WELL SPRING PUBLIC OTHER _____
Do you treat your water? Y / N If yes, how? _____
If you have a well: Is it DUG or DRILLED? How Deep? _____ ft. Cased? Y / N
5. How far is the well or spring from the drain field? _____ ft. Is well UP/DOWN SLOPE? _____
Have you every had your water tested? Y / N When? _____
What were the results? _____
7. What kind of sewage system do you have? (CIRCLE ALL THAT APPLY)

SEPTIC TANK	INGROUND BED	COMMUNITY SEWER
CESSPOOL	INGROUND TRENCH	STORM SEWER
OLD WELL	ELEVATED SAND MOUND	PIPE TO DITCH
HOLDING TANK	SEEPAGE PIT	PIPE TO STEAM
PRIVY	BORE HOLE	PIPE TO SURFACE
PUBLIC SEWER	OTHER _____	
8. Where does your laundry and/or sink water go? (CIRCLE ALL THAT APPLY)

SEPTIC TANK	INGROUND BED	COMMUNITY SEWER
CESSPOOL	INGROUND TRENCH	STORM SEWER
OLD WELL	ELEVATED SAND MOUND	PIPE TO DITCH
HOLDING TANK	SEEPAGE PIT	PIPE TO STEAM
PRIVY	BORE HOLE	PIPE TO SURFACE
PUBLIC SEWER	OTHER _____	
9. How old is your system? _____ Was it permitted? Y / N When? _____
10. Have you ever noticed any of the following near your septic system?

GREEN LUSH GRASS	WETNESS OR SPONGY AREAS
ODORS	WATER PONDING OR SURFACING
SLUGGISH DRAINS	WASTEWATER BACKING INTO THE HOME
SYSTEM OVERFLOW	OTHER _____
11. Was your system ever pumped out? Y / N How often? _____ Last time? _____
If it was pumped, was it inspected for cracks or broken baffles? _____
12. Was your system ever repaired? Y / N When? _____ By permit? Y / N
What part was repaired or replaced?
TANK: REPAIRED/REPLACED LINE: REPAIRED/REPLACED DRAIN FIELD: REPAIRED/REPLACED
13. Are you aware of any other sewage problems?
14. COMMENTS: _____

**SEWAGE NEEDS
MAIL SURVEY**

Example 2

PLEASE READ THIS MESSAGE AND FILL OUT THIS SURVEY FORM

Your municipality has begun to gather information about the current quality and safety of the water we drink. We need to know about current methods of sewage disposal to assure that these do not affect your water. We are also doing this in a way that can be used to update our Pennsylvania Sewage Facilities Act Plan under the related state regulations (Title 25 Pa. Code Chapter 71).

In order to gather this information while respecting your privacy, we ask that you fill out and return this mail survey concerning water supply and water disposal by _____.

This survey will be used in a variety of ways.

1. It will be used to plan a survey sampling of existing wells in our community. If your well is selected for sampling, please allow the person collecting the samples to collect these at or as close to the well as possible. Due to factors of cost v. benefit, not every well can be laboratory tested.
2. It will be used to identify where we need to send people to verify facts. This is part of the process called "validating the survey." If your property is selected for such a visit, we ask your indulgence and cooperation.
3. It may provide information that will require us to look at certain areas of our community in more detail than other areas, possibly surveying for information door-to-door in a few selected situations.

Please return this form to us. Your answers are very important. Part of the process of "validating the survey" depends on the return of a set minimum number of survey forms. If our mail survey does not meet this minimum, we may have to conduct what is called a "comprehensive door-to-door survey" concerning the same information, at greater expense. In this survey, we hope to obtain data which meets part of the minimum legal standards on which to base future public decisions concerning questions on local water supply safety and wastewater disposal.

Thank you for your help in this survey effort. Your answers will be used so that public money is wisely spent.

Respectfully,

Township Supervisor

Consultant

THIS SURVEY FORM CONCERNS THE HOME LOCATED AT:

Street Address _____

1. Your home gets water from:
 - a. a community water supply.
 - b. a private well.
 - c. a spring or cistern. Please specify. _____

ANSWER THIS SECTION ONLY IF YOU HAVE A WELL OR OTHER PRIVATE WATER SOURCE.

2. Do you have your water periodically tested? Yes ___ No ___

3. If you have had your well tested within the last 2 years, what were the values reported for:

Nitrate _____ ppm as N
 Bacteria _____ (MPN)
 Other _____
 measurements _____

4. How is your well constructed? When was it constructed?
 _____ Drilled _____ Dug _____ Year _____

5. How deep is your well? _____ feet

6. How far away is your well located from the nearest septic system or cesspool (your own or a neighbor's)?
 _____ less than 100 feet _____ more than 100 feet

7. Is the water from your well treated by any method?
 _____ Water Softener _____ Chlorinator
 _____ Ultraviolet light treatment unit
 _____ Other-Specify Treatment _____

8. In the event it is necessary to collect a water sample in your area, would you permit your well to be tested at no expense to you?
 _____ Yes _____ No

9. Do you have:
 - a. a dug privy _____
 - b. a vaulted privy _____
 - c. a chemical toilet _____
 - d. an incinerating toilet _____
 - e. a water (flush) toilet _____

SEWAGE NEEDS MAIL SURVEY

Below, in the first column, are the various disposal methods and systems that are used by people to dispose of water. Because construction of houses can be unique, please check the method that is used to remove water and dispose of it from the indicated areas of your home.

Bathroom Kitchen Laundry and Toilet

SEPTIC TANK	_____
CESSPOOL	_____
OLD WELL	_____
HOLDING TANK	_____
PRIVY	_____
INGROUND BED	_____
INGROUND TRENCH	_____
ELEVATED SAND MOUND	_____
SEEPAGE PIT	_____
BORE HOLE	_____
FIELD DRAIN	_____
COMMUNITY SEWER	_____
STORM SEWER	_____
PIPE TO DITCH	_____
PIPE TO STREAM	_____
PIPE TO SURFACE	_____

Sump Pump Roof Drains

SEPTIC TANK	_____
CESSPOOL	_____
OLD WELL	_____
HOLDING TANK	_____
PRIVY	_____
INGROUND BED	_____
INGROUND TRENCH	_____
ELEVATED SAND MOUND	_____
SEEPAGE PIT	_____
BORE HOLE	_____
FIELD DRAIN	_____
COMMUNITY SEWER	_____
STORM SEWER	_____
PIPE TO DITCH	_____
PIPE TO STREAM	_____
PIPE TO SURFACE	_____

MAINTENANCE PRACTICES

How often do you have your septic tank pumped out?
 _____ Never _____ At least once a year
 _____ At least once every 3 years
 _____ At least once every 5 years
 _____ Only when the system backs up. (Please indicate how often this occurs by marking both this space and the appropriate ones from above.)

When your septic system is pumped out, is the interior inspected for cracks or broken baffles?
 _____ Yes _____ No

Has your system ever been repaired? _____ Yes _____ No
 Did the repair require a permit? _____ Yes _____ No

If your system was repaired, what was done?

Repaired	Replaced
SEPTIC TANK	_____
BUILDING SEWER LINES	_____
PUMP (IF APPLICABLE)	_____
DISTRIBUTION BOX (IF APPLICABLE)	_____
DRAIN FIELD	_____

OTHER QUESTIONS CONCERNING YOUR PROPERTY

Have you noticed any of the following near your septic system?

Water ponding on the ground? _____
 Spongy areas or damp ground? _____
 Odors? _____
 Very heavy growth of grass? _____

Does your home experience water backing up into the house? _____
 Extremely sluggish drains? _____
 Septic system overflows? _____

If any of the above occur, during what season do they most frequently happen?
 Spring _____ Summer _____ Fall _____ Winter _____

If there are any matters involving drinking water or the disposal of sewage that you feel should be looked into by your municipality, please phone _____.

Appendix C

Mapping

All properly completed needs identification and documentation activities will involve maps, to one extent or another. Since a wide range of base map products may be available for a particular area, no single map type is identified for use in preparing and documenting Act 537 Plan needs. The following guidelines must be considered when using maps in an Act 537 Plan.

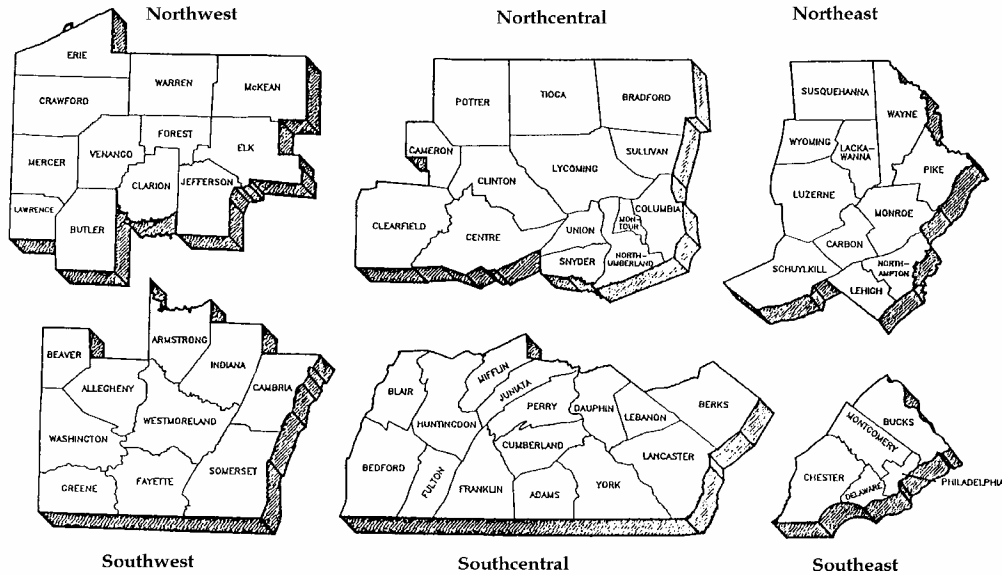
- A. **All Maps Must Be User Friendly.** Maps are tools utilized to convey information. Not everyone expected to work with plan's maps will be an experienced map reader.
- B. **Control the Amount and Type Of Information Depicted On Each Map.** Use appropriate data groupings such that the resulting map is neither sparse nor overcrowded with symbology. A single map containing a future sewer service perimeter and malfunctions, holding tanks, wildcat stream discharges, etc. is a good example of appropriate data grouping. A single map depicting all well sample locations, with each sample location followed by a complex code or symbol showing the results of all testing completed for that well, will often result in an unusable (and likely ignored) map. In this latter example, the sheer volume of data presented at each sample point overwhelms all but the most experienced map user.
- C. **A Suggested Map Scale is 1 Inch To 1,000 Feet (1"=1000').** This figure represents a scale that will normally provide sufficient detail (lot lines) for most large area projects. Plan mapping, however, is not specifically limited to this scale. Other scales are acceptable and are appropriate for use when addressing smaller areas. Most importantly, the map **MUST** be of appropriate scale to adequately depict the intended objective.
- D. **Ideally, a Minimum of Six Maps are Included in an Adequate Needs Identification.** Since local conditions affecting the number of required maps may vary greatly, deviations from this guidance should be coordinated with specific regional offices. Listed below, these maps are not exclusive and, while they represent a generic minimum, additional maps depicting additional information or other combinations of data may always be included in a plan as supporting documentation.
 1. All OLDS and indicating Malfunctions (confirmed, suspected), Holding Tanks and Wildcat Discharges.
 2. All OLDS and indicating status (permitted, pre-regulatory, unpermitted and potential malfunctions).
 3. Soil suitability for OLDS (SCS soil limitations, Hydric soils, wetlands and, after considering system type, slopes 0-15 percent, 15.1-25 percent, greater than 25 percent).

4. All water well and stream sample locations and depictions of biologic test results. Include delineated areas of community or public water supply service.
5. All water well and stream sample locations and depictions of chemical test results. Include delineated areas of community or public water supply service.
6. Geologic mapping when geological conditions impact needs identification. Areas utilizing borehole disposal or old mine diggings and areas discharging to karst topography (an area subject to formation of sinkholes and closed depressions due to underlying limestone geology) are two examples of geology impacting needs identification.

Additional mapping will be necessary to comply with all criteria established in DEP's technical guidance document *A Guide for Preparing Act 537 Update Revisions* (DEP ID: 362-0300-003) available electronically on DEP's Web site (Keyword: "Wastewater") or by calling the DEP regional office serving your area. If in doubt, coordinate map requirements with DEP's regional office.

For more information,
call the DEP regional office in your area or contact:

Department of Environmental Protection
Bureau of Water Standards and Facility Regulation
Division of Wastewater Management
P.O. Box 8774
Harrisburg, PA 17105-8774
(717) 787-8184



DEP REGIONAL OFFICES

Southeast Region

2 E. Main St.
Norristown, PA 19401
Main Telephone: 484-250-5900
24-hour emergency: 484-250-5900

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

Southwest Region

400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-hour emergency: 412-442-4000

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Southcentral Region

909 Elmerton Ave.
Harrisburg, PA 17110
Main Telephone: 717-705-4700
24-hour emergency: 1-877-333-1904

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Northwest Region

230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-hour emergency: 1-800-373-3398

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

Northeast Region

2 Public Square
Wilkes-Barre, PA 18711-0790
Main Telephone: 570-826-2511
24-hour emergency: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

Northcentral Region

208 W. Third St., Suite 101
Williamsport, PA 17701
Main Telephone: 570-327-3636
24-hour emergency: 570-327-3636

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union

Bureau of Water Standards and Facility Regulation
P.O. Box 8774
Harrisburg, PA 17105-8774
717-787-8184

3800-BK-DEP1949 Rev. 9/2008

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**Exhibit III-2
Door-to-Door
Needs Survey**

Solebury Township

Date: _____

DOOR TO DOOR NEEDS SURVEY

General weather conditions: _____

NAME: _____ OWNER OR RENTER? _____
 ADDRESS: _____ NUMBER OF RESIDENTS: _____
 PO BOX: _____ House age? _____ PHONE #: _____

What water source do you use? WELL? SPRING? CISTERN? PUBLIC? OTHER?

If you have a well: Is it DUG or DRILLED? HOW DEEP? _____ ft. Cased? Y / N

Well location: _____ Well head above ground surface: _____ in. / ft.

How far is the source from the drain field _____ ft. Source from disposal? UP / DOWNHILL

Do you treat your water? Y / N CHLORINE, UV, ION, RO, SOFTENER, NEUTRALIZER, OTHER _____

Was the water ever tested? Y / N When? _____ DISPOSAL / in use? _____ PRESSURE TANK? _____

Any contamination? Y / N What (TC, FC, N, etc.) _____ Sample collected from _____

Have you ever noticed the following water quality: TASTE ODOR CLOUDY STAINING SCALE

How large is your lot? _____

Stream on / near property? _____ Stream quality _____

What sewage system components do you have? (CIRCLE ALL THAT APPLY)

- | | | |
|-------------------------|--------------------------|-----------------|
| SEPTIC TANK _____ gals. | HOLDING TANK _____ gals. | PUMP TANK |
| SEEPAGE PIT(follows ST) | INGROUND BED | STORM SEWER |
| CESSPOOL (without ST) | INGROUND TRENCH | PIPE TO DITCH |
| OLD WELL | ELEVATED SAND MOUND | PIPE TO STREAM |
| PRIVY(outhouse) | COMMUNITY SEWER | PIPE TO SURFACE |
| BORE HOLE | OTHER _____ | |

Where does your laundry and/or sink water go? (CIRCLE ALL THAT APPLY)

SAME SYSTEM AS ABOVE

- | | | |
|-------------------------|--------------------------|-----------------|
| SEPTIC TANK _____ gals. | HOLDING TANK _____ gals. | PUMP TANK |
| SEEPAGE PIT | INGROUND BED | STORM SEWER |
| CESSPOOL | INGROUND TRENCH | PIPE TO DITCH |
| OLD WELL | ELEVATED SAND MOUND | PIPE TO STREAM |
| PRIVY | COMMUNITY SEWER | PIPE TO SURFACE |
| BORE HOLE | OTHER _____ | |

Location of system: _____

How old is your system? _____ Was it permitted? Y / N When? _____

Have you every noticed any of the following near your septic system?

- | | |
|----------------------------|----------------------------------|
| GREEN LUSH GRASS | WETNESS OR SPONGY AREAS |
| WATER PONDING OR SURFACING | SYSTEM OVERFLOW |
| SLUGGISH DRAINS | WASTEWATER BACKING INTO THE HOME |
| ODORS | OTHER _____ |

If you noticed any of the above, are they: seasonal or year-round? _____

Have you ever had your system pumped out? Y / N How often? _____ Last time? _____

If it was pumped, was it inspected for cracks or broken baffles? Y / N What part? _____

Has the system every been repaired? Y / N When? _____ By permit? Y / N What part?:

TANK: Repaired / Replaced LINE: Repaired / Replaced DRAIN FIELD: Repaired / Replaced

Do I/we have your permission to confirm this information by looking around? Y / N

(property sketch on back)

Exhibit III-3
Act 537 Planning
Frequently Asked
Questions

1999 amendment addressed improvements needed for the existing public sewer facilities only.

The Township's goals now are to meet the objectives of the Act (to identify and document the sewage disposal needs; and to correct and prevent sewage problems) and of the Comprehensive Plan (maintain, restore and enhance water resource quality and quantity).

Q. How are those goals met through a 537 plan?

- By identifying environmental limitations to the use of onlot systems.
- By determining the condition of existing onlot systems through a needs analysis.
- By developing and implementing a sewage management plan to ensure the proper operation and maintenance of onlot systems.

Q. How does sewage planning and management help to protect water quality and quantity?

- Land applying treated wastewater recharges the groundwater thus replenishing the drinking water supply.
- Proper planning, permitting and management ensures that land application of treated wastewater does not pollute the groundwater.
- By determining where existing systems are inadequate and possibly causing environmental and public health concerns and providing alternatives for improvement.

Q. What is a needs analysis and what do I have to do?

A needs analysis is a systematic process developed by the PA Department of Environmental Protection to catalog the existing onlot systems through site inspections, well testing and homeowner surveys. There are about 2,000 onlot systems in the Township of which 15% of those (300) or 50% in areas of concentrated development are surveyed. This requires the cooperation of the residents throughout the Township, especially in the Villages.

The Township will be sending two representatives from our water and wastewater consultants throughout the Township to meet with you and to collect a well sample from your tap. The sample must be taken before any water treatment, such as softeners, neutralizers or UV units. This may require access to your basement. The well is run for several minutes to clear the lines and to ensure a sample from the groundwater. The sample will be tested, at no charge to you, for bacteria and nitrates. The results with recommendations will be sent to you for your use. The survey, addressing specifics about your well and onlot system, takes about 10-15 minutes to complete. Appointments can be made for your convenience.

Q. What is the life span of an onlot system?

With proper installation, care and maintenance, and upgrades an onlot system could last the life of the house.

Q. What are some symptoms of onlot system problems?

Sluggish drains	Sewer odors
Spongy soil	Lush, green grass
Ponding water	Dosing pump alarms
Sewer backups	
Erratic pumping (all the time or not at all)	

Q. What causes these problems?

- Poor site location: steep slopes, poor soils or high water table
- Inadequate design (too small for the current use)
- Improper construction
- Overloaded septic tank that allows solids to clog the soil
- Root invasion
- Physical damage from driving over the system
- Flushing of harmful substances

Q. What can I do to take care of my system?

- Install water conservation fixtures and appliances (front loading washers especially).
- Pace the use of washing machines.
- Repair leaking fixtures.
- Disconnect or limit the use of garbage disposals.
- Do not use the system as a trash can (what solid waste goes in just has to get pumped out).
- Schedule an inspection and regular pumping of the septic tank.
- Investigate and remedy problems.

- Follow the “do-not-flush” list of items – trash, grease, medications, paint, thinner, varnishes, motor oil, chemicals, etc.
- Divert rainwater runoff from the system. Includes removing sump pump discharges.
- Do not drive across the system.
- Do not plant trees or shrubs in the system.
- Replace an older septic tank with the latest standard model including an effluent filter.

Q. What’s involved in a sewage management program?

A management program would include several components, administered by the Township, through or with the County or other entity:

- Public education on the care and maintenance of your onlot system.
- Scheduled maintenance of your septic tank, i.e. regular pumping and hauling. Currently, it is recommended to pump out a 3-bedroom house system every 3 years, more often if there is a garbage disposal.
- Operation and maintenance tasks specific to the system.
- Testing and monitoring of the system to assess its effectiveness.
- Scheduled inspections to determine system integrity and performance.
- Implementation of water conservation requirements.

Useful Links for More Information:

Websites:

- DEP Sewage and Act 537
www.dep.state.pa.us Keyword “DEP Wastewater”
- National Small Flows Clearinghouse
www.nesc.wvu.edu/nsfc/nsfc_index.htm
- National Onsite Water Recycling Assoc.
www.nowra.org/
- EPA: Septic Systems
cfpub.epa.gov/owm/septic/home.cfm
- The Onsite Consortium
<http://www.onsiteconsortium.org/>

Publications:

- Small Flows Quarterly*
www.nesc.wvu.edu/nsfc/nsfc_sfq.htm
- Pipeline* newsletter
www.nesc.wvu.edu/nsfc/nsfc_pipeline.htm

Home Owner’s Guides:

- <http://cfpub.epa.gov/owm/septic/homeowners.cfm>
- www.nesc.wvu.edu/nsfc/nsfc_septicnews.htm
- <http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1260&q=449312>
- <http://www.nowra.org/?p=224>

Further questions may be directed to:

- Solebury Township at 215-297-5656 or**
- CET Engineering Services at 1-800-238-3644**

**Solebury Township
Act 537 Sewage Facilities Plan**

Q. What is the Township doing?

The Township, through its 2002 Comprehensive Plan, has identified the need to update its Act 537 Sewage Facilities Plan, commonly called “the 537 plan” to protect public health and environmental quality. The Township is requesting community input in the process.

Q. What is a 537 plan?

The 537 plan is one of the requirements of the Pennsylvania Sewage Facilities Act (Act 537 - 1968) as regulated through Chapters 71, 72, and 73 (1971, amended) of the PA Code that requires municipalities to identify existing problems and to implement sewage facilities planning to correct and prevent problems with all public and private sewage facilities. The County originally prepared the plan in 1970, while the Township revised it’s portion of the plan in 1975 and updated it in 1992. DEP expects municipalities to update their plans every 5 to 10 years.

Q. Why did the Comprehensive Plan identify the need to update the 537 plan?

Because the existing plans no longer meet the goals of the Township. The 1970 plan contemplated the construction of public sewers to serve the existing properties. The 1975 plan deleted the objective for a regional plant, planned to sewer only portions of the Township located in named development districts, and to use onlot systems for the rest of the Township. The

Exhibit III-4
Sanitary Survey Results

Solebury Township Sewage Facilities Plan Update Revision			Well Survey									Sanitary Survey / County SEO Files / Township Files																	
			# Surveyed	% of Area	Test Results						# Surveyed	CONFIRMED						SUSPECTED					POTENTIAL						
# Lots in Study Areas	Total Coliform	Fecal Coliform			Nitrate>5	Nitrate>10	# Nonpotable Wells	% of Samples Fecal Coliform Detected	Wet	BTG Repairs		Piped - Sewage Evident	Backups / Overflows	Holding Tank	% of Surveyed with Issues	% Without Holding Tank	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool / High Density	Privy	% of Surveyed with Issues	Pre-1972	Repaired	Hydric Soil in Area	> 25% Slope in Area			
			1	Carversville							C																57	27	47%
2	Centre Bridge	CB	60	17	28%	3	0	0	0	3	0%	21	0	0	0	0	1	5%	95%	1	0	0	4	0	24%	7	3	Y	Y
3	Lumberville	L	85	17	20%	1	0	2	0	1	0%	17	1	0	0	0	3	24%	82%	0	0	0	3	0	18%	3	7	Y	Y
4	Solebury	S	55	15	27%	3	2	1	0	3	13%	17	0	0	0	2	1	18%	94%	1	0	0	0	0	6%	9	4	Y	N
5	Solebury Mountain	SM	53	14	26%	0	0	2	0	0	0%	17	1	0	0	0	1	12%	94%	0	0	0	0	0	0%	5	4	Y	N
6	New Hope Hills	NHH	78	20	26%	4	1	13	0	4	5%	25	1	0	0	0	0	4%	100%	2	0	0	0	0	8%	8	5	Y	N
7	Bridlewood	BW	41	8	20%	1	0	2	0	1	0%	10	0	0	0	0	0	0%	100%	0	0	0	0	0	0%	0	4	Y	Y
8	Cottageville	CV	24	7	29%	2	1	3	0	2	14%	11	0	0	0	0	1	9%	91%	0	0	0	0	0	0%	2	3	N	N
9	Aquetong Watershed	AQ	73	13	18%	0	0	4	0	0	0%	15	0	0	0	0	0	0%	100%	0	0	0	0	0	0%	4	3	Y	Y
10	Hidden Valley	HV	258	40	16%	1	0	20	2	3	0%	54	1	0	0	0	0	2%	100%	2	0	0	0	0	4%	11	18	Y	N
11	Pidcock Watershed	PC	230	28	12%	3	0	7	0	3	0%	33	3	0	0	1	0	12%	100%	0	1	0	0	0	3%	5	6	Y	Y
12	Primrose Watershed	PR	89	68	76%	20	3	11	1	21	4%	77	2	0	0	1	0	4%	100%	0	1	0	0	0	1%	12	9	Y	Y
13	Township	T	142	37	26%	3	1	1	0	3	3%	61	7	1	0	2	0	16%	100%	0	0	0	0	0	0%	15	14	Y	Y
Totals			1,245	311	25%	46	10	69	3	49		392	17	1	0	7	11			7	3	0	8	0		90	86		
					% of # Surveys	15%	3%	22%	1%	16%			4%	0%	0%	2%	3%	9%	6%	2%	1%	0%	2%	0%	5%	23%	22%	0%	0%

Notes: 3,200 Housing Units (2000 U.S. Census)
2,500 Estimated Number of Onlot Systems

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																			
							CONFIRMED					SUSPECTED					POTENTIAL			NO						
Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots			
L1	1	6632 River Road	0		<2.00														X					1		
L2	2	6547 Old Carversville Road	0		<2.00																				X	
C1	3	3850 River Road	Not Sampled																							
C2	4	3800 Aquetong Road	0		4.50															X				1		
C3	5	3761 Aquetong Road	0		4.20																				X	
C4	6	3791 Aquetong Road	0		3.80								X				1								X	
C5	7	6186 Aquetong Road	0		3.88														X				1			
C6	8	3781 Aquetong Road	0		2.60														X					1		
C7	9	6208 Fleecydale Road	0		3.92					X	1															
C8	10	3645 Aquetong Road	7	neg	3.48	X														X			1			
C9	11	3625 Aquetong Road	0		4.20																				X	
C10	12	6204 Carversville Road	0		4.00					X	1															
C11	13	6175 Carversville Road	0		3.75				X		1															
C12	14	6131 Carversville Road	0		4.85																				X	
C13	15	6205 Fleecydale Road	0		3.48					X	1															
C14	16	3770 Aquetong Road	7	neg	3.70	X																			X	
C15	17	4230 Wismer Road	0		2.60																				X	
C16	18	6183 Carversville Road	0		3.58																				X	
C17	19	4223 Wismer Road	0		4.12														X				1			
C18	20	6190 Stover Mill Road	0		4.50														X				1			
L3	21	3715 River Road	0		<2.00															X			1			
L4	22	3716 River Road	5	neg	3.12	X																			X	
CV1	23	5951 Carversville Road	0		9.05																				X	
C19	24	6134 Carversville Road	0		5.90														X				1			
C20	25	4206 Wismer Road	0		<2.00										X	1	X									
C21	26	6072 Carversville Road	0		7.15																				X	
C22	27	3771 Aquetong Road	5	neg	<2.00	X													X				1			
C23	28	3702 Aquetong Road	0		2.38																				X	
C24	29	3784 Aquetong Road	180	pos	<2.00	X	X				1															
C25	30	6183 Stover Mill Road	0		5.30																				X	
L5	31	3741 River Road	0		<2.00															X			1			
L6	32	3924 River Road	0		4.63										X	1			X							

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																
Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	CONFIRMED					SUSPECTED					POTENTIAL			NO			
							Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots
S7	65	6682 Upper York Road	0		3.62													X	X			1	
S8	66	6686 Upper York Road	0		3.62													X				1	
S9	67	6633 Upper York Road	0		4.25													X				1	
PR17	68	8 Towpath Way	4	neg	5.25	X																	X
PR18	69	26 Hillside Lane	3	neg	<2.00	X																	X
PR19	70	6685 Phillips Mill Road	0		2.12													X				1	
NHH2	71	116 Chapel Road	0	-	2.08																		X
S10	72	6588 Upper York Road	7	pos	7.35	X																	
S11	73	3000 Sugas Road	0		3.60													X					
PR20	74	2581 North River Road	0		<2.00					X	1												X
PR21	75	49 Hillside Lane	0		<2.00																		X
PR22	76	4 Millstone Court	23	neg	<2.00	X																	X
S12	77	6587 Upper York Road	0		3.27													X				1	
L11	78	3737 River Road	0		<2.00													X				1	
S13	79	6670 Upper York Road	14	pos	3.36	X											X					1	
CB3	80	2974 River Road	0		<2.00													X				1	
T1	81	2503 Reeder Road	0		4.55																		X
T2	82	2509 Reeder Road	0		2.27												X					1	
PC1	83	1635 River Road	0		<2.00																		X
T3	84	2575 Aquetong Road	0		3.26												X					1	
CV2	85	6045 Carversville Road	0		5.55																		X
CV3	86	6016 McNeal Road	4	neg	4.28	X											X					1	
CV4	87	6020 McNeal Road	0		2.06																		X
PC2	88	288 Covered Bridge Road	5	neg	<2.00	X																	X
PC3	89	216 Covered Bridge Road	5	neg	<2.00	X							X										X
CV5	90	5961 Carversville Road	0		4.20													X				1	
T4	91	2126 Aquetong Road	0		<2.00													X	X			1	
PC4	92	324 Covered Bridge Road	0		<2.00																		X
PR23	93	6974 Upper York Road	0		<2.00												X					1	
CB4	94	2910 River Road	4	neg	<2.00	X								X	1		X						
CB5	95	2916 River Road	58	neg	<2.00	X																	X
CV6	96	5925 Carversville Road	81	pos	3.68	X																	

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																				
							CONFIRMED					SUSPECTED					POTENTIAL			NO							
Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots				
BW2	129	10 Red Fox Drive	0		3.04																				X		
BW3	130	26 Red Fox Drive	0		4.50																					X	
BW4	131	31 Red Fox Drive	0		4.60																					X	
BW5	132	6 Paddock Drive	0		4.70																					X	
BW6	133	30 Paddock Drive	0		4.70																					X	
SM6	134	7 Middle Road	0		<2.00																X			1			
SM7	135	21 Solebury Mountain Road	0		5.36														X					1			
L12	136	3850 River Road	0		3.82		X					1							X	X							
L13	137	3850A River Road	0		9.30																					X	
L14	138	3855 River Road	0		2.55															X				1			
BW7	139	4 Red Fox Drive	63	neg	9.40	X															X			1		X	
BW8	140	15 Red Fox Drive	0		7.75															X				1			
L15	141	6653 Fleecydale Road	0		3.74																					X	
L16	142	3690 River Road	0		2.40					X		1															
L17	143	3630 River Road	0		5.65											X		1	X								
SM8	144	28 Solebury Mountain Road	0		<2.00																					X	
SM9	145	15 High Road	0		<2.00																					X	
SM10	146	8 Middle Road	0		4.00																					X	
SM11	147	10 Solebury Mountain Road	0		3.28		X					1							X								
SM12	148	4 High Road	0		5.00														X					1			
SM13	149	25 Solebury Mountain Road	0		3.16																					X	
AQ1	150	2878 Creamery Road	0		7.35														X					1			
CB12	151	7053 Upper York Road	0		<2.00																					X	
T6	152	7012 Upper York Road	0		<2.00															X				1			
CB13	153	7050 Upper York Road	0		<2.00																					X	
PR27	154	2999 Comfort Road	0		4.95															X				1			
T7	155	7044 Upper York Road	0		<2.00														X					1			
T8	156	7036 Upper York Road	0		<2.00														X					1			
T9	157	7030 Upper York Road	4	neg	<2.00	X													X					1			
T10	158	6987 Upper York Road	0		<2.00																X				1		
T11	158B	6987 Upper York Road	0		4.05																					X	
T12	159	6985 Upper York Road	0		3.28																					X	

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
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Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
T13	160	6990 Upper York Road	0		<2.00		X					1							X						
PR28	161	6684 Phillips Mill Road	0		3.76																			1	X
S14	162	2930 Sugan Road	0		3.80														X					1	
PR29	163	2773 North Sугan Road	0		6.55																				X
AQ2	164	6585 Meetinghouse Road	0		6.85															X				1	
AQ3	165	6320 Upper York Road	0		2.64																				X
PR30	166	6841 Upper York Road	0		4.00																				X
PR31	167	6950 Upper York Road	0		<2.00																				X
PR32	168	6876 Upper York Road	0		2.38																				X
T14	169	7068 Ely Road	0		<2.00																				X
T15	170	7062 Ely Road	0		<2.00														X					1	
T16	171	6988 Ely Road	0		2.38																				X
T17	172	6992 Ely Road	0		<2.00															X				1	
T18	173	7000 Ely Road	0		<2.00																				X
T19	174	7022 Ely Road	0		<2.00														X					1	
T20	175	7059 Ely Road	0		<2.00																				X
T21	176	7065 Ely Road	0		<2.00																				X
T22	177	7073 Ely Road	0		<2.00		X					1													
T23	178	7039 Ely Road	0		<2.00																				X
T24	179	6984 Ely Road	0		<2.00																				X
T25	180	7018 Ely Road	0		<2.00																				X
T26	181	6996 Ely Road	0		2.92																				X
T27	182	6966 Ely Road	0		<2.00																				X
T28	183	7056 Ely Road	0		<2.00															X				1	
PR33	184	6957 Ely Road	0		3.00														X					1	
PR34	185	3054 Comfort Road	0		4.60																				X
PR35	186	6936 Upper York Road	0		3.35																				X
PR36	187	6939 Ely Road	0		3.55														X					1	
PR37	188	6880 Upper York Road	0		<2.00																				X
T29	189	6980 Ely Road	0		2.38																				X
PR38	190	6953 Ely Road	0		<2.00														X					1	
PR39	191	6920 Ely Road	0		3.04														X					1	

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
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							Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
AQ4	192	2733 Creamery Road	0		<2.00													X					1		
AQ5	193	2742 Creamery Road	0		<2.00																				X
AQ6	194	2840 Creamery Road	0		5.35																				X
T30	195	6998 Upper York Road	0		<2.00													X					1		
T31	196	6976 Ely Road	0		2.38																				X
CB14	197	7189 Centre Bridge Road	0		2.06																				
CB15	198	2863 River Road	0		<2.00													X					1		
T32	199	7092 Ely Road	0		<2.00													X					1		
AQ7	200	6454 Meetinghouse Road	0		<2.00													X					1		
AQ8	201	6436 Meetinghouse Road	0		3.30																				X
HV1	202	15 Estates Drive	0		4.28																				X
HV2	203	3305 Ephross Circle	0		5.65																				X
HV3	204	6193 Honey Hollow Road	0		6.50																				X
HV4	205	3145 Aquetong Road	0		5.00														X				1		
HV5	206	5913 Dewees Road	0		4.60													X					1		
HV6	207	6076 Hidden Valley Drive	0		3.45																				X
HV7	208	3318 Ephross Circle	0		4.82																				X
HV8	209	6037 Honey Hollow Road	0		4.55													X					1		
HV9	210	3314 Ephross Circle	0		5.25																				X
AQ9	211	6551 Meetinghouse Road	0		<2.00														X				1		
T33	212	6983 Upper York Road	0		<2.00																				X
HV10	213	3325 Ephross Circle	0		5.15																				X
HV11	214	2849 Street Road	0		<2.00													X					1		
HV12	215	5941 High Ridge Circle	0		7.60																				X
T34	216	6930 Upper York Road	0		<2.00																				X
HV13	217	5905 Corrigan Road	0		11.5	X													X				1		
HV14	218	6043 Honey Hollow Road	0		4.20													X					1		
HV15	219	6168 Yorkshire Road	0		4.20														X				1		
HV16	220	1 Estates Drive	0		7.25																				X
HV17	221	3317 Ephross Circle	0		5.95		X																1		
HV18	222	6155 Honey Hollow Road	0		3.60																				X
HV19	223	3231 Aquetong Road	0		<2.00													X					1		

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																			
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Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots			
HV20	224	3333 Aquetong Road	0		11.0	X													X					1		
HV21	225	6176 Yorkshire Road	0		5.20															X	X				1	
PR40	226	6948 Ely Road	0		<2.00														X						1	
CB16	227	2820 River Road	0		<2.00														X						1	
HV22	228	5917 Corrigan Road	0		7.45																					X
HV23	229	5915 Dewees Road	0		6.65															X					1	
HV24	230	3 Scott Lane	0		7.50																					X
HV25	231	5955 Sheffield Drive	0		7.35															X					1	
PR41	232	6859 Phillips Mill Road	8	neg	3.85	X														X						
HV26	233	5991 Honey Hollow Road	0		4.35								X					1	X							
HV27	234	6035 Hidden Valley Drive	0		4.95																					X
HV28	235	5986 Shetland Drive	0		5.65																					X
AQ10	236	2949 Creamery Road	0		3.30														X						1	
HV29	237	5929 Corrigan Road	0		8.90															X					1	
HV30	238	6239 Greenhill Road	0		6.20																					X
HV31	239	2901 Street Road	0		2.62														X						1	
CB17	240	2846 River Road	0		2.68																					X
AQ11	241	6324 Upper York Road	0		8.75															X					1	
SM14	242	5 Middle Road	0		<2.00																					X
HV32	243	29 Woods End Drive	0		5.45																					X
PC5	244	5911 Pidcock Creek Road	0		7.80																					X
HV33	245	6068 Honey Hollow Road	0		6.65																					X
PC6	246	10 Candlewyck Court	0		8.35																					X
PC7	247	7 Devonshire Drive	0		9.70																					X
PR42	248	2992 Comfort Road	0		5.00																					X
T35	249	7028 Ely Road	0		2.18																					X
PC8	250	291 Windy Bush Road	0		<2.00															X					1	
PC9	251	15 Squire Lane	0		2.80																					X
PC10	252	65 Covered Bridge Road	0		3.95															X					1	
PC11	253	6178 Pidcock Creek Road	0		<2.00																					X
PC12	254	15 Old Windy Bush Road	0		<2.00															X					1	
PC13	255	3555 Old Windy Bush Road	0		2.75																					X

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
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Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
PC14	256	3139 Windy Bush Road	0		3.00																X			1	
PC15	257	6073 Pidcock Creek Road	4	neg	<2.00	X														X				1	
PC16	258	5987 Pidcock Creek Road	0		6.50																				X
PC17	259	5957 Pidcock Creek Road	0		3.95																				X
PC18	260	14 Old Windy Bush Road	0		3.15															X				1	
PC19	261	6035 Atkinson Road	0		5.95																				X
PC20	262	6020 Atkinson Road	0		5.10																				X
PC21	263	2 Great Oaks Road	0		<2.00															X				1	
PC22	264	5 Great Oaks Road	0		<2.00															X				1	
PC23	265	3361 Great Oaks Road	0		<2.00		X					1													
AQ12	266	2718 Creamery Road	0		3.68																				X
HV34	267	17 Estates Drive	0		4.45																				X
HV35	268	4 Taylor Lane	0		7.20																				X
PC24	269	131 Covered Bridge Road	0		5.05															X				1	
HV36	270	5914 Corrigan Road	0		5.50																				X
PC25	271	6080 Atkinson Road	0		3.85																				X
PR43	272	2856 North Suga Road	0		4.40																X			1	
PC26	273	6 Great Oaks Road	0		<2.00																X			1	
HV37	274	6140 Hidden Valley Drive	0		3.65								X					1							
PC27	275	3165 Windy Bush Road	0		<2.00																				X
T36	276	1711 River Road	33	neg	<2.00	X																			X
PC28	277	5935 Pidcock Creek Road	0		5.60		X					1													
HV38	278	13 Woods End Drive	0		4.70																				X
HV39	279	6163 Yorkshire Road	0		4.80															X				1	
HV40	280	6160 Yorkshire Road	13	neg	4.60	X														X				1	
PR44	281	2 Towpath Way	0		4.56																				X
PR45	282	24 Towpath Way	0		4.20																				X
PR46	283	5 Towpath Way	0		4.20																				X
PR47	284	4 Towpath Way	0		4.60																				X
PR48	285	15 Towpath Way	5	neg	<2.00	X																			X
PR49	286	1 Towpath Way	10	neg	<2.00	X																			X
PR50	287	25 Towpath Way	0		3.88																				X

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
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Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
PR51	288	6853 Phillips Mill Road	4	neg	<2.00	X														X				1	
PR52	289	2890 Sugan Road-House	4	neg	<2.00	X																			X
PR53	290	2890 Sugan Road-Barn	43	pos	2.20	X																			
PR54	291	6712 Phillips Mill Road	0		2.15																				X
PR55	292	6767 Phillips Mill Road	0		2.17																				X
PR56	293	6625 School Lane	5	neg	<2.00	X																			X
PR57	294	6782 Phillips Mill Road	0		2.82																				X
PR58	295	7043 Phillips Mill Road	8	neg	<2.00	X																			X
PR59	296	7031 Phillips Mill Road	0		<2.00															X				1	
PR60	297	6750 Phillips Mill Road	0		2.58																				X
PR61	298	6667 Phillips Mill Road	180	pos	3.38	X																			
PR62	299	2758 Sugan Road	0		5.60																				X
PR63	300	6617 School Lane	0		<2.00																				X
AQ13	301	6570 Meetinghouse Road	0		<2.00																				X
T37	302	Springhouse on Old Mill Road	>200	pos	5.65	X																			
PR64	303	2830 North Sugan Road	3	neg	5.65	X																			X
NHH19	304	105 Chapel Road	0		7.40																				X
NHH20	305	111 Chapel Road	0		9.70																				X
PR65	306	2774 Sugan Road	0		3.80																				X
PR66	307	6925 Phillips Mill Road	0		4.28																				X
PR67	308	6698 Phillips Mill Road	4	neg	7.70	X																			X
CV7	309	5969 Carversville Road	0		6.20																				X
S15	310	3092 Sugan Road	0		-																X			1	
PR68	311	10 Chapel Road	15		-	X														X				1	
Criteria Qualifiers			>0	pos	>5.0																				
Number			46	10	69	49	9	0	0	3	6	18	7	3	0	8	0	18	81	45	1	0	107	160	
311	Well Surveys		15%	3%	22%	16%	Above numbers only include those sites on well survey.																		
Criteria Qualifiers			>5.0	pos	>10.0																				
Number			26	10	3																				
			8%		1%																				

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																				
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CB18	104A	2935 North River Road																							X		
AQ14	150A	2878 Creamery Road																								X	
T38	156A	7036 Upper York Road																								X	
PR69	308A	6698 Phillips Mill Road																								X	
CB19	312	2998 River Road									X	1															
T39	313	6641 Fleecydale Road																	X					1			
T40	314	6629 Fleecydale Road																	X					1			
C29	315	6182 Carversville Road																	X					1			
C30	316	6193 Carversville Road																	X					1			
CB20	317	7085 Upper York Road																	X							X	
	321	Sanitary Surveys																									
Bucks County Dept. of Health File Data																											
CV8	318	5911 Carversville Road									X	1															
T41	319	5955 Saw Mill Road																	X					1			
C31	320	6344 Old Carversville Road																	X					1			
C32	321	3637 Aquetong Road																	X					1			
C33	322	3694 Aquetong Road																	X					1			
T42	323	6329 Saw Mill Road																	X					1			
T43	324	103 Autumn Trace					X					1							X								
T44	325	3430 Aquetong Road																								X	
T45	326	6368 Saw Mill Road																	X					1			
T46	327	6486 Deerfield Drive																	X					1			
T47	328	3525 Sугan Road																	X					1			
NHH21	329	3450 Sугan Road																	X					1			
HV41	330	5983 Shetland Drive																	X					1			
HV42	331	3306 Ephross Circle																	X					1			
HV43	332	3181 Aquetong Road																	X					1			
T48	333	2581 Street Road																								X	
HV44	334	5060 Honey Hollow Road																								X	
T49	335	2419 Street Road								X		1															
HV45	336	5950 Shetland Drive																	X					1			
HV46	337	5947 Shetland Drive																	X					1			

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
							CONFIRMED					SUSPECTED					POTENTIAL			NO					
Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
HV47	338	5924 High Ridge Circle																		X				1	
HV48	339	5999 Honey Hollow Road																		X				1	
HV49	340	6025 Honey Hollow Road																		X				1	
HV50	341	6031 Honey Hollow Road																		X				1	
HV51	342	119 Meadowview Road																		X				1	
HV52	343	6169 Upper York Road																							X
T50	344	3061 Creamery Road																		X				1	
BW9	345	57 Red Fox Drive																		X				1	
BW10	346	14 Red Fox Drive																		X				1	
PR70	347	2891 Sugas Road																		X				1	
PR71	348	6629 School Lane					X					1													
S16	349	2904 Sugas Road																		X				1	
S17	350	6634 Phillips Mill Road								X		1													
T51	351	6731 Paxson Road					X					1													
T52	352	3280 Comfort Road					X					1													
PR72	353	6840 Upper York Road																		X				1	
CB21	354	7126 Upper York Road																		X		X		1	
PC29	355	1180 Street Road																		X				1	
AQ15	356	6399 Meetinghouse Road																							X
NHH22	357	147 North Sugas Road																	X					1	
T53	358	6483 Lower York Road																		X				1	
T54	359	6062 Lower Mountain Road					X					1													
T55	360	135 Heather Drive					X					1													
SM15	361	2094 Aquetong Road																		X				1	
NHH23	362	2576 Sugas Road																		X				1	
T56	363	28 Walton Road							X			1													
T57	364	34 Walton Road																	X					1	
T58	365	8 Walton Road																	X					1	
PR73	366	6994 Phillips Mill Road					X					1													
PR74	367	7086 Phillips Mill Road																		X				1	
PR75	368	2585 River Road							X			1													
PR76	369	13 Hillside Lane																		X				1	

Solebury Township Sewage Facilities Plan Update Revision			Well Survey				Sanitary Survey																		
							CONFIRMED						SUSPECTED					POTENTIAL			NO				
Area	Survey #	Street Address	Total Coliform	Fecal Coliform	Nitrate	Nonpotable: TC/NO ₃ >10	Wet	BTG Repairs	Piped - Sewage Evident	Backups / Overflows	Holding Tank (H)	# Lots	Green Grass	Wetlands / Rock	Piped - No Sewage	Cesspool/High Density	Privy / Cesspools	# lots	Pre-1972	Repair Permit (R)	Hydric Soil	>25% Slope	# lots		
NHH24	370	82 Parkside Drive																		X				1	
NHH25	371	80 Parkside Drive																		X				1	
PR77	372	2427 River Road																							X
PC30	373	863 Street Road								X		1													
PC31	374	6140 Pidcock Creek Road																							X
PC32	375	6025 Pidcock Creek Road																							X
SM16	376	2147 Aquetong Road																		X				1	
T59	377	365 South Sugan Road						X				1													
T60	378	3726 Windy Bush Road																		X				1	
PC33	379	3331 Great Oaks Road					X					1													
SM17	380	6 Low Road									X	1													
HV53	381	10 Taylor Lane																							X
CV9	382	6015 Paunnacussing Creek Road																		X				1	
CV10	383	6011 McNeal Road																	X					1	
T61	384	4189 Street Road																	X					1	
CV11	385	6010 McNeal Road																		X				1	
C34	386	6291 Fleecydale Road																		X				1	
C35	387	6296 Fleecydale Road									X	1													
HV54	388	3350 Aquetong Road																		X				1	
71 File Data							CONFIRMED						SUSPECTED					POTENTIAL			NO				
392 Total Lot Surveys							17	1	0	7	11	36	7	3	0	8	0	18	90	86	1	1	153	174	
							5%			2%	4%		2%	1%		3%		6%	29%	28%			49%		

**Section IV.
Future Growth &
Land Development**

IV. Future Growth & Land Development

A. Municipal & County Planning Documents

1.0 Land Use Plans & Zoning Maps

In 1997, the Bucks County Planning Commission (BCPC) developed the *Bucks County Land Use Plan* series to assist municipalities in understanding overall and county specific land use issues for the development of comprehensive plans, land use plans and growth management requirements. Since that time the BCPC has developed numerous planning documents, including the 2011 *Bucks County Open Space and Greenways Plan*¹ and the 2011 *Comprehensive Plan*².

The BCPC still maintains its reviewer role for local property subdivisions, land development, requests for change in zoning classification, amendments to municipal ordinances and comprehensive plans under the Pennsylvania Municipal Planning Code (Act 247), and review of planning modules under the Pennsylvania Sewage Facilities Act (Act 537).

Solebury Township adopted the *2002 Comprehensive Plan* in which Chapter VI discusses the policy plan for land use for a 10-year period. Those factors most relevant to future land planning are:

- Projected population growth and housing demand
- Existing land use and development patterns
- Existing zoning
- Existing and planned infrastructure, particularly water and sewer services
- Regional development influences and circulation patterns
- Natural and cultural resource conservation and sustainability objectives
- Environmental constraints
- Cumulative and induced impacts on future land use changes

Since that time, Solebury Township adopted numerous ordinances and plans to implement land use requirements that identify residential, commercial, industrial, agricultural, recreational and open space areas. These documents are not intended to be finite regulations and are meant to be dynamic and therefore updated from time to time to improve planning within Solebury Township. Ordinances and plans related to land use of Solebury Township include, but may not be limited to, the following:

- Zoning Ordinance
- Subdivision and Land Development Ordinance
- Grading and Soil Erosion and Sediment Control Ordinance
- New Well Construction Ordinance

¹ [2011 Bucks County Open Space and Greenways Plan](#)

² [2011 Bucks County Comprehensive Plan](#)

- Water Resource Analysis
- Parks and Recreation Plan
- Open Space Plan
- HARB Design Guidelines
- HARB History and Maintenance Manual

A copy of the current Zoning Map in use by Solebury Township is included in **Exhibit IV-1** of this Plan.

2.0 Sewage Regulations – Zoning & Subdivision Ordinances

The Solebury Township Zoning Ordinance of 1988, as amended, was adopted as a continuation of zoning originally enacted in 1956, and has been amended numerous times to date. The Zoning Ordinance details the allowable land uses in each district, regulates development in floodplains, riparian zones and in carbonate geology, preserves historic features and farmland, and protects natural features such as wetlands, trees and groundwater. Article 3 of the Township’s Zoning Ordinance describes fifteen classes of zoning districts including six residential districts and three commercial districts, along with other nonresidential classes. Overlay districts for carbonate geology, floodplains and steep slopes contain additional requirements.

The minimum residential lot size is 8,000 square feet in the R-1 Small Lot Residential District near Lahaska, which is currently served by public water and sewer owned and operated by Aqua Pennsylvania, Inc. All other residential districts require a minimum lot size of ½ acre per dwelling unit.

Article 18 of the Township’s Zoning Ordinance contains general provisions that are common to all zoning districts. Section 1811 requires all uses to comply with any sewage disposal regulations.

Section 5.29 of the Township’s current Subdivision and Land Development Ordinance (SALDO), which was adopted in 2004, addresses wastewater systems. A copy of this section is included in this Plan as **Exhibit IV-2**. Preliminary subdivision or land development applications must include a sewage facilities planning module application. DEP requires each new land development lot to have an adequate means of sewage disposal by identifying an initial and a replacement absorption area staked out for each proposed lot. Solebury Township relies on the BCDH to enforce these regulations.

3.0 Floodplain, Stormwater & Special Protection (25 Pa. Code § 93) Plans

The Solebury Township Zoning Ordinance provides resource protection through the Flood Hazard District and the Steep Slope Conservation District regulations, as amended, to provide Natural Resource Protection Standards in Article 15. The 100-year floodplain boundaries shown on **Plate 4** of this Plan are prepared based on the National Flood Insurance Program Flood Maps from the Federal Emergency Management Agency (FEMA), last revised May 18, 1999 for all four flood map panels – 42017C0195F, 42017C0215F, 42017C0310F and 42017C0330F – that cover Solebury Township. Flood maps are currently being updated by FEMA for Solebury Township.

A Stormwater Management Ordinance was last revised on May 19, 2011 by Resolution 2011-141. This Ordinance contains stormwater management criteria required for subdivisions, new land development and redevelopment.

Solebury Township received NPDES Permit No. PAI130506 for its Municipal Separate Storm Sewer System (MS4) in February 2004. The Township provides an annual MS4 report to DEP as required by law, which describes the protocols used by Solebury Township to implement MS4 requirements, including, public education and outreach on stormwater impacts, public involvement and participation such as through household hazardous waste collections, illicit discharge and elimination, construction site stormwater runoff control, post-construction stormwater management in new development and redevelopment, maintenance of the storm sewer system by Township staff, and pollution prevention and good housekeeping in municipal operations.

Table 2-1 of this Plan provides a list of the streams and water bodies in Solebury Township and their protected use designations in accordance with 25 Pa. Code § 93.9. Three of the streams – Aquetong Creek, Cuttalossa Creek and Paunacussing Creek – are designated as High Quality-Cold Water Fisheries (HQ-CWF). Two of the streams – Dark Hollow Run and Rabbit Run – are designated as Trout Stocking Fisheries (TSF). The remaining streams are assumed to be Warm Water Fisheries (WWF) though all are not identified in 25 Pa. Code § 93.9. All of the streams mentioned in the Pa. Code reference are also labeled for Migratory Fish (MF).

All land use and sewage facilities planning applications require the name and designated use of water bodies in the area of the proposed land use. Discharge restrictions apply to HQ waters. In accordance with 25 Pa. Code § 93.4c (b), a person proposing a new, additional or increased discharge to HQ Waters shall evaluate non-discharge alternatives to the proposed discharge, and use an alternative that is environmentally sound and cost-effective when compared with the cost of the proposed discharge. If a non-discharge alternative is not environmentally sound and cost-effective, a new, additional or increased discharge shall use the best available combination of cost-effective treatment, land disposal, pollution prevention and wastewater reuse technologies. A person proposing a new, additional or increased discharge to HQ Waters and who has demonstrated that no environmentally sound and cost-effective non-discharge alternative exists, shall demonstrate that the discharge will maintain and protect the existing quality of receiving surface water.

B. Growth & Land Development

1.0 Subdivisions – Existing & Projected

Lot lines of all parcels within Solebury Township are shown on the **Plates** included with this Plan. Many of the developments in Solebury Township are regulated by homeowner associations (HOA). The responsibilities of these HOA range from holding conservation easements to owning and operating water systems. In each instance, the HOA is governed by a set of by-laws and a council or board. While the by-laws and policies vary, the HOA act as governing bodies that address issues regarding the rules and regulations of each HOA. Many of the HOA contract with management companies to take care of their administrative requirements. **Table 4-1** provides a list of subdivisions regulated by HOA.

Solebury Township maintains a list of subdivision and land development applications. No separate tabulation of approved or existing subdivisions is available from the Township or BCDH. A list of DEP approved planning modules is tabulated from DEP's eFacts website. These subdivisions are listed in **Exhibit I-1** of this Plan.

Table 4-1. Solebury Township Subdivisions	
Public Water and/or Sewer	Individual Onlot Systems
Avignon (Onlot Systems)	Canal Walk
Devonshire	Seasons
Fieldstone	Watson
Fox Run Preserves	
Hermitage (Private Water)	
Ingham Mews (Private Water)	
North Pointe	
Peddler’s View	
Wilshire Hunt	
Wilshire Hunt II (Breckenridge Court)	
Yorkshire Meadows (Private Water)	

2.0 Land Use Designations

Chapter XI of the Solebury Township 2002 *Comprehensive Plan* contains a section on existing land use and development patterns. Solebury Township is comprised of approximately 17,300 acres. An inventory of land use acreage is tabulated in **Table 4-2**, most of which is based on the draft *Solebury Township Open Space Plan*³ released in 2008. A map of the protected areas is found in **Exhibit IV-2** of this Plan, as prepared as part of the 2008 draft *Solebury Township Open Space Plan*³. The Solebury Township Zoning Map is included with this Plan as **Exhibit IV-1**.

Future land use designations listed in Chapter VI of the Solebury Township 2002 *Comprehensive Plan* are established in four land use categories, as follows:

- Rural Conservation
- Site-Responsive Rural Development
- Mixed Use Rural-Suburban Center
- Historic Villages

As previously mentioned, Solebury Township continues to revise their Zoning Ordinance to accommodate the above land uses in association with the Bucks County Planning Commission.

Solebury Township divides their zoning districts into 15 classes and also has designated four overlay districts, which restrict development, thus also restricting the installation of onlot sewage disposal systems in the overlay districts, as shown on **Table 4-3**.

³ [Draft Solebury Township Open Space Plan](#)

Table 4-2. Land Use	
Type of Land Use	Acreege
Protected Land:	
• Agricultural Preservation Areas	740
• Conservation Easements	4,900
• Public Open Space (State-Owned)	520
• Public Open Space (County-Owned)	35
• Public Open Space (Township-Owned)	310
Agriculture (Active)	1,000
Residential: Single- & Multi-Family, Mobile Homes	6,700
Institutional: Churches, Schools, Government	300
Commercial: Route 202 Corridor, Villages	300
Industrial: Quarry	200
Roadways / Utility ROWs	300
Vacant / Undeveloped	2,000
Total Acreege:	17,300

Table 4-3. Zoning & Overlay Districts	
District Code	District Name
Zoning Districts	
RA	Residential / Agricultural
RB	Residential / Agricultural
VR	Village Residential
RD	Residential Development
RD-C	Residential Development-Conservation
VC	Village Commercial
RC	Rural Commercial
TNC	Traditional Neighborhood Commercial
L1	Light Industrial
QA	Quarry / Agricultural
OR	Outdoor Recreational
R-1	Small Lot Residential
MS	Municipal Services
Overlay Districts	
MHPO	Mobile Home Park
FP	Floodplain Conservation
SS	Steep Slope Conservation
CG	Carbonate Geology

3.0 Demographics

Solebury Township is in demand as a respite for second-home owners or recent retirees, or for its secluded farm and estate properties, while the villages are attractive due to their artistic and historical legacies. Solebury Township provides suburban living with a rural feel. Residency demands are also driven by transportation access, school and shopping locations.

U.S. Route 202 (Lower York Road) serves as the principal east-west artery through Solebury Township. The State owns 43 miles of major and minor collector roadways, including Route 263 (Upper York Road), Route 232 (Windy Bush Road) and Route 32 (River Road). The New Hope area is within a one-hour drive to Philadelphia, PA or Princeton, NJ, within two hours to New York City, NY or Baltimore, MD, and within 3 hours of Washington, DC.

The New Hope-Solebury School District, which serves Solebury Township and New Hope Borough, has an approximate enrollment of 1,600 students. The main campus is located in New Hope Borough. The Lower Elementary School (K-2) with approximately 350 students is located on Sungan Road near Route 263 in the Township. A renovation project that includes the addition of six classrooms was completed in 2007. Approximately 10% of the children within the school district boundary attend private schools.

Solebury School, a private boarding and day school for 230 students in grades 7-12, is located on 90 acres at Phillips Mill and School Roads. St. Martin of Tours parochial school is located at 1 Riverstone Circle in New Hope Borough. Seven day care, pre-kindergarten / kindergarten facilities are scattered throughout Solebury Township.

Table 4-4 contains select demographic characteristics for Solebury Township as reported in the 2000 and 2010 U.S. Census, both of which are included in **Exhibit IV-4** of this Plan. Not all data files are available yet for the 2010 U.S. Census.

Solebury Township's *2002 Comprehensive Plan* discusses population, housing characteristics and projections. Historical, current and future population data from the *2002 Comprehensive Plan* and other county and regional planning sources, including the Bucks County Planning Commission (BCPC) and the Delaware Valley Regional Planning Commission (DVRPC) are shown on **Table 4-5**. Population over the last 10 years has only increased by 12.2% or 2.5% per year and translates to 416 new housing units, as compared to the previous 10-year period of 1990-2000, which increased by 29.1% or 5.8% per year for 692 new housing units.

It is believed that with the adoption of the SALDO in 2004, the success of the Land Preservation efforts, and less developable land being available, the growth rate will continue to slow. Solebury Township anticipates that only an additional 75 to 100 new housing units will be built in the next five years, though the DVRPC estimates that number to be closer to 856 new housing units. DVRPC has a history of providing high population projections. Their 5-year estimated projection for population from 2010-2015 is almost twice the highest 5-year period of 1990-2000. DVRPC's estimate means an additional 214,000 GPD of wastewater would be generated. The existing public sewer systems in Solebury Township do not have this type of capacity available and the number of onlot sewage systems required to meet this need is limited due to environmental constraints.

Table 4-4. Demographic Characteristics				
Characteristics	2000 Data		2010 Data	
	Number	Percent	Number	Percent
Households	3,053		3,461	
• With children under 18 years	960	31.4%	998	28.8%
• One occupant	580	19.0%	676	19.5%
• Individuals 65 years and over	613	20.1%	1,015	29.3 %
• Average household size	2.52		2.51	
Population	7,743		8,692	
• Enrolled in Pre-K through 12 th grade	1,448	18.7%	1,682	19.4%
• Same house since 1995	4,024	52.0%		
• Work at home	530	6.8%		
Housing Units	3,207		3,747	
• Single family	2,922	91.1%		
• ≥2 units & Mobile homes	285	8.9%		
• Built 1990-2000	866	27.0%		
• Built 1970-1989	1,103	34.4%		
• Built 1960-1969	200	6.2%		
• Built 1940-1959	343	10.7%		
• Built 1939 or earlier	695	21.7%		
• “Lacking complete plumbing facilities”	12	0.4%		

Table 4-5. Population Data				
Year	Population	Increase	Percent Change	Comments
1960	2,972			
1970	3,547	575	+19.3%	
1980	4,827	1,280	+36.1%	
1990	5,998	1,171	+24.3%	
2000	7,743	1,745	+29.1%	
2010	8,692	1,049	+12.2%	2010 US Census Data
2015	8,944	252	+2.9%	Solebury Township Estimate
2015	10,849	2,157	+24.8%	DVRPC Reference in 2011-2012 BCPC Municipal Directory ⁴
2020	9,580	636	+7.1%	Per BCPC

4.0 Resources – Township Regulations & Plan Requirements

The Solebury Township SALDO and Zoning Ordinances provide for the protection of ground and surface water supplies, recreational water use areas, groundwater recharge areas, industrial water use, wetlands and floodplain protection, stormwater control and groundwater withdrawal control.

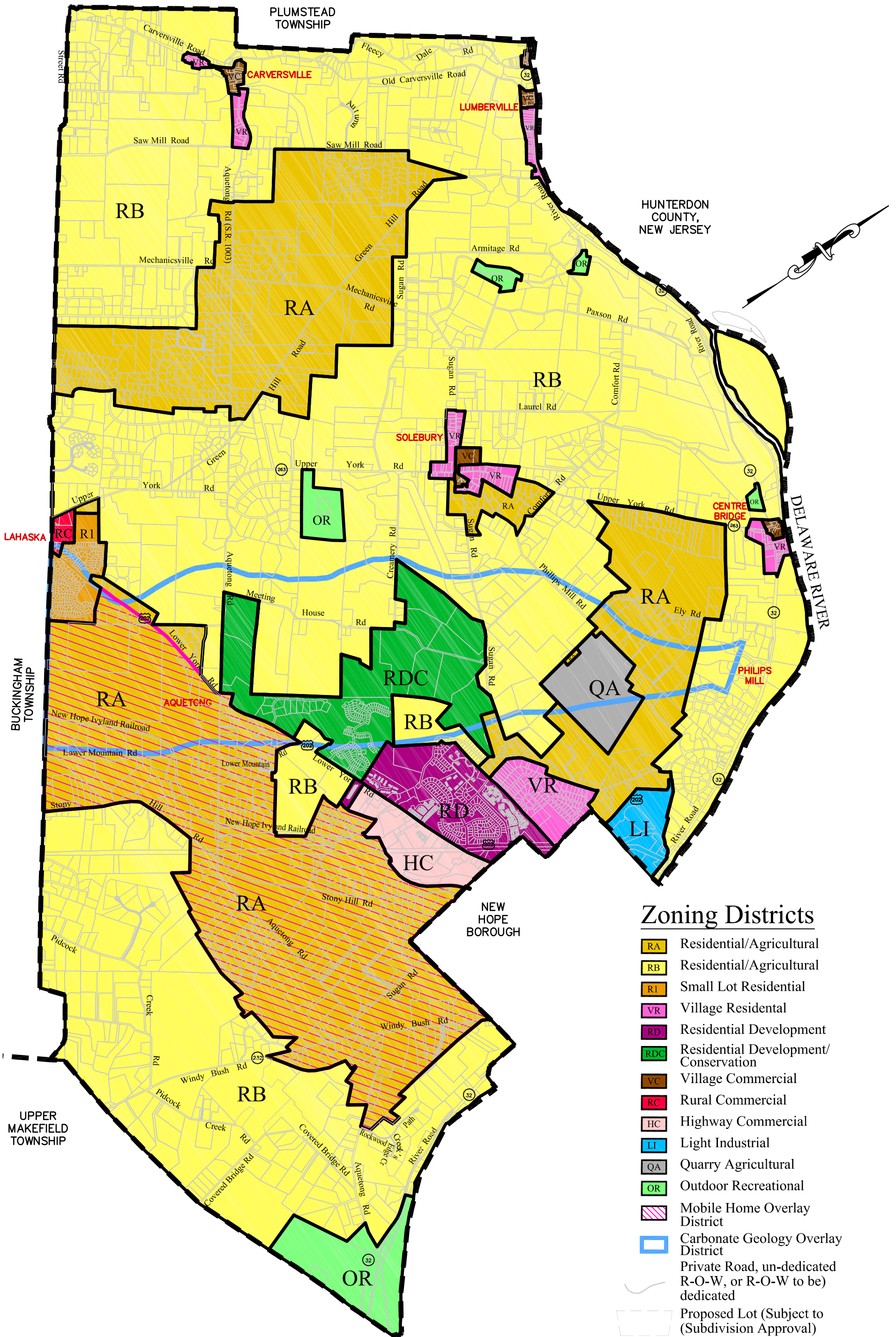
⁴ [2011-2012 Bucks County Planning Commission Municipal Directory](#)

The overlay districts restrict uses, activities and development in the floodplain, on steep and very steep slopes (>20%), in riparian corridors and in carbonate geology.

5.0 Sewage Planning – 5 to 10 Years

Solebury Township intends to ensure adequate wastewater treatment for existing facilities within the next 5 to 10 years and beyond through the adoption of a Sewage Management Program and continued coordination with the BCDH, the BCW&SA and DEP. The Township will also continue to implement and enforce its SALDO and Zoning Ordinances in association with the BCDH approving onlot sewage disposal systems.

Exhibit IV-1 Zoning Map



Zoning Districts

- RA Residential/Agricultural
- RB Residential/Agricultural
- R1 Small Lot Residential
- VR Village Residential
- RD Residential Development
- RDC Residential Development/Conservation
- VC Village Commercial
- RC Rural Commercial
- HC Highway Commercial
- LI Light Industrial
- QA Quarry Agricultural
- OR Outdoor Recreational
- Mobile Home Overlay District
- Carbonate Geology Overlay District
- Private Road, un-dedicated
R-O-W, or R-O-W to be dedicated
- Proposed Lot (Subject to
(Subdivision Approval)

Zoning Map

Solebury Township

Bucks County, Pennsylvania

Exhibit IV-2
SALDO Section 5.29
Wastewater Systems

A. The developer shall install or cause to be installed, at the developer's expense, street lights in accordance with the final plan approval. Provision shall be made for energizing said lighting after twenty (20) percent or more of the dwellings in a given subdivision or land development or section of a subdivision or land development have been occupied. The developer shall be responsible for all costs involved in lighting the streets until such time that the streets are accepted as public streets by the municipality. When the municipality accepts the streets, the municipality may by resolution assess all costs of the lighting to the property owners along the street.

B. The Township may waive the requirement for street lights in order to prevent glare, preserve night darkness, and to maintain rural character.

Section 5.27 Monuments

A. Monuments shall be placed at each change in direction of boundary, at each angle point and at the beginning and end of curves along all roadways, and at every front lot corner where it intersects the street line. Utility easements shall be monumented at their beginning, their end, and at all directed changes; and areas to be conveyed for public use shall be fully monumented at their external boundaries.

B. Monuments shall be placed in the ground after final grading is completed, at a time specified by the Township Engineer. The monument shall be concrete, the size and length as may be approved by the Township Engineer.

C. All monuments shall be certified for accuracy by the developer's engineer, or their accuracy checked by the Township Engineer. Accuracy of monument shall be within three-hundredths (3/100) of a foot.

D. In cases where it is impossible to set a monument or where the permanency of a monument may be better ensured by off-setting the monument with a reference monument(s), the Township may authorize such procedure, provided that proper instrument sights may be obtained and complete offset data is designated on the record plan. A reference monument (preferably two) should be set on the boundary line(s) that intersect the corner.

E. Metal alloy pins shall be set at all individual lot corners except where concrete monuments are required.

Section 5.28 Water Supply

A. All water supplies proposed for any new subdivision or land development must comply with the requirements of the Solebury Township Water Resources Analysis and Well Standards Ordinance which include the requirement that a water resource impact study be performed demonstrating how the hydrologic balance will be maintained and surrounding water supplies protected.

B. The Township will not approve a public or centralized water system unless the development cannot be served by on-lot, individual water systems.

C. All centralized water systems shall have established agreements suitable to the Township Solicitor and approved by the Township for the ownership and maintenance of the system.

Section 5.29 Wastewater Systems

- A. All wastewater systems shall be consistent with the Township's Act 537 plan.
- B. When on-lot wastewater disposal facilities are proposed, a site suitability report conducted by the Bucks County Department of Health, in accordance with the Pennsylvania Sewage Facilities Act must be received by the municipality before approval of the final plan.
- C. A Township representative shall be present for all soils testing related to the permitting and installation of all on-lot sewage disposal systems.
- D. The dimensioned location of the on-lot sewage system and the well must be shown on the plan in accordance with the permit for the on-site sewage system issued by the Bucks County Department of Health prior to the issuance of a building permit.

Section 5.30 Electric, Telephone, and Communication Facilities

- A. All gas, electric, telephone, and other utilities as well as communication service facilities, both main and service lines, shall be provided by underground cables, installed in accordance with the prevailing standards and practices of the utility and other companies providing such services.
- B. All utilities shall be located within the street right-of-way but outside the cartway; otherwise, easements or rights-of-way of sufficient width for installation and maintenance shall be provided.
- C. Final plans shall show locations of all utilities and shall be coordinated with required street tree planting and must be approved by the affected utilities.

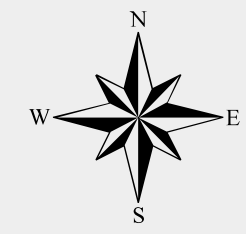
Section 5.31 Trails

- A. Purpose - Trails provide residents with the opportunity for vigorous exercise, a leisurely walk and the opportunity to bicycle or walk to destinations beyond their neighborhood. In order to establish a Township-wide trail system, subdivisions and land developments proposal submitted after the effective date of this section shall comply with the following provisions.
- B. Applications for residential subdivisions and land developments that have an internal street system shall submit a plan that delineates an internal pedestrian/bicycle circulation system.
 - 1. The system may consist of sidewalks for pedestrians, and bicycles using the proposed streets, and/or a separate trail for use by both pedestrians and bicycles.
 - 2. For developments in which the open space is large enough to accommodate a trail, the internal pedestrian/bicycle system shall include a trail system in the open space.
 - 3. The pedestrian/bicycle circulation system shall connect destination points within the development, such as tot lots and open space/recreation areas as well as points adjacent to the site, e.g., a residential development.
 - 4. When the Township's proposed trail system crosses the subject tract, the development plans shall include the construction of that segment of the trail.

Exhibit IV-3 Preservation Map

SOLEBURY TOWNSHIP

Preservation Map Map 3



New Jersey

Legend

- RMSSEG_Pasda selection
- Parcels
- Heritage Conservancy Easements
- Natural Lands Trust
- Schools
- State Owned
- Township Owned
- Township Easement
- Parks
- County Lands
- Delaware River

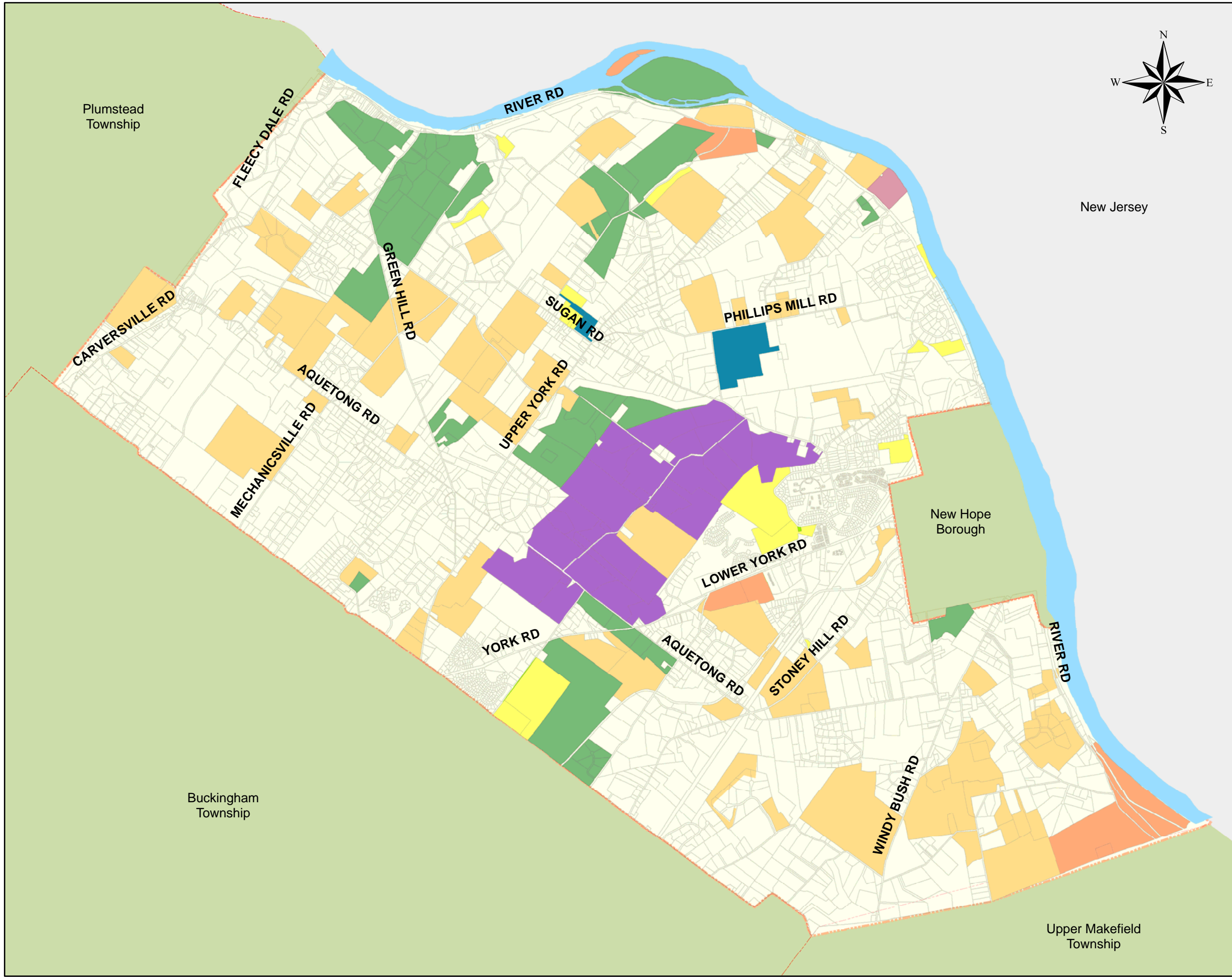
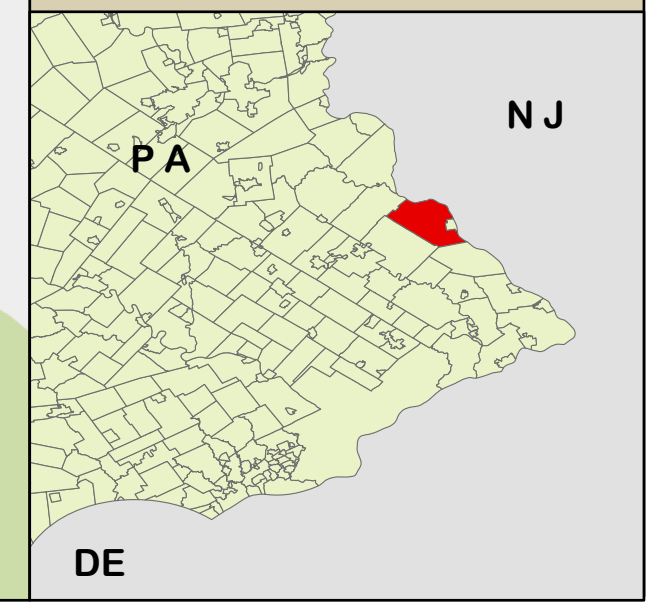


Exhibit IV-4
2000 & 2010
U.S. Census Data

Table DP-1. Profile of General Demographic Characteristics: 2000

Geographic area: Solebury township, Bucks County, Pennsylvania

[For information on confidentiality protection, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total population	7,743	100.0	HISPANIC OR LATINO AND RACE		
SEX AND AGE			Total population	7,743	100.0
Male.....	3,858	49.8	Hispanic or Latino (of any race).....	112	1.4
Female.....	3,885	50.2	Mexican.....	26	0.3
Under 5 years.....	410	5.3	Puerto Rican.....	38	0.5
5 to 9 years.....	461	6.0	Cuban.....	13	0.2
10 to 14 years.....	529	6.8	Other Hispanic or Latino.....	35	0.5
15 to 19 years.....	430	5.6	Not Hispanic or Latino.....	7,631	98.6
20 to 24 years.....	193	2.5	White alone.....	7,444	96.1
25 to 34 years.....	585	7.6	RELATIONSHIP		
35 to 44 years.....	1,411	18.2	Total population	7,743	100.0
45 to 54 years.....	1,705	22.0	In households.....	7,684	99.2
55 to 59 years.....	659	8.5	Householder.....	3,053	39.4
60 to 64 years.....	464	6.0	Spouse.....	1,950	25.2
65 to 74 years.....	528	6.8	Child.....	2,090	27.0
75 to 84 years.....	265	3.4	Own child under 18 years.....	1,657	21.4
85 years and over.....	103	1.3	Other relatives.....	174	2.2
Median age (years).....	44.1	(X)	Under 18 years.....	37	0.5
18 years and over.....	6,037	78.0	Nonrelatives.....	417	5.4
Male.....	3,024	39.1	Unmarried partner.....	199	2.6
Female.....	3,013	38.9	In group quarters.....	59	0.8
21 years and over.....	5,869	75.8	Institutionalized population.....	59	0.8
62 years and over.....	1,140	14.7	Noninstitutionalized population.....	-	-
65 years and over.....	896	11.6	HOUSEHOLD BY TYPE		
Male.....	434	5.6	Total households	3,053	100.0
Female.....	462	6.0	Family households (families).....	2,171	71.1
RACE			With own children under 18 years.....	928	30.4
One race.....	7,684	99.2	Married-couple family.....	1,950	63.9
White.....	7,520	97.1	With own children under 18 years.....	816	26.7
Black or African American.....	49	0.6	Female householder, no husband present.....	156	5.1
American Indian and Alaska Native.....	15	0.2	With own children under 18 years.....	82	2.7
Asian.....	66	0.9	Nonfamily households.....	882	28.9
Asian Indian.....	24	0.3	Householder living alone.....	580	19.0
Chinese.....	20	0.3	Householder 65 years and over.....	168	5.5
Filipino.....	3	-	Households with individuals under 18 years.....	960	31.4
Japanese.....	7	0.1	Households with individuals 65 years and over.....	613	20.1
Korean.....	7	0.1	Average household size.....	2.52	(X)
Vietnamese.....	-	-	Average family size.....	2.94	(X)
Other Asian ¹	5	0.1	HOUSING OCCUPANCY		
Native Hawaiian and Other Pacific Islander.....	7	0.1	Total housing units	3,207	100.0
Native Hawaiian.....	2	-	Occupied housing units.....	3,053	95.2
Guamanian or Chamorro.....	2	-	Vacant housing units.....	154	4.8
Samoan.....	3	-	For seasonal, recreational, or		
Other Pacific Islander ²	-	-	occasional use.....	74	2.3
Some other race.....	27	0.3	Homeowner vacancy rate (percent).....	0.6	(X)
Two or more races.....	59	0.8	Rental vacancy rate (percent).....	2.7	(X)
Race alone or in combination with one			HOUSING TENURE		
or more other races: ³			Occupied housing units	3,053	100.0
White.....	7,575	97.8	Owner-occupied housing units.....	2,687	88.0
Black or African American.....	65	0.8	Renter-occupied housing units.....	366	12.0
American Indian and Alaska Native.....	27	0.3	Average household size of owner-occupied units.....	2.59	(X)
Asian.....	92	1.2	Average household size of renter-occupied units.....	1.96	(X)
Native Hawaiian and Other Pacific Islander.....	7	0.1			
Some other race.....	38	0.5			

- Represents zero or rounds to zero. (X) Not applicable.

¹ Other Asian alone, or two or more Asian categories.

² Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

³ In combination with one or more of the other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000.

Table DP-2. Profile of Selected Social Characteristics: 2000

Geographic area: Solebury township, Bucks County, Pennsylvania

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
SCHOOL ENROLLMENT			NATIVITY AND PLACE OF BIRTH		
Population 3 years and over enrolled in school	1,843	100.0	Total population	7,743	100.0
Nursery school, preschool	167	9.1	Native	7,402	95.6
Kindergarten	106	5.8	Born in United States	7,323	94.6
Elementary school (grades 1-8)	816	44.3	State of residence	3,491	45.1
High school (grades 9-12)	359	19.5	Different state	3,832	49.5
College or graduate school	395	21.4	Born outside United States	79	1.0
EDUCATIONAL ATTAINMENT			Foreign born	341	4.4
Population 25 years and over	5,694	100.0	Entered 1990 to March 2000	129	1.7
Less than 9th grade	57	1.0	Naturalized citizen	201	2.6
9th to 12th grade, no diploma	186	3.3	Not a citizen	140	1.8
High school graduate (includes equivalency)	875	15.4	REGION OF BIRTH OF FOREIGN BORN		
Some college, no degree	1,061	18.6	Total (excluding born at sea)	341	100.0
Associate degree	401	7.0	Europe	184	54.0
Bachelor's degree	1,771	31.1	Asia	69	20.2
Graduate or professional degree	1,343	23.6	Africa	8	2.3
Percent high school graduate or higher	95.7	(X)	Oceania	-	-
Percent bachelor's degree or higher	54.7	(X)	Latin America	50	14.7
MARITAL STATUS			Northern America	30	8.8
Population 15 years and over	6,314	100.0	LANGUAGE SPOKEN AT HOME		
Never married	1,371	21.7	Population 5 years and over	7,317	100.0
Now married, except separated	4,129	65.4	English only	6,876	94.0
Separated	80	1.3	Language other than English	441	6.0
Widowed	282	4.5	Speak English less than "very well"	66	0.9
Female	235	3.7	Spanish	198	2.7
Divorced	452	7.2	Speak English less than "very well"	46	0.6
Female	276	4.4	Other Indo-European languages	206	2.8
GRANDPARENTS AS CAREGIVERS			Speak English less than "very well"	20	0.3
Grandparent living in household with one or more own grandchildren under 18 years	92	100.0	Asian and Pacific Island languages	14	0.2
Grandparent responsible for grandchildren	33	35.9	Speak English less than "very well"	-	-
VETERAN STATUS			ANCESTRY (single or multiple)		
Civilian population 18 years and over ..	6,017	100.0	Total population	7,743	100.0
Civilian veterans	862	14.3	Total ancestries reported	9,924	128.2
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION			Arab	17	0.2
Population 5 to 20 years	1,446	100.0	Czech ¹	30	0.4
With a disability	99	6.8	Danish	75	1.0
Population 21 to 64 years	4,985	100.0	Dutch	138	1.8
With a disability	458	9.2	English	1,409	18.2
Percent employed	70.7	(X)	French (except Basque) ¹	168	2.2
No disability	4,527	90.8	French Canadian ¹	47	0.6
Percent employed	78.3	(X)	German	1,874	24.2
Population 65 years and over	827	100.0	Greek	64	0.8
With a disability	167	20.2	Hungarian	92	1.2
RESIDENCE IN 1995			Irish ¹	1,615	20.9
Population 5 years and over	7,317	100.0	Italian	1,239	16.0
Same house in 1995	4,024	55.0	Lithuanian	57	0.7
Different house in the U.S. in 1995	3,204	43.8	Norwegian	106	1.4
Same county	1,465	20.0	Polish	472	6.1
Different county	1,739	23.8	Portuguese	9	0.1
Same state	383	5.2	Russian	297	3.8
Different state	1,356	18.5	Scotch-Irish	289	3.7
Elsewhere in 1995	89	1.2	Scottish	282	3.6
			Slovak	63	0.8
			Subsaharan African	-	-
			Swedish	84	1.1
			Swiss	21	0.3
			Ukrainian	99	1.3
			United States or American	353	4.6
			Welsh	131	1.7
			West Indian (excluding Hispanic groups)	-	-
			Other ancestries	893	11.5

-Represents zero or rounds to zero. (X) Not applicable.

¹The data represent a combination of two ancestries shown separately in Summary File 3. Czech includes Czechoslovakian. French includes Alsatian. French Canadian includes Acadian/Cajun. Irish includes Celtic.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-3. Profile of Selected Economic Characteristics: 2000

Geographic area: Solebury township, Bucks County, Pennsylvania

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
EMPLOYMENT STATUS			INCOME IN 1999		
Population 16 years and over	6,228	100.0	Households	3,057	100.0
In labor force	4,374	70.2	Less than \$10,000	81	2.6
Civilian labor force	4,374	70.2	\$10,000 to \$14,999	83	2.7
Employed	4,220	67.8	\$15,000 to \$24,999	184	6.0
Unemployed	154	2.5	\$25,000 to \$34,999	170	5.6
Percent of civilian labor force	3.5	(X)	\$35,000 to \$49,999	171	5.6
Armed Forces	-	-	\$50,000 to \$74,999	550	18.0
Not in labor force	1,854	29.8	\$75,000 to \$99,999	463	15.1
Females 16 years and over	3,063	100.0	\$100,000 to \$149,999	622	20.3
In labor force	1,805	58.9	\$150,000 to \$199,999	263	8.6
Civilian labor force	1,805	58.9	\$200,000 or more	470	15.4
Employed	1,729	56.4	Median household income (dollars)	89,005	(X)
Own children under 6 years	536	100.0	With earnings	2,664	87.1
All parents in family in labor force	257	47.9	Mean earnings (dollars) ¹	121,722	(X)
COMMUTING TO WORK			With Social Security income	622	20.3
Workers 16 years and over	4,172	100.0	Mean Social Security income (dollars) ¹	14,546	(X)
Car, truck, or van - - drove alone	3,195	76.6	With Supplemental Security Income	28	0.9
Car, truck, or van - - carpooled	272	6.5	Mean Supplemental Security Income (dollars) ¹	9,057	(X)
Public transportation (including taxicab)	93	2.2	With public assistance income	10	0.3
Walked	56	1.3	Mean public assistance income (dollars) ¹	1,200	(X)
Other means	26	0.6	With retirement income	371	12.1
Worked at home	530	12.7	Mean retirement income (dollars) ¹	16,864	(X)
Mean travel time to work (minutes) ¹	35.0	(X)	Families	2,178	100.0
Employed civilian population 16 years and over	4,220	100.0	Less than \$10,000	17	0.8
OCCUPATION			\$10,000 to \$14,999	44	2.0
Management, professional, and related occupations	2,386	56.5	\$15,000 to \$24,999	53	2.4
Service occupations	282	6.7	\$25,000 to \$34,999	58	2.7
Sales and office occupations	968	22.9	\$35,000 to \$49,999	99	4.5
Farming, fishing, and forestry occupations	14	0.3	\$50,000 to \$74,999	405	18.6
Construction, extraction, and maintenance occupations	220	5.2	\$75,000 to \$99,999	357	16.4
Production, transportation, and material moving occupations	350	8.3	\$100,000 to \$149,999	511	23.5
INDUSTRY			\$150,000 to \$199,999	229	10.5
Agriculture, forestry, fishing and hunting, and mining	69	1.6	\$200,000 or more	405	18.6
Construction	279	6.6	Median family income (dollars)	103,566	(X)
Manufacturing	553	13.1	Per capita income (dollars) ¹	52,985	(X)
Wholesale trade	148	3.5	Median earnings (dollars):		
Retail trade	535	12.7	Male full-time, year-round workers	71,176	(X)
Transportation and warehousing, and utilities	97	2.3	Female full-time, year-round workers	42,361	(X)
Information	159	3.8			
Finance, insurance, real estate, and rental and leasing	399	9.5			
Professional, scientific, management, administrative, and waste management services	699	16.6			
Educational, health and social services	688	16.3			
Arts, entertainment, recreation, accommodation and food services	319	7.6			
Other services (except public administration)	111	2.6			
Public administration	164	3.9			
CLASS OF WORKER					
Private wage and salary workers	3,379	80.1			
Government workers	337	8.0			
Self-employed workers in own not incorporated business	475	11.3			
Unpaid family workers	29	0.7			
			POVERTY STATUS IN 1999		
			Families	38	1.7
			With related children under 18 years	30	3.1
			With related children under 5 years	21	7.2
			Families with female householder, no husband present	9	6.8
			With related children under 18 years	9	10.5
			With related children under 5 years	-	-
			Individuals	241	3.1
			18 years and over	165	2.8
			65 years and over	29	3.5
			Related children under 18 years	76	4.4
			Related children 5 to 17 years	40	3.1
			Unrelated individuals 15 years and over	98	8.0

-Represents zero or rounds to zero. (X) Not applicable.

¹If the denominator of a mean value or per capita value is less than 30, then that value is calculated using a rounded aggregate in the numerator.

See text.

Source: U.S. Bureau of the Census, Census 2000.

Table DP-4. Profile of Selected Housing Characteristics: 2000

Geographic area: Solebury township, Bucks County, Pennsylvania

[Data based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see text]

Subject	Number	Percent	Subject	Number	Percent
Total housing units	3,207	100.0	OCCUPANTS PER ROOM		
UNITS IN STRUCTURE			Occupied housing units	3,053	100.0
1-unit, detached	2,552	79.6	1.00 or less	3,053	100.0
1-unit, attached	370	11.5	1.01 to 1.50	-	-
2 units	69	2.2	1.51 or more	-	-
3 or 4 units	65	2.0			
5 to 9 units	63	2.0	Specified owner-occupied units	2,067	100.0
10 to 19 units	11	0.3	VALUE		
20 or more units	59	1.8	Less than \$50,000	-	-
Mobile home	18	0.6	\$50,000 to \$99,999	-	-
Boat, RV, van, etc	-	-	\$100,000 to \$149,999	65	3.1
			\$150,000 to \$199,999	272	13.2
			\$200,000 to \$299,999	653	31.6
			\$300,000 to \$499,999	741	35.8
			\$500,000 to \$999,999	288	13.9
			\$1,000,000 or more	48	2.3
			Median (dollars)	309,400	(X)
YEAR STRUCTURE BUILT			MORTGAGE STATUS AND SELECTED		
1999 to March 2000	132	4.1	MONTHLY OWNER COSTS		
1995 to 1998	464	14.5	With a mortgage	1,657	80.2
1990 to 1994	270	8.4	Less than \$300	-	-
1980 to 1989	603	18.8	\$300 to \$499	-	-
1970 to 1979	500	15.6	\$500 to \$699	34	1.6
1960 to 1969	200	6.2	\$700 to \$999	75	3.6
1940 to 1959	343	10.7	\$1,000 to \$1,499	310	15.0
1939 or earlier	695	21.7	\$1,500 to \$1,999	472	22.8
			\$2,000 or more	766	37.1
			Median (dollars)	1,717	(X)
			Not mortgaged	410	19.8
			Median (dollars)	503	(X)
ROOMS			SELECTED MONTHLY OWNER COSTS		
1 room	12	0.4	AS A PERCENTAGE OF HOUSEHOLD		
2 rooms	34	1.1	INCOME IN 1999		
3 rooms	137	4.3	Less than 15.0 percent	636	30.8
4 rooms	126	3.9	15.0 to 19.9 percent	350	16.9
5 rooms	258	8.0	20.0 to 24.9 percent	384	18.6
6 rooms	457	14.3	25.0 to 29.9 percent	207	10.0
7 rooms	521	16.2	30.0 to 34.9 percent	161	7.8
8 rooms	634	19.8	35.0 percent or more	329	15.9
9 or more rooms	1,028	32.1	Not computed	-	-
Median (rooms)	7.6	(X)			
Occupied housing units	3,053	100.0	Specified renter-occupied units	317	100.0
YEAR HOUSEHOLDER MOVED INTO UNIT			GROSS RENT		
1999 to March 2000	534	17.5	Less than \$200	-	-
1995 to 1998	934	30.6	\$200 to \$299	-	-
1990 to 1994	532	17.4	\$300 to \$499	24	7.6
1980 to 1989	497	16.3	\$500 to \$749	63	19.9
1970 to 1979	354	11.6	\$750 to \$999	39	12.3
1969 or earlier	202	6.6	\$1,000 to \$1,499	101	31.9
			\$1,500 or more	44	13.9
			No cash rent	46	14.5
			Median (dollars)	1,027	(X)
VEHICLES AVAILABLE			GROSS RENT AS A PERCENTAGE OF		
None	68	2.2	HOUSEHOLD INCOME IN 1999		
1	601	19.7	Less than 15.0 percent	51	16.1
2	1,661	54.4	15.0 to 19.9 percent	35	11.0
3 or more	723	23.7	20.0 to 24.9 percent	57	18.0
			25.0 to 29.9 percent	23	7.3
			30.0 to 34.9 percent	30	9.5
			35.0 percent or more	75	23.7
			Not computed	46	14.5
HOUSE HEATING FUEL					
Utility gas	544	17.8			
Bottled, tank, or LP gas	189	6.2			
Electricity	585	19.2			
Fuel oil, kerosene, etc	1,716	56.2			
Coal or coke	5	0.2			
Wood	14	0.5			
Solar energy	-	-			
Other fuel	-	-			
No fuel used	-	-			
SELECTED CHARACTERISTICS					
Lacking complete plumbing facilities	12	0.4			
Lacking complete kitchen facilities	-	-			
No telephone service	11	0.4			

-Represents zero or rounds to zero. (X) Not applicable.

Source: U.S. Bureau of the Census, Census 2000.



DP-1

Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see <http://www.census.gov/prod/cen2010/profiletd.pdf>.

GEO: Solebury township, Bucks County, Pennsylvania

Subject	Number	Percent
SEX AND AGE		
Total population	8,692	100.0
Under 5 years	298	3.4
5 to 9 years	540	6.2
10 to 14 years	656	7.5
15 to 19 years	486	5.6
20 to 24 years	257	3.0
25 to 29 years	187	2.2
30 to 34 years	207	2.4
35 to 39 years	380	4.4
40 to 44 years	662	7.6
45 to 49 years	857	9.9
50 to 54 years	924	10.6
55 to 59 years	910	10.5
60 to 64 years	879	10.1
65 to 69 years	566	6.5
70 to 74 years	395	4.5
75 to 79 years	218	2.5
80 to 84 years	153	1.8
85 years and over	117	1.3
Median age (years)	48.9	(X)
16 years and over	7,081	81.5
18 years and over	6,839	78.7
21 years and over	6,671	76.7
62 years and over	1,949	22.4
65 years and over	1,449	16.7
Male population	4,412	50.8
Under 5 years	147	1.7
5 to 9 years	295	3.4
10 to 14 years	319	3.7
15 to 19 years	262	3.0
20 to 24 years	138	1.6
25 to 29 years	90	1.0
30 to 34 years	104	1.2
35 to 39 years	161	1.9
40 to 44 years	313	3.6
45 to 49 years	446	5.1
50 to 54 years	475	5.5
55 to 59 years	453	5.2
60 to 64 years	467	5.4
65 to 69 years	305	3.5
70 to 74 years	200	2.3
75 to 79 years	114	1.3
80 to 84 years	78	0.9
85 years and over	45	0.5

Subject	Number	Percent
Median age (years)	49.3	(X)
16 years and over	3,581	41.2
18 years and over	3,455	39.7
21 years and over	3,366	38.7
62 years and over	1,012	11.6
65 years and over	742	8.5
Female population	4,280	49.2
Under 5 years	151	1.7
5 to 9 years	245	2.8
10 to 14 years	337	3.9
15 to 19 years	224	2.6
20 to 24 years	119	1.4
25 to 29 years	97	1.1
30 to 34 years	103	1.2
35 to 39 years	219	2.5
40 to 44 years	349	4.0
45 to 49 years	411	4.7
50 to 54 years	449	5.2
55 to 59 years	457	5.3
60 to 64 years	412	4.7
65 to 69 years	261	3.0
70 to 74 years	195	2.2
75 to 79 years	104	1.2
80 to 84 years	75	0.9
85 years and over	72	0.8
Median age (years)	48.5	(X)
16 years and over	3,500	40.3
18 years and over	3,384	38.9
21 years and over	3,305	38.0
62 years and over	937	10.8
65 years and over	707	8.1
RACE		
Total population	8,692	100.0
One Race	8,599	98.9
White	8,193	94.3
Black or African American	82	0.9
American Indian and Alaska Native	4	0.0
Asian	254	2.9
Asian Indian	74	0.9
Chinese	104	1.2
Filipino	12	0.1
Japanese	11	0.1
Korean	38	0.4
Vietnamese	7	0.1
Other Asian [1]	8	0.1
Native Hawaiian and Other Pacific Islander	5	0.1
Native Hawaiian	2	0.0
Guamanian or Chamorro	3	0.0
Samoan	0	0.0
Other Pacific Islander [2]	0	0.0
Some Other Race	61	0.7
Two or More Races	93	1.1
White; American Indian and Alaska Native [3]	8	0.1
White; Asian [3]	38	0.4
White; Black or African American [3]	27	0.3
White; Some Other Race [3]	4	0.0
Race alone or in combination with one or more other races: [4]		
White	8,276	95.2
Black or African American	119	1.4
American Indian and Alaska Native	19	0.2

Subject	Number	Percent
Asian	302	3.5
Native Hawaiian and Other Pacific Islander	11	0.1
Some Other Race	67	0.8
HISPANIC OR LATINO		
Total population	8,692	100.0
Hispanic or Latino (of any race)	231	2.7
Mexican	69	0.8
Puerto Rican	49	0.6
Cuban	30	0.3
Other Hispanic or Latino [5]	83	1.0
Not Hispanic or Latino	8,461	97.3
HISPANIC OR LATINO AND RACE		
Total population	8,692	100.0
Hispanic or Latino	231	2.7
White alone	172	2.0
Black or African American alone	7	0.1
American Indian and Alaska Native alone	1	0.0
Asian alone	0	0.0
Native Hawaiian and Other Pacific Islander alone	1	0.0
Some Other Race alone	43	0.5
Two or More Races	7	0.1
Not Hispanic or Latino	8,461	97.3
White alone	8,021	92.3
Black or African American alone	75	0.9
American Indian and Alaska Native alone	3	0.0
Asian alone	254	2.9
Native Hawaiian and Other Pacific Islander alone	4	0.0
Some Other Race alone	18	0.2
Two or More Races	86	1.0
RELATIONSHIP		
Total population	8,692	100.0
In households	8,692	100.0
Householder	3,461	39.8
Spouse [6]	2,187	25.2
Child	2,337	26.9
Own child under 18 years	1,782	20.5
Other relatives	242	2.8
Under 18 years	54	0.6
65 years and over	92	1.1
Nonrelatives	465	5.3
Under 18 years	17	0.2
65 years and over	52	0.6
Unmarried partner	295	3.4
In group quarters	0	0.0
Institutionalized population	0	0.0
Male	0	0.0
Female	0	0.0
Noninstitutionalized population	0	0.0
Male	0	0.0
Female	0	0.0
HOUSEHOLDS BY TYPE		
Total households	3,461	100.0
Family households (families) [7]	2,474	71.5
With own children under 18 years	950	27.4
Husband-wife family	2,187	63.2
With own children under 18 years	805	23.3
Male householder, no wife present	99	2.9
With own children under 18 years	49	1.4
Female householder, no husband present	188	5.4
With own children under 18 years	96	2.8

Subject	Number	Percent
Nonfamily households [7]	987	28.5
Householder living alone	676	19.5
Male	305	8.8
65 years and over	82	2.4
Female	371	10.7
65 years and over	151	4.4
Households with individuals under 18 years	998	28.8
Households with individuals 65 years and over	1,015	29.3
Average household size	2.51	(X)
Average family size [7]	2.93	(X)
HOUSING OCCUPANCY		
Total housing units	3,747	100.0
Occupied housing units	3,461	92.4
Vacant housing units	286	7.6
For rent	15	0.4
Rented, not occupied	2	0.1
For sale only	42	1.1
Sold, not occupied	19	0.5
For seasonal, recreational, or occasional use	157	4.2
All other vacants	51	1.4
Homeowner vacancy rate (percent) [8]	1.3	(X)
Rental vacancy rate (percent) [9]	4.0	(X)
HOUSING TENURE		
Occupied housing units	3,461	100.0
Owner-occupied housing units	3,104	89.7
Population in owner-occupied housing units	7,946	(X)
Average household size of owner-occupied units	2.56	(X)
Renter-occupied housing units	357	10.3
Population in renter-occupied housing units	746	(X)
Average household size of renter-occupied units	2.09	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

Section V.
Alternatives Evaluation of
New or Improved
Wastewater Disposal
Facilities

V. Alternatives Evaluation of New or Improved Wastewater Disposal Facilities

A. Conventional Alternatives

1.0 Regionalization

Conventional alternatives, as listed in DEP's *Domestic Wastewater Facilities Manual*¹, such as regionalized wastewater treatment, sewer extensions and community sewage systems with stream discharge, are not considered for new facilities in Solebury Township because they are incompatible with the goals of the Township's *2002 Comprehensive Plan*.

2.0 Sewer Extensions

Solebury Township's existing SALDO and Zoning Ordinances delineate the service areas for public sewers. These areas are currently undergoing development. No sewer extensions beyond those service areas can be made without revising the zoning districts.

3.0 Collection System Maintenance

Both BCW&SA and LMUA continue to conduct infiltration and inflow studies and ongoing repairs and replacement work.

4.0 Sewer System Capacity

The New Hope-Solebury public sewer service area receives water through public, commercial and institutional water supplies drawing more than 380,000 GPD from the groundwater that is then conveyed to LMUA for treatment and discharge into the Delaware River. BCW&SA has the capacity to convey up to 625,000 GPD to the LMUA WWTP based on a recently executed sewer agreement. The public water supply wells for this sewer service area have the capacity to provide this same volume of water. Therefore, an additional 40% growth can occur in this service area using conventional treatment alternatives. LMUA does not anticipate expanding its hydraulic capacity at its wastewater treatment plant.

5.0 Water Reuse

Water reuse, where treated wastewater is reused as described by EPA and DEP in *Reuse of Treated Wastewater Guidance Manual*², is an expensive, but possible option and may be investigated further as part of a Special Study. The Manual discusses the following potential reuse systems that DEP may permit:

- **Public Access Systems:** Irrigation of public parks and landscaping, utility right-of-ways, vehicle washing and sanitary flushing; requires treatment to tertiary levels.
- **Agricultural Reuse:** Irrigation of non-food crops, nurseries and pastures; requires treatment to secondary levels.

¹ [Domestic Wastewater Facilities Manual](#)

² [Reuse of Treated Wastewater Guidance Manual](#)

- Groundwater Injection: Requires treatment to drinking water standards.
- Industrial Reuse: Process or makeup water; dust suppression.

B. Individual Sewage Disposal Systems

EPA issued a policy statement in 1996 that onlot sewage disposal systems are a long-term solution to wastewater treatment and disposal **IF** properly sited, designed, installed, operated and maintained. Groundwater can be protected with properly maintained onsite systems or with additional treatment of pollutants including nutrients.

With approximately 2,500 onlot sewage disposal systems in Solebury Township and assuming a usage of 65 gallons per day per person with 2.51 persons per household, approximately 408,000 GPD of water is pumped out of the ground, used for household uses and other purposes, is discharged to various levels of onsite treatment, and then recharges the groundwater aquifer.

Since public sewers are not the preferred method of wastewater treatment and disposal, a sewage management program needs to be developed as recommended in previous Sewage Facilities Plans, and as discussed in 25 Pa. Code § 71.21 (4). This Plan describes Solebury Township's intention to implement a sewage management program that allows for the evaluation and rehabilitation of existing onlot sewage disposal systems, and ensures the operation and maintenance of existing and future onlot sewage disposal systems.

1.0 Soil and Slope Suitability

As discussed previously, the BCDH has been siting and permitting individual sewage systems based on a site investigation for suitable soils and slope in accordance with current regulations.

2.0 Preliminary Hydrogeologic Evaluation

Solebury Township's SALDO requires a preliminary hydrogeologic evaluation for all new Planning Modules submitted for review and approval.

3.0 Sewage Management Program

A Sewage Management Program ordinance addresses the planning, permitting, design, construction, operation and maintenance of onlot sewage disposal systems. A proposed sewage management ordinance is contained in **Exhibit V-1**.

The Bucks County Department of Health will continue to issue permits and conduct inspections of onlot sewage disposal systems in Solebury Township in accordance with the BCDH Rules and Regulations Governing Individual and Community Onlot Sewage Disposal Systems. Township staff, at a minimum, will set up a database to maintain onlot sewage disposal system and well information.

3.1 Bucks County Department of Health (BCDH)

The BCDH administers the onsite sewage program through its *Rules and Regulations Governing*

*Individual and Community On-Lot Sewage Disposal Systems*³ which includes the following services, as described on the Bureau of Environmental Health’s website⁴:

- Lot Testing (soils investigation)
- Subdivision Plan Review
- Permitting (qualified septic systems, including spray irrigation, drip irrigation, and alternate and experimental systems acceptable to DEP)
 - ⇒ Construction
 - ⇒ Repair
 - ⇒ Transfer
 - ⇒ Temporary Holding Tank
- Malfunction Evaluation
- Complaint Investigation
- Onlot System Inspections
- Hauler’s Licensing
- Well Water Bacteriological Analysis
- Planning Module Components 1, 2, 3 and 4 Reviews and Approvals

The BCDH provides well inspections and construction standards for residential wells in accordance with the *Rules and Regulations Governing Individual Residential Water Supply Systems and Construction Specifications*⁵ that are last revised in January 2011.

For all onlot sewage disposal systems, the BCDH provides onsite permits and inspections for new construction or malfunctions, and assistance and diagnosis for repairs. The BCDH also responds to written complaints. Forms for these services can be downloaded from their website.⁶

3.2 Alternates Systems

Potential alternatives available to ensure the continued use of onlot sewage disposal systems that are appropriate for environmental conditions in Solebury Township may include:

- Peat Based System, which consists of an aerobic or septic tank, followed by a peat filter and an absorption area.
- Gravity Sand Filter with final treatment and disposal by an onlot or drip irrigation disposal system.

³ [Bucks County Rules and Regulations Governing Individual and Community On-Lot Sewage Disposal Systems](#)

⁴ [On-Site Sewage Disposal Facilities Program](#)

⁵ [Bucks County Rules and Regulations Governing Individual Residential Water Supply Systems and Construction Specifications](#)

⁶ [BCDH Sewage Disposal Forms](#)

- CO-OP RFS III, which requires treatment of septic tank effluent using a recirculating filter followed by disinfection, with final treatment and disposal by an onlot or drip irrigation disposal system.
- At-Grade Bed System
- Modified Subsurface Sand Filter
- Shallow Placement Pressure Dosed System
- Drip Irrigation System
- Steep Slope Elevated Sand Mound
- A/B Soil System, which consists of a septic tank, dosing tank, recirculating subsurface sand filter or peat filter, and UV disinfection, with final treatment and disposal using an at-grade absorption area.
- Non-Infiltration, Evapotranspiration Bed, which consists of an aerobic treatment tank and passive solar greenhouse beds.

Detailed site inspections must be made at each proposed site to ensure that the alternate disposal system is appropriate. More details on these alternate systems are found in DEP's *Alternate Systems Guidance*⁷. Appendix 1 of DEP's Alternate Systems' listing is included as **Exhibit V-2** to this Plan.

4.0 Repair / Upgrade

The needs analysis indicates that 16% of the systems use cesspools, seepage pits and/or undersized septic tanks. All are now substandard to the latest requirements; therefore, upgrades are beneficial to immediately improve system performance. Septic tank baffles and drain lines are the most frequent repair items that are documented for this study.

All septic tanks can be fitted with an effluent filter that helps to keep solids in the tank.

Exhibit V-3 contains a matrix that details the minimum site conditions needed to site all the currently allowable conventional and alternative onlot treatment components in Pennsylvania.

Systems are designed for a specific hydraulic loading. Some malfunctions have been attributed to overloading the systems. Decreasing the loading to existing systems could be accomplished through adoption of an ordinance that requires water conservation devices be used for overloaded systems, as well as for new construction.

5.0 Well Alteration

The well surveys indicate that numerous wells appear to be impacted by improper well placement, construction or maintenance. Some homeowners have cut off their well casing to below grade. Several wells are extremely shallow. New wells could be drilled and grouted appropriately to eliminate surface water influences.

A Well Construction Ordinance is appended to Solebury Township's SALDO. Recommended measures

⁷ [Alternate Systems Guidance](#)

to prevent surface water and onlot sewage disposal system influences on wells include:

- New or Replacement Wells:
 - ⇒ Comply with isolation distances from onlot system components – 50 feet from septic tanks and 100 feet from an absorption area – on the proposed lot and adjacent lots.
 - ⇒ Install 50 feet of casing with a grout seal along the entire casing annulus.
 - ⇒ Where isolation distances are less than required or cannot be maintained, install 100 feet of casing.
- Existing Wells:
 - ⇒ Extend well casing at least 6 inches above the ground surface.
 - ⇒ Secure wellheads with rubber gasketed well caps.
 - ⇒ Redirect stormwater drainage away from wellhead.

6.0 Nutrient Reduction

In areas with Nitrate contamination or to eliminate nitrogen release, zero discharge treatment units such as greenhouses are an option. The latest composting toilet technology may be more readily acceptable to the general public, especially in commercial establishments.

Other recent technical developments in treatment units are providing nutrient removal capabilities. DEP is reviewing data to determine what can be approved for onsite systems permitted by SEOs.

7.0 System Rest

In some cases, an absorption area could be allowed to rest by constructing a second area, or using a holding tank temporarily until the soil recovers.

C. Small Flow Treatment Facilities

Small flow treatment facilities, defined as less than 2,000 GPD with a stream discharge to serve one or more houses, is not a preferred treatment system within high quality watersheds in Solebury Township, unless used to abate an existing malfunction or public health hazard. An evaluation of onlot sewage disposal system alternatives must be provided to the Township and DEP, showing onlot systems are not feasible.

The use of these facilities requires an Installation and Maintenance Agreement between Solebury Township and the owner in accordance with 25 Pa. Code § 71.64 of DEP's regulations.

Solebury Township may approve the use of a holding tank over this option for short-term use until a more suitable long-term sewage disposal alternative is approved. Two small flow treatment facilities are currently permitted by DEP in Solebury Township; no further use of this option is anticipated.

D. Community Onsite Systems

Decentralized systems for system malfunctions provide consistency between municipal land use planning

and wastewater planning, and allow for the coordination with water supply planning so that groundwater recharge is supported by the use of land application systems.

Any community land disposal options must be based on site suitability in which Solebury Township requirements for hydrologic studies applies. Operation and maintenance is managed under the Township Sewage Management Program.

This option is classified as a lower priority of acceptable treatment alternatives and should be used primarily to address a needs area of existing systems that are malfunctioning, not to provide a treatment method for new land development. The New Hope Hills area was previously and is currently identified as a potential needs areas. The approximate 100 lots withdraw 25,000 GPD that may be used to recharge the groundwater table.

1.0 Hydrogeologic Studies

A preliminary hydrogeologic evaluation in accordance with 25 Pa. Code § 71.62 (c) (3) is required by the regulations when the use of subsurface soil absorption areas is proposed for one of the following:

- A large volume onlot system (>2,000 gpd).
- A subdivision with more than 50 units with more than one unit per acre.
- The lot is within ¼ mile of a well with Nitrate > 5.0 mg/L. **See Plate 4** for these well locations.

At a minimum, the preliminary hydrogeologic evaluation includes a map and report with:

- Topographic location of proposed system in relation to groundwater or surface water flow.
- Estimated wastewater dispersion plume.
- Identification and location of existing and potential groundwater uses in the estimated area of impacted groundwater.

Detailed hydrogeologic studies may be required when the preliminary evaluation identifies a potential impact to the use of groundwater in the area. Ordinance No. 2004-216 appended to Solebury Township's SALDO requires that a water resource analysis be conducted for construction of new wells.

E. Retaining Tanks

As required by 25 Pa. Code § 71.63, to ensure the proper operation and maintenance of retaining tanks, Solebury Township proposes to adopt a Retaining Tank Ordinance that regulates the use, inspection and maintenance requirements of retaining tanks on a temporary or permanent basis for commercial or residential use. A proposed Retaining Tank Ordinance is included as **Exhibit V-4** to this Plan.

F. Sewage Management Program

A sewage management program assures the future operation and maintenance of existing and proposed sewage facilities, and protects water resources, public health and homeowner investment. DEP's minimum requirements for a sewage management program, in accordance with 25 Pa. Code § 71.73 include:

- Legal authority allowing access for inspections; development of a policy for scheduling inspections; provisions for enforcement and penalties; standards for proper operation and maintenance of onlot sewage disposal systems; and permitting of all onlot sewage disposal systems regardless of lot size through the following ordinances:
 - ⇒ Sewage Management Ordinance
 - ⇒ Retaining Tank Ordinance
 - ⇒ Preemption of 10-Acre Permit Exemption Ordinance
- Standards for operation, maintenance, repair or replacement of sewage facilities:
 - ⇒ Scheduled removal of septage.
 - ⇒ Protection of treatment and absorption areas from stormwater impacts and physical damage.
 - ⇒ Reduced hydraulic loading through use of water conservation devices.
 - ⇒ Maintenance of a system’s mechanical and electrical components.
 - ⇒ Septage hauler requirements consistent with the Solid Waste Management Act.
- Fee schedule.
- Enforcement and penalty provisions.

Solebury Township’s onlot permitting program is currently administered by the BCDH. However, if the Township elects to administer the sewage management program in the future, then the Township is eligible for reimbursement of program costs.

1.0 Pumping Schedule

If an onlot sewage disposal system has been adequately sized, properly sited relative to soils, slope and geology, and constructed to current standards, improper operation and maintenance may still cause an onlot sewage disposal system to malfunction and fail. Actions and items that lead to problems may include:

- Hydraulic overload
- Discharge of harmful substances
- Excessive grease
- Garbage disposals
- Physical damage such as driving over, plantings or nearby construction
- Not removing solids from the septic tank

System pumping may be scheduled based on household and system sizes as shown on **Table 5-1** and as confirmed by system monitoring, but not to exceed three (3) years.

If a property owner believes less frequent pump-outs are adequate, they may apply for a pumping exemption using the form found in **Exhibit V-5** of this Plan.

Table 5-1. Pumping Schedule						
Tank Size Gallons	1	2	3	4	5	Household ◀ Size
500	3	2	1	1	1	Years ◀ Between Pumping
1,000	3	3	3	2	2	
1,500	3	3	3	3	3	

2.0 Systems Inspection & Inventory

The need for repairs, upgrades and improved O&M may be documented through a systematic inspection and inventory of all onlot sewage disposal systems. Currently, the BCDH maintains this inventory of onlot sewage disposal systems in Solebury Township. The Township intends to initiate such a database in the future as implementation of a Sewage Management Program progresses.

3.0 Geographic Information Systems (GIS)

The use of GIS methods may provide tools to promote tangible results, which enable the community to take action to meet sewage disposal needs while protecting local water resources. Onlot sewage disposal systems management is becoming an increasingly important component of municipal management, requiring effective systems for data maintenance and program implementation.

GIS tools may be used for storing and retrieving data related to onlot sewage disposal system owners, the onlot sewage disposal systems' locations and historical records of system pumping and inspections, and easy-to-use tools for generating notices to owners when action is required. The information collected and illustrated through GIS methods may indicate water quality risk indicators, hot spot mapping and water resources vulnerabilities.

Local planning objectives, public participation and available data on local resources provide the basis for a future sewage needs assessment as well as how to successfully implement a sewage management program. DEP has indicated that system inventory mapping is eligible for the 50% planning reimbursement if conducted during planning. Mapping done during the implementation of an Official Sewage Facilities Plan is specifically ineligible for any reimbursement.

4.0 Public Education

Public education is a vital aspect of Solebury Township's implementation of a Sewage Management Plan. The Township intends to distribute such information through their office and on their website, such as the "Homeowner's Guide to Septic Systems"⁸ and a "Homeowner Septic System Checklist"⁹, both prepared by EPA and found in **Exhibit V-6** of this Plan.

Solebury Township may also help homeowners understand the importance of maintaining their onlot sewage disposal systems through the goals of protecting public health and environmental quality. EPA has developed five models for sewage management programs. **Exhibit V-7** of this Plan provides a

⁸ [A Homeowner's Guide to Septic Systems](#)

⁹ [Homeowner's Septic System Checklist](#)

summary¹⁰ of these models. All models include proper siting and construction of systems, and a systems inventory. Township residents may make a community decision regarding the management model that will be most beneficial to them for implementation of a sewage management program. Different areas may use a higher level of management or combination of management tasks, if needed.

4.1 Model 1 – Homeowner Awareness Model

This model includes maintenance reminders. From the sanitary survey and in discussions with local haulers, it appears that the haulers are sending these reminders for regular maintenance. Model 1 management is typically applied in areas of low environmental sensitivity with suitable soils that offers a level of confidence for maintenance to occur on a typical 3-year cycle.

4.2 Model 2 – Maintenance Contract Model

Model 2 includes the requirement that the homeowner must maintain a service contract for inspection, pumping and repair (with permitting) services. A tracking system needs to be established and enforced if this model is selected. Systems in areas with onlot suitability issues, such as small lots, and shallow or slow permeability soils, need more oversight to insure problems do not develop. Adoption of the Sewage Management Ordinance in **Exhibit V-1** provides enforcement for routine pumping.

4.3 Model 3 – Operating Permit Model

This model is an operating permit model that applies to DEP permitted systems. While the Township may want to collect data about all systems by receiving all monitoring and compliance information, the enforcement actions for these permitted sewage disposal systems remain with DEP.

4.4 Model 4 – Responsible Management Entity O&M Model

Model 4 programs delegate program services to a “Responsible Management Entity” or RME. Regular operation and maintenance activities are conducted by the RME, not left to the homeowner’s discretion. The RME can be a public or private entity, such as, the health department, homeowner’s associations, municipal authorities, municipalities, or private consultants (haulers, engineers, contract operators, soil scientists) with oversight by the Township. The BCW&SA has been approached to provide RME services. The Township does not wish to pursue these responsibilities at this time.

4.5 Model 5 – Responsible Management Entity Ownership Model

These model programs provide intensive management, maintenance, and tracking of all systems. In some cases, a municipality may take ownership of all systems, and provide the operating and maintenance personnel. Solebury Township does not wish to pursue these responsibilities at this time.

5.0 Recordkeeping

The BCDH has been siting, permitting and inspecting systems since 1956. Unfortunately, no inventory recordkeeping system is in place. Each lot or development is contained in a file organized by tax map parcel number. Files older than 1980 are stored in dead files or on microfiche, which County personnel cannot easily access. All other information is stored in paper files by tax parcel number. The BCDH

¹⁰ [Summary of Management Models](#), page 33

started testing a computer-based recordkeeping system in 2006 that will be used to inventory all new planning and permitting activity. Solebury Township will eventually establish its own database of BCDH actions.

6.0 Operation & Maintenance

Homeowners with an onlot sewage disposal system that is properly designed and installed, and correctly operated and maintained, should receive years of reliable service with minimum risks to human and environmental health. Similar to any home maintenance, the onlot sewage disposal system should be monitored, inspected, pumped and repaired as needed.

6.1 Regular Inspections

Regular inspections extend the life of an onlot sewage disposal system and help the homeowner avoid unnecessary and expensive repair and replacement costs. Solebury Township will make public education materials available to homeowners, such as EPA's *A Homeowner's Guide to Septic Systems* in Exhibit V-6. Such guidance provides information to help homeowners understand their systems. It is the homeowner's responsibility to maintain their onlot sewage disposal system and part of this responsibility may involve periodic inspections by a trained professional, such as a PSMA (Pennsylvania Septage Management Association) certified inspector, to make sure the system is working properly.

6.2 Water Conservation

All new construction shall install and use water conservation devices as required by Resolution No. 88-2 Revision No. 2 of the Delaware River Basin Commission (DRBC) and the Pennsylvania Uniform Construction Code (UCC). Low flow plumbing fixtures, faucets and showerheads minimize the amount of water entering an onlot sewage disposal system, thereby helping to ensure proper operation of the onlot sewage disposal system. Hydraulic overload is a major cause of onlot sewage disposal system failure.

6.3 Care of the Disposal Area

Trees and shrubs with deep penetrating roots should not be planted near the disposal area because the roots can plug the perforated pipe structure. Heavy vehicles and equipment should not be driven or parked over the area because their weight can compact the soils and damage onlot sewage disposal system components.

6.4 Household Waste Disposal

Limit the types and amounts of wastes poured down the drain. Garbage disposals can nearly double the amount of solids added to an onlot sewage disposal tank and should be used sparingly, or not at all. Cooking oils and fats harden after disposal and block the septic tank inlet or outlet, and even clog the soil pores surrounding the disposal area, reducing its effectiveness for filtrating wastewater. In addition, chemicals like paints, solvents, and pesticides should not be dumped down the drain. These items may kill microorganisms living in the soil that help purify wastewater and can potentially enter into groundwater and contaminate drinking water supplies.

7.0 Joint Sewage Management Programs

The BCHD could adopt and implement a joint sewage management program, but does not currently have

the resources or the mandate to accomplish this.

8.0 O&M Assurances for Non-Municipal or Community Onlot Systems

As described in 25 Pa. Code § 71.72, Solebury Township requires a maintenance agreement and financial assurances appropriate to the proposed non-municipal or community onlot sewage disposal system prior to approving a planning module.

G. Nonstructural Alternatives

Examples of nonstructural alternatives include land use designations, population density requirements, protection of groundwater sources and implementing ordinances. To further protect Solebury Township's resources, Section 5.29 of the SALDO could be expanded to include siting, design and construction requirements as detailed in DEP's planning module component package.

The Township Zoning Ordinance regulates the minimum lot size for each zone district. These lot sizes will be evaluated on a case-by-case basis to confirm their suitability for onlot sewage disposal systems based on the local soils, slope and geology. The Zoning district designations could be revised at the time of evaluation to incorporate these limitations for onlot sewage disposal systems.

The SALDO and Zoning Ordinances should include the following requirements so that any new land development may not be exempt from planning in accordance with 25 Pa. Code § 71.51 (b)(1) as follows:

- Areas underlain by carbonate geology.
- Lots within ¼ mile of water supplies documented to exceed 5 mg/L of Nitrate.
- Areas in watersheds classified as Exceptional Value or High-Quality.
- Subdivided lots and the remaining portion of the original tract after subdivision are less than 1 acre.
- Cases where a replacement disposal area is not available on each lot of a subdivision.

Plate 2 and **Plate 5** of this Plan highlight those areas restricted by the first three items above.

Solebury Township does not maintain a list of planning module approvals. The majority of subdivision plans approved by Solebury Township since 1995 are submitted as Component 1 – Exemptions from Planning. The BCPC reviews sewage planning module submissions while the BCDH permits and inspects onlot sewage disposal systems as well as new residential wells.

Bucks County drafted a 2011 county-wide comprehensive plan¹¹ in which the County solicited stakeholder input. Some of the areas applicable to sewage planning that will be addressed in the county comprehensive plan include the following:

- Promote economic opportunity, housing diversity and efficient land use

¹¹ [2011 Bucks County Comprehensive Plan](#)

- ⇒ Concentrate development into designated development areas where existing public infrastructure (e.g., roads, water and sewer systems) has adequate capacity and is intended to accommodate future growth.
 - ⇒ Implement Village planning.
 - ⇒ Recommend standards for performance zoning
 - Protect natural, historic and scenic resources:
 - ⇒ Limit development in areas of carbonate geology.
 - ⇒ Restrict development on steep slopes >8% grade.
 - ⇒ Support municipal regulations for restrictive soils.
 - ⇒ Assist municipalities in developing regulations that reduce development in significant natural areas to preserve and protect critical habitats that support rare, threatened and endangered plants and animals.
 - Protect water resources:
 - ⇒ Establish wellhead protection and source water protection areas.
 - ⇒ Promote groundwater recharge.
 - ⇒ Establish riparian buffers along stream corridors.
 - ⇒ Direct new development to areas that have public water and some level of excess capacity.
 - ⇒ Develop drought protection plan to ensure sufficient quantities of water to meet peak and emergency demands.
 - Improve wastewater disposal practices:
 - ⇒ Discourage use of stream discharge systems, while encouraging use of community wastewater systems that minimize environmental impacts and promote land disposal of treated wastewater to enable groundwater recharge.
 - ⇒ Work with municipalities to develop educational programs designed to inform the public of the need for onlot disposal system maintenance and management programs, such as a 3-year inspection and pumping schedule for onlot sewage disposal systems.
 - ⇒ Encourage wastewater facilities planning to identify solutions to malfunctioning and inadequate systems, including a thorough evaluation of all alternative solutions.
 - ⇒ Educate municipalities on the need to coordinate wastewater facilities planning, land use planning, and comprehensive planning as one way to help guide growth.
 - ⇒ Advocate concentration of centralized sewer systems in designated growth / development areas.
 - ⇒ Encourage use of community onlot systems over extension of public sewer for areas experiencing onlot disposal system malfunctions and for developments outside of designated growth areas by encouraging municipalities to establish a priority list,
-
-

whereby the highest priority method of sewage disposal that can be technically and administratively implemented must be utilized.

- Preserve parks, open space and agricultural land:
 - ⇒ Protect stream corridors as part of greenways to provide healthy aquatic ecosystems.
 - ⇒ Strengthen land use policies for agricultural preservation program.
 - ⇒ Encourage farmers to implement BMPs and develop nutrient management programs.
- Improve stormwater management:
 - ⇒ Require stormwater runoff infiltration to recharge groundwater.
 - ⇒ Promote the use of Low Impact Development (LID) design and Best Management Practices (BMPs) to minimize the amount of impervious surface and to infiltrate, evaporate or capture and reuse as much stormwater runoff onsite as reasonably possible.
 - ⇒ Amend municipal stormwater ordinances to require the use of LID-type BMPs.
- Collect household hazardous waste
- Mitigate hazards to life and property:
 - ⇒ Limit development in high hazard areas.
 - ⇒ Assist municipalities with updating their floodplain regulations.
 - ⇒ Advocate adoption of wetland protection standards.

H. Selection of Sewage Disposal Alternatives

1.0 Sewage Disposal Alternatives

Solebury Township intends to identify sewage disposal methods that will best protect surface and groundwater sources, including special protection waters.

2.0 Public Sewage Facilities

The recommended sewage disposal alternative within the designated public sewer service areas of Solebury Township is continued use of public sewage collection and treatment facilities. Progression of public sewer within the designated public sewer service area shall be consistent with existing service agreements, proposed development and the need to address areas with public health concerns as determined by Solebury Township in consultation with BCDH and/or DEP.

3.0 Individual and Community Onlot Sewage Facilities

Lots within Solebury Township that are outside of the public sewer service areas shall continue to utilize onlot sewage disposal systems and shall comply with the Onlot Sewage Management Program Ordinance included as **Exhibit V-1** to this Plan. Extension of public sewers into a non-sewered area of the Township shall be permitted only to abate an existing public health concern and only after approval of the Solebury Township Board of Supervisors.

4.0 Private Sewage Facilities

Privately-owned sewage facilities within Solebury Township are comprised of state-owned treatment facilities with NPDES-permitted stream discharges and small flow treatment systems with NPDES-permitted discharges. These treatment facilities will continue to operate and discharge in accordance with their system life expectancy until the facilities need to be upgraded or public sewer service becomes available to them. Onlot sewage disposal systems are not an option for these facilities due to site constraints.

5.0 Onlot Sewage Disposal Priority Alternatives

All proposed and existing lots in Solebury Township shall employ either individual or community sewage disposal. The highest priority sewage disposal alternative that can be administratively and technically implemented on the property shall be utilized. If sewage disposal cannot be provided by a higher rank alternative than proposed, the applicant shall submit a written explanation of the reasons why the lot is not suitable for a higher ranked disposal option, and include appropriate supporting data. A decrease in the number of dwelling units and/or business establishments that could be served by one of the sewage disposal alternatives on the subject property shall not constitute a valid reason why a higher ranked alternative is not utilized in favor of a lower priority alternative. Onlot Sewage Disposal Priority Alternatives ranked from High to Low are shown on **Table 5-2**.

Table 5-2. Onlot Sewage Disposal Priority Alternatives	
1	Individual Onlot Subsurface Sewage Disposal
2	Individual Onlot Elevated or At-Grade Sand Mound Bed
3	Individual Onlot Residential Spray Irrigation System
4	Individual Onlot Alternate System
5	Community Onlot Subsurface Sewage Disposal
6	Community Onlot Elevated or At-Grade Sand Mound Bed
7	Community Onlot Spray Irrigation System
8	Experimental System or Other System Not Listed Above
9	Holding Tank per BCDH and DEP Requirements

As stated in paragraph B.3.2 of this section, detailed site inspections and appropriate testing must be conducted at each proposed site to ensure that the selected onlot sewage disposal system is appropriate relative to site geology, soils, slope, depth to water, depth to bedrock, percolation rate, prime farmland and/or land of statewide importance.

I. No-Action Alternative

Because Solebury Township is committed to ensuring the sustainability and quality of their water resources for the community's health and prosperity, this Plan does not include a no-action alternative.

Exhibit V-1
Sewage Management
Ordinance

ORDINANCE NO. _____

**An Ordinance of Solebury Township, Bucks County, Pennsylvania
Governing Management of Onlot Sewage Disposal Facilities**

BE IT ORDAINED by the Supervisors of Solebury Township, Bucks County, Pennsylvania, as follows:

Section I. Short Title: Introduction; Purpose

- A. This ordinance shall be known and may be cited as “An Ordinance providing for the Onlot Sewage Management Program for Solebury Township.”
- B. As mandated by the municipal codes, the Clean Streams Law (35 P.S. §691.1 to 691.1001), and the Pennsylvania Sewage Facilities Act (Act of January 24, 1966. P.L. 1535 as amended, 35 P.S. §750.1 *et seq.*, known as Act 537), municipalities have the power and the duty to provide for adequate sewage treatment facilities and for the protection of the public health by preventing the discharge of untreated or inadequately treated sewage. The Official Sewage Facilities Plan for Solebury Township indicates that a sewage management program will be implemented to effectively prevent and abate water pollution and hazards to the public health caused by improper treatment and disposal of sewage, which is also in accordance with the resource protection goals of Solebury Township’s Comprehensive Plan.
- C. The purpose of this Ordinance is to provide for the regulation, inspection, operation, maintenance and rehabilitation of onlot sewage disposal systems; to further permit Solebury Township to intervene in situations which may constitute a public nuisance or hazard to the public health; and to establish penalties and appeal procedures necessary for the proper administration of a sewage management program.

Section II. Terms and Definitions

- A. “ACT” shall mean The Pennsylvania Sewage Facilities Act, Act of January 24, 1966 (1965 P.L. 1535, No. 537), as amended, 35 P.S. Section 750.1 *et seq.* and which is also referred to as Act 537.
- B. “ABSORPTION AREA” shall mean a component of an individual or community sewage system where liquid from a treatment tank seeps into the soil, and which consists of an aggregate-filled area containing piping for the distribution of liquid and the soil or sand/soil combination located beneath the aggregate.
- C. “AGGREGATE” shall mean coarse material manufactured from stone, gravel or slag, having Type B characteristics as described in the Department of Transportation specifications, Form 408, section 703.3, Table B and uniform size and grading equivalent to American Association of State Highway and Transportation Officials No. 57, as described in Form 408, section 703.3, 2 Table C.
- D. “ALTERNATE SEWAGE SYSTEM” shall mean a demonstrated method for the treatment and disposal of sewage that meet the criteria in 25 Pa. Code § 73.72, and as described in the *Alternate Systems Guidance* published by DEP. Examples include, but are not limited, to composting toilets, sand filter and peat based systems, greywater systems and drip irrigation systems.
- E. “AUTHORIZED AGENT” shall mean a certified sewage enforcement officer, professional engineer or sanitarian, plumbing inspector, soils scientist or any other qualified or licensed person

who is authorized by the Board of Supervisors of Solebury Township to carry out the provisions of this Ordinance.

- F. “BOARD” shall mean the Board of Supervisors of Solebury Township.
- G. “BUILDING SEWER” shall mean the piping carrying liquid wastes from a building to the treatment tank or holding tank.
- H. “CESSPOOL” shall mean a covered pit with open jointed lining which receives sewage or other organic wastes directly from a building drain or building sewer and which retains and allows liquid waste to pass through the bottom and sides of the pit. This is an antiquated sewage system that predates DEP standards at 25 Pa. Code § 73.
- I. “CODES ENFORCEMENT OFFICER” shall mean an individual employed by Solebury Township to administer and enforce ordinances of the Township.
- J. “COMMUNITY ONLOT SEWAGE SYSTEM” shall mean a community sewage system, which uses a system of piping, tanks or other facilities for collecting, treating or disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank.
- K. “COMMUNITY SEWAGE SYSTEM” shall mean a sewage facility, whether publicly or privately owned, for the collection of sewage from two or more lots, or two or more equivalent dwelling units, and the treatment and/or disposal of the sewage on one or more of the lots or at another site.
- L. “CONVENTIONAL SEWAGE SYSTEM” shall mean a system employing the use of demonstrated onlot sewage treatment and disposal technology in a manner specifically recognized by the Pennsylvania Sewage Facilities Act. The term refers to individual and community onlot sewage systems, including sand mounds but does not include alternate or experimental sewage systems.
- M. “DEP” shall mean the Department of Environmental Protection of the Commonwealth of Pennsylvania or any successor agency.
- N. “DOSING PUMP” shall mean the pump housed in a dosing tank which provides a measured volume of sewage effluent to a pressurized distribution system in an absorption area.
- O. “EQUIVALENT DWELLING UNIT (EDU)” shall mean the number of lots in a subdivision for the purpose of determining planning exemptions and fees for planning module reviews; or that part of multiple family dwellings, and commercial, industrial or institutional establishments with sewage flows equal to 400 GPD. EDUs shall be rounded up to whole numbers.
- P. “EXPERIMENTAL SEWAGE SYSTEM” shall mean a method of onlot sewage treatment and disposal not included in the Act and which is proposed for the purposes of testing and observation.
- Q. “INDIVIDUAL ONLOT SEWAGE SYSTEM” shall mean an individual sewage system serving a single lot that uses a system of piping, tanks or other facilities for collecting, treating or disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank.
- R. “INDIVIDUAL RESIDENTIAL SPRAY IRRIGATION SYSTEM (IRSIS)” shall mean an individual sewage system which serves a single dwelling and which treats and disposes of sewage

using a system of piping, treatment tanks and soil renovation through spray irrigation. IRSIS systems are permitted by DEP.

- S. “INDIVIDUAL SEWAGE SYSTEM” shall mean a system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of the Commonwealth of Pennsylvania or by means of conveyance to another site for final disposal.
- T. “LAND DEVELOPMENT” shall mean a land development as defined in the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended, 53 P.S. Section 10101 *et seq.*
- U. “LOCAL AGENCY” shall mean the entity to which DEP has delegated the authority to administer the new land development planning and sewage facilities permitting provisions of the Act. The Local Agency for Solebury Township is the Bucks County Department of Health.
- V. “LOT” shall mean a part of a subdivision or a parcel of land used as a building site or intended to be used for building purposes, whether immediate or future, which would not be further subdivided. Whenever a lot is used for a multiple family dwelling or for commercial, institutional or industrial purposes, an EDU value shall be assigned, as determined by an estimate of sewage flows.
- W. “MAINTENANCE” shall mean those actions required to provide for the long term proper functioning of an onlot sewage system, including, but not limited to, pumping septage from a septic tank, cesspool or dry well and pump tank; cleaning, pumping or leveling of distribution box; removal of trees or other growth affecting the operation of an onlot sewage system; diversion of surface water away from an onlot sewage system; and reduction of flow from the structure being served, such as installation of water conservation devices.
- X. “MALFUNCTION” shall mean the condition which occurs when an onlot sewage disposal system discharges inadequately treated sewage onto the surface of the ground, into the groundwater or surface waters, or causes the contamination of private or public drinking water supplies, nuisance problems or hazard to public health. Systems shall be considered to be malfunctioning if any condition noted occurs for any length of time during any time of the year. Indications of malfunctioning systems include, but are not limited to, foul odors, lush grass growing over the onlot sewage system, overflow of any component, backup of wastewater in the attached buildings, soggy ground over the onlot sewage system, or surfacing sewage effluent flowing over the ground.
- Y. “OFFICIAL SEWAGE FACILITIES PLAN” shall mean a comprehensive plan for the provision of adequate sewage systems, adopted by Solebury Township and approved by DEP in accordance with the Act and with applicable DEP regulations.
- Z. “ONLOT SEWAGE DISPOSAL SYSTEM” shall mean any sewage system for disposal of domestic sewage involving pretreatment and subsequent disposal of clarified sewage into a subsurface soil absorption area or retaining tank. The term refers to both individual and community sewage systems.
- AA. “ONLOT SEWAGE SYSTEM REGISTRATION” shall mean the form made available by Solebury Township to property owners to register their on-lot sewage system with the Township.

- BB. “OWNER” shall mean any person, corporation, partnership, etc. holding deed/title to lands within Solebury Township.
- CC. “PERSON” shall mean any individual, association, partnership, public or private corporation for profit or not-for-profit, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority, or any other legal entity whatsoever is recognized by law as the subject of rights and duties. Whenever the term person is used in connection with any clause prescribing and imposing a penalty or imposing a fine or imprisonment, the term person shall include the members of an association, partnership or firm and the officers of any local agency or municipal, public or private corporation for profit or not-for-profit.
- DD. “PLANNING MODULE FOR NEW LAND DEVELOPMENT” shall mean a supplement, revision to, or exception to the revision of Solebury Township’s Official Sewage Facilities Plan submitted in accordance with DEP requirements and as required for approval of a subdivision or land development plan.
- EE. “PUMPER/HAULER” shall mean any person who engages in cleaning or pumping out individual or community onlot sewage systems and who transports the septage removed from these sewage systems for disposal, as licensed by the Bucks County Department of Health.
- FF. “PUMPER’S REPORT” shall mean the form used by the licensed pumper/hauler to report pumping of an onlot sewage system.
- GG. “REHABILITATION OR REPAIR” shall mean work done to modify, alter, relocate, repair, enlarge or replace all or part of an existing onlot sewage system including filters, pumps and connecting lines.
- HH. “REPLACEMENT AREA” shall mean an area designated as the future location of an individual onlot sewage system that shall be installed should the originally-installed individual onlot sewage system fail or otherwise become inoperable and which shall meet all the regulations of DEP and all applicable Township ordinances for an individual onlot sewage disposal system, and shall be protected from encroachment by an easement recorded on the Final Plan as filed with the Bucks County Recorder of Deeds.
- II. “RETAINING TANK” shall mean a watertight receptacle that receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site. The term includes the following:
 - 1. Chemical toilet: A permanent or portable non-flushing toilet using chemical treatment in the retaining tank for odor control.
 - 2. Holding tank: A tank, whether permanent or temporary, to which sewage is conveyed by a water-carrying system.
 - 3. Privy: A tank designed to receive sewage where water under pressure is not available.
 - 4. Incinerating toilet: A device capable of reducing waste materials to ashes.
 - 5. Composting toilet: A device for holding and processing human and organic kitchen waste employing the process of biological degradation through the action of microorganisms to produce a stable, humus-like material.

6. Recycling toilet: A device in which the flushing medium is restored to a condition suitable for reuse in flushing.
- JJ. “SEPTAGE” shall mean the residual scum and sludge pumped from an onlot sewage system comprised of a septic tank.
- KK. “SEWAGE” shall mean a substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals; a substance harmful to the public health, to animal or aquatic life, or to the use of water for domestic water supply or for recreation; or a substance which constitutes pollution under the Pennsylvania Clean Streams Law at 35 P.S. §§ 691.1—691.1001.
- LL. “SEWAGE ENFORCEMENT OFFICER (SEO)” shall mean a person certified by the Pennsylvania Department of Environmental Protection in accordance with 25 Pa. Code § 71, Administration of Sewage Facilities Program, to perform percolation tests, site and soil evaluations, and review and issue sewage permits for onlot sewage disposal systems. The Sewage Enforcement Officer for Solebury Township is provided by the Bucks County Health Department.
- MM. “SEWAGE MANAGEMENT PROGRAM (SMP)” shall mean a comprehensive set of legal and administrative requirements encompassing the requirements of this Ordinance, the Sewage Facilities Act, the Clean Streams Law, the regulations promulgated thereunder and such other regulations adopted by Solebury Township to effectively enforce and administer this Ordinance.
- NN. “SMALL FLOW TREATMENT FACILITY (SFTF)” shall mean an individual or community sewage system designed to adequately treat sewage flows not greater than 2,000 gallons per day (GPD) for final disposal using a stream discharge or other methods approved by DEP.
- OO. “SPRAY FIELD” shall mean piping, spray heads and ground surface to the outside edges of the wetted perimeter, used for the application and treatment of the sewage effluent from an individual residential spray irrigation system.
- PP. “SUBDIVISION” shall mean a division of a lot, tract or other parcel of land as defined by the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended, 53 P.S. Section 10101 *et seq.*
- QQ. “TOWNSHIP” shall mean Solebury Township, Bucks County, Pennsylvania, its Board of Supervisors, their designated officials or authorized agent.
- RR. “WATERS OF THIS COMMONWEALTH” shall mean rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and other bodies and channels of conveyance of surface or underground water, or any of their parts, whether natural or artificial within or on the boundaries of this Commonwealth.

Section III. Applicability

- A. From the effective date of this ordinance, its provisions shall apply to all persons owning any property served by an individual or community onlot sewage disposal system and to all persons installing, servicing or rehabilitating onlot sewage disposal systems.

Section IV. Permit Requirements

- A. No person shall install, construct, or rehabilitate, or solicit proposals for the installation, construction or rehabilitation of an individual or community onlot sewage system, or occupy any building or structure for which an individual or community onlot sewage system is to be installed without first obtaining a permit from the Bucks County Department of Health. The permit shall indicate that the site and the plans and specifications of the system comply with the provisions of the Clean Streams Law, the Pennsylvania Sewage Facilities Act and the regulations adopted pursuant to those Acts.
- B. Systems or structures designed to provide individual or community sewage disposal shall not be covered from view until approval to cover the same has been given by the Bucks County Department of Health.
- C. Applicants for individual or community sewage system permits shall notify the Bucks County Department of Health of the schedule for construction of the permitted onlot sewage disposal system so the inspections, in addition to the final inspection required by the Act, may be scheduled and performed by the Bucks County Department of Health.
- D. No building or occupancy permit shall be issued by the Township or its codes enforcement officer for a new building which will contain sewage generating facilities until a valid sewage permit has been obtained from the Bucks County Department of Health.
- E. No building or occupancy permit shall be issued by the Township, and no work shall begin on any alteration or conversion of any existing structure, if said alternation or conversion will result in the increase or potential increase in sewage flows from the structure, until approval of use of the existing sewage system has been received from the Bucks County Department of Health. The Township should receive notification from the Bucks County Department of Health of all sewage permits reviewed and issued in Solebury Township.
- F. Individual or community sewage disposal permits may be issued only by a Sewage Enforcement Officer employed by the Bucks County Department of Health in Solebury Township per the requirements of 25 Pa. Code § 72.
- G. No contractor shall install, construct or rehabilitate or alter an individual or community sewage disposal system without verifying that the property owner has complied with the provisions of this Ordinance.
- H. Ten acre exemptions are not permitted. These properties shall obtain a permit indicating that the onlot sewage disposal system meets the construction requirements of the Pennsylvania Sewage Facilities Act 537 as identified in 25 Pa. Code § 72.22 (e) and (f).
- I. The planning, design, siting, construction, maintenance, repair and replacement of any onlot sewage disposal system shall be conducted in accordance with the requirements found at 25 Pa. Code § 73.

Section V. Replacement Areas

- A. Replacement areas are needed if the primary onlot sewage disposal area fails and presents a significant threat to human health. The requirement for and protection of replacement areas provide minimum standards for the prevention and suppression of disease and health risks associated with the use of onlot sewage disposal systems.
- B. A replacement area shall be defined for all new or proposed lots that will not be served by public sewer. The replacement area shall comply with all isolation distances required by DEP in accordance with 25 Pa. Code § 73 and with Solebury Township requirements.
- C. The proposed lot must have sufficient suitable area for the proposed primary onlot sewage disposal system as well as 100% reserve replacement area in the event of a failure of the primary onlot sewage disposal system. The proposed replacement area shall be protected and reserved for future use as an absorption area with similar design and configuration as the primary onlot sewage disposal system for potential repair or replacement of the primary onlot sewage disposal system. The replacement area shall meet DEP criteria and be tested and receive soil suitability approval by Bucks County Department of Health at the same time as the primary area.
- D. A holding tank shall not be designed as a replacement area.
- E. Areas reserved for primary and replacement onlot sewage disposal sites may not have driveways, parking areas or structures constructed over them. A Declaration of Restrictions shall be recorded by the Bucks County Recorder of Deeds stating that the replacement area shall not be graded or disturbed, that no permanent or temporary improvements of any character shall be constructed thereon, and that no plant material shall be established within the replacement area other than shallow-rooted plant material. A plan depicting the replacement area shall be recorded with the Declaration of Restrictions.
- F. Any person who desires to construct improvements within the replacement area shall demonstrate to the satisfaction of the Bucks County Department of Health and Solebury Township that an alternate replacement area location, which complies with DEP and Township requirements, exists upon the lot. If the substituted replacement area is acceptable, a Declaration of Restrictions shall be recorded by the Bucks County Recorder of Deeds designating the new replacement area location and vacating the original replacement area.
- G. No building permit shall be issued for any lot on which onlot sewage disposal is proposed unless a replacement area is designated in accordance with the terms of this Ordinance.

Section VI. Inspections

- A. Any onlot sewage disposal system may be inspected by the Township or its authorized agent at any reasonable time as of the effective date of this Ordinance.
- B. The Township or its authorized agent will provide advance notification to the resident/owner of the Township's intent to inspect an onlot sewage disposal system. The resident/owner may or may not be present during the inspection, at the resident's/owner's discretion.
- C. Such inspection may include a physical tour of the property, the taking of samples from surface water, wells, other groundwater sources, the sampling of the contents of the sewage disposal system itself and/or the introduction of a traceable substance into the interior plumbing of the

structure served to ascertain the path and ultimate destination of wastewater generated in the structure. A copy of the inspection report shall be furnished to the property owner.

- D. An authorized agent shall have the right to enter upon land for the purposes of inspections described in this section. In the event that access to inspect the property is denied, the Township shall be authorized to take such steps as are appropriate to secure access to the property for the purpose of determining compliance with the terms and conditions of this Ordinance. Such steps shall include, but not be limited to, the seeking of an administrative search warrant from the appropriate judicial official.

Section VII. Operation

- A. In accordance with the requirements of 25 Pa. Code § 73, only normal domestic wastewater including kitchen, bathroom, laundry and softener backwash wastewater shall be discharged into onlot sewage disposal systems. The following shall not be discharged into onlot sewage disposal systems:
 - 1. Industrial waste.
 - 2. Automobile oil and other non-domestic oil.
 - 3. Toxic or hazardous substances or chemicals including, but not limited to, pesticides, disinfectants (excluding household cleaners), acids, paints, paint thinners, herbicides, gasoline and other solvents.
 - 4. Clean surface or ground water, including water from roof or cellar drains, springs, basement sump pumps and French drains.
 - 5. Any nonbiodegradable materials.
 - 6. Backflow from the absorption area following or during pumping out of the onlot sewage disposal system.
 - 7. Surface discharges, ponding or other signs of malfunction in the vicinity of the absorption area.
- B. All new construction served by onlot sewage disposal systems shall be required to install water conservation devices and fixtures in compliance with the provisions of the Pennsylvania Uniform Construction Code and Resolution No. 88-2 Revision No. 2 of the Delaware River Basin Commission. Any existing malfunctioning onlot sewage disposal system may also be required to install water conservation devices and fixtures to improve the performance of such malfunctioning systems.
- C. The use of garbage disposals connected to onlot sewage disposal systems in Solebury Township is prohibited for new construction and is strongly discouraged for existing onlot sewage disposal systems, as garbage disposals may increase solids in the treatment tank which requires more frequent pumping or they may cause malfunctioning of the onlot sewage disposal system.

Section VIII. Maintenance

- A. All onlot sewage disposal systems shall be inspected and pumped out by a licensed pumper/hauler selected by the property owner at least once every three (3) years or whenever an inspection reveals that the treatment tanks are filled with solids or scum in excess of one-third of

the liquid depth of the tank. The 3-year period begins for new onlot sewage disposal systems on the date when the onlot sewage disposal system is approved for use by the Bucks County Department of Health. Existing onlot sewage disposal systems shall begin their 3-year pumping schedule within 12 months of the date the notification letter from the Township is postmarked.

- B. The property owner of an onlot sewage disposal system is responsible for providing a copy of the pumper/hauler receipt to Solebury Township within thirty (30) days of the date of the pumping.
- C. Sand filters that are part of IRSIS, SFTF or other approved onlot sewage disposal systems shall be inspected and repaired, as necessary, at least once every year.
- D. Any non-routine maintenance or repairs performed on an onlot sewage disposal system must be reported to the Bucks County Department of Health and Solebury Township by the property owner for approval prior to initiating such maintenance or repairs.
- E. Surface contouring (grades) and other measures consistent with 25 Pa. Code §73 shall be maintained to divert stormwater away from treatment facilities and absorption areas and protect absorption areas from physical damage.
- F. Where applicable, pursuant to Section XI of this Ordinance, the onlot sewage disposal system shall be maintained in accordance with provisions of the Operation and Maintenance Agreement executed for the onlot sewage disposal system.
- G. Emergency repair or replacement of onlot sewage disposal system components without prior approval or permit from the Bucks County Department of Health shall be limited to pumping of a septic tank, tight tank or cesspool as frequently as necessary to prevent backup or breakout of the system.

Section IX. System Rehabilitation

- A. No person shall operate and maintain an onlot sewage disposal system in such a manner that it malfunctions, as determined by the Bucks County Department of Health. All liquid wastes, including kitchen and laundry wastes and water softener backwash, shall be discharged to a treatment tank. No sewage system shall discharge untreated or partially treated sewage to the surface of the ground or into the waters of the Commonwealth unless a permit to discharge has been obtained from DEP.
- B. If the Bucks County Department of Health identifies a malfunction of an onlot sewage disposal system, the property owner shall make application to the Bucks County Department of Health for approval to repair, rehabilitate or replace the malfunctioning system. Such repairs, rehabilitation or replacement may include: cleaning, repair or replacement of components of existing onlot sewage disposal system; adding capacity or otherwise altering or replacing the onlot system's treatment tank; expanding or replacing the existing disposal area; replacing a gravity distribution system with a pressurized system; and such other alternatives as appropriate for the specific site.
- C. If a property with a malfunctioning onlot sewage disposal system abuts or fronts an existing municipal sewer system, the Bucks County Department of Health may require the property owner to connect to the municipal sewer system at the property owner's sole expense. In this case, the Bucks County Department of Health may not approve the repair of the malfunctioning onlot sewage disposal system.

- D. Solebury Township will notify the Bucks County Department of Health if Township staff observes any malfunction of an onlot sewage disposal system within the Township.
- E. The Bucks County Department of Health will provide copies of all approvals issued for the repair or replacement of malfunctioning onlot sewage disposal systems to Solebury Township.

Section X. On-Lot Sewage Disposal System Alternatives

- A. All proposed and existing lots in Solebury Township shall employ either individual or community sewage disposal. The highest priority sewage disposal alternative in accordance with paragraph IX.B that can be administratively and technically implemented on the property shall be utilized. If sewage disposal cannot be provided by a higher rank alternative than proposed, the applicant shall submit a written explanation of the reasons why the lot is not suitable for a higher ranked disposal option, and include appropriate supporting data. A decrease in the number of dwelling units and/or business establishments that could be served by one of the sewage disposal alternatives on the subject property shall not constitute a valid reason why a higher ranked alternative is not utilized in favor of a lower priority alternative.
- B. Onlot Sewage Disposal Priority Alternatives ranked from High to Low are shown on Table 1.

Table 1. Onlot Sewage Disposal Priority Alternatives	
1	Individual Onlot Subsurface Sewage Disposal
2	Individual Onlot Elevated or At-Grade Sand Mound Bed
3	Individual Onlot Residential Spray Irrigation System
4	Individual Onlot Alternate System
5	Community Onlot Subsurface Sewage Disposal
6	Community Onlot Elevated or At-Grade Sand Mound Bed
7	Community Onlot Spray Irrigation System
8	Experimental System or Other System Not Listed Above
9	Holding Tank per BCDH and DEP Requirements

Section XI. Liens

- A. Solebury Township, upon written notice from the Bucks County Department of Health that an imminent health hazard exists due to failure of a property owner to maintain, repair or replace an onlot sewage disposal system, shall have the authority to perform or contract to have performed, the work required by the Bucks County Department of Health. The property owner shall be charged for the work performed and, if necessary, a lien shall be recorded in accordance with law.

Section XII. Disposal of Septage

- A. All septage pumper/haulers operating within Solebury Township shall be licensed by the Bucks County Department of Health and/or DEP, as applicable.
- B. All septage originating within Solebury Township shall be disposed of at sites or facilities approved by DEP. Approved sites or facilities shall include the following: septage treatment facilities, wastewater treatment plants, composting sites and approved farm lands.

Section XIII. Operation and Maintenance Agreements

- A. All owners of property or persons proposing to utilize an individual residential spray irrigation system, small flow treatment facility, alternate or experimental sewage disposal facility, or onlot sewage disposal system on a site containing marginal site conditions, shall execute a sewage facilities Operation and Maintenance Agreement with Solebury Township. Such Agreement will contain system specific requirements for the proposed system type.
- B. The Operation and Maintenance Agreement shall provide for the deposit of a nonrefundable fee to Solebury Township for administration and future compliance monitoring; and shall further provide for sufficient financial security to guarantee the proper operation and maintenance of the proposed facility in accordance with the Pennsylvania Sewage Facilities Act, which may include, cash, Letter of Credit, or other Township-approved financial security. The amount of financial security shall be established by the Township and is subject to revision from time to time by adoption of a Resolution of the Board of Supervisors.
- C. Prior to adoption of an Operation and Maintenance Agreement by the Township, the property owner shall accomplish the following:
 - 1. Owner shall furnish verification in writing from the Bucks County Department of Health indicating that the site complies with design standards in accordance with 25 Pa. Code § 73 for installation of an onlot-sewage disposal system as proposed.
 - 2. Three (3) copies of the design and site plan for the proposed onlot sewage disposal system, including details associated with required maintenance of the system, shall be provided to the Township. Owner shall furnish permit information to the Township for a small flow treatment facility upon receipt from DEP.
 - 3. A fee and escrow, in an amount established by separate Resolution of the Board of Supervisors and as amended from time to time, shall be deposited with the Township for review of the submitted design and site plan and for preparation of the Operation and Maintenance Agreement.
 - 4. Financial security, as required by the Operation and Maintenance Agreement, will be held by the Township and used only in the event the Township is required to perform any services, or pay for any services, relative to administering the Operation and Maintenance Agreement. Such financial security shall be deposited by the owner in a form acceptable to the Township.
- D. If a property owner that has a sewage facilities Operation and Maintenance Agreement with Solebury Township proposes to sell the property containing such sewage facilities, the Owner shall provide the Buyer with a copy of the Township maintenance requirements and the maintenance and repair record for the sewage facilities. In addition, any Sale Agreement for the purchase of a property containing sewage facilities as defined under this Ordinance shall contain the Buyer's acknowledgement of receipt of the Operation and Maintenance Agreement for said property.

Section XIV. Administration

- A. The Township shall fully utilize those powers it possesses through enabling statutes and ordinances to effect the purposes of this Ordinance.

- B. The Township shall employ qualified individuals to carry out the provisions of this Ordinance. While the sewage enforcement officer represents the Bucks County Department of Health, the Township may employ a codes enforcement officer, secretary, administrator or other persons as required. The Township may also contract with private qualified persons or firms as necessary to carry out the provisions of this Ordinance.
- C. The Township shall establish all administrative procedures necessary to properly carry out the provisions of this Ordinance.
- D. The Township may establish a fee, by Resolution of the Board of Supervisors, the purpose of which is to defray the costs of the onlot sewage management program as set forth in this Ordinance.

Section XV. Appeals

- A. Appeals from decisions of the Township or its authorized agents under this Ordinance shall be made to the Township in writing within thirty (30) days from the date of the decision in question.
- B. The person appealing shall be entitled to a hearing before the Township within thirty (30) days of receipt of the appeal. The hearing shall be conducted in accordance with the provisions of the Pennsylvania Local Agency Act. The hearing may be postponed for a good cause shown by the appellant or the Township. Additional evidence may be introduced at the hearing provided that it is submitted with the written notice of appeal. The Township shall thereafter affirm, modify or reverse the aforesaid decision.
- C. A decision shall be rendered in writing by the Township within forty-five (45) days of the date of the hearing. If a decision is not rendered within forty-five (45) days, the release sought by the appellant shall be deemed granted.
- D. Any person aggrieved by a decision of the Board of Supervisors under this Ordinance may file an appeal to the Court of Common Pleas of Bucks County within thirty (30) days after such decision from the Board of Supervisors.

Section XVI. Penalties

- A. Any person failing to comply with any provisions of this Ordinance shall be given notice by the Township of the non-compliance. The person will be given sixty (60) days to comply with this Ordinance.
- B. After sixty (60) days, any person continuing to fail to comply with this Ordinance shall be subject to a fine of not less than Five Hundred dollars (\$500) plus costs, including reasonable attorney fees incurred by the Township. Each day of noncompliance shall constitute a separate violation. No judgment shall commence or be imposed, levied or payable until the date of the determination of the violation by the District Magistrate. If the responsible party neither pays judgment nor files a timely appeal, the Township may enforce the judgment pursuant to applicable Rules of Civil Procedure.
- C. All fines, penalties and costs collected for the violation of this Ordinance shall be paid over to the Township. Proceedings for the violation of this Ordinance and for the collection of fines and penalties imposed thereby may be commenced by warrant or by summons at the discretion of the District Magistrate before whom the proceedings is begun.

Section XVII. Repealer

- A. If any section or clause of this Ordinance shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions which shall be deemed severable therefrom.

Section XVIII. Severability

- A. If any section or clause of this Ordinance shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions which shall be deemed severable therefrom.

Section XIX. Effective Date

This Ordinance shall become effective immediately after its adoption.

ENACTED and ORDAINED this ____ day of _____, 2012.

ATTEST:

**BOARD OF SUPERVISORS OF
SOLEBURY TOWNSHIP**

Exhibit V-2

Alternate Systems

APPENDIX 1

System Summary Alternate Systems*

SYSTEM	SITING CRITERIA	
Peat Based Systems		
Peat Based System Limiting Zone \geq 20 Inches Option 1	Depth to Rock	\geq 20 inches
	Depth to Water Table	\geq 20 inches
	Slope	0 - 12 percent
	Percolation Rates	3 - 180 min/in.
	Other	May reduce size of absorption area by up to 40 percent with perc rate up to 60 min/in.
Peat Based System Limiting Zone < 20 Inches Option 1	Depth to Rock	\geq 16 inches
	Depth to Water Table	\geq 10 inches
	Slope	0 - 12 percent
	Percolation Rates	None - Soil morphological testing.
	Other	Need soil scientist to evaluate soils and provide design criteria.
	Disinfection	UV Disinfection Required.
Peat Based System Option 2 (IRSIS)	Depth to Rock	\geq 16 inches
	Depth to Water Table	\geq 10 inches
	Slope	0 - 25 percent
	Percolation Rates	None
	Other	Use in place of sand filter in IRSIS.
Peat Based System Limiting Zone \geq 72 Inches Option 3	Depth to Rock	\geq 72 inches
	Depth to Water Table	\geq 72 inches
	Slope	0 - 12 percent
	Percolation Rates	> 90 min/in. @ 12 - 36 inches 3 - 90 min/in. @ 36 - 60 inches
	Other	For use in place of 12 inches of sand in a subsurface sand filter.
Free Access Gravity Sand Filter (with options other than IRSIS)	Depth to Rock	\geq 20 inches
	Depth to Water Table	\geq 20 inches
	Slope	0 - 25 percent
	Percolation Rates	3 - 180 min/in.
Free Access Gravity Sand filter (with IRSIS)	Depth to Rock	\geq 16 inches
	Depth to Water Table	\geq 10 inches
	Slope	0 - 25 percent
	Percolation Rates	none
CO-OP RFS III Limiting Zone \geq 20 Inches	Depth to Rock	\geq 20 inches
	Depth to Water Table	\geq 20 inches
	Slope	0 - 25 percent
	Percolation Rates	3 - 180 min/in.
	Disinfection	UV Disinfection required.

*Refer to complete listing for specific conditions related to each system.

**System Summary
Alternate Systems***

(Continued)

SYSTEM	SITING CRITERIA	
CO-OP RFS III Limiting Zone < 20 Inches	Depth to Rock	≥ 16 inches
	Depth to Water Table	≥ 10 inches
	Slope	0 - 12 percent
	Percolation Rates	None - Soil morphological testing.
	Other	Need soil scientist to evaluate soils and provide design criteria.
	Disinfection	UV Disinfection required.
CO-OP RFS III System (with IRSIS)	Depth to Rock	≥ 16 inches
	Depth to Water Table	≥ 10 inches
	Slope	0 - 25 percent
	Percolation Rates	none
At-grade Bed System	Depth to Rock	≥ 48 inches
	Depth to Water Table	≥ 48 inches
	Slope	0 - 12 percent
	Percolation Rates	3 - 180 min/in.
	Other	Design may be modified based on application (see specific listings).
Modified Subsurface Sand Filter for Fast Percolation Shallow Bedrock Sites with No Water Table Present	Soil Depth	≥ 72 inches and additional criteria
	Slope	≤ 8 percent
	Percolation Rates	< 3 min/in. at 12 - 36 inches 3 - 180 min/in. at 36 - 60 inches
Shallow Placement Pressure Dosed Systems	Depth to Rock	≥ 58 inches
	Depth to Water Table	≥ 58 inches
	Slope	0 - 25 percent
	Percolation Rates	3 - 180 min/in.
Drip Irrigation System	Depth to Rock	≥ 20 inches
	Depth to Water Table	≥ 20 inches
	Slope	0 - 25 percent
	Percolation Rates	None unless soil scientist requests
	Other	Need soil scientist to evaluate soils and provide design criteria.
Steep Slope ESM (Slope 12 - 15%, Perc Rate 3 - 30 min/in.)	Depth to Rock	≥ 20 inches
	Depth to Water Table	≥ 20 inches
	Slope	≥ 12 percent and ≤ 15 percent
	Percolation Rates	3 - 30 min/in.
	Other	≤ 600 gpd

*Refer to complete listing for specific conditions related to each system.

**System Summary
Alternate Systems***

(Continued)

SYSTEM	SITING CRITERIA	
A/B Soil System Limiting Zone \geq 20 Inches	Depth to Rock	\geq 20 inches
	Depth to Water Table	\geq 20 inches
	Slope	\leq 12 percent
	Percolation Rates	3 - 180 min/in.
	Other	Conditions dependent on final treatment option chosen.
A/B Soil System Limiting Zone $<$ 20 Inches	Depth to Rock	\geq 16 inches
	Depth to Water Table	\geq 10 inches
	Slope	0 - 12 percent
	Percolation Rates	None - Soil morphological testing.
	Other	Need soil scientist to evaluate soils and provide design criteria.
	Disinfection	UV Disinfection required.
Non-Infiltration, Evapotranspiration Bed Contained Within a Greenhouse	Depth to Rock	Any - Non-soil-based System
	Depth to Water Table	Any - Non-soil-based System
	Slope	Any - Non-soil-based System
	Percolation Rate	Any - Non-soil-based System

*Refer to complete listing for specific conditions related to each system.

Exhibit V-3
Onlot System
Component Matrix

Onlot System Component Matrix

Absorption Area	Component Classification and Secondary / Advanced Treatment Options	Slope	Minimum Suitable Soil Depth to a Seasonal High-Water Table Limiting Zone	Minimum Suitable Soil Depth to a Rock Limiting Zone	Percolation Rate
Seepage Bed	<p style="text-align: center;">Conventional</p> <p style="text-align: center;">Alternate</p> 1) Peat filter 2) Free-access gravity sand (media) filter 3) CO-OP RFS III recirculating filter with UV light	0-8%	60 inches ⁽¹⁾	60 inches ⁽¹⁾	6-90 minutes per inch (If perc reading is 6-60 minutes per inch, up to 40 percent reduction in absorption area may be taken with peat filter only.)
Standard Trenches	<p style="text-align: center;">Conventional</p> <p style="text-align: center;">Alternate</p> 1) Peat filter 2) Free-access gravity sand (media) filter 3) CO-OP RFS III recirculating filter with UV light	0-25%	60 inches ⁽¹⁾	60 inches ⁽¹⁾	6-90 minutes per inch (If perc reading is 6-60 minutes per inch, up to 40 percent reduction in absorption area may be taken with peat filter only.)
Elevated Sand Mound Bed	<p style="text-align: center;">Conventional</p> <p style="text-align: center;">Alternate</p> 1) Peat filter 2) Free-access gravity sand (media) filter 3) CO-OP RFS III recirculating filter with UV light	0-12%	20 inches ⁽¹⁾	20 inches ⁽¹⁾	3-180 minutes per inch (If perc reading is 3-60 minutes per inch, up to 40 percent reduction in absorption area may be taken with peat filter only.)

Elevated Sand Mound Trenches	<p>Conventional</p> <p>Alternate</p> <p>1) Peat filter 2) Free-access gravity sand (media) filter 3) CO-OP RFS III recirculating filter with UV light</p>	0-12%	20 inches ⁽¹⁾	20 inches ⁽¹⁾	3-180 minutes per inch (If perc reading is 3-60 minutes per inch, up to 40 percent reduction in absorption area may be taken with peat filter only.)
Subsurface Sand (Media) Filter Bed	Conventional	0-8%	72 inches ⁽¹⁾	72 inches ⁽¹⁾	>90 minutes per inch at 12 to 36 inches and 3-90 minutes per inch at a depth between 36 and 60 inches
Subsurface Sand (Media) Filter Trenches	Conventional	0-25%	72 inches ⁽¹⁾	72 inches ⁽¹⁾	>90 minutes per inch at 12 to 36 inches and 3-90 minutes per inch at a depth between 36 and 60 inches
IRSYS	<p>Conventional</p> <p>Alternate</p> <p>1) Free-access gravity sand (media) filter 2) Peat filter 3) CO-OP RFS III recirculating filter with UV light</p>	<p>0-4% Agriculture 0-12% Grassed 0-25% Forested</p>	10 inches	16 inches	Test not required
At-Grade Absorption Area	Alternate	0-12%	<p>1) 48 inches ⁽¹⁾ 2-5) 20 inches</p>	<p>1) 48 inches ⁽¹⁾ 2-5) 20 inches</p>	<p>1) 3-180 minutes per inch 2) 3-180 minutes per inch</p> <p>3) 3-60 minutes per inch (Up to 40 percent reduction in absorption area can be taken, but new proposals must prove a full area is available.)</p> <p>61-180 minutes per inch (No reduction in absorption area for new structures; repair situations must maximize system sizing up to the square footage of a full-size system.)</p>

At-Grade Absorption Area (<i>cont.</i>)	4) CO-OP RFS III recirculating filter with UV light 5) Recirculating subsurface sand (media) filter with UV light				4) 3-180 minutes per inch 5) 3-180 minutes per inch
Shallow Limiting Zone At-Grade Absorption Area	Alternate 1) Peat filter with UV light 2) CO-OP RFS III recirculating filter with UV light 3) Recirculating subsurface sand (media) filter with UV light	0-12%	10 inches	16 inches	A soil scientist must do a soil morphological evaluation.
Drip Irrigation	Alternate 1) Intermittent sand (media) filter (free access or buried) 2) Free access gravity sand (media) filter 3) Aerobic tank (primary & secondary treatment) 4) Peat filter 5) CO-OP RFS III recirculating filter with UV light	0-25%	20 inches	Must be 20 inches minimum below drip tubing	A soil scientist must do a soil morphological evaluation.
Conventional Subsurface Sand (Media) Filter Bed or Trenches (12 inches of sand may be eliminated in bed)	Alternate Peat filter	0-8% Bed 0-25% Trenches	72 inches	72 inches	>90 minutes per inch at 12 to 36 inches and 3-90 minutes per inch at a depth between 36 and 60 inches
Modified Subsurface Sand (Media) Filter for Fast Percolation, Shallow Bedrock Sites With No Water Table Present	Alternate	0-8% (only beds permitted)	72 inches ⁽¹⁾	See Alternate Guidance Section 10 for explanation for LZ of rock with open joints. 72 inches ⁽¹⁾ – Slowly permeable rock formation or other	<3 minutes per inch at 12 to 36 inches and 3-180 minutes per inch at a depth between 36 and 60 inches

				stratum	
Shallow Placement Pressure-Dosed System	Alternate	0-8% Beds 0-25% Trenches	58 inches ⁽¹⁾	58 inches ⁽¹⁾	6-90 minutes per inch
Steep Slope Elevated Sand Mound Beds	Alternate	≥12-≤15%	20 inches ⁽¹⁾	20 inches ⁽¹⁾	3-30 minutes per inch
Evapotranspiration Bed within a Greenhouse	Alternate	No requirements	No requirements	No requirements	No requirements
Leaching Chambers as aggregate substitute in seepage bed or trenches, elevated sand mound bed or trenches, subsurface sand (media) filter bed or trenches	Alternate	Must meet the absorption area regulatory requirements.	Must meet the absorption area regulatory requirements.	Must meet the absorption area regulatory requirements.	Must meet the absorption area regulatory requirements. (Up to a 40 percent reduction in absorption area may be taken in some cases. See Alternate Guidance.)
Individual Designed Composting Toilet	Experimental	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater.
Graywater System (with the use of a waterless toilet)	Experimental	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater.	Must meet the absorption area regulatory requirements to dispose of the graywater. (Up to a 40 percent reduction in absorption area may be taken in some cases. See Alternate Guidance.)
Flow Equalization (for facilities with regular, predictable, fluctuating flows; alternating high and low flows)	Experimental	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements. The absorption area must be sized for the controlled daily flow volume plus 15 to 20 percent.
Alternate Aggregates: 1) Round, natural, "Type C," coarse aggregate or tire chip aggregate	Alternate	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements.	Must meet the appropriate absorption area regulatory requirements.

2) Glass cullet aggregate					
3) Alternate fine aggregate (sand) – recycled glass fine aggregate					

⁽¹⁾ The top of the limiting zone must be at least four feet below the bottom of the absorption area aggregate.

**Exhibit V-4
Retaining Tank
Ordinance**

ORDINANCE - _____

AN ORDINANCE GOVERNING
MUNICIPAL MANAGEMENT OF RETAINING TANKS IN
SOLEBURY TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

BE IT ENACTED AND ORDAINED by the Board of Supervisors of Solebury Township of Bucks County, Pennsylvania, and it is hereby enacted and ordained as follows:

Section 1. Purpose

The purpose of this Ordinance is to establish procedures for the use and maintenance of existing and new retaining tanks designed to receive and retain sewage whether from residential, commercial, institutional, recreational or other uses. It is hereby declared that the enactment of this Ordinance is necessary for the protection, benefit and preservation of the health, safety and welfare of the inhabitants of this Township.

Section 2. Definitions

Unless the context specifically and clearly indicates otherwise, the meaning of terms used in this Ordinance shall be as follows:

- A. “AUTHORIZED AGENT” shall mean a certified sewage enforcement officer, professional engineer or sanitarian, plumbing inspector, soils scientist or any other qualified or licensed person who is authorized by the Board of Supervisors of Solebury Township to carry out the provisions of this Ordinance.
- B. “IMPROVED PROPERTY” shall mean any property within Solebury Township upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals and from which structure sewage shall or may be discharged.
- C. “OWNER” shall mean any person vested with ownership, legal or equitable, sole or partial, of any property located in Solebury Township.
- D. “PERSON” shall mean any individual, association, partnership, public or private corporation for profit or not-for-profit, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority, or any other legal entity whatsoever is recognized by law as the subject of rights and duties. Whenever the term person is used in connection with any clause prescribing and imposing a penalty or imposing a fine or imprisonment, the term person shall include the members of an association, partnership or firm and the officers of any local agency or municipal, public or private corporation for profit or not-for-profit.
- E. “RETAINING TANK” shall mean a watertight receptacle, whether permanent or temporary, which receives and retains sewage and is designed and constructed to facilitate the ultimate disposal of the sewage at another site. The term includes:
 - 1. Chemical Toilet: A permanent or portable non-flushing toilet using chemical treatment in the retaining tank for odor control; also known as a port-a-potty.
 - 2. Holding Tank: A tank, whether permanent or temporary, to which sewage is conveyed by a water carrying system.
 - 3. Privy: A tank designed to receive sewage where water under pressure is not available;

also known as a latrine.

4. Incinerating Toilet: A device capable of reducing waste materials to ashes.
 5. Composting Toilet: A device for holding and processing human and organic kitchen waste employing the process of biological degradation through the action of microorganisms to produce a stable, humus-like material.
 6. Recycling Toilet: A device in which the flushing medium is restored to a condition suitable for reuse in flushing.
- F. "SEWAGE" shall mean a substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals; a substance harmful to the public health, to animal or aquatic life, or to the use of water for domestic water supply or for recreation; or a substance which constitutes pollution under the Pennsylvania Clean Streams Law at 35 P.S. §§ 691.1—691.1001.
- G. "SEWAGE ENFORCEMENT OFFICER (SEO)" shall mean a person certified by the Pennsylvania Department of Environmental Protection in accordance with 25 Pa. Code § 71, Administration of Sewage Facilities Program, to perform percolation tests, site and soil evaluations, and review and issue sewage permits for onlot sewage disposal systems. The Sewage Enforcement Officer for Solebury Township is provided by the Bucks County Health Department.
- H. "TOWNSHIP" shall mean Solebury Township, Bucks County, Pennsylvania, its Board of Supervisors, their designated officials or authorized agent.

Section 3. Right and Privileges Granted

That Solebury Township is hereby authorized and empowered to undertake within the Township the control and methods of retaining tank use, sewage disposal and sewage collection and transportation thereof, including the permitting of retaining tanks.

Section 4. Rules and Regulations

That Solebury Township is hereby authorized and empowered to adopt such rules and regulations concerning sewage which it may deem necessary from time to time to effect the purposes herein.

Section 5. Rules and Regulations to be in Conformity with Applicable Law

All such rules and regulations adopted by Solebury Township shall be in conformity with the provisions herein, all other ordinances of the Township, and all applicable laws, and applicable rules and regulations of administrative agencies of the Commonwealth of Pennsylvania.

Section 6. Rates and Charges

- A. Solebury Township shall have the right and power to fix, alter, charge and collect rates, assessments and other charges in the area served by its facilities at reasonable and uniform rates as authorized by applicable law.
- B. A fee and escrow, in an amount established by separate Resolution of the Board of Supervisors and as amended from time to time, shall be deposited with the Township by the retaining tank property owner to cover Township administrative costs for enforcement of this Ordinance.

Section 7. Exclusiveness of Rights and Privileges

- A. Solebury Township will issue permits to owners of improved property utilizing a retaining tank. Such permits must be obtained by owners within sixty (60) days of the effective date of this Ordinance.
- B. The collection and transportation of all sewage from any improved property utilizing a retaining tank shall be done solely by or under the direction and control of Solebury Township, and the disposal thereof shall be made only at such site or sites as may be approved by the Department of Environmental Protection of the Commonwealth of Pennsylvania.
- C. Solebury Township will receive, review and retain pumping receipts from permitted retaining tanks.
- D. Solebury Township will receive and retain annual or other inspection reports for each permitted retaining tank.

Section 8. Duties of Improved Property Owner

The owner of an improved property that utilizes a retaining tank shall:

- A. Retain or obtain a Retaining Tank Permit from the Bucks County Department of Health and Solebury Township.
- B. Prior to installation of the retaining tank, the owner shall provide Solebury Township with a copy of a fully executed Contract between the owner and a hauler approved by the Bucks County Department of Health and/or DEP, which provides for the pumping of the retaining tank and disposal of the retaining tank effluent to a DEP or Bucks County Department of Health approved site for a period of not less than one (1) year from the date of the Contract, and which Contract shall be renewed annually with proof of Contract provided to Solebury Township.
- C. Maintain the retaining tank in conformance with this or any ordinance of Solebury Township, the provisions of any applicable law, and the rules and regulations of the Township and any administrative agency of the Commonwealth of Pennsylvania.
- D. Permit only Solebury Township, the Township authorized agent, the Bucks County Department of Health Sewage Enforcement Officer, or a pumper/hauler licensed by the Bucks County Department of Health and/or DEP, the right to enter the premises to inspect retaining tanks as needed.
- E. Permit only a pumper/hauler licensed by the Bucks County Department of Health and/or DEP the right to collect, transport and dispose of the contents therein.
- F. Permit Solebury Township, the Township authorized agent or the Bucks County Department of Health Sewage Enforcement Officer the right to investigate malfunctions or public health hazards.
- G. Abate a malfunction or public health hazard through proper operation, maintenance, rehabilitation, replacement or other relief as directed by the Bucks County Department of Health.
- H. If a property with a malfunctioning retaining tank abuts or fronts an existing municipal sewer system, the Bucks County Department of Health may require the property owner to connect to the municipal sewer system at the property owner's sole expense. In this case, the Bucks County

Department of Health may not approve the repair of the malfunctioning retaining tank.

Section 9. Hold Harmless Agreement

- A. Owner of improved property with a retaining tank shall execute a Hold Harmless Agreement with Solebury Township.
- B. In such Agreement, Owner agrees to indemnify and save harmless the Township from and against all claims, damages, losses and expenses, including attorney's fees and other expenses, arising out of or resulting from the retaining tank requirements of this Ordinance.

Section 10. Violations

- A. Any person who violates any provisions of this Ordinance, shall be subject to a fine of not less than Five Hundred dollars (\$500.00) plus costs, including reasonable attorney fees incurred by the Township. Each day of noncompliance shall constitute a separate violation. No judgment shall commence or be imposed, levied or payable until the date of the determination of the violation by the District Magistrate. If the responsible party neither pays judgment nor files a timely appeal, the Township may enforce the judgment pursuant to applicable Rules of Civil Procedure.
- B. All fines, penalties and costs collected for the violation of this Ordinance shall be paid over to the Township. Proceedings for the violation of this Ordinance and for the collection of fines and penalties imposed thereby may be commenced by warrant or by summons at the discretion of the District Magistrate before whom the proceedings is begun.

Section 11. Abatement of Nuisances

In addition to any other remedies provided in this Ordinance, any violation of this Ordinance shall constitute a nuisance and shall be abated by Solebury Township by either seeking mitigation of the nuisance or appropriate equitable or legal relief from a court of competent jurisdiction.

Section 12. Repeal

All ordinances or resolutions or parts of ordinances or resolutions, insofar as they are inconsistent herewith, or be the same, are hereby repealed.

Section 13. Severability

If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is hereby declared as the intent of the Solebury Township Board of Supervisors that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part thereof not been included therein.

Section 14. Scope

This Ordinance is adopted in accordance with the duties imposed upon Solebury Township under the Clean Water Act and the Clean Streams Law and applies to the Township, the local agency and to persons using or planning retaining tanks.

Section 15. Effective Date

This ordinance shall become effective immediately.

ENACTED AND ORDAINED into an ordinance this ____ day of _____ A.D., 20__, by the Supervisors of Solebury Township, Bucks County in Lawful Session duly assembled.

Supervisors of the Township of Solebury,
Bucks County

CERTIFICATION OF ADOPTION

I hereby certify the foregoing to be an exact copy of an ordinance adopted by the Supervisors of Solebury Township, Bucks County, Pennsylvania, at a regular meeting of the Board on _____.

_____, Secretary

Exhibit V-5
Pumping Exemption
Application

**Sewage Management Application for
Exemption from the Current Pumping Cycle**

Solebury Township
3092 Sungan Road, PO Box 139, Solebury, PA 18963
215-297-5656

Complete Section I and II and mail to Solebury Township

Section I. Property Information

Owner's Name: _____ Tax Map Parcel # _____
Mailing Address: _____ Number of Residents: _____
Site Address: _____ Number of Bedrooms: _____
Telephone: _____ Non-residential Uses: _____
Year House Built: _____
Year System Installed: _____ Date of Last Pumping: _____

Provide Documentation

Section II. Septic System Information:

1. Type of tanks: Septic Tank Cesspool Seepage Pit Aerobic Tank
 Pump/Dosing Tank Other _____ Unknown _____
2. Tank Size(s): _____ gallons
3. Type of absorption area: Trenches Drainfield Bed Elevated Sand Mound
 Drip Irrigation IRSIS Other _____ Unknown _____
4. Reason for requesting exemption from current pumping cycle:
 New sewage system, less than one year old (provide permit number _____)
 Multiple or Oversized Septic Tank for # of bedrooms
 Recently pumped, within the last year
 Low flows
 Certification from qualified inspector verifying tank filled less than 1/4 with sludge/scum
 Other

I, the undersigned, hereby request to be exempt from this current pumping cycle for the reason(s) noted above. I understand that, if exemption is approved, I may only be exempt from one cycle and will need to have my tank(s) pumped during the next cycle. I have enclosed any documentation or pertinent information relevant to my tank pumping exemption request.

Owner's Signature: _____ Date: _____

Section III. EXEMPTION ACTION (Office use only)

_____ APPROVED Maintain this form as your documentation of compliance with the Sewage Management Program requirements.

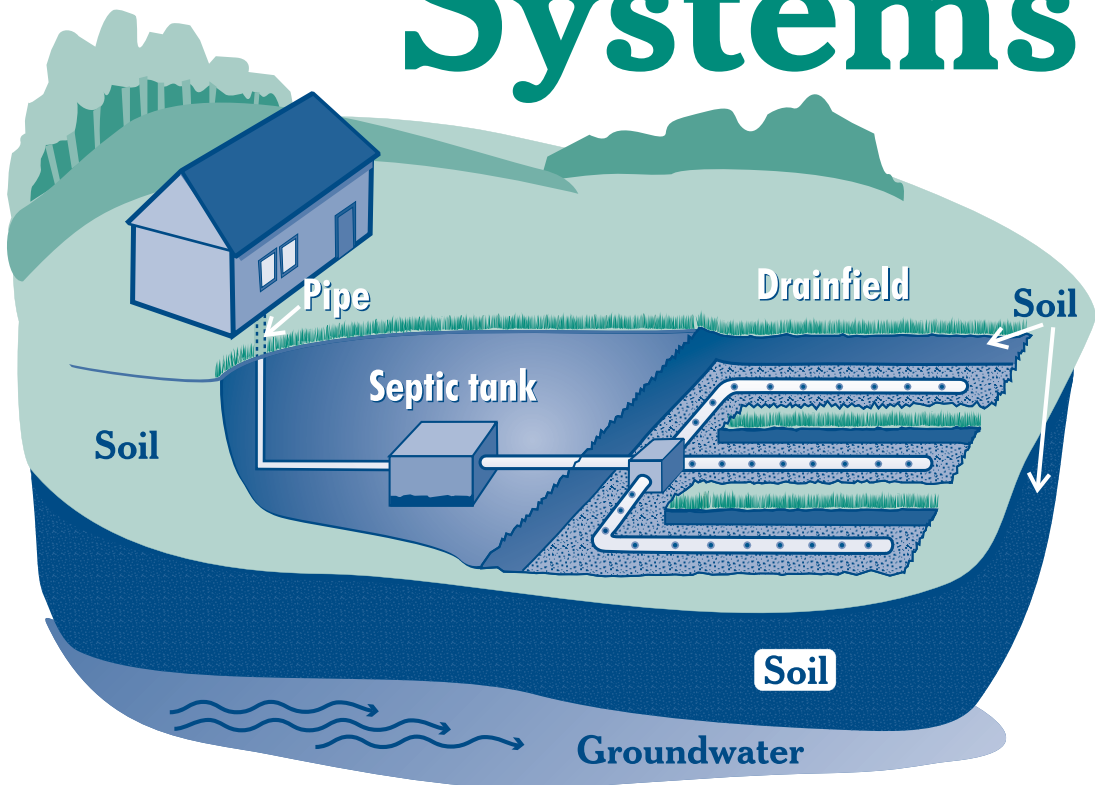
_____ DENIED Schedule pumping and remind your pumper/hauler to complete the pumping report in accordance with your original notice.

Signature: _____ Date: _____

Title: _____

Exhibit V-6
Homeowner Septic
System Guide & Checklist

A Homeowner's Guide to Septic Systems



What's Inside

Your septic system is your responsibility	1
How does it work?	1
Why should I maintain my septic system?	4
How do I maintain my septic system?	5
What can make my system fail?	9
For more information	13

Your Septic System is your responsibility!

Did you know that as a homeowner you're responsible for maintaining your septic system? Did you know that maintaining your septic system protects your investment in your home? Did you know that you should periodically inspect your system and pump out your septic tank?

If properly designed, constructed and maintained, your septic system can provide long-term, effective treatment of household wastewater. If your septic system isn't maintained, you might need to replace it, costing you thousands of dollars. A malfunctioning system can contaminate groundwater that might be a source of drinking water. And if you sell your home, your septic system must be in good working order.

This guide will help you care for your septic system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work properly. To help you learn more, consult the resources listed at the back of this booklet.

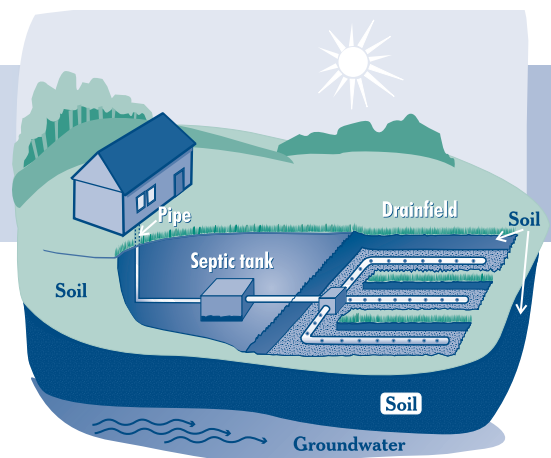
Top Four Things You Can Do to Protect Your Septic System

1. Regularly inspect your system and pump your tank as necessary.
2. Use water efficiently.
3. Don't dispose of household hazardous wastes in sinks or toilets.
4. Care for your drainfield.

How does it work?

Components

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. Microbes in the soil digest or remove most contaminants from wastewater before it eventually reaches groundwater.



Typical septic system

Septic system aliases:

- On-lot system
- Onsite system
- Individual sewage disposal system
- Onsite sewage disposal system
- Onsite wastewater treatment system

Pipe from the home

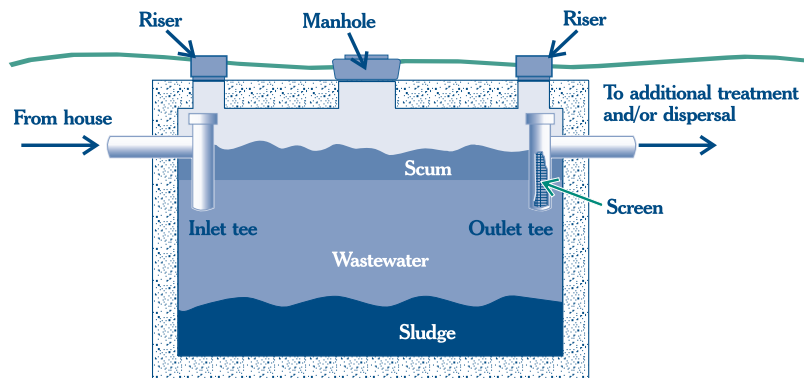
All of your household wastewater exits your home through a pipe to the septic tank.

Septic tank

The septic tank is a buried, watertight container typically made of concrete, fiberglass, or polyethylene. It holds the wastewater long enough to allow solids to settle out (forming sludge) and oil and grease to float to the surface (as scum). It also allows partial decomposition of the solid materials. Compartments and a T-shaped outlet in the septic tank prevent the sludge and scum from leaving the tank and traveling into the drainfield area. Screens are also recommended to keep solids from entering the drainfield.

Newer tanks generally have risers with lids at the ground surface to allow easy location, inspection, and pumping of the tank.

Typical single-compartment septic tank with ground-level inspection risers and screen

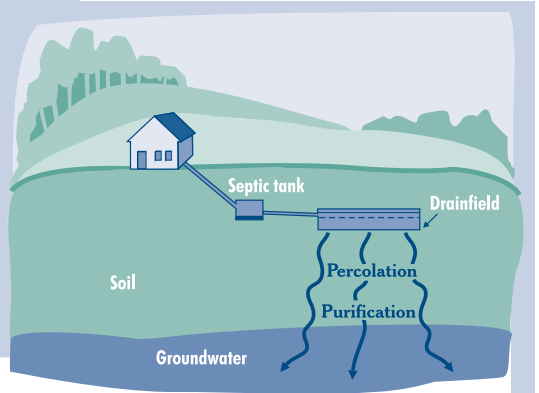


Tip

To prevent buildup, sludge and floating scum need to be removed through periodic pumping of the septic tank. Regular inspections and pumping are the best and cheapest way to keep your septic system in good working order.

Finding Your System

Your septic tank, drainfield, and reserve drainfield should be clearly designated on the “as-built” drawing for your home. (An “as-built” drawing is a line drawing that accurately portrays the buildings on your property and is usually filed in your local land records.) You might also see lids or manhole covers for your septic tank. Older tanks are often hard to find because there are no visible parts. An inspector/pumper can help you locate your septic system if your septic tank has no risers.



Drainfield

The wastewater exits the septic tank and is discharged into the drainfield for further treatment by the soil. The partially treated wastewater is pushed along into the drainfield for further treatment every time new wastewater enters the tank.

If the drainfield is overloaded with too much liquid, it will flood, causing sewage to flow to the ground surface or create backups in plumbing fixtures and prevent treatment of all wastewater.

A reserve drainfield, required by many states, is an area on your property suitable for a new drainfield system if your current drainfield fails. Treat this area with the same care as your septic system.

Soil

Septic tank wastewater flows to the drainfield, where it percolates into the soil, which provides final treatment by removing harmful bacteria, viruses, and nutrients. Suitable soil is necessary for successful wastewater treatment.

Alternative systems

Because many areas don't have soils suitable for typical septic systems, you might have or need an alternative system. You might also have or need an alternative system if there are too many typical septic systems in one area or the systems are too close to groundwater or surface waters. Alternative septic

systems use new technology to improve treatment processes and might need special care and maintenance. Some alternative systems use sand, peat, or plastic media instead of soil to promote wastewater treatment. Other systems might use wetlands, lagoons, aerators, or disinfection devices. Float switches, pumps, and other electrical or mechanical components are often used in alternative systems. Alternative systems should be inspected annually. Check with your local health department or installer for more information on operation and maintenance needs if you have or need an alternative system.

Why should I maintain my septic system?

When septic systems are properly designed, constructed, and maintained, they effectively reduce or eliminate most human health or environmental threats posed by pollutants in household wastewater. However, they require regular maintenance or they can fail. Septic systems need to be monitored to ensure that they work properly throughout their service lives.

Saving money

A key reason to maintain your septic system is to save money! Failing septic systems are expensive to repair or replace, and poor maintenance is often the culprit. Having your septic system inspected regularly is a bargain when you consider the cost of replacing the entire system. Your system will need pumping depending on how many people live in the house and the size of the system. An unusable septic system or one in disrepair will lower your property value and could pose a legal liability.

Protecting health and the environment

Other good reasons for safe treatment of sewage include preventing the spread of infection and disease and protecting water resources. Typical pollutants in household wastewater are nitrogen, phosphorus, and disease-

causing bacteria and viruses. If a septic system is working properly, it will effectively remove most of these pollutants.

With one-fourth of U.S. homes using septic systems, more than 4 billion gallons of wastewater per day is dispersed below the ground's surface. Inadequately treated sewage from septic systems can be a cause of ground-water contamination. It poses a significant threat to drinking water and human health because it can contaminate drinking water wells and cause diseases and infections in people and animals. Improperly treated sewage that contaminates nearby surface waters also increases the chance of swimmers contracting a variety of infectious diseases. These range from eye and ear infections to acute gastrointestinal illness and diseases like hepatitis.

How do I maintain my septic system?

Inspect and pump frequently

You should have a typical septic system inspected at least every 3 years by a professional and your tank pumped as recommended by the inspector (generally every 3 to 5 years). Alternative systems with electrical float switches, pumps, or mechanical components need to be inspected more often, generally once a year. Your service provider should inspect for leaks and look at the scum and sludge layers in your septic tank. If the bottom of the scum layer is within 6 inches of the bottom of the outlet tee or the top of the sludge layer is within 12 inches of the outlet tee, your tank needs to be pumped. Remember to note the sludge and scum levels determined by your service provider in your operation and maintenance records. This information will help you decide how often pumping is necessary.

What Does an Inspection Include?

- Locating the system.
- Uncovering access holes.
- Flushing the toilets.
- Checking for signs of back up.
- Measuring scum and sludge layers.
- Identifying any leaks.
- Inspecting mechanical components.
- Pumping the tank if necessary.

Four major factors influence the frequency of pumping: the number of people in your household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater (for example, using a garbage disposal increases the amount of solids), and septic tank size.

Some makers of septic tank additives claim that their products break down the sludge in septic tanks so the tanks never need to be pumped. Not everyone agrees on the effectiveness of additives. In fact, septic tanks already contain the microbes they need for effective treatment. Periodic pumping is a much better way to ensure that septic systems work properly and provide many years of service. Regardless, every septic tank requires periodic pumping.

In the service report, the pumper should note any repairs completed and whether the tank is in good condition. If the pumper recommends additional repairs he or she can't perform, hire someone to make the repairs as soon as possible.

Use water efficiently

Average indoor water use in the typical single-family home is almost 70 gallons per person per day. Leaky toilets can waste as much as 200 gallons each day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the septic system and reduce the risk of failure.

High-efficiency toilets

Toilet use accounts for 25 to 30 percent of household water use. Do you know how many gallons of water your toilet uses to empty the bowl? Most older homes have toilets with 3.5- to 5-gallon reservoirs, while newer high-efficiency toilets use 1.6 gallons of water or less per flush. If you have problems with your septic system being flooded with household water, consider reducing the volume of water in the toilet tank if you don't have a high-efficiency model or replacing your existing toilets with high-efficiency models.



Faucet aerators and high-efficiency showerheads

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads or shower flow restrictors also reduce water use.

Water fixtures

Check to make sure your toilet's reservoir isn't leaking into the bowl. Add five drops of liquid food coloring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking and repairs are needed.

A small drip from a faucet adds many gallons of unnecessary water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water traveling to your septic system each day from that little leak.



Use Water Efficiently!

- **Install high-efficiency showerheads**
- **Fill the bathtub with only as much water as you need**
- **Turn off faucets while shaving or brushing your teeth**
- **Run the dishwasher and clothes washer only when they're full**
- **Use toilets to flush sanitary waste only (not kitty litter, diapers, or other trash)**
- **Make sure all faucets are completely turned off when not in use**
- **Maintain your plumbing to eliminate leaks**
- **Install aerators in the faucets in your kitchen and bathroom**
- **Replace old dishwashers, toilets, and clothes washers with new, high-efficiency models.**

For more information on water conservation, please visit www.epa.gov/owm/water-efficiency/index.htm

Watch your drains

What goes down the drain can have a major impact on how well your septic system works.

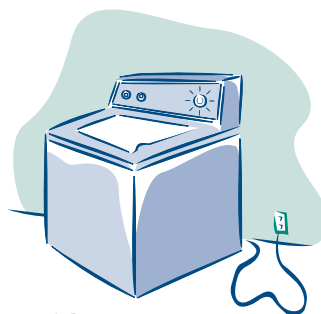
Waste disposal

What shouldn't you flush down your toilet? Dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, and other kitchen and bathroom items that can clog and potentially damage septic system components if they become trapped. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can stress or destroy the biological treatment taking place in the system or might contaminate surface waters and groundwater. If your septic tank pumper is concerned about quickly accumulating scum layers, reduce the flow of floatable materials like fats, oils, and grease into your tank or be prepared to pay for more frequent inspections and pumping.

Washing machines

By selecting the proper load size, you'll reduce water waste. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry.

Doing all the household laundry in one day might seem like a time-saver, but it could be harmful to your septic system. Doing load after load does not allow your septic tank time to adequately treat wastes. You could be flooding your drainfield without allowing sufficient recovery time. Try to spread water usage throughout the week. A new Energy Star clothes washer uses 35 percent less energy and 50 percent less water than a standard model.



Care for your drainfield

Your drainfield is an important part of your septic system. Here are a few things you should do to maintain it:

- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drainfield. Flooding the drainfield with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up.

What can make my system fail?

If the amount of wastewater entering the system is more than the system can handle, the wastewater backs up into the house or yard and creates a health hazard.

You can suspect a system failure not only when a foul odor is emitted but also when partially treated wastewater flows up to the ground surface. By the time you can smell or see a problem, however, the damage might already be done.

By limiting your water use, you can reduce the amount of wastewater your system must treat. When you have your system inspected and pumped as needed, you reduce the chance of system failure.

A system installed in unsuitable soils can also fail. Other failure risks include tanks that are inaccessible for maintenance, drainfields that are paved or parked on, and tree roots or defective components that interfere with the treatment process.

Failure symptoms

The most obvious septic system failures are easy to spot. Check for pooling water or muddy soil around your septic system or in your basement. Notice whether your toilet or sink backs up when you flush or do laundry. You might also notice strips of bright green grass over the drainfield. Septic systems also fail when partially treated wastewater comes into contact with

groundwater. This type of failure is not easy to detect, but it can result in the pollution of wells, nearby streams, or other bodies of water. Check with a septic system professional and the local health department if you suspect such a failure.

Stop, look, and smell!

Failure causes

Household toxics

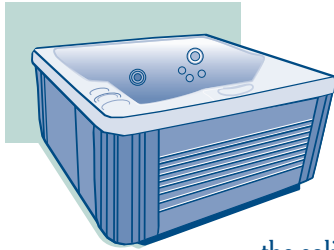
Does someone in your house use the utility sink to clean out paint rollers or flush toxic cleaners? Oil-based paints, solvents, and large volumes of toxic cleaners should not enter your septic system. Even latex paint cleanup waste should be minimized. Squeeze all excess paint and stain from brushes and rollers on several layers of newspaper before rinsing. Leftover paints and wood stains should be taken to your local household hazardous waste collection center. Remember that your septic system contains a living collection of organisms that digest and treat waste.

Household cleaners

For the most part, your septic system's bacteria should recover quickly after small amounts of household cleaning products have entered the system. Of course, some cleaning products are less toxic to your system than others. Labels can help key you into the potential toxicity of various products. The word "Danger" or "Poison" on a label indicates that the product is highly hazardous. "Warning" tells you the product is moderately hazardous. "Caution" means the product is slightly hazardous. ("Nontoxic" and "Septic Safe"



are terms created by advertisers to sell products.) Regardless of the type of product, use it only in the amounts shown on the label instructions and minimize the amount discharged into your septic system.



Hot tubs

Hot tubs are a great way to relax. Unfortunately, your septic system was not designed to handle large quantities of water from your hot tub. Emptying hot tub water into your septic system stirs the solids in the tank and pushes them out into the drainfield, causing it to clog and fail. Draining your hot tub into a septic system or over the drainfield can overload the system. Instead, drain cooled hot tub water onto turf or landscaped areas well away from the septic tank and drainfield, and in accordance with local regulations. Use the same caution when draining your swimming pool.

Water Purification Systems

Some freshwater purification systems, including water softeners, unnecessarily pump water into the septic system. This can contribute hundreds of gallons of water to the septic tank, causing agitation of solids and excess flow to the drainfield. Check with your licensed plumbing professional about alternative routing for such freshwater treatment systems.

Garbage disposals

Eliminating the use of a garbage disposal can reduce the amount of grease and solids entering the septic tank and possibly clogging the drainfield. A garbage disposal grinds up kitchen scraps, suspends them in water, and sends the mixture to the septic tank. Once in the septic tank, some of the materials are broken down by bacterial action, but most of the grindings have to be pumped out of the tank. Using a garbage disposal frequently can significantly increase the accumulation of sludge and scum in your septic tank, resulting in the need for more frequent pumping.



Improper design or installation

Some soils provide excellent wastewater treatment; others don't. For this reason, the design of the drainfield of a septic system is based on the results of soil analysis. Homeowners and system designers sometimes underestimate the significance of good soils or believe soils can handle any volume of wastewater applied to them. Many failures can be attributed to having an undersized drainfield or high seasonal groundwater table. Undersized septic tanks—another design failure—allow solids to clog the drainfield and result in system failure.

If a septic tank isn't watertight, water can leak into and out of the system. Usually, water from the environment leaking into the system causes hydraulic overloading, taxing the system beyond its capabilities and causing inadequate treatment and sometimes sewage to flow up to the ground surface. Water leaking out of the septic tank is a significant health hazard because the leaking wastewater has not yet been treated.

Even when systems are properly designed, failures due to poor installation practices can occur. If the drainfield is not properly leveled, wastewater can overload the system. Heavy equipment can damage the drainfield during installation which can lead to soil compaction and reduce the wastewater infiltration rate. And if surface drainage isn't diverted away from the field, it can flow into and saturate the drainfield.

For more information

Local Health Department

EPA Onsite/Decentralized Management Homepage

www.epa.gov/owm/septic

EPA developed this Web site to provide tools for communities investigating and implementing onsite/decentralized management programs. The Web site contains fact sheets, program summaries, case studies, links to design and other manuals, and a list of state health department contacts that can put you in touch with your local health department.

National Small Flows Clearinghouse

www.nesc.wvu.edu

Funded by grants from EPA, the NSFC helps America's small communities and individuals solve their wastewater problems. Its activities include a Web site, online discussion groups, a toll-free assistance line (800-624-8301), informative publications, and a free quarterly newsletter and magazine.

Rural Community Assistance Program

www.rcap.org

RCAP is a resource for community leaders and others looking for technical assistance services and training related to rural drinking water supply and wastewater treatment needs, rural solid waste programs, housing, economic development, comprehensive community assessment and planning, and environmental regulations.

National Onsite Wastewater Recycling Association, Inc.

www.nowra.org

NOWRA is a national professional organization to advance and promote the onsite wastewater industry. The association promotes the need for regular service and educates the public on the need for properly designed and maintained septic systems.

Septic Yellow Pages

www.septicyellowpages.com

The Septic Yellow Pages provides listings by state for professional septic pumpers, installers, inspectors, and tank manufacturers throughout the United States. This Web site is designed to answer simple septic system questions and put homeowners in contact with local septic system professionals.

National Association of Wastewater Transporters

www.nawt.org

NAWT offers a forum for the wastewater industry to exchange ideas and concerns. The NAWT Web site lists state associations and local inspectors and pumpers.



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Office of Water
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Septic System Dos and Don'ts

(adapted from National Small Flows Clearinghouse)

Dos

- Check with the local regulatory agency or inspector/pumper if you have a garbage disposal unit to make sure that your septic system can handle this additional waste.
- Check with your local health department before using additives. Commercial septic tank additives do not eliminate the need for periodic pumping and can be harmful to the system.
- Use water efficiently to avoid overloading the septic system. Be sure to repair leaky faucets or toilets. Use high-efficiency fixtures.
- Use commercial bathroom cleaners and laundry detergents in moderation. Many people prefer to clean their toilets, sinks, showers, and tubs with a mild detergent or baking soda.
- Check with your local regulatory agency or inspector/pumper before allowing water softener backwash to enter your septic tank.
- Keep records of repairs, pumpings, inspections, permits issued, and other system maintenance activities.
- Learn the location of your septic system. Keep a sketch of it with your maintenance record for service visits.
- Have your septic system inspected and pumped as necessary by a licensed inspector/contractor.
- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.

Don'ts

- Your septic system is not a trash can. Don't put dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, latex paint, pesticides, or other hazardous chemicals into your system.
- Don't use caustic drain openers for a clogged drain. Instead, use boiling water or a drain snake to open clogs.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.



Office of Water
Washington, DC 20460

Official Business
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EPA-832-B-02-005

Homeowner Septic System Checklist

Septic System Description

Contact your local authority if you don't have this information.

Date system installed _____

Installer _____

Phone _____

Tank size _____ gallons

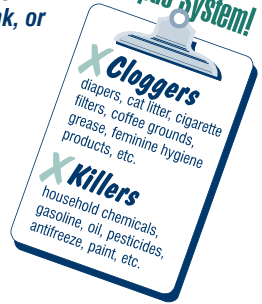
Capacity _____ bedrooms


Type conventional
 alternative (type) _____

Things to keep in mind:

- ✓ Regularly inspect your system and pump your tank as necessary.
- ✓ Use water efficiently.
- ✓ Don't dispose of household hazardous wastes in sinks and toilets.
- ✓ Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.
- ✓ Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.

Not in My Septic System!





For more information about septic systems, contact:

Clean Water starts at Home

U.S. Environmental Protection Agency
www.epa.gov/owm/septic

Septic System Maintenance Record

Next Service	Scheduled Activity	Pumping Co./ Phone	Activities Completed	Comments
Jan. 2003	inspection	Joe Pumper 555-1234	inspection	sludge layer okay—may need pumping next year

Place on electrical box (fuse box) or other convenient location.

Exhibit V-7
Sewage Management
Program Models

Table 1: Summary of Management Models

TYPICAL APPLICATIONS	PROGRAM DESCRIPTION	BENEFITS	LIMITATIONS
MODEL 1 - HOMEOWNER AWARENESS MODEL			
<ul style="list-style-type: none"> • Areas of low environmental sensitivity where sites are suitable for conventional onsite systems. 	<ul style="list-style-type: none"> • Systems properly sited and constructed based on prescribed criteria. • Owners made aware of maintenance needs through reminders. • Inventory of all systems 	<ul style="list-style-type: none"> • Code-compliant system. • Ease of implementation; based on existing, prescriptive system design and site criteria. • Provides an inventory of systems that is useful in system tracking and area-wide planning. 	<ul style="list-style-type: none"> • No compliance/problem identification mechanism. • Sites must meet siting requirements. • Cost to maintain database and owner education program.
MODEL 2 - MAINTENANCE CONTRACT MODEL			
<ul style="list-style-type: none"> • Areas of low to moderate environmental sensitivity where sites are marginally suitable for conventional onsite systems due to small lots, shallow soils, or low-permeability soils. • Small clustered systems. 	<ul style="list-style-type: none"> • Systems properly sited and constructed. • More complex treatment options, including mechanical components or small clusters of homes. • Requires service contracts to be maintained. • Inventory of all systems. • Service contract tracking system. 	<ul style="list-style-type: none"> • Reduces the risk of treatment system malfunctions. • Protects homeowner investment. 	<ul style="list-style-type: none"> • Difficulty in tracking and enforcing compliance because it must rely on the owner or contractor to report a lapse in a valid contract for services. • No mechanism provided to assess effectiveness of maintenance program.
MODEL 3 - OPERATING PERMIT MODEL			
<ul style="list-style-type: none"> • Areas of moderate environmental sensitivity such as wellhead or source water protection zones, shellfish growing waters, or bathing/water contact recreation. • Systems treating high-strength wastes or large-capacity systems. 	<ul style="list-style-type: none"> • Establishes system performance and monitoring requirements. • Allows engineered designs but may provide prescriptive designs for specific receiving environments. • Regulatory oversight by issuing renewable operating permits that may be revoked for noncompliance. • Inventory of all systems. • Tracking system for operating permit and compliance monitoring. • Minimum for large-capacity systems. 	<ul style="list-style-type: none"> • Allows systems in more environmentally sensitive areas. • Operating permit requires regular compliance monitoring reports. • Identifies noncompliant systems and initiates corrective actions. • Decreases need for regulation of large systems. • Protects homeowner investment. 	<ul style="list-style-type: none"> • Higher level of expertise and resources for regulatory authority to implement. • Requires permit tracking system. • Regulatory authority needs enforcement powers.
MODEL 4 - RESPONSIBLE MANAGEMENT ENTITY (RME) OPERATION AND MAINTENANCE MODEL			
<ul style="list-style-type: none"> • Areas of moderate to high environmental sensitivity where reliable and sustainable system operation and maintenance (O&M) is required, e.g., sole source aquifers, wellhead or source water protection zones, critical aquatic habitats, or outstanding value resource waters. • Clustered systems. 	<ul style="list-style-type: none"> • Establishes system performance and monitoring requirements. • Professional O&M services through RME (either public or private). • Provides regulatory oversight by issuing operating or NPDES permits directly to the RME. (System ownership remains with the property owner.) • Inventory of all systems. • Tracking system for operating permit and compliance monitoring. 	<ul style="list-style-type: none"> • O&M responsibility transferred from the system owner to a professional RME that is the holder of the operating permit. • Identifies problems needing attention before failures occur. • Allows use of onsite treatment in more environmentally sensitive areas or for treatment of high-strength wastes. • Can issue one permit for a group of systems. • Protects homeowner investment. 	<ul style="list-style-type: none"> • Enabling legislation may be necessary to allow RME to hold operating permit for an individual system owner. • RME must have owner approval for repairs; may be conflict if performance problems are identified and not corrected. • Need for easement/right of entry. • Need for oversight of RME by regulatory authority.
MODEL 5 - RESPONSIBLE MANAGEMENT ENTITY (RME) OWNERSHIP MODEL			
<ul style="list-style-type: none"> • Areas of greatest environmental sensitivity where reliable management is required. Includes sole source aquifers, wellhead or source water protection zones, critical aquatic habitats, or outstanding value resource waters. • Preferred management program for clustered systems serving multiple properties under different ownership (e.g., subdivisions). 	<ul style="list-style-type: none"> • Establishes system performance and monitoring requirements. • Professional management of all aspects of decentralized systems through public/private RMEs that own or manage individual systems. • Qualified, trained, owners and licensed professional owners/operators. • Provides regulatory oversight by issuing operating or NPDES permit. • Inventory of all systems. • Tracking system for operating permit and compliance monitoring. 	<ul style="list-style-type: none"> • High level of oversight if system performance problems occur. • Simulates model of central sewerage, reducing the risk of noncompliance. • Allows use of onsite treatment in more environmentally sensitive areas. • Allows effective area-wide planning/watershed management. • Removes potential conflicts between the user and RME. • Greatest protection of environmental resources and owner investment. 	<ul style="list-style-type: none"> • Enabling legislation and/or formation of special district may be required. • May require greater financial investment by RME for installation and/or purchase of existing systems or components. • Need for oversight of RME by regulatory authority. • Private RMEs may limit competition. • Homeowner associations may not have adequate authority.

Note: If applicable, NPDES requirements under the CWA or UIC requirements under the SDWA supercede any less stringent or inconsistent provision.

**Section VI.
Alternatives Evaluation
Consistency**

VI. Alternatives Evaluation Consistency

A. Selected Alternative

The selected alternative, development and implementation of a Sewage Management Program, ensures the continued use of existing and future onsite sewage disposal systems as the most practical available option for Solebury Township to meet current and future sewage needs.

1.0 Sewage Management Program for Individual Onlot Sewage Disposal Systems

As required by DEP, and to ensure the continued use of existing onlot sewage disposal systems, Solebury Township intends to implement a Sewage Management Program in conjunction with the Bucks County Department of Health that addresses the following requirements:

- Reduced Loading:
 - ⇒ Provide or require water conservation devices
 - ⇒ Discourage or restrict the use of garbage disposals
- Improved O&M through:
 - ⇒ Required pumping
 - ⇒ System inspection
 - ⇒ Public education
- Repair, replace or upgrade malfunctioning systems if suitable considering:
 - ⇒ Existing technology and size requirements
 - ⇒ Use of expanded or alternating absorption areas
 - ⇒ Use of conservation devices
 - ⇒ Use of pretreatment systems to reduce loading

The GIS Plates provided with this Plan identify areas with the following site constraints for onlot sewage disposal systems:

- Area limited (small) lots < ¼ acre
 - Environmentally sensitive areas
 - Wetlands
 - Floodplains
 - Riparian buffers
 - Limestone geology
 - Soils / Hydric soils
 - Prime agricultural land
-
-

- Slopes >25%
- Depth to seasonal high water table
- Depth to bedrock
- Setbacks from wells with Nitrate concentrations >5 mg/L

Data collected throughout the 3-year implementation of the maintenance and inspection activities may be analyzed using GIS technology to determine if a Special Study is needed to address clustered malfunctions.

For areas that are identified in previous planning documents and continue to have onlot problems, if management does not improve the reliability of the systems, then a community onlot system may be investigated.

2.0 Community Onlot Systems

The Township, in conjunction with the BCDH, will consider community onlot systems for existing users only. The system may be sized to meet only the needs of the current users in a confirmed malfunction status within a groundwater recharge district of defined boundaries and developed lots. All adjacent property owners may be approached to consider being included in the community system, with suspected malfunctioning system owners encouraged to connect. This alternative may be used in high-density areas with small lots, or where significant confirmed malfunctions or public health impacts are identified that cannot be rehabilitated onsite.

A Special Study may be conducted to determine the appropriate system and available legal and institutional alternatives.

B. Consistency Evaluation

Sewage management alternatives developed as part of the Act 537 planning process are evaluated in terms of their relationship to the goals and objectives of various planning, environmental and natural resource laws and policies of the Commonwealth of Pennsylvania. 25 Pa. Code § 71.21 (a) requires the Act 537 plan to address the consistency of each sewage management alternative with eleven of the DEP's goals and policies. If there is a conflict between the recommended alternative and one of the goals and objectives, the conflict must be resolved to obtain regulatory approval.

1.0 Clean Water Management Plans

Section 4 of the Pennsylvania Clean Streams Law stresses the importance to maintain clean, unpolluted streams so as to attract industry and provide for outdoor recreational activities, prevent further pollution to streams, and restore polluted streams. Each of the aforementioned factors has direct impacts related to the economic prosperity of Pennsylvania. Section 5 of the Clean Streams Law recommends a regional approach to wastewater management in part to accomplish the points raised in Section 4.

Stream discharge systems are inconsistent with Solebury Township's 2002 *Comprehensive Plan*. No inconsistencies exist with the selected alternative.

2.0 Municipal Wasteload Management Plans

25 Pa. Code § 94 for Wasteload Management is required for municipal wastewater treatment systems. The BCW&SA, which owns and operates a sewer collection and conveyance system in Solebury Township, does not discharge to a wastewater treatment plant subject to these regulations since the wastewater treatment plant, owned and operated by LMUA, is in New Jersey. Therefore, this provision is not applicable to this Plan.

3.0 Title II Clean Water Act Plans

Title II, Section 208, of the Clean Water Act directs states to develop area wide wastewater management plans for areas identified as having water quality problems. The Delaware Valley Regional Planning Commission prepared a plan titled “COWAMP/208: Water Quality Management Plan, Southeastern Pennsylvania” in 1980. COWAMP refers to the Comprehensive Water Quality Management Planning Program initiated by Pennsylvania in 1974. Both programs deal with pollution sources such as urban stormwater runoff, agricultural pollution, and wastewaters. Previously, funding was available through this program to develop sewage management programs. No inconsistency exists with the selected alternative.

4.0 Comprehensive Plans

The Municipalities Planning Code provides the basis for a municipality to prepare a comprehensive plan which includes the municipality’s objectives relative to the location, character and timing of future development, and a plan for community facilities and utilities. A comprehensive plan may also cover a wide range of issues including housing, transportation and municipal services. The 2011 *Bucks County Comprehensive Plan*¹ contains the following pertinent issues relative to Sewage Facilities Planning:

- Principle 1 – Protect Natural, Historic and Scenic Resources:
 - ⇒ Limit development activities in areas of carbonate geology.
 - ⇒ Promote site development practices that are sensitive to the natural topography and minimizes the disturbance of areas with <8% grade. Enact steep slope protection standards for slopes >8% grade.
 - ⇒ Support regulations for restrictive soils.
 - ⇒ Assist municipalities in developing regulations that reduce development in significant natural areas to preserve and protect critical habitats that support rare, threatened and endangered plants and animals.
 - ⇒ Advocate protection and restoration of headwater streams and their respective watersheds.
 - ⇒ Encourage floodplain protection as delineated by FEMA.
 - ⇒ Advocate adoption of wetland protection standards.
 - ⇒ Assist with preparation of riparian buffer requirements.
 - ⇒ Preserve historic and cultural resources.

¹ [2011 Bucks County Comprehensive Plan](#)

- Principal 2 – Preserve and Expand Parks, Open Space and Agricultural Resources:
 - ⇒ Promote preservation of open space and farmland.
 - ⇒ Protect and enhance stream corridors as part of greenways to provide healthy aquatic ecosystems.
 - ⇒ Strengthen land use policies for agricultural preservation program.
 - ⇒ Encourage farmers to implement BMPs and develop nutrient management programs.
 - Principal 4 – Protect Water Resources and Reduce Wastes → Water Supply and Infrastructure:
 - ⇒ Protect water resources, natural resources and riparian areas.
 - ⇒ Establish wellhead protection/overlay zones, source water protection areas, stream corridor protection areas and conservation management districts.
 - ⇒ Prohibit incompatible uses near surface waters.
 - ⇒ Protect water resources to meet peak and emergency demands.
 - ⇒ Promote groundwater recharge.
 - ⇒ Direct new development to areas that have available public water resources.
 - ⇒ Coordinate drought emergency management efforts with Delaware River Basin Commission (DRBC) and DEP.
 - Principal 4 – Protect Water Resources and Reduce Wastes → Wastewater Facilities:
 - ⇒ Update Act 537 plans if more than 20 years old or if determined to be outdated.
 - ⇒ Use centralized sewer systems in designated growth / development areas.
 - ⇒ Encourage use of community onlot systems over extension of public sewer for areas experiencing onlot sewage disposal system malfunctions and for new community developments outside of designated growth areas.
 - ⇒ Work with municipalities to develop educational programs designed to inform the public of the need for onlot sewage disposal system maintenance and management programs, such as a 3-year inspection and pumping schedule for onlot sewage disposal systems.
 - ⇒ Require detailed wastewater facilities alternatives analyses for proposed extension of public sewer outside of designated growth areas.
 - ⇒ Advocate use of community on-lot wastewater systems that minimize environmental impacts and promote land disposal of treated wastewater to enable groundwater recharge.
 - ⇒ Discourage use of stream discharge systems, particularly into streams designated as high quality or exceptional value waters.
 - Principal 4 – Protect Water Resources and Reduce Wastes → Stormwater Management:
 - ⇒ Maintain countywide stormwater management plan.
 - ⇒ Require stormwater runoff infiltration to recharge groundwater.
 - ⇒ Promote the use of Low Impact Development (LID) design and Best Management Practices (BMPs) to infiltrate, evapotranspire, or capture and reuse as much stormwater
-
-

runoff onsite as reasonably possible.

- Principal 4 – Protect Water Resources and Reduce Wastes → Solid Waste Management:
 - ⇒ Collect household hazardous waste.
- Principal 5 – Mitigate Hazards to Life and Property:
 - ⇒ Limit development in high hazard areas.

The sections pertinent to wastewater of the County’s *2011 Comprehensive Plan* are attached as **Exhibit VI-1** to this Plan.

Solebury Township last revised their Comprehensive Plan in 2002. This sewage facilities plan update is prepared based on specific direction outlined in the Township’s *2002 Comprehensive Plan*. The selected alternative meets the intent and goals of the County and Township Comprehensive Plans.

5.0 Antidegradation Requirements

Antidegradation requirements are contained in several environmental regulations promulgated by DEP. Water quality criteria found at 25 Pa. Code § 93² designate the use of the waters of the Commonwealth, which apply to any receiving stream. Wastewater treatment requirements are found in 25 Pa. Code § 95³. Erosion and sedimentation control regulations are found at 25 Pa. Code § 102⁴.

Two of the designations used by DEP for receiving streams are High Quality (HQ) and Exceptional Value (EV) waters. Three streams in Solebury Township – Aquetong, Cuttalossa and Paunacussing Creeks are HQ, which are defined as having excellent quality water and environmental or other features that require special water quality protection. Lahaska Creek, which is only present in a small area of Solebury Township near Peddlars Village, is classified as a TMDL stream. No alternative is proposed to discharge to any of these streams and as such no conflict exists between this Official Plan Update Revision and antidegradation requirements.

6.0 State Water Plans

A revised State Water Plan⁵ was approved in January 2009. The intent of the State Water Plan is to provide tools and guidance for those making decisions that impact the state’s water resources or who make decisions based upon the availability of water of adequate quality and quantity. The State Water Plan delineates the state into six regional water resource planning areas. Solebury Township, Bucks County is located within the Delaware River planning area. The Delaware River Basin is further delineated into subbasins. Solebury Township is located in the Central Delaware River Subbasin 02E Pidcock – Mill Creeks.

The Delaware River planning area’s primary focus is on the following two issues:

- Link land use decisions and water resource management to sustain and enhance the quality of life in the Delaware River Basin.

² [25 Pa. Code § 93. Water Quality Standards](#)

³ [25 Pa. Code § 95. Wastewater Treatment Requirements](#)

⁴ [25 Pa. Code § 102. Erosion and Sediment Control](#)

⁵ [Pennsylvania State Water Plan](#)

- Improve management of water resources, including wastewater, stormwater, and waterway corridors to reduce damage from extreme conditions, such as floods and droughts.

The above issues can be achieved by the development and implementation of a variety of means on the county and local level. Many of the following recommendations are contained within the Bucks County draft Comprehensive Plan and Solebury Township’s *2002 Comprehensive Plan*. All of these land use planning tools are most effective when applied within the framework of local watersheds.

- Effective agricultural zoning
- Transfer of development rights
- Conservation easement on agricultural or forested land (purchased or donated)
- Overlay zones to protect wellhead protection areas and streamside buffers
- Green infrastructure planning
- Conservation subdivision or open space design
- Traditional neighborhood development
- Infill and redevelopment incentives
- Site level development regulations that reduce impervious cover and infiltrate and/or treat stormwater runoff

In addition, the State Water Plan recognizes other natural restrictions to land use, including the carbonate geology and the HQ waters present within Solebury Township.

The Water Resources Planning Act (Act 220 of 2002) requires all public water suppliers to report water withdrawal rates. This Act directs DEP to identify critical water planning areas where demand exceeds or is projected to exceed supply, create critical area resource plans or “water budgets”, and establish voluntary water conservation programs. This Act also requires that the State Water Plan be updated to include an inventory of water resources including surface water and groundwater, and their safe yields. The State Water Plan is a dynamic document and will be continually updated as information changes. A critical water planning area nomination was submitted to DEP for the Aquetong Creek watershed and the Ingham Spring recharge area. However, to date, no critical water planning areas have been approved in Bucks County by the state.

The State Water Plan has not identified any specific water quantity or quality problems in Solebury Township. Therefore, this Official Sewage Facilities Plan Update Revision is consistent with the State Water Plan.

7.0 Pennsylvania Agricultural Land Preservation Policy

The Pennsylvania Agricultural Land Preservation Policy at 4 PA. Code § 7, Subchapter W was established to protect prime agricultural land from irreversible conversions to uses that result in the loss of land as an environmental or essential food production resource. An Agricultural Security Area is a unit of land used for agricultural production. This designation prevents municipalities from enacting ordinances that restrict normal farming practices on existing farms, discourages condemnation of lands by eminent domain by any governmental agency, and make the lands eligible to participate in the State’s \$100

million Agricultural Easement program where development rights to lands are purchased by a local body to preserve farmlands. Inclusion of property in an Agricultural Security Area does not prevent a landowner from developing the land. These security areas affect the enforcement of ordinances developed under Act 247.

Agricultural Security Areas and Prime Farmland Soils are shown on **Plate 3a**. The Prime Farmland Soils are also defined on the list of Township soils in **Exhibit II-1** of this Plan Update Revision.

Section 1504.G of the Zoning Ordinance as amended allows no more than 20% of Prime Farmland Soils to be altered, graded or built upon, unless a conditional use approval is granted by Solebury Township for up to 50% if additional other resources are protected.

8.0 County Stormwater Management Plans

Act 167, the Stormwater Management Act, requires that each county in the Commonwealth prepare and adopt a stormwater management plan for each watershed located in that county in consultation with the municipalities located in each watershed area. Solebury Township is part of two watersheds, Delaware River South and Neshaminy Creek, which have both enacted Stormwater Management Plans. The Neshaminy Creek stormwater management plan was approved May 18, 1992, whereby Solebury Township adopted a stormwater management ordinance on June 1, 1993. Subsequently, the Delaware River South stormwater management plan was approved on August 11, 2004 and Solebury Township updated their stormwater management ordinance on May 19, 2004.

Solebury Township drafted further revisions to its stormwater management ordinance in 2008. The Township's stormwater management ordinance is written such that it applies to both the Delaware River South and the Neshaminy Creek watersheds. No conflicts exist between the watershed stormwater management plans and the Township stormwater management ordinance. Furthermore, the Township stormwater management ordinance does not conflict with the Township's proposed use of a sewage management program, but rather enhances it from a regulatory perspective.

9.0 Wetland Protection

Sections 1504.E and 1505.B of the Solebury Township Zoning Ordinance provide for the preservation of wetlands. In addition, the Riparian Corridor Overlay District provisions in Section 1507 of the Township Zoning Ordinance apply as well. A riparian corridor is defined as 75 feet from a stream or wetland, or the extent of the 100-year flood plain, whichever is greater. Sewage facilities are specifically prohibited within a Riparian Corridor.

No conflict exists between the selected alternative, a Sewage Management Program, and the protection of wetlands.

10.0 Protection of Rare, Endangered or Threatened Plant & Animal Species

A Pennsylvania Natural Diversity Inventory (PNDI) search was originally conducted for the five main watersheds in Solebury Township in August 2005 and then again in 2011. A list of Special Concern Species and Resources provided by DCNR in 2005 is included in **Exhibit VI-2** of this Plan. Most of the same species are identified in the 2011 PNDI review. Due to the limitations of the PNDI review tool, Solebury Township was searched in nine portions. The nine PNDI reviews are enclosed as **Exhibit VI-3** to this Plan.

Bucks County is also within the range of the endangered bog turtle and the threatened red-bellied turtle as described by the PA Fish & Boat Commission. See **Figure 6-1** for bog turtle locations and **Figure 6-2** for red-bellied turtle locations within Pennsylvania. According to the U.S. Fish and Wildlife Service, the bog turtle is federally listed as threatened but no known bog turtle sites are found within Solebury Township.

Figure 6-1. Bog Turtle Locations

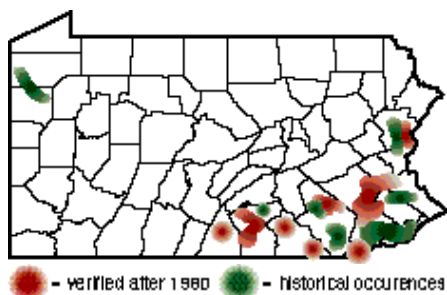
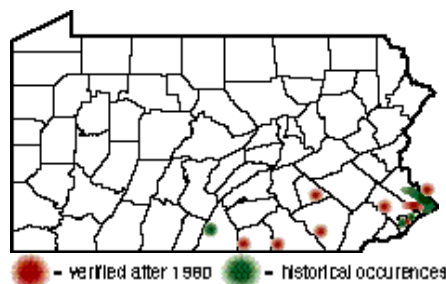


Figure 6-2. Red-Bellied Turtle Locations



The National Park Service (NPS) designated the Lower Delaware River as a ‘Wild & Scenic River’ in 2000. NPS prepared the *Lower Delaware National Wild and Scenic River Study Report*⁶ in 1999, which describes species of concern identified along the Delaware River segments of Solebury Township. The plant species are as described in the PNDI results.

The Federal and State ranked endangered Shortnose Sturgeon is known to spawn in the Lambertville, NJ area. Other species identified in the NPS report include the following, though it is important to note that there are not any hits from the PA Game Commission or the U.S. Fish & Wildlife Service on the PNDI searches for Solebury Township:

- Mammals:
 - ⇒ Keen’s Bat, ranked as rare, inhabits parts of upper Bucks County in the river corridor
 - ⇒ Small-footed Bat, ranked as threatened, in the same locations as Keen’s Bat
 - ⇒ Northern Long-eared bat, ranked as imperiled.
- Reptiles and Amphibians:
 - ⇒ New Jersey Chorus Frog, ranked as rare
 - ⇒ Coastal Plain Leopard Frog, ranked as endangered
- Birds:
 - ⇒ Least Bittern, ranked as threatened, breeds in upper Bucks County.
 - ⇒ Peregrine Falcon, Federally threatened, State endangered
 - ⇒ Bald Eagle, Federal endangered

It is also important to note that the siting of any onlot sewage disposal system under the proposed Sewage Management Program involves performing a site-specific PNDI review during the approval process.

⁶ [Lower Delaware National Wild and Scenic River Study Report](#)

11.0 Historical & Archaeological Resource Protection

Six areas are designated as National Historic Districts in Solebury Township, more than any other rural/suburban municipality in the Commonwealth as shown on **Table 6-1**. Other listings include National Historic Landmarks such as bridges, canals and watershed areas, and some individual properties.

Table 6-1. National Register of Historic Places			
Description	Address	NR ¹	State Only
Atkinson Road Bridge	Atkinson Road near Pidcock Creek Road	X	
Carversville Historic District	Off PA 32 in Carversville	X	
Centre Bridge Historic District	Bounded by Ely & Laurel Roads on River Road	X	
Cuttalossa Historic District	Cuttalossa Road from Sугan Road to Delaware River	X	
Delaware Division of PA Canal		X	
George Nakashima House, Studio & Workshop	1847 & 1858 Aquetong Road	X	
Honey Hollow Watershed	2.5 Miles South of Delaware River on PA 263	X	
Isaiah Paxson Farm	River Road	X	
Lumberville Historic District	Fleecydale, Carversville, River & Green Hill Roads	X	
Phillips Mill Historic District	River Road between Limeport & Chapel Roads	X	
Solebury Historic District			X
Upper Aquetong Valley Historic District	Meetinghouse & Aquetong Rds between US 202 & Sугan Rd	X	
Van Sant Covered Bridge	Covered Bridge Road near Pidcock Creek Road	X	
Washington Crossing State Park	Portion in Solebury Township	X	

¹ NR represents National Register

Solebury Township adopted a Historic District Ordinance, which establishes procedures for review by the Township Historical Architectural Review Board (HARB) of all proposed renovations or building projects within a historic district.

As no specific construction project is proposed under this Plan, a Cultural Resource Notice (CRN) is not requested from the Pennsylvania Historical Museum Commission’s Bureau of Historic Preservation. If a Special Study is initiated in the future, an assessment of historical resource protection will be addressed at that time.

C. Inconsistencies Resolution

As onlot sewage disposal systems are repaired or replaced, the consistency review will need to be reassessed. The implementation of a sewage management program is not inconsistent with any of the above noted resources. No other conflicts have been identified.

D. Water Quality Standards Compliance

No stream discharge systems are proposed. Existing small flow treatment facilities will be inspected and inventoried by Solebury Township or their authorized agent to determine their compliance with water quality standards.

E. Cost Estimates for Plan Implementation

The administrative cost to implement a sewage management program, which involves establishing a database of onlot sewage disposal system pump-outs and inspections, is estimated at \$5 per lot or \$12,500. The administrative cost to develop a public education program, which includes updates to the Township website, preparation and distribution of the Township newsletter and printing brochures, is approximately \$6,000 per year. Ongoing implementation of the sewage management program after the initial database is created is estimated around \$7,500 per year.

F. Funding Methods

Solebury Township may fund a sewage management program from its existing general funds.

Property owners may apply for low-interest loans from \$1,500 to \$25,000 through the Pennsylvania Infrastructure Investment Authority (PENNVEST) or the Pennsylvania Housing Finance Authority to repair or replace onlot sewage disposal systems.

G. Implementation of Selected Alternative

Solebury Township proposes to administer the Sewage Management Program alternative in conjunction with the BCDH. The BCDH will continue to administer facets of the onlot sewage disposal program, including, but not limited to, soils investigation, septic system permitting, malfunction evaluation, complaint investigation, planning module reviews and annual inspection.

Solebury Township proposes to phase in implementation of a Sewage Management Program as follows:

- Adopt ordinances:
 - ⇒ Sewage Management Ordinance (found at **Exhibit V-1**)
 - ⇒ Retaining Tank Ordinance (found at **Exhibit V-3**)
 - ⇒ Preemption of 10-Acre Permit Exemption (found at **Exhibit PS-5**)
 - Update SALDO and Zoning Ordinances to reflect onlot sewage disposal system site constraints
 - Establish database:
 - ⇒ Review BCDH onlot sewage disposal system pump-out and well records
 - ⇒ Review BCDH pumper/hauler records
 - ⇒ Enter existing BCDH data
 - ⇒ Enter pump-out schedules
 - ⇒ Enter malfunctions as discovered
 - Evaluate data to determine need for special study areas
 - Provide educational materials to public using available DEP / EPA handouts
-
-

H. Administrative and Legal Authority

The Official Sewage Facilities Plan Update Revision will be implemented through the continued activities of Solebury Township, BCW&SA, other permitted system owners and the BCDH. Solebury Township will implement the Sewage Management Program in conjunction with the BCDH. The Township will adopt new ordinances and revise existing ordinances to enact the legal authority to meet the goals and sewage facilities' needs of Solebury Township.

**Exhibit VI-1
Bucks County 2011
Comprehensive Plan
(Wastewater Only)**

BUCKS COUNTY COMPREHENSIVE PLAN 2011



Bucks County Planning Commission

1260 Almshouse Road, Doylestown, Pennsylvania 18901
www.buckscounty.org ~ 215-345-3400

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Planning for wastewater treatment and disposal facilities is linked to the protection of public health, protection of water resources, and comprehensive growth and development plans in each community. The location of wastewater systems is a determinant of land use patterns. Likewise, the timing and location of future extensions or new systems influences the location and rate of growth in a community. For this reason, effective planning requires strong coordination between future utility plans and future land use plans.

Wastewater Facilities Legislation and Regulation

There is a significant amount of legislation and regulation related to, and entities involved in, the planning, construction, and operation of wastewater facilities. These include numerous federal, regional, state and local requirements. Many of the pieces of legislation pertain to the overall protection of water quality. Key pieces of legislation pertaining to wastewater facilities and entities involved in the regulation of wastewater include:

Federal Clean Water Act

The most significant federal legislation pertaining to water quality is the 1972 Clean Water Act. The five key provisions of the Clean Water Act that apply to wastewater include:

- **National Pollutant Discharge Elimination System** – A permit program to control water pollution by regulating point sources that discharge pollutants into Waters of the United States.
- **Total Maximum Daily Load (TMDL)** – A program requiring states to identify all impaired waterbodies and establish the amounts that various pollutants need to be reduced to meet water quality standards.
- **National Pretreatment Program** – Requires standards designed to control pollutants from industrial users which may pass through or interfere with publicly-owned treatment works treatment processes or which may contaminate sewage sludge.
- **Biosolids Program** – Establishes requirements for the final use or disposal of sewage sludge biosolids and creates incentives for the beneficial use of biosolids for agriculture, horticulture, forest crops, and vegetation.
- **Water Quality Management Plan** – Directs states to develop areawide wastewater management plans for areas identified as having water quality problems. In 1980, the Delaware Valley Regional Planning Commission completed such a plan for southeastern Pennsylvania titled *COWAMP/208*.

State

Pennsylvania Clean Streams Law (1937) – Regulates the discharge of sewage, industrial waste and other substances that contribute to water pollution.

Pennsylvania Municipal Authorities Act (1945) – Authorizes municipalities to create a municipal authority for the purposes of acquiring, constructing and operating various types of projects, including sewage treatment facilities.

Pennsylvania Sewage Facilities Act (Act 537 of 1966) – Requires municipalities to develop and implement official sewage facilities plans designed to ensure adequate sewage service for existing needs and future growth.

Pennsylvania Department of Environmental Protection – Reviews and approves official sewage facilities plans to ensure compliance with regulations; administers the NPDES permit program, and issues Water Quality Permits for wastewater facilities.

Regional

Delaware River Basin Commission (DRBC) – The Delaware River Basin Commission (DRBC) reviews and has the authority to approve or deny projects that are defined as having a substantial effect on the water resources of the Delaware River Basin. Relative to wastewater this includes plants discharging greater than 50,000 gallons per day (gpd) into the basin. Additionally, the DRBC has the authority to establish wasteload allocation limits specifying the amount of pollutants that can be discharged by individual plants.

County

The county has no regulatory authority as related to wastewater systems; however, three county agencies are involved indirectly in wastewater planning and provision of service:

- Bucks County Planning Commission – reviews proposed revisions and amendments to official Act 537 sewage facilities plans and planning module applications for individual developments.
- Bucks County Department of Health – conducts inspections of municipal and industrial treatment plants, as well as some single residence sewage treatment plants, permits and inspects proposed repairs to existing facilities, and inspects septage and biosolids hauling vehicles.
- Bucks County Water and Sewer Authority – is an operations agency responsible for collecting and treating wastewater in parts of Bucks County.

Local

Municipal sewer departments and municipal authorities are responsible for the daily operation and maintenance of public wastewater treatment plants and conveyance facilities. As Table 31 indicates Bucks County has 3 municipal sewer departments and 22 municipal authorities providing sewage collection or treatment. Municipal governing bodies are responsible for developing, adopting, and implementing official sewage facilities plans (Act 537 plans) as required by the Pennsylvania Sewage Facilities Act.

Table 31
Municipal Sewer Departments and Municipal Authorities

Municipal Sewer Departments	
Buckingham Township	
Dublin Borough	
East Rockhill Township	
Warrington Township	
Quakertown Borough	
Municipal Authorities	
Bedminster Municipal	Morrisville Borough Municipal
Bristol Borough Sewer	Newtown Bucks County Joint Municipal
Bristol Township	Northampton Bucks County Joint Municipal
Bucks County Water and Sewer	Pennridge Wastewater Treatment
Chalfont - New Britain Township Joint Sewage	Telford Borough
Hilltown Township Water and Sewer	Township of Falls
Hulmeville Municipal	Upper Southampton Sewer
Lower Bucks County Joint Municipal	Warminster Township Sewer
Lower Makefield Township Municipal Sewer	Warwick Township Water and Sewer
Milford - Trumbauersville Area Sewer	Yardley Borough Sewer

Source: Bucks County Planning Commission

Wastewater Facilities Planning

In response to passage of Act 537, the first wastewater facilities plan in Bucks County, the *Bucks County Sewerage Facilities Plan* (1970), served as a precursor to individual municipal wastewater facilities plans as required by Act 537. The plan was adopted by 52 of the 54 county municipalities and served initially as their official sewage facilities plan. The *Bucks County Sewerage Facilities Plan Update* (1977) served as an update to the 1970 Plan and addressed changes in wastewater facilities planning and emphasized the need to evaluate a variety of options, rather than just promoting the expansion of existing centralized sewerage systems.

Subsequent to the 1970 and 1977 county wastewater facilities plans, municipalities developed their own official Act 537 plans. Many are more than 30 years old, 13 have plans between 20 and 30 years old, and another 10 have plans between 10 and 20 years old, indicating a need to update these plans. A few municipalities are currently updating their plans.

Municipal Act 537 plans, in conjunction with zoning and comprehensive plans, determine where future growth is located and the type of development allowed. As such, coordination between these various plans is important to ensuring that development is directed in the manner desired by the community. A lack of coordination can result in unintended growth due to the extension of public sewers into non-designated growth or rural areas. The lack of coordination at the state level of land use laws and sewage facilities laws makes it difficult for communities to ensure that wastewater facilities and land use decisions are consistent.

The development district concept is designed to attract growth to designated development areas to help protect natural resource features outside of the development district, and to allow for the cost-efficient

provision of municipal services such as wastewater and other utilities in a concentrated area. The provision of public sewer service with centralized treatment facilities is part of the development district concept in that it can help guide development to the area with service availability. Historically, centralized facilities were advocated based on the belief that these types of facilities offered more cost effective construction, more manageable oversight, and because these facilities have a proven record. Similarly, when development does occur outside of the development district, the use of on-lot and/or community systems should be the preferred alternatives.

Wastewater Facilities Selection

The design and selection of appropriate wastewater facilities involves an analysis and comparison of all feasible alternatives for the collection, conveyance, treatment and disposal of wastewater.

The four general categories of wastewater systems include:

1. **Centralized systems** – Wastewater is collected from many households, businesses and institutions and transported to a centralized off-site facility for treatment and effluent disposal;
2. **Individual On-Lot systems** – Wastewater for an individual residence or business is collected, treated and disposed of or reused at or near the point of generation;
3. **Community systems** – Community systems collect, treat and dispose of wastewater generated by multiple residences and/or businesses of an are, single development, or multiple developments.
4. **Industrial systems** (or pretreatment facilities) – Industrial systems are designed to treat water or liquid that carries wastes from industrial operations. The purpose of treating industrial wastewater is to make it acceptable for discharge into a receiving water body such as a river, stream or lake, or into a municipal treatment plant (pretreatment).

Wastewater systems are typically comprised of three basic components:

1. **Collection and conveyance** – Collection and conveyance systems are comprised of a system of pipes and pumps used to collect and convey wastewater from individual sources to treatment facilities. These systems are often gravity sewers, but may also include vacuum sewers, low-pressure (force main) sewers, or small diameter gravity sewers.
2. **Treatment** – Treatment options vary based on the type of wastewater system. Some treatment options such as lagoons and constructed wetlands are common to both centralized treatment facilities and on-lot systems, while other treatment options are unique to one type of system. For example, septic tanks, small aerobic treatment units, and recirculating sand filters are unique to on-lot systems. Similarly, traditional municipal treatment plants are unique to centralized systems, although smaller versions of these systems known as package treatment plants can be incorporated as part of a community system.

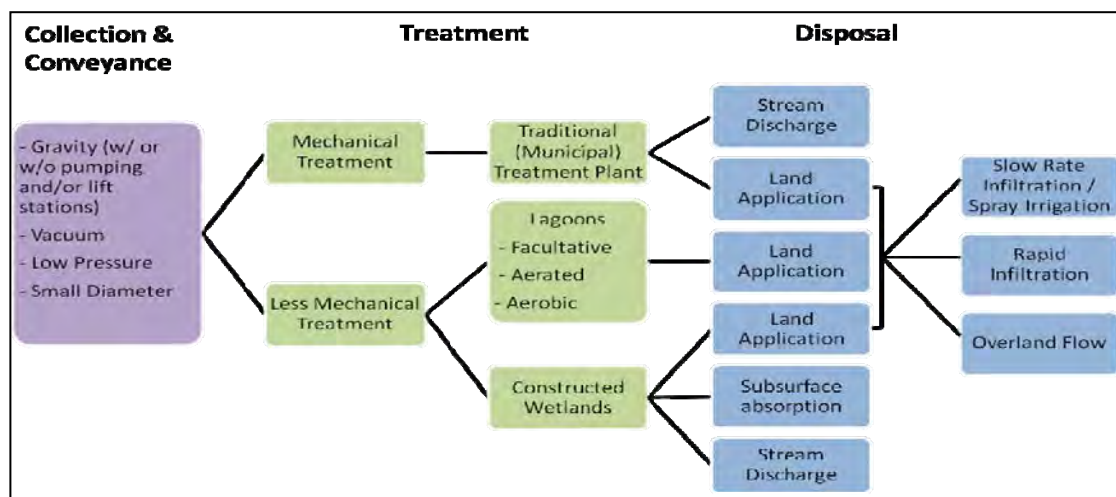
3. **Disposal** – As with collection/conveyance and treatment, there are a variety of wastewater disposal techniques. The predominant forms of wastewater effluent disposal in Bucks County include:
- **Stream discharge** – The primary form of treated effluent disposal for centralized and community systems, this method releases treated effluent into a surface water body such as a stream. Although required to meet discharge requirements under the NPDES, potential problems can arise that can have serious negative environmental consequences on high quality and exceptional value streams.
 - **Land application** – Primarily used for centralized and community systems, and increasingly for individual on-lot systems, this involves the controlled application of wastewater effluent to soil where various processes treat the effluent as it passes through the soil. Land application of wastewater effluent has advantages over other means of disposal because the wastewater recharges the groundwater system, increases base flow in streams, and has reduced potential for negative environmental impacts. Buckingham Township is the only municipal authority or department using land application techniques in the county.
 - **Subsurface discharge to absorption field** – A subsurface absorption field is designed to receive liquid effluent from treatment facility and distribute it over an absorption area where it is allowed to seep into the soil where soil filtering and bacterial actions treat the harmful material in the effluent, completing the treatment process so that the water is recycled to the surface or groundwater source.
 - **Elevated sand mound** – Certain soil conditions do not allow for conventional subsurface discharge due to limiting zones such as bedrock, impervious soil layers, a high water table, or a seasonal high water table. In such areas, elevated sand mounds can be used for effluent disposal by using a special blend of sandy fill material and gravel placed on top of the natural soil.

The interchangeable, mix-and-match nature of the various types of collection, treatment and disposal options, combined with the variety of wastewater systems, allows for a range of choices for municipalities and property owners. Municipalities develop a hierarchy or prioritized list of alternatives, which is incorporated into the municipality's Official Sewage Facilities Plan (Act 537 Plan) that meets municipal goals. The list of alternatives should be evaluated and established based on a variety of factors including:

- **Regulation** – Wastewater facilities are subject to a variety of regulation. Pennsylvania Code Chapter 73 specifies certain site requirements for on-site wastewater disposal systems. Additionally, all wastewater facilities planning needs to meet mandated requirements, and also be consistent with the municipality's Act 537 Plan.

- **Physical Factors** – Physical obstacles such as geology, soil, topography, lot size or shape, the characteristics of the wastewater, or other physical constraints, may limit the type of wastewater components available for a particular site.
- **Environmental Factors** – When designing wastewater facilities, consider the potential impact to the environment such as the possibility for groundwater contamination resulting from sewage overflows and leaking septic tanks and lines; the impact to natural resources stemming from new development associated with the extension of public sewer lines; and air and water quality impacts stemming from odor, chemical and particulate emissions from treatment facilities and sludge incinerators.
- **Financial Factors** – The evaluation and selection of wastewater systems need to take into consideration both the initial capital costs, which can vary widely based on a variety of different costs including the cost of land; the cost of various system components; trenching and excavation costs, and permit fees, as well as the ongoing operation and maintenance costs associated with the system.
- **Health Concerns** – Health concerns need to be given consideration; inadequately treated sewage carries the risk of infectious bacteria, viruses, parasites and toxic chemicals. These risks pose a threat to groundwater and can result in groundwater contamination from a variety of sources including broken, leaking, or overloaded pipes that allow untreated and/or inadequately treated sewage to be released directly into the environment. Another health concern stems from unused medications being improperly disposed of by flushing them down sinks or toilets. Drugs and chemicals entering our wastewater systems can result in these drugs showing up in both surface and groundwater since most treatment methods do not remove all drug and chemical residues.

Figure 15
Wastewater System Options



Source: Bucks County Planning Commission

Traditional wastewater facilities selection and planning advocated the use of stream discharge systems for municipal treatment plants, and septic tanks and elevated sand mound systems for on-lot systems, as these techniques have been tried and proven and have often been more cost-effective as compared to other systems. However, the emergence of new wastewater technologies has resulted in many worthy and sustainable alternatives to these traditional systems. Sustainable wastewater technologies focus on wastewater being an asset versus a liability. These technologies advocate returning water to the area from which it was drawn, resulting in no waste disposal into water bodies. This is particularly important in areas which lie within the Delaware River Basin Commission's designated groundwater protection area. Land application technologies such as those in use in Buckingham Township are representative of this type of sustainable wastewater system.

Wastewater Facilities Capacity, Operation, and Maintenance

Proper operation and maintenance of on-lot, community and municipal wastewater treatment facilities is essential to the protection of public health and natural resources. Failing on-lot systems and overloaded municipal treatment plants can pose both health and environmental concerns.

Municipal Facilities

The two capacity related problems afflicting municipal treatment plants within Bucks County are overloads, both hydraulic and organic, and future reserve capacity. Hydraulic overloads occur when the monthly average flow entering a plant exceeds the monthly average flow capacity upon which the permit and the plant design are based during a consecutive three month period, or when the flow in any portion of the system exceeds its hydraulic carrying capacity. Organic overloads occur when the monthly average organic load exceeds the organic load capacity upon which the permit and the plant design are based.

In addition to overload issues, future reserve capacity issues can be problematic. Capacity issues may be the result of the entire plant being at capacity and in need of an expansion, or may be the result of one (or more) municipality utilizing its (their) allotted space at a plant. When either of these conditions occur, a sewer moratorium can be put into place to prevent further connections to the system until corrective actions have been taken to address the issue.

To monitor overload and future capacity issues, Chapter 94 of the PA Code requires owners of sewerage facilities to properly plan, manage and maintain their facilities, and to submit an annual Chapter 94 Wasteload Management Report to the PaDEP.

Chapter 94 Reports are then reviewed for consistency with Act 537 Official Plans and used to monitor and regulate sewerage facilities. Proposed Act 537 Plan revisions associated with proposed land developments and subdivisions are disapproved when:

- Facilities are overloaded, and an acceptable plan and schedule for reducing overloads has not been submitted; or
- Facilities have allocations beyond available reserve capacity, and an acceptable plan and schedule for reducing overloads has not been submitted.

Continuous supervision, operator training and funding from user charges can help minimize operational and maintenance problems associated with municipal treatment facilities. However, problems can still occur by industries discharging untreated or improperly treated industrial wastes into the wastewater system, which can upset the treatment processes of the municipal plant. Additionally, failure to maintain conveyance systems can result in infiltration and inflow (I&I), which leads to hydraulic overload problems.

On-Lot Disposal Systems

On-lot disposal systems require minimal routine maintenance. However, problems with on-lot systems can originate from a variety of sources including the natural aging of the system components, too much wastewater entering the system, poor maintenance of the system, adverse site conditions, septic tanks that are not watertight, absorption fields that are paved or parked on, or toxic cleaners and chemicals or foreign objects entering the system.

Often the solution to alleviate malfunctioning on-lot systems has resulted in the extension of expensive public sewer facilities to the affected area with little or no effort given to trying to rehabilitate the existing system. In addition to the expense involved in the extension of public sewer facilities, such extensions often result in additional development pressures due to the availability of sewer facilities and abandonment of functioning systems, as all homeowners along the path of the extension are generally required to connect to the system.

Holding tanks have also been used as a substitute for failing on-lot system. Wastewater is collected and stored on-site and eventually transported to another site, typically a municipal treatment plant, for treatment and disposal. The use of holding tanks is typically considered only as a short-term temporary solution. Dependent on the size of the tank and the quantity of the flow, holding tanks may require frequent pumping resulting in holding tanks being expensive for individual homeowners. Based on the expense involved, and the need to transport the wastewater elsewhere for treatment, the PaDEP discourages the use of holding tanks.

To help avoid the malfunction of on-lot systems, several municipalities have adopted On-Lot Disposal Systems management programs designed to provide for the ongoing maintenance and inspection of on-lot systems in an effort to reduce failures of these systems. Some municipalities, or PaDEP, require that replacement absorption areas for failed systems be identified in the system design in case of the need for rehabilitation of the system in the future.

These programs include requirements for:

- Frequency of septic tank pumping;
- Required Operation and Maintenance manuals for certain on-lot systems such as individual residential spray irrigation systems;
- Water conservation requirements;
- Use and permitting of holding tanks;

- Septage handling requirements, including collection, transport, and disposal;
- Need for small flow treatment facilities to connect to public sewer should it become available;
- A hierarchy of available alternatives for the repair or replacement of existing failed systems.

Community and Industrial Wastewater Facilities

As the maintenance and operation of community facilities are typically the responsibility of homeowners' associations or the owner of the facility generating the industrial waste, problems with these systems arise from a variety of factors including inadequate funding, insufficient operator training, or a lack of properly trained operators. To help minimize the potential for operational and maintenance issues of community and industrial wastewater facilities, PaDEP has required that municipalities be co-permittees so that funding is available to correct problems that may arise.

Biosolids and Septage

In addition to treated wastewater effluent, biosolids (residual organic materials produced during wastewater treatment) also need to be managed. Options for managing wastewater biosolids include:

- Land Application – Biosolids can be applied to land as a soil conditioner or fertilizer.
- Incineration – De-watered solids can be burned at very high temperatures to reduce the organic residuals to an ash that can be disposed of or reused.
- Beneficial Use Products – A variety of beneficial use products can be derived from biosolids including pellets that are used as a fertilizer for lawn care, turf production, and vegetable production, and a composted peat-like product for use in the production of soil additives for revegetation of topsoil depleted areas.

Septage, the partially treated waste pumped out of a septic tank, can be transported to wastewater treatment facilities, used by farmers for fertilizer, or stored in large septage storage facilities for later treatment or use on crops. Most septage generated in Bucks County is from residential sources. Non-residential sources include wastewater from commercial/industrial development, grease interceptors at food establishments, portable toilets, and RV or boat wastes disposal facilities. Because septage is periodically removed (with a frequency depending on tank capacity, system efficiency, and usage level, and municipal management programs), a significant amount is generated and its collection, transport, and disposal must be properly managed.

Strategies and Actions

Wastewater Facilities – Planning

- Update the wastewater facility (Act 537) plans for municipalities with plans greater than 20 years old or when determined outdated.

- Develop better ways to coordinate wastewater facilities planning, land use planning, and comprehensive planning, in light of the conflicting state laws governing wastewater and land use.
- Use centralized wastewater systems in designated growth/development areas and the allocation of sufficient capacity wastewater treatment plants intended to serve these areas.
- Encourage the use of community on-lot systems over extension of public sewer for areas experiencing on-lot disposal system malfunctions and for new community developments outside of designated growth areas/development areas.

Wastewater Facilities – Selection, Capacity, Operation and Maintenance

- Support efforts to upgrade treatment capacity and treatment processes of municipal treatment plants that are experiencing hydraulic and organic overloads or future reserve capacity issues.
- Work with municipalities to develop educational programs designed to inform the public of the need for on-lot disposal system maintenance and management programs.
- Require detailed wastewater facilities alternatives analyses for proposed extensions of public sewer outside of designated growth areas.
- Advocate the use of community wastewater systems that minimize environmental impacts and promote land disposal of treated wastewater to enable groundwater recharge.
- Discourage the use of stream discharge systems, particularly into streams designated as high quality of exceptional value waters.
- Continue to work with responsible agencies to encourage the enforcement of industrial wastewater pretreatment standards for all municipal wastewater systems.
- Review and update as needed municipal ordinances and regulations to be consistent with Bucks County Department of Health and PaDEP regulations and municipal Act 537 plans.

Expand Business and Job Opportunities

Guiding Principles—Promote Economic Opportunity, Housing Diversity, and Efficient Land Use; Preserve Agricultural Farmland; Protect Natural, Historic, and Scenic Resources

Economic Development is the process of improving the community’s well-being through job creation, business and income growth, as well as through enhancements to the community that improve quality of life and strengthen the economy.

The current and future success of the county is dependent on finding the right balance of economic growth with the other traditionally strong aspects of life in the county. These include: quality schools and colleges, open space for recreation and sprawl mitigation, farming heritage, cultural venues, high quality housing stock, mix of housing, and the proximity of other centers of employment.

Bucks County has many advantages, including its quality of life, educated labor force, and location, that make it a good place for business growth. Competing in a world economy for businesses and jobs requires the engagement of many partners—public and private, regional and local—who can work together to attract new businesses and to encourage expansion of businesses already here.

Economic development needs to reflect community characteristics, such as protecting the rich natural and historic character of the county, the location and capacity of infrastructure, and the availability and housing of the workforce. It is one of the important building blocks of the comprehensive plan, connected to other priorities for implementation because the economic future depends on other plan components: focusing growth in areas with good transportation and infrastructure; attracting young people to Bucks County with a diverse housing market and good communities; and preserving the character of the county and its resources. The guiding principles for economic development are:

- Target areas for development and areas for preservation. Guide development toward older suburbs, town centers, areas with existing buildings, brownfield sites, areas with existing infrastructure, transportation, and housing, and the Delaware riverfront.
- Target industry clusters we want to nurture and attract. Knowledge-based businesses, green jobs, and biotechnology are key industries where Bucks has a foothold and can grow. Use existing industries as magnets for others. Anticipate the need for ancillary services to support industries.
- Continue all programs that enhance quality of life in Bucks County, including open space and environmental protection, fostering arts and culture, and protecting quaint small towns.

Top County Actions

Several plan strategies and actions fall within the jurisdiction of Bucks County government for implementation. These county actions were compiled and grouped into three categories: county plans/studies, municipal planning assistance, and model ordinance development (as shown in the boxes below). While these actions have been categorized, neither the individual listings nor the category listings are in order of priority. Time and resources may dictate if and when individual actions are undertaken in the future.

The following is a listing of potential plans, studies, or reports that may be produced either by the county independently or with the county's assistance in cooperation with other organizations and/or agencies.

County Plans/Studies

- Key Industries Study (important industries the County should nurture and attract)
- Critical Transportation Corridor Management Plan
- Infill and Redevelopment Site Assessment
- Economic Development Study
- Countywide Stormwater Management Plan
- Drought Protection and Emergency Water Supply Plan
- Housing Opportunities Study
- Regional Agricultural Areas Preservation Assessment
- Agricultural and Farm Support Services Inventory
- Historic Preservation Resources Inventory
- Organic Waste Management Study (diversion & alternative use)
- County Branding and Marketing Study
- County Space Needs Assessment
- Developments of Regional Significance and Impact Assessment

The county will continue its ongoing actions to assist local communities with their planning efforts, including funding options, project management, and project consultation. The county will work with communities to fulfill their specific planning and zoning needs upon request. The types of plans and products that the county could provide assistance include the following:

Municipal Planning Assistance

- Municipal and Joint Comprehensive Plan, Zoning Ordinance, and Subdivision and Land Development Ordinance Updates
- Water Resources Planning
- Jobs and Business Growth Study
- Downtown/"Main Street" Plans (strategies for streetscape improvements, good store design, and economic development, organization, and promotion activities)
- Corridor Plans (strategies to address transportation issues and coordinate signage, landscaping, and streetscaping)
- Illustrated Development Guides/Standards for Key Development and Redevelopment Areas
- Access Management and Traffic Calming Plans
- Municipal Park & Recreation and Open Space Plans
- Source Water Protection Plans
- Wastewater Facility (Act 537) Plan Updates
- Neighborhood Plans (targeting opportunities to improve the quality of life)
- Greenway Corridor Feasibility Plans
- Transfer of Development Rights Programs
- Groundwater Studies
- Pedestrian and Bicycle Master Plans
- Critical Facilities/Infrastructure Action Plans (strategies to reduce potential damage and loss of function)
- Critical Habitat Studies (strategies to increase habitat connectivity, reduce habitat fragmentation, and enhanced habitat islands)
- Scenic Resource Studies (establishing specific criteria)
- Recycling Assessments (strategies for increasing recycling)

The county can provide additional guidance to municipalities by preparing model ordinance language for specific planning standards and criteria. Bucks County Planning Commission has prepared model ordinances on various planning topics including: village planning; natural resource protection standards; traffic impact studies; swimming pools; on-lot disposal systems management; and cellular telecommunication facilities. The types of ordinance language that the county could develop beyond those already provided include:

Model Ordinance Development

- Mixed-Use Traditional Neighborhood Developments and Live-Work Unit Standards
- Transit Oriented Development Design Standards
- Agricultural Use Standards (provisions for farm operation, agricultural soil, and support services retention and expansion; agritainment/agritourism and other accessory businesses and uses, and accessory energy facilities and associated design, sign and buffer standards)
- Greenway Corridor Standards
- Trail and Open Space Link Criteria
- Scenic Roads and Vistas Criteria
- Waste Management, Minimization, and Recycling Ordinance

Plan Monitoring

Monitoring and evaluating the progress in achieving this plan’s visions and principles is needed to ensure its success and to allow for adjustments in response to economic, social, or regional changes. The plan includes the following monitoring activities.

Community Indicators

Community indicators or ‘measures of success,’ provide information about past and current trends by providing quantifiable and measurable information about the county. Indicators can provide insight into the overall direction of a community, its population and economy, built and natural environment, transportation and civic involvement. Indicators can be used to determine how effective a plan or policy has been at promoting sustainability and smart growth, at linking the economy, environment and society goals. Indicators can be used with benchmarks and targets to evaluate performance and track progress.

Measuring progress is important to determining the effectiveness of any plan by seeking feedback on progress being made in meeting the plan’s goals and promoting its policies. Using informational tools to monitor progress provides an opportunity for feedback and for adjustments to strategies or actions. An indicator is a measurement that assists in demonstrating movement toward or away from a plan’s vision and principles; it is understandable and relevant. Benchmarks establish a “starting point”—the state of an indicator as of a particular point in time (for example, the year 2011). A target is a quantifiable outcome that provides a framework for measuring progress. Targets should be ambitious yet obtainable.

Identification of proposed indicators and targets helps to measure progress toward the 2030 vision and principles of this plan. Following the adoption of this plan, key indicators, benchmarks, and

- There was consensus that the establishment of riparian buffers along stream corridors was needed to assist in the protection of water supply sources and that the county and municipalities should work with local organizations to help restore and establish these buffers.

Stakeholders felt that more needs to be done by the State to address the Marcellus shale/fracking issues to help protect water supplies

Wastewater

- There was broad-based support for discouraging the use of stream-discharge wastewater systems and instead, encouraging the use of land disposal systems that promote groundwater recharge.
- Stakeholders felt that the lack of pumping over time is the primary cause of failing on-lot systems (e.g. septic systems) and that inspections and requiring pumping every 3 years were needed to prevent on-lot sewage disposal system failures.

Stormwater

- Stakeholders expressed a need for regulations to require stormwater runoff infiltration to recharge groundwater and want to see natural areas utilized for infiltration.
- Municipal officials don't want residents doing their own stormwater management because they are afraid of an influx of neighbor complaints and they don't have the capacity to deal with the calls they currently receive.
- Stakeholders agreed that there is a need for increased regional stormwater management in order to help address the impact on Lower Bucks from development activity occurring in Central and Upper Bucks.
- There was a clear interest in having more education on stormwater management involving partnerships between the county and engineering firms.

Exhibit VI-2
DCNR Special Concern
Species & Resources

**Special Concern Species and Resources
DCNR Jurisdiction
8/11/2005**

Watershed	Scientific Name	Common Name	Last Observed	Global Rank	State Rank	State Status	Proposed State Status
Paunacussing Creek	<i>Potamogeton illinoensis</i>	Illinois Pondweed	6/25/1985	G5	S3S4	TU	PR SP (2011)
Cuttalossa Creek	<i>Potamogeton illinoensis</i>	Illinois Pondweed	6/25/1985	G5	S3S4	TU	PR SP (2011)
Primrose Creek	<i>Solidago speciosa var. speciosa</i>	Showy Goldenrod	9/11/1962	G5T5?	SNR S2 (2011)	N	PT
	<i>Ellisia nyctelea</i>	Ellisia	5/5/1999	G5	S2	PT	PT
	<i>Ellisia nyctelea</i>	Ellisia	5/3/2011	G5	S2	PT	PT
	<i>Ptelea trifoliata</i>	Common Hop-tree	5/6/1998	G5	S2	PT	PT
Aquetong Creek	<i>Carex meadii</i>	Mead's Sedge	7/5/1997	G4G5	S1	TU	PE
	Springs	Springs	5/22/1998	GNR	SNR		
	<i>Senna marilandica</i>	Wild Senna	9/24/1987	G5	S1 S3 (2011)	TU	PE PR (2011)
Pidcock Creek	Tulip tree-beech-maple forest		7/20/1998	GNR	S4		
	<i>Epilobium strictum</i>	Downy Willow-herb	9/30/1950	G5?	S3S4 S3 (2011)	PE	PR
	<i>Corallorhiza wisteriana</i>	Spring Coral-root	5/14/1991	G5	S1	TU	PE
	<i>Dryopteris celsa</i>	Log Fern	7/15/1953	G4G5	S1	N	PE
Not on 2011 List ▶	<i>Panicum bicknell</i>	Bicknell's Panic-Grass	9/4/1951	G4?Q	SU	TU	TU
	<i>Triosteum angustifolium</i>	Horse-gentian	5/21/1953	G5	S1	TU	PE
	<i>Woodwardia areolata</i>	Netted Chainfern	7/13/1998	G5	S2	N	PT
	<i>Carex typhina</i>	Cattail Sedge	7/13/1998	G5	S2	PE	PT
	<i>Bartonia paniculata</i>	Screw-stem	9/29/2000	G5	S3	N	TU PR (2011)
	<i>Cuscuta campestris</i>	Dodder	9/29/2000	G5	S3 S2 (2011)	N	TU PT (2011)
	Herbaceous vernal pond		3/6/1998	GNR	S3S4		
	<i>Schoenoplectus fluviatilis</i>	River Bulrush	7/17/1997	G5	S3	PR	PR
	<i>Carex meadii</i>	Mead's Sedge	7/5/1997	G4G5	S1	TU	PE

G4-Apparently secure; G5-Secure; GNR-Not ranked; S1-Critically imperiled; S-2-Imperiled; S3-Vulnerable; S4-Apparently secure; SNR-Not ranked; N-No current rank; PE-PA Endangered; PR-PA Rare; PT-PA Threatened; TU-Tentatively undetermined

Exhibit VI-3
2011 PNDI Reviews

1. PROJECT INFORMATION

Project Name: **Solebury 1**

Date of review: **7/11/2011 10:17:11 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **2166.7** acres

County: **Bucks** Township/Municipality: **Solebury**

Quadrangle Name: **LUMBERVILLE** ~ ZIP Code: **18933,18938,18901,18913**

Decimal Degrees: **40.330842 N, -75.006408 W**

Degrees Minutes Seconds: **40° 19' 51" N, -75° 0' 23.1" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **3. Unknown**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send

project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of Minimum Materials to be submitted:

___ **SIGNED** copy of this Project Environmental Review Receipt

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)

___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

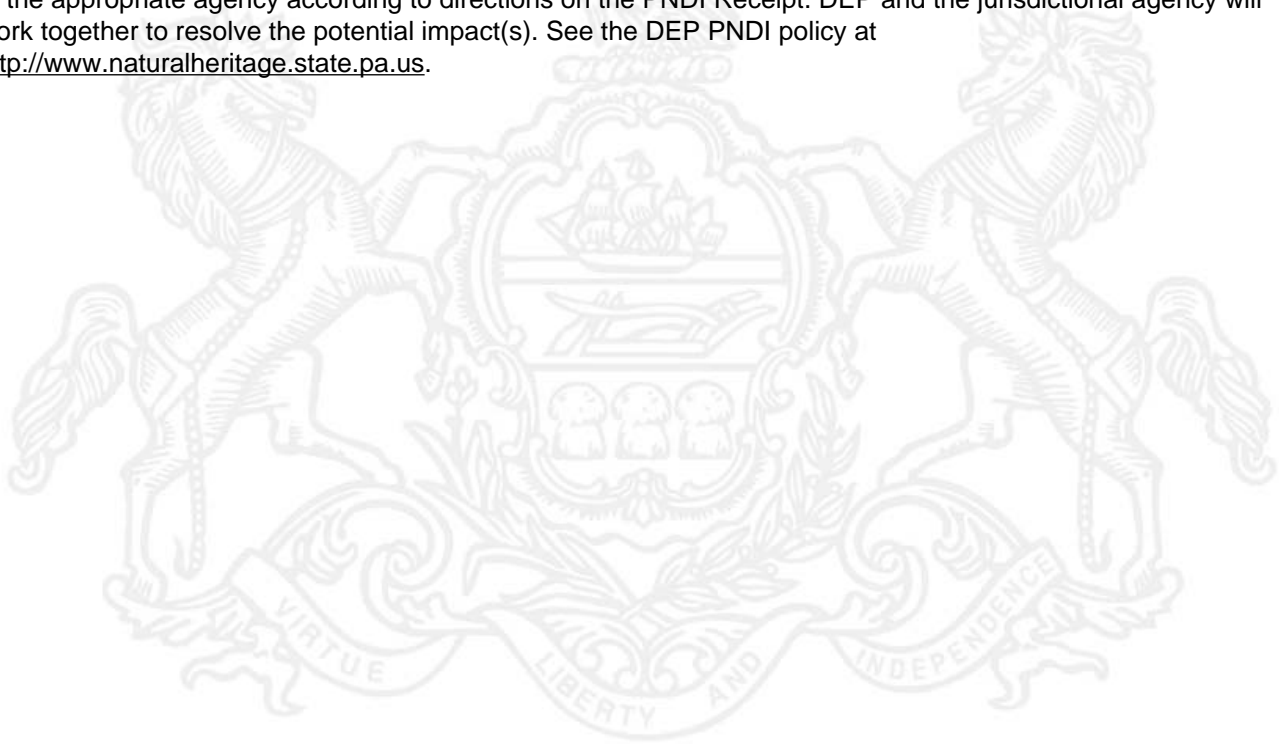
___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

____ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 2**

Date of review: **7/11/2011 10:26:57 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **1715.5 acres**

County: **Bucks** Township/Municipality: **Buckingham, Solebury**

Quadrangle Name: **LUMBERVILLE** ~ ZIP Code: **18938, 18901, 18913**

Decimal Degrees: **40.333459 N, -75.016021 W**

Degrees Minutes Seconds: **40° 20' 0.5" N, -75° 0' 57.7" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not

reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted:*

- ___ **SIGNED** copy of this Project Environmental Review Receipt
- ___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- ___ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 3**

Date of review: **7/11/2011 10:30:33 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **2169.2** acres

County: **Bucks** Township/Municipality: **Solebury, Buckingham**

Quadrangle Name: **BUCKINGHAM** ~ ZIP Code: **18938, 18901**

Decimal Degrees: **40.326654 N, -75.011901 W**

Degrees Minutes Seconds: **40° 19' 36" N, -75° 0' 42.8" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Carex meadii

Common Name: Mead's Sedge

Current Status: Special Concern Species*

Proposed Status: Endangered

Scientific Name: Carex typhina

Common Name: Cattail Sedge

Current Status: Endangered

Proposed Status: Threatened

Scientific Name: Springs

Common Name: Springs

Current Status: Special Concern Resource*

Proposed Status: Special Concern Resource*

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted:*

- ___ **SIGNED** copy of this Project Environmental Review Receipt
- ___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- ___ The DEP permit(s) required for this project

4. DEP INFORMATION

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5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
 400 Market Street, PO Box 8552, Harrisburg, PA.
 17105-8552
 Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
 315 South Allen Street, Suite 322, State College, PA.
 16801-4851
 NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
 450 Robinson Lane, Bellefonte, PA. 16823-7437
 NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
 Division of Environmental Planning and Habitat Protection
 2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
 Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
 Company/Business Name: _____
 Address: _____
 City, State, Zip: _____
 Phone:(_____) _____ Fax:(_____) _____
 Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
 applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 4**

Date of review: **7/11/2011 10:35:30 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **1343.3** acres

County: **Bucks** Township/Municipality: **Solebury**

Quadrangle Name: **LUMBERVILLE** ~ ZIP Code: **18938**

Decimal Degrees: **40.339740 N, -75.011215 W**

Degrees Minutes Seconds: **40° 20' 23.1" N, -75° 0' 40.4" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **3. Unknown**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical

survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: *Cuscuta campestris*

Common Name: Dodder

Current Status: Special Concern Species*

Proposed Status: Threatened

Scientific Name: *Ellisia nyctelea*

Common Name: *Ellisia*

Current Status: Threatened

Proposed Status: Threatened

Scientific Name: *Ptelea trifoliata*

Common Name: Common Hop-tree

Current Status: Threatened

Proposed Status: Threatened

Scientific Name: *Solidago speciosa* var. *speciosa*

Common Name: Showy Goldenrod

Current Status: Special Concern Species*

Proposed Status: Threatened

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further

consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

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WHAT TO SEND TO JURISDICTIONAL AGENCIES

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6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

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PA Fish and Boat Commission

Division of Environmental Services
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PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
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Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 5**

Date of review: **7/11/2011 10:39:39 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **1929.0** acres

County: **Bucks** Township/Municipality: **Solebury, New Hope**

Quadrangle Name: **STOCKTON** ~ ZIP Code: **18938**

Decimal Degrees: **40.342357 N, -75.003662 W**

Degrees Minutes Seconds: **40° 20' 32.5" N, -75° 0' 13.2" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **3. Unknown**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical

survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: *Cuscuta campestris*

Common Name: Dodder

Current Status: Special Concern Species*

Proposed Status: Threatened

Scientific Name: *Ellisia nyctelea*

Common Name: *Ellisia*

Current Status: Threatened

Proposed Status: Threatened

Scientific Name: *Ptelea trifoliata*

Common Name: Common Hop-tree

Current Status: Threatened

Proposed Status: Threatened

Scientific Name: *Senna marilandica*

Common Name: Wild Senna

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

Scientific Name: *Solidago speciosa* var. *speciosa*

Common Name: Showy Goldenrod

Current Status: Special Concern Species*

Proposed Status: Threatened

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of Minimum Materials to be submitted:

- SIGNED** copy of this Project Environmental Review Receipt
- Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute

quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
 400 Market Street, PO Box 8552, Harrisburg, PA.
 17105-8552
 Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
 315 South Allen Street, Suite 322, State College, PA.
 16801-4851
 NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
 450 Robinson Lane, Bellefonte, PA. 16823-7437
 NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
 Division of Environmental Planning and Habitat Protection
 2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
 Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
 Company/Business Name: _____
 Address: _____
 City, State, Zip: _____
 Phone:(_____) _____ Fax:(_____) _____
 Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
 applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 6**

Date of review: **7/11/2011 10:44:26 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **1568.2** acres

County: **Bucks** Township/Municipality: **Solebury, Buckingham, Upper Makefield**

Quadrangle Name: **BUCKINGHAM** ~ ZIP Code: **18940, 18938**

Decimal Degrees: **40.327178 N, -75.076446 W**

Degrees Minutes Seconds: **40° 19' 37.8" N, -75° 4' 35.2" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNr.aspx.)

Scientific Name: Carex meadii

Common Name: Mead's Sedge

Current Status: Special Concern Species*

Proposed Status: Endangered

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted:*

- ___ **SIGNED** copy of this Project Environmental Review Receipt
- ___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- ___ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at

<http://www.naturalheritage.state.pa.us>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 7**

Date of review: **7/11/2011 10:48:18 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **1539.2** acres

County: **Bucks** Township/Municipality: **Upper Makefield, Solebury**

Quadrangle Name: **LAMBERTVILLE** ~ ZIP Code: **18940, 18938**

Decimal Degrees: **40.354393 N, -75.062026 W**

Degrees Minutes Seconds: **40° 21' 15.8" N, -75° 3' 43.3" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNr.aspx.)

Scientific Name: Corallorhiza wisteriana

Common Name: Spring Coral-root

Current Status: Special Concern Species*

Proposed Status: Endangered

Scientific Name: Ellisia nyctelea

Common Name: Ellisia

Current Status: Threatened

Proposed Status: Threatened

Scientific Name: Epilobium strictum

Common Name: Downy Willow-herb

Current Status: Endangered

Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

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WHAT TO SEND TO JURISDICTIONAL AGENCIES

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Check-list of Minimum Materials to be submitted:

___ **SIGNED** copy of this Project Environmental Review Receipt

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___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)

___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

____ The DEP permit(s) required for this project

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5. ADDITIONAL INFORMATION

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 Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
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 NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
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 NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
 Division of Environmental Planning and Habitat Protection
 2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
 Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
 Company/Business Name: _____
 Address: _____
 City, State, Zip: _____
 Phone:(_____) _____ Fax:(_____) _____
 Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
 applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 8**

Date of review: **7/11/2011 10:51:04 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

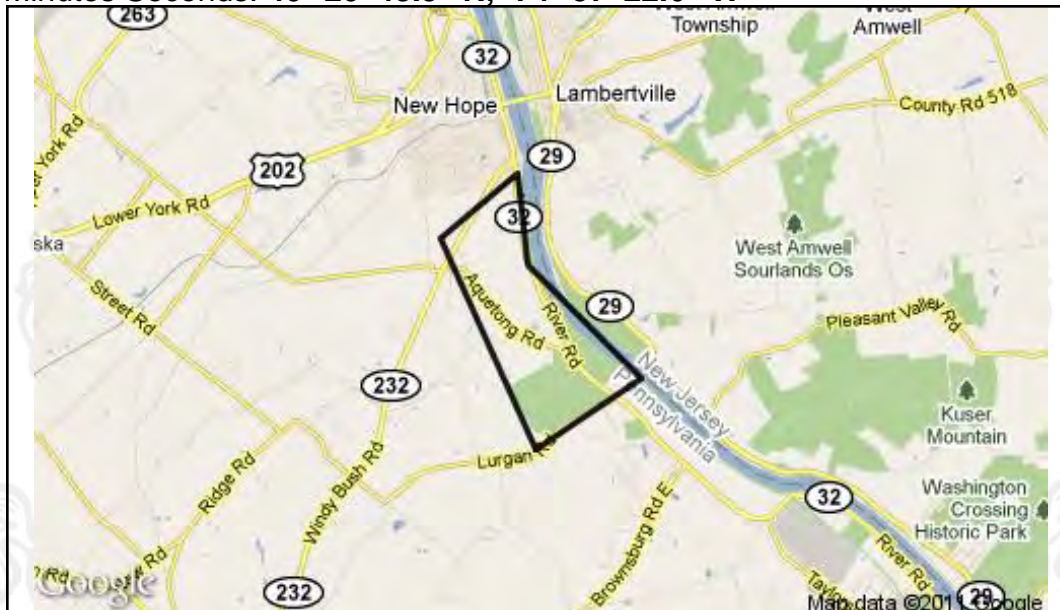
Project Area: **1110.5 acres**

County: **Bucks** Township/Municipality: **Solebury, New Hope, Upper Makefield**

Quadrangle Name: **LAMBERTVILLE** ~ ZIP Code: **18938**

Decimal Degrees: **40.346805 N, -74.956283 W**

Degrees Minutes Seconds: **40° 20' 48.5" N, -74° 57' 22.6" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **3. Unknown**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical

survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Corallorhiza wisteriana

Common Name: Spring Coral-root

Current Status: Special Concern Species*

Proposed Status: Endangered

Scientific Name: Cuscuta pentagona

Common Name: Field Dodder

Current Status: Special Concern Species*

Proposed Status: Threatened

Scientific Name: Epilobium strictum

Common Name: Downy Willow-herb

Current Status: Endangered

Proposed Status: Special Concern Species*

Scientific Name: Senna marilandica

Common Name: Wild Senna

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

Scientific Name: Tuliptree- beech -maple forest

Common Name:

Current Status: Special Concern Resource*

Proposed Status: Special Concern Resource*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of Minimum Materials to be submitted:

- SIGNED** copy of this Project Environmental Review Receipt
- Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute

quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
applicant/project proponent signature

1. PROJECT INFORMATION

Project Name: **Solebury 9**

Date of review: **7/11/2011 10:53:46 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **847.9** acres

County: **Bucks** Township/Municipality: **Solebury, New Hope**

Quadrangle Name: **LAMBERTVILLE** ~ ZIP Code: **18938**

Decimal Degrees: **40.337647 N, -74.966583 W**

Degrees Minutes Seconds: **40° 20' 15.5" N, -74° 57' 59.7" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **3. Unknown**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

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PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

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survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: *Senna marilandica*

Common Name: Wild Senna

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Endangered

Proposed Status: Endangered

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

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For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

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 17105-8552
 Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
 315 South Allen Street, Suite 322, State College, PA.
 16801-4851
 NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
 450 Robinson Lane, Bellefonte, PA. 16823-7437
 NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
 Division of Environmental Planning and Habitat Protection
 2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
 Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
 Company/Business Name: _____
 Address: _____
 City, State, Zip: _____
 Phone:(_____) _____ Fax:(_____) _____
 Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ date
 applicant/project proponent signature

Section VII.

Institutional Evaluation

VII. Institutional Evaluation

A. Existing Institutional Performance

The Bucks County Department of Health (BCDH), authorized through the Bucks County Code and the Local Health Administration Law, provides for the protection of public health in all Bucks County municipalities. The services of a Sewage Enforcement Officer (SEO) for onlot sewage disposal system siting, permitting and malfunction investigation are provided by the BCDH to Solebury Township. The BCDH does not have available staff to expand on these services.

The Bucks County Water and Sewer Authority (BCW&SA) is an independent, non-profit agency created in 1962 by the Bucks County Commissioners under the Pennsylvania Municipal Authorities Act to implement the Bucks County Water Supply and Sewage Facilities Master Plan prepared in 1960. The Authority Board consists of five appointed directors who establish policies; approve budgets, capital plans and contracts; and perform other responsibilities as necessary. Staff and administrative resources appear to meet their current needs. Any expansion of services would be handled by potential additional staff.

Solebury Township entered into a Water Agreement with BCW&SA on June 23, 1983, which is included as **Exhibit VII-1** to this Plan. The Township determined that developer-built community water systems should not be owned by the Township, homeowner associations or private utilities. An authority owned water system serving the Residential Development District (RDD) and the Highway Commercial (HC) District would insure an adequate supply of potable water, provide fire protection and minimize the number of storage tanks. The BCW&SA agreed to own and operate the water systems in areas designated by Solebury Township, to produce the water within the designated service area, and not to interconnect the water supply in Solebury Township with any water system outside of the water service area stated in the Agreement.

At the time of the Agreement, three community water systems – Hermitage Condominium Association, Ingham Mews Condominium Association and Yorkshire Meadows Condominium Association – were privately owned. The Water Agreement allows the BCW&SA and the existing condominium association owners to determine when and if these community water systems should be acquired by the BCW&SA. To date, these three community water systems are still privately held.

The Water Agreement also referred to the Zoning Ordinance requirement that all multi-family developments in the RDD be served by public sewer as well, since “public water and sewer are necessary for development in the HC for multi-user systems.”

Any future wells and water supply systems located in the RDD and HC districts must comply with Solebury Township’s SALDO. The Township also wants to insure that any persons owning wells in the vicinity of a well being drilled for the public water supply are adequately protected.

Public sewer service in the RDD and HC districts is supplied by the BCW&SA pursuant to the Sewer Service Agreement, as amended, between the BCW&SA and the Lambertville Municipal Utilities Authority (LMUA) dated July 19, 1965, as amended, which includes a capacity reservation that is currently at 0.625 MGD. The BCW&SA allocates 250 GPD/EDU for design and capacity considerations.

B. Institutional Needs

Various institutional arrangements for implementing any of the alternatives presented in this report are suitable. Solebury Township, BCW&SA, a new Municipal Authority organized by the Township, or a combination of any two could be the agency responsible for the design, construction, financing and operation of the selected plan. The improvement of numerous substandard onlot sewage disposal systems could be undertaken as a ‘sewer project’ by Solebury Township.

Historically in Pennsylvania, it has been financially advantageous to utilize a Municipal Authority to undertake sewer related projects when dealing with financing and connection fees. A Municipal Authority can issue bonds to finance the capital costs of a sewer project. These bonds are secured by the revenues of the sewer system and as such are not obligations of the municipality and, therefore, do not impact the borrowing capacity of the municipality. In addition, a Municipal Authority could not only construct and finance a sewer project but also operate it. A Municipal Authority consists of board members appointed by the municipality. Therefore, a Municipal Authority is somewhat removed from other municipal functions and is able to focus its attention on operation of the sewer system.

Having the Township as the responsible agency is advantageous because of its existing expertise in construction, financing and especially operating capital projects. In the operational aspect, Solebury Township could utilize or share existing personnel to administer and maintain the sewer system, which in turn lowers labor costs. In addition, incorporating the sewer system with other Township departments reduces insurance expenditures. These apparent operational benefits should be viewed within the context of the advantages enumerated above about a Municipal Authority.

The positive points of each governmental entity could be increased by combining the two. Such a hybrid situation, which is commonly referred to as a lease back-operation arrangement, results in a Municipal Authority being responsible for the design and construction of the sewer system and the municipality being responsible for the operation of the facilities.

C. Administrative & Legal Actions

Solebury Township must develop or revise existing ordinances to implement and enforce the selected alternative.

If a community of existing development with identified sewage needs proposes to construct a sewer system to eliminate malfunctions and holding tanks, Solebury Township will provide assistance as necessary in conjunction with the BCDH to protect human health and the environment.

A Special Study will need to be conducted where a concentrated community or area with constraints for individual repairs or replacement systems is identified.

D. Institutional implementation of Technical Alternative

Solebury Township chooses to administer a Sewage Management Program in conjunction with the BCDH.

Exhibit VII-1
Solebury Township &
BCW&SA Water
Agreement

FINAL

AGREEMENT

THIS AGREEMENT is entered into this 23rd day of June,

1983, by and between SOLEBURY TOWNSHIP (hereinafter called "TOWNSHIP") and BUCKS COUNTY WATER AND SEWER AUTHORITY (hereinafter called "AUTHORITY").

BACKGROUND

1. TOWNSHIP is a Township of the Second Class with offices on Sagan Road, P. O. Box 139, Solebury, Pennsylvania 18963.
2. AUTHORITY is a municipal authority with offices at Neshaminy Manor Center, Doylestown, Pennsylvania 18901, created under the Municipality Authority Act of 1945, by the commissioners of the County of Bucks and is engaged in, among other things, the business of supplying public sewer and water service throughout Bucks County.
3. The TOWNSHIP recognizes that water is a valuable resource which must be conserved and therefore, has determined that the water which is necessary for present and future development in the RDD-Residential Development District and HC-Highway Commercial District be produced and consumed exclusively in the RDD-Residential Development District and HC-Highway Commercial District.
4. After public hearings, Solebury Township has determined that an authority owned water system to serve the RDD-Residential Development District and HC-Highway Commercial District is in the best interest of the citizens

of Solebury Township. The TOWNSHIP has rejected the ownership of water systems by homeowners associations or by privately owned public utilities or by itself as a means of conserving water and of providing water service in the RDD-Residential Development District and HC-Highway Commercial District.

5. The TOWNSHIP has determined that it is in the best interest of the residents of the RDD-Residential Development District and HC-Highway Commercial District to have an integrated water supply system in order to better insure an adequate supply of potable water, to better provide fire protection and to minimize the number of elevated storage tanks.

6. The AUTHORITY, by letter dated March 11, 1983 signed by its executive director and by Resolution No. 1 adopted March 10, 1983 authorized the AUTHORITY to enter into an Agreement with the TOWNSHIP to provide that the AUTHORITY would own and operate a water system in Solebury Township (1) in an area to be exclusively designated by the TOWNSHIP and (2) in which the water would be produced and consumed exclusively within the designated service area.

7. The Solebury Township Zoning Ordinance requires that all multi-family residential developments and mobile home parks in the RDD-Residential Development District be served by public sewer as well as public water. In addition, public sewer and public water are necessary for development in the HC-Highway Commercial District for multi-user systems.

8. Public sewer service in the RDD-Residential Development District and the HC-Highway Commercial District is supplied by the AUTHORITY pursuant

to an Agreement dated July 19, 1965, as amended, with the Lambertville Sewage Authority.

9. At present, there are three existing water systems owned and operated in the RDD-Residential Development District and the HC-Highway Commercial District in Solebury Township which are not owned or operated by the AUTHORITY. They are Ingham Mews, Yorkshire Meadows and the Hermitage. The decision as to whether they should be acquired by the AUTHORITY as part of the water system, by dedication or otherwise, shall be made exclusively by the AUTHORITY and the owners of these existing water systems.

10. By this Agreement, the TOWNSHIP also desires to insure that all future wells and water supply systems which are located in the RDD-Residential Development District and HC-Highway Commercial District meet the standards of the Solebury Township Subdivision and Land Development Ordinance and that any persons owning wells in the vicinity of a well being drilled for the public water supply are adequately protected.

NOW THEREFORE, in consideration of the mutual promises set forth in this Agreement and intending to be legally bound, the parties agree as follows:

1. TOWNSHIP and AUTHORITY have the power to enter into this contract pursuant to the Second Class Township Code and Municipality Authorities Act of 1945.

2. AUTHORITY agrees to own and operate a water system for public and private use in certain areas of Solebury Township designated exclusively by the Supervisors of Solebury Township.

3. AUTHORITY is not authorized to own and operate a water system or to drill wells in Solebury Township outside of the area designated by the Supervisors of Solebury Township in paragraph 5 of this Agreement and agrees not to do so.

4. The cost of water supplied by the AUTHORITY to the designated area of TOWNSHIP shall be entirely paid by the consumers of the water in the designated service area and the Authority shall have the exclusive right to establish rates to be charged to water customers.

5. TOWNSHIP designates the RDD-Residential Development District and HC-Highway Commercial District, as set forth on the Zoning Map of Solebury Township, as those districts may be amended from time to time, to be the exclusive service area in Solebury Township in which AUTHORITY may own and operate a water supply system and drill wells. AUTHORITY agrees that water produced in the service area will be used or consumed exclusively within that service area and will not be transported, consumed or used outside of the service area. The AUTHORITY agrees that it will not interconnect the water supply system which it owns and operates in Solebury Township subject to this Agreement with any other system outside of the service area. The AUTHORITY may interconnect the elements of the water system within the designated service area. The parties agree that the RDD-Residential Development District and HC-Highway Commercial District, shall not be reduced in area if the reduction would remove from the district any area served by public water or where the Authority has agreed by contract to serve public water.

6. AUTHORITY agrees that there will be no financial obligation on behalf of TOWNSHIP or the property owners or residents of TOWNSHIP other than those being supplied water in the service area to pay for the construction or maintenance of the water supply system or the acquisition of water supply systems within the service area. The AUTHORITY shall not be required to seek prior approval of plans of construction or cost estimates for construction for water mains and water supply systems; however, the cost of construction of any water mains or water supply system within the service area shall not be charged on a front foot basis. It is the intention of this paragraph to assure that no property owner or resident using a private well for water shall be assessed for the construction of a public water line abutting his property unless he desires to connect to and use the public water facility. However, nothing shall prevent the AUTHORITY from charging an assessment to a property owner or resident who desires public water service except under circumstances set forth in paragraph 10 hereunder.

7. The AUTHORITY agrees to develop an integrated water system in the service area. The water supply system shall be constructed to the standards set forth in the Solebury Township Subdivision Land and Development Ordinance or the specifications of the Bucks County Water and Sewer Authority whichever is more stringent; provided however, that any amendments to the Solebury Township Subdivision Land and Development Ordinance shall not apply to systems that have already been constructed. In addition, all water systems will be required to meet all of the standards of the United States Environmental Protection Agency, the Commonwealth of Pennsylvania Department of Environmental Resources, the Bucks County Department of Health and the Delaware River Basin Commission.

8. AUTHORITY agrees to employ an independent engineer to review

and inspect any water system that is designed by the AUTHORITY Engineer within the service area, except for systems designed for the AUTHORITY.

9. The AUTHORITY agrees that all wells drilled subsequent to the date of this Agreement within the service area, whether drilled by the AUTHORITY or others, must meet the requirements of the Solebury Township Subdivision and Land Development Ordinance Section 5.24D "Water Feasibility Study", as that section may be from time to time amended by the TOWNSHIP, as a condition of inclusion of the well in the water system. Nothing contained herein shall prevent the Authority from establishing more stringent standards with regard to the well testing procedures for water supply systems than are contained in this paragraph if AUTHORITY deems it necessary for its own protection.

10. The AUTHORITY agrees that at its sole cost it shall take such corrective measures as are required to provide an adequate supply of potable water for any well owner whose well is deprived of an adequate supply of potable water by a well owned or operated by the AUTHORITY. The parties agree, that connection of an affected well owner to the AUTHORITY'S water supply system will be undertaken only after all other corrective measures such as drilling a new or deeper well have been tried and have failed.

In the event that the only feasible corrective measure is to supply public water to the affected well owner and the affected well is located outside of the service area, the TOWNSHIP shall authorize the AUTHORITY to extend service exclusively to the applicant. The cost of extending such service to the affected well owner will be borne by the AUTHORITY including all plumbing costs,

tapping fees or hook-up costs; however, the well owner will be required to purchase water from the AUTHORITY at the rates fixed for all other similar users once the connection has been made.

11. TOWNSHIP agrees to defend this Agreement in the event that any person challenges the validity of the Agreement or the restriction on the service area contained in the Agreement. AUTHORITY agrees to assist TOWNSHIP in the defense of such a suit by supplying such assistance as the TOWNSHIP shall request. Each party to this Agreement will bear its own costs as they are incurred by them, including, but not limited to payment of its solicitor, its engineer, and its personnel who participate in the defense of suit.

AUTHORITY agrees that it will be solely responsible for, and shall hold the TOWNSHIP harmless for any costs, including legal and engineering fees, and damages, which may result from the operation of the water system within the service area and/or the acts of the AUTHORITY within or without the service area.

12. The AUTHORITY agrees that it will take no action to attempt to set aside this Agreement or to extend service beyond the district or districts designated by the TOWNSHIP or to operate a public water supply system in violation of the terms of this Agreement. The commitment of the AUTHORITY to restrict its service to the district or districts designated by TOWNSHIP and to comply with the terms of this Agreement shall be deemed to be the essence of this Agreement.

13. Property owners located within the service area who are not

required to install a water supply system by the Solebury Township Subdivision and Land Development Ordinance or Zoning Ordinance, as those ordinances may be amended from time to time, may install private wells or they may contract with AUTHORITY for their water supply.

14. The AUTHORITY may acquire the Ingham Mews, Yorkshire Meadows and the Hermitage water supply systems, by dedication or otherwise, provided that the acquisition is at no cost or expense to the TOWNSHIP. The parties agree that the Authority is not obligated to acquire the water systems of the land developments named in this paragraph.

Approved by proper action of the Bucks County Water and Sewer Authority on the 23 day of June, 1983, at an official meeting of the Authority with a quorum present and voting with the proper officers of the AUTHORITY being directed execute this Agreement and the Secretary being directed to note this action upon the minutes of said meeting.

Attest:

BUCKS COUNTY WATER AND
SEWER AUTHORITY


s/ Michelle Everett
Secretary


By: Charles E
Chairman

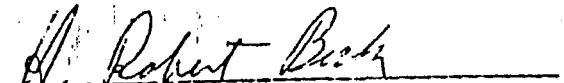
Approved and executed by proper action of the Board of Supervisors of the Township of Solebury on the 23rd day of June, 1983 at an official meeting of the Township with a quorum present and voting, with the Supervisors of the Township being directed to execute this Agreement and the Secretary being directed to note this action upon the minutes of said meeting.


Attest:

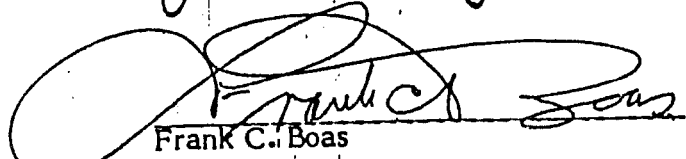
BOARD OF SUPERVISORS
TOWNSHIP OF SOLEBURY
BUCKS COUNTY, PENNSYLVANIA

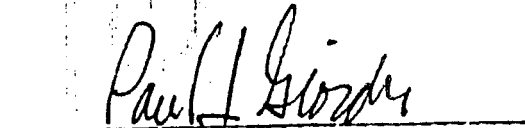

Ruth Milnor


Patricia D. Knight, Chairman


H. Robert Beck


Cyrus R. Hoagland


Frank C. Boas


Paul J. Giordano

**Section VIII.
Implementation
Schedule & Alternatives
Justifications**

VIII. Implementation Schedule & Alternatives Justifications

A. Selected Alternative

Solebury Township’s ordinances restrict the use of public water and sewer systems to an area zoned as such. These public systems will continue to be owned and operated by others, and financed by their user fees.

To ensure the proper use and maintenance of existing and future onlot sewage disposal systems, a Sewage Management Program will be established and implemented incorporating the components and schedule found on **Table 8-1**. The milestone schedules will be initiated upon DEP approval of the Solebury Township Act 537 Official Sewage Facilities Plan Update Revisions.

Table 8-1. Implementation Schedule	
Sewage Management Program Component	Milestone Schedule
Year 1:	1 – 3 Years
• Adopt Sewage Management Ordinance	
• Adopt Retaining Tank Ordinance	
• Adopt Preemption of 10-Acre Permit Exemption Ordinance	
• Revise Zoning Ordinance to Incorporate OLDS Site Constraints	
• Update SALDO as needed	
• Review BCDH OLDS & Well Records	
• Setup Inventory Database & Input Existing Data	
• Enter OLDS Pumping Schedules in Database	
• Provide Public Education Materials through Township Office and Website	
Year 2:	2 – 3 Years
• Catalog OLDS Conditions for Malfunctions	
• Review BCDH Septage Hauler Records	
Year 3:	3 – 5 Years
• Evaluate Data to Determine Need for Special Study Areas	

B. Funding

Solebury Township will implement a public education program using General Budget funds. In Year 1, the public education program includes the following goals:

- Involve residents and stakeholder groups by making the Act 537 Sewage Facilities Plan – Update Revision available on the Township website for review.
- Adopt and implement the sewage management ordinance and other related ordinances; and make the ordinance requirements publicly available.
- Distribute educational materials through the Township office.
- Provide information and access using the Township’s website and a quarterly newsletter.

Related educational grants received within the past five years include the following:

- DEP awarded a \$7,367 grant to the Bucks County Audubon Society to coordinate teacher education and student sessions, along with public presentations, on water quality and watersheds in Solebury Township.

C. Implementation Schedule

Refer to the proposed implementation in **Table 8-1**.

Plate 1
Public Water & Sewer
Service Areas

Legend

- Public Water Supply Wells
- Tank
- BCW&SA Well
- Pump Station
- Buckingham Pump Stations
- NPDES Permit Locations
- Community Water Systems
- Community Onlot & Non-Residential Systems
- NPDES Service Area
- BCW&SA Service District Per Agreement
- BCW&SA Sewer Service Area
- BCW&SA Water Service Area

NOTE: BCW&SA represents Bucks County Water & Sewer Authority

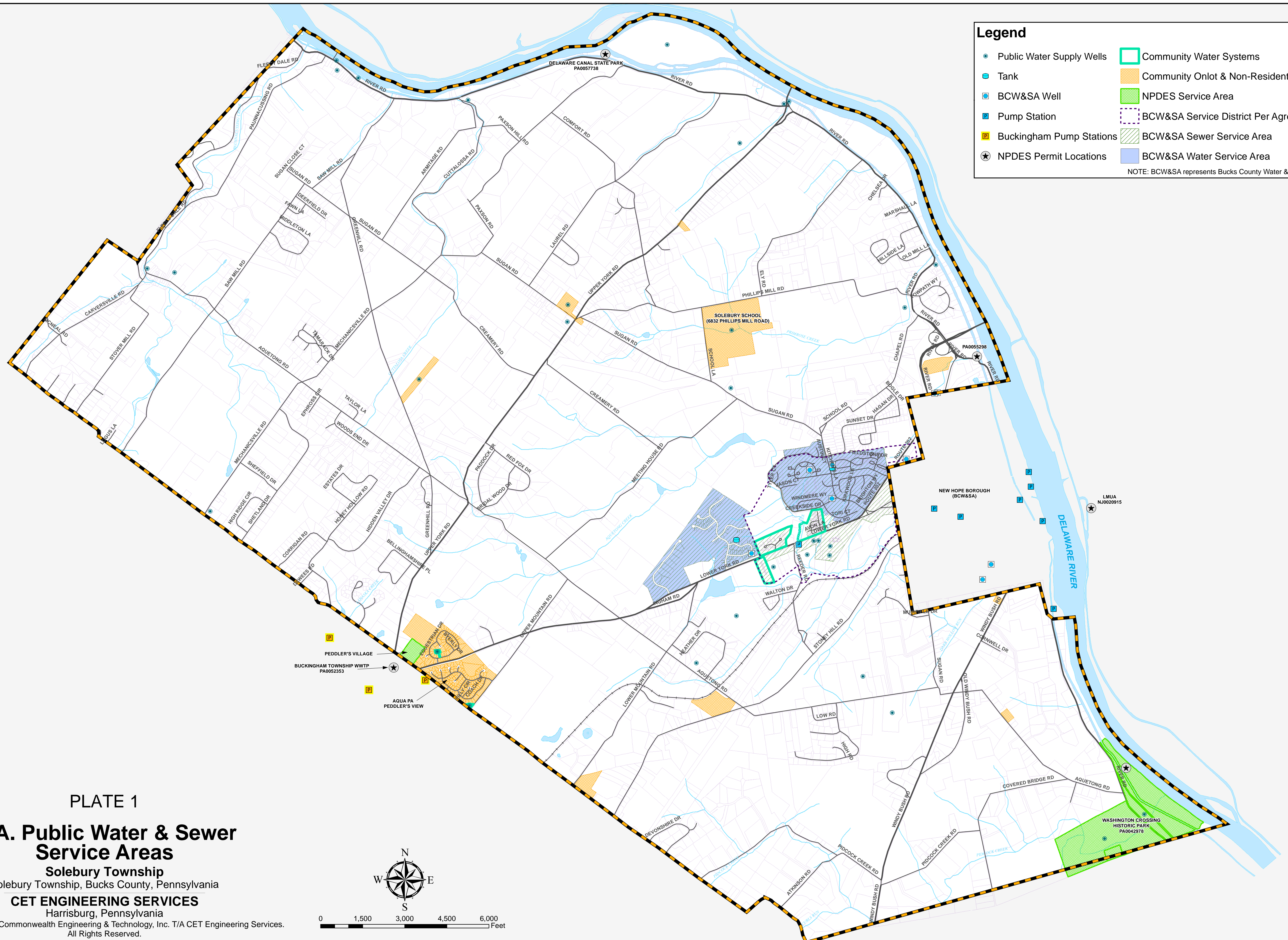


PLATE 1

II. A. Public Water & Sewer Service Areas

Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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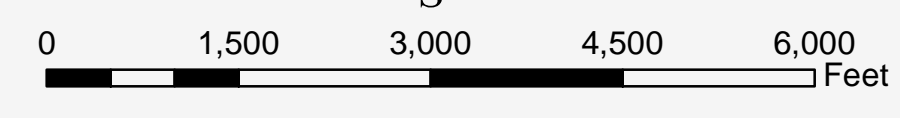










Plate 2
Waterways & Watersheds

Legend

 Township Line	 Major Roads
 Solebury Watersheds	 Minor Roads
 Property Lines	 Railroads
 Water Body	 Streams

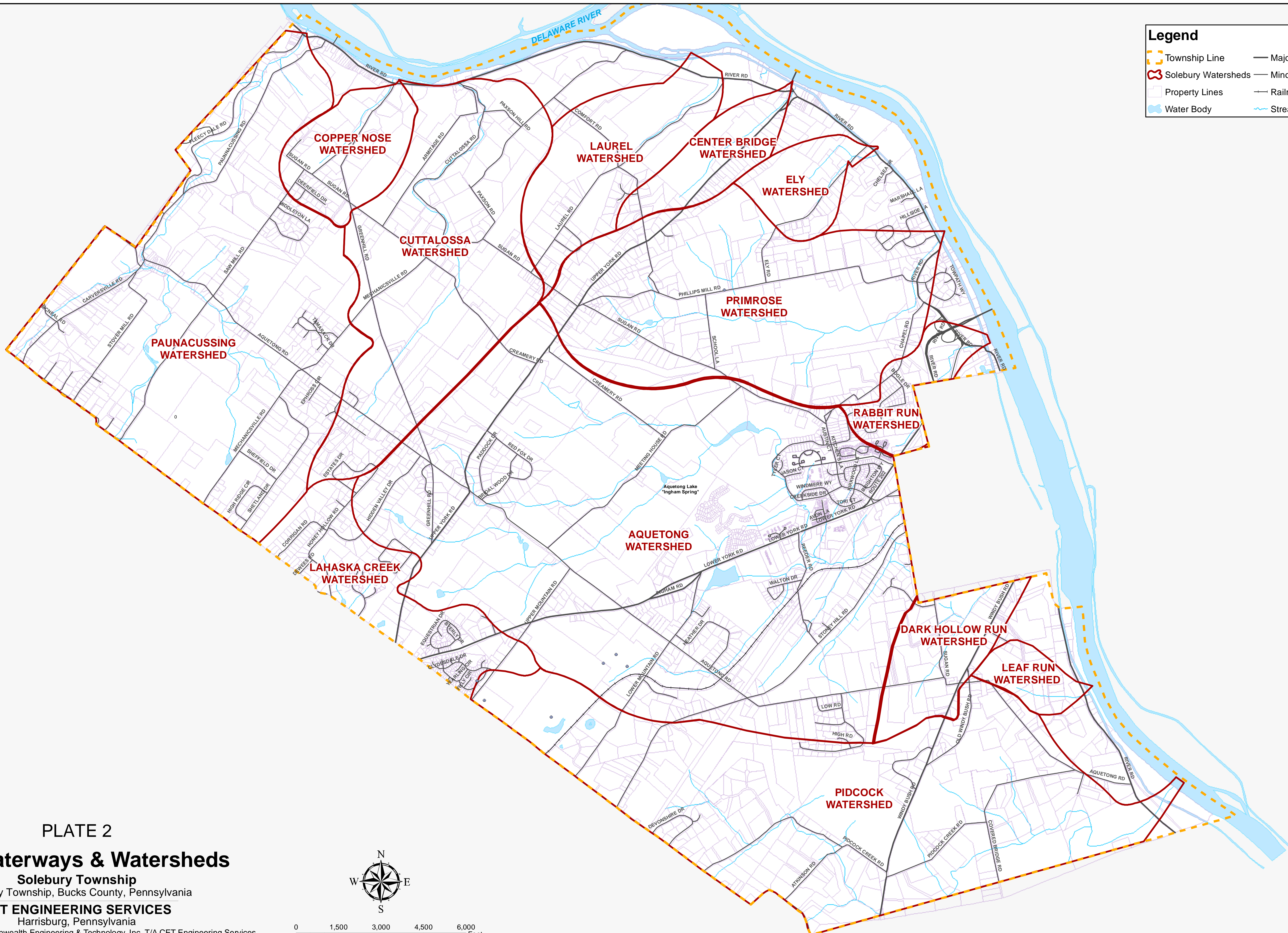


PLATE 2

II. B. Waterways & Watersheds

Solebury Township
Solebury Township, Bucks County, Pennsylvania

CET ENGINEERING SERVICES
Harrisburg, Pennsylvania

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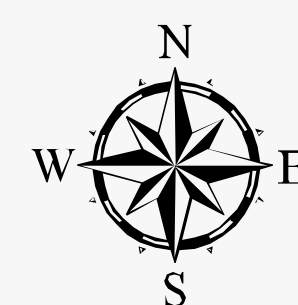


Plate 3

Soils

- Legend**
- Alternate System
 - Conventional System
 - Hydric
 - Water
 - Slope >25%
 - Urban Land

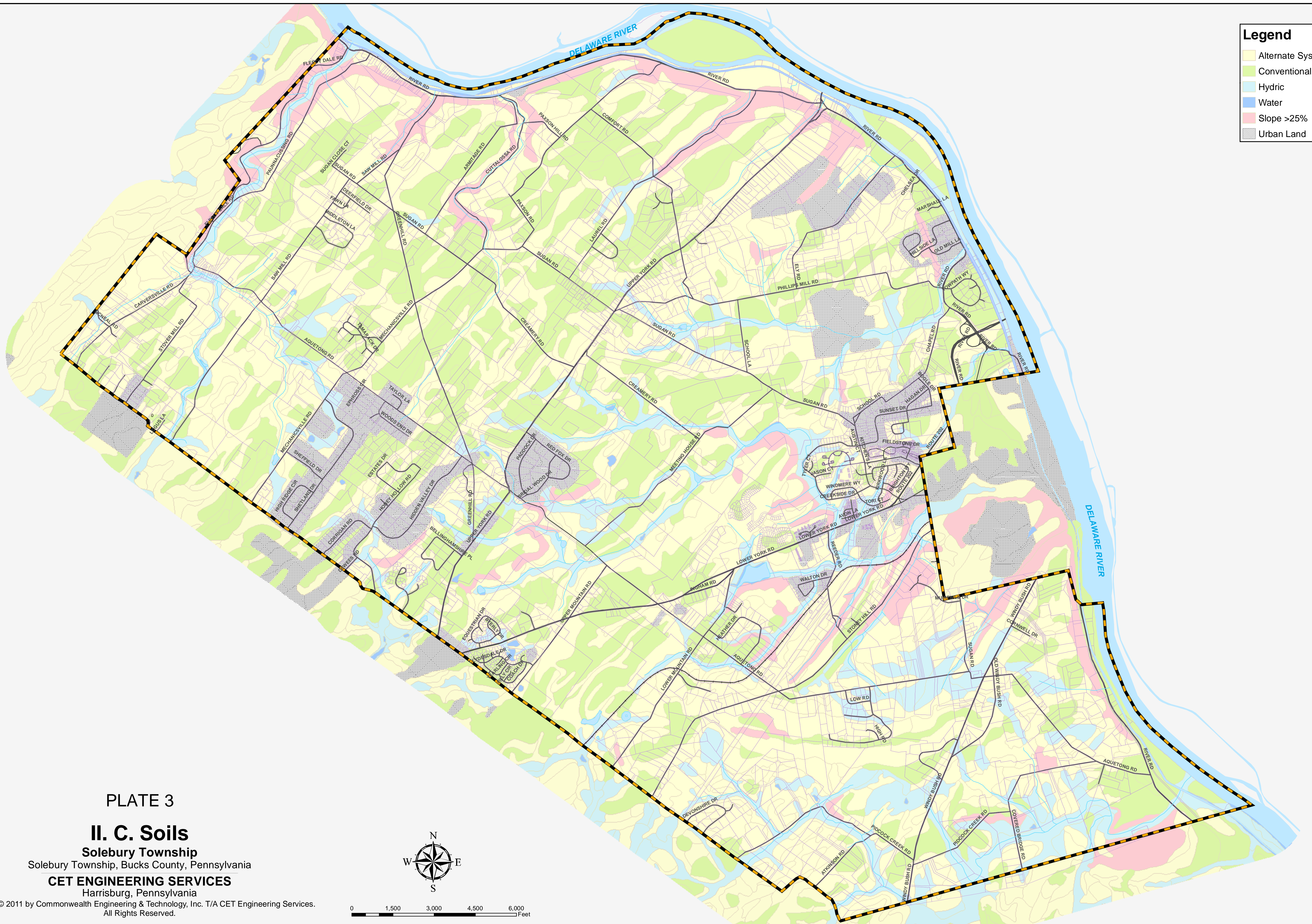


PLATE 3

II. C. Soils

Solebury Township
Solebury Township, Bucks County, Pennsylvania

CET ENGINEERING SERVICES
Harrisburg, Pennsylvania

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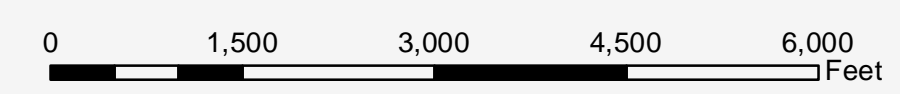
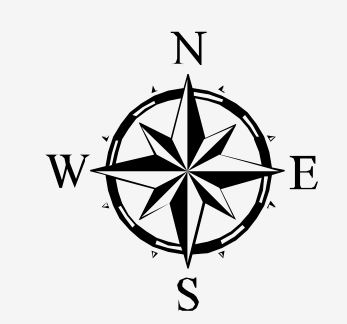








Plate 3a
Agricultural Security
Areas & Prime Farmland

Legend

-  Agricultural Security Areas ⁽¹⁾
-  Prime Farmland Soils
-  Township Line
-  Major Roads
-  Minor Roads
-  Railroads

⁽¹⁾ December 2010 Bucks County Agricultural Security Areas

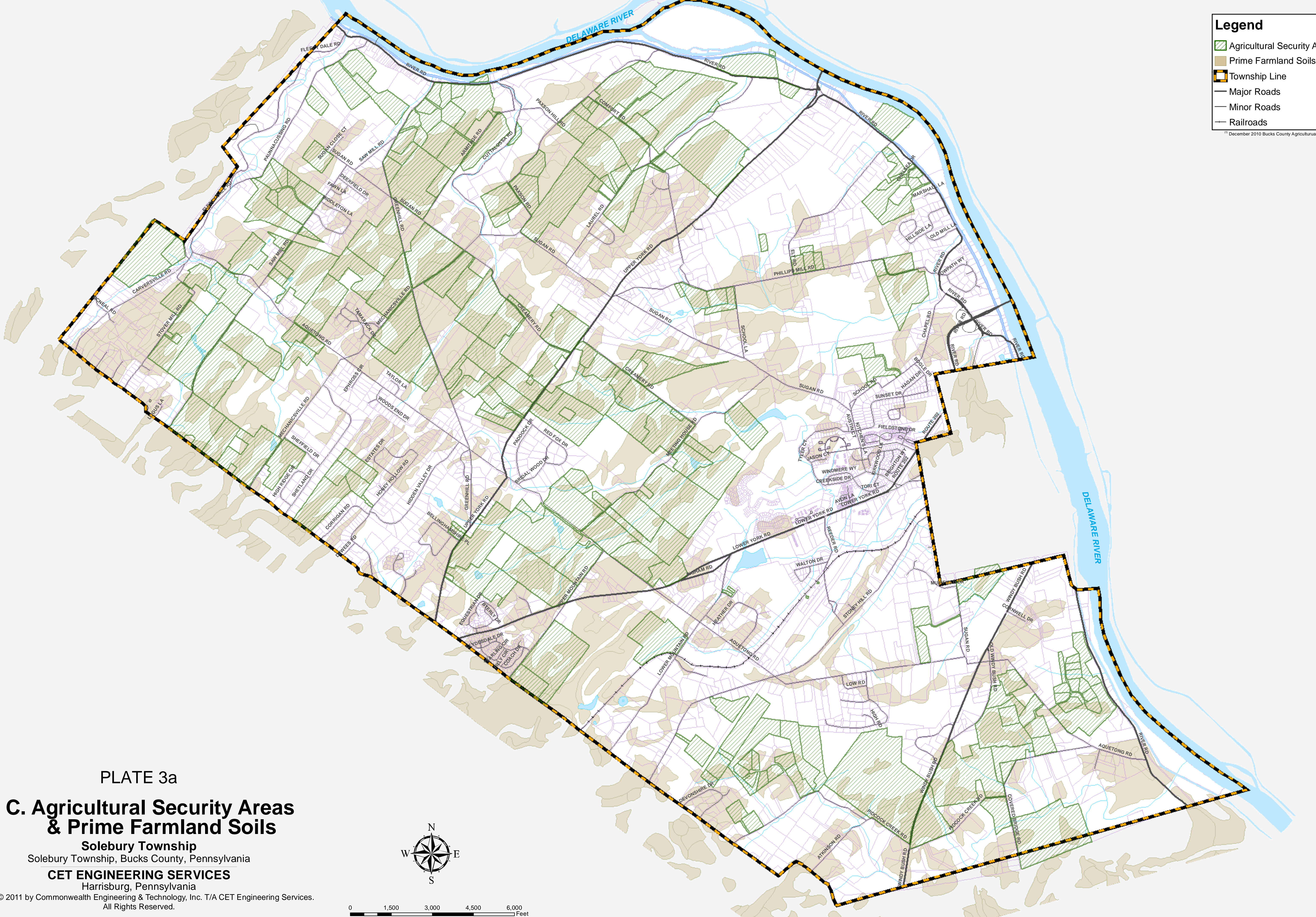


PLATE 3a

**II. C. Agricultural Security Areas
& Prime Farmland Soils**

Solebury Township
Solebury Township, Bucks County, Pennsylvania

CET ENGINEERING SERVICES
Harrisburg, Pennsylvania

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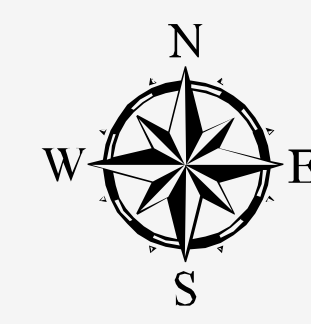
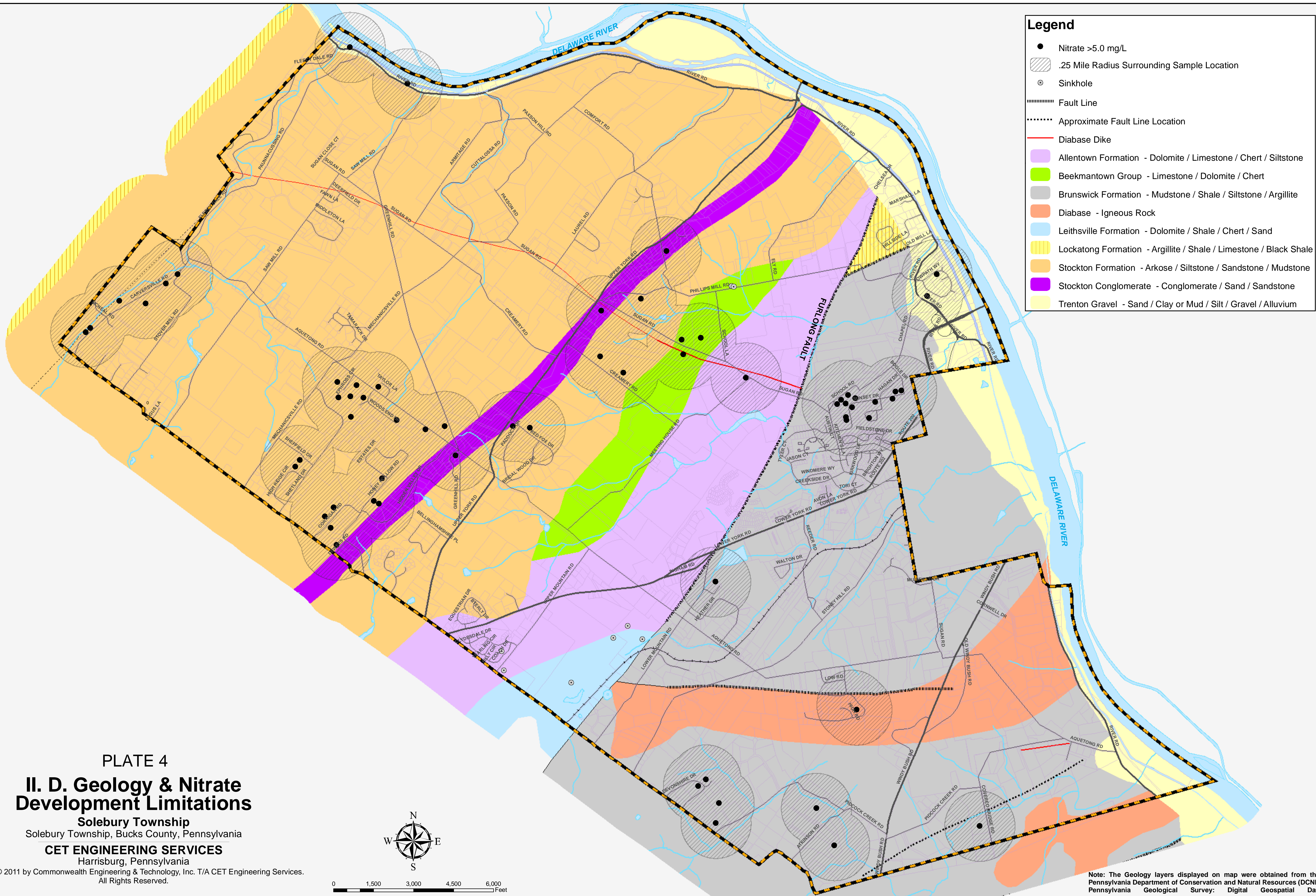


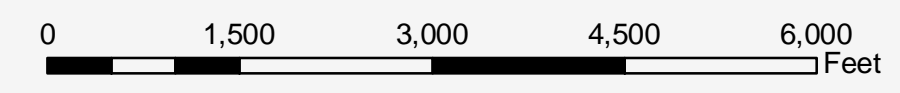
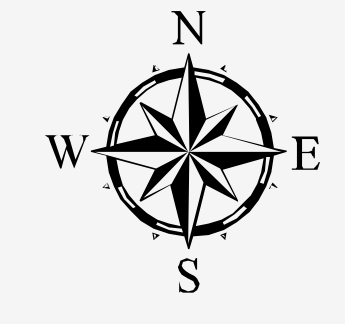
Plate 4
Geology & Nitrate
Development Limitations



- Legend**
- Nitrate >5.0 mg/L
 - .25 Mile Radius Surrounding Sample Location
 - ⊙ Sinkhole
 - ▬ Fault Line
 - ⋯ Approximate Fault Line Location
 - Diabase Dike
 - Allentown Formation - Dolomite / Limestone / Chert / Siltstone
 - Beekmantown Group - Limestone / Dolomite / Chert
 - Brunswick Formation - Mudstone / Shale / Siltstone / Argillite
 - Diabase - Igneous Rock
 - Leithsville Formation - Dolomite / Shale / Chert / Sand
 - Lockatong Formation - Argillite / Shale / Limestone / Black Shale
 - Stockton Formation - Arkose / Siltstone / Sandstone / Mudstone
 - Stockton Conglomerate - Conglomerate / Sand / Sandstone
 - Trenton Gravel - Sand / Clay or Mud / Silt / Gravel / Alluvium

PLATE 4
**II. D. Geology & Nitrate
 Development Limitations**
 Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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Note: The Geology layers displayed on map were obtained from the Pennsylvania Department of Conservation and Natural Resources (DCNR) Pennsylvania Geological Survey: Digital Geospatial Data.

Plate 5
Topography & Slopes

Legend

-  Slope 15 - 25%
-  Slope >25%

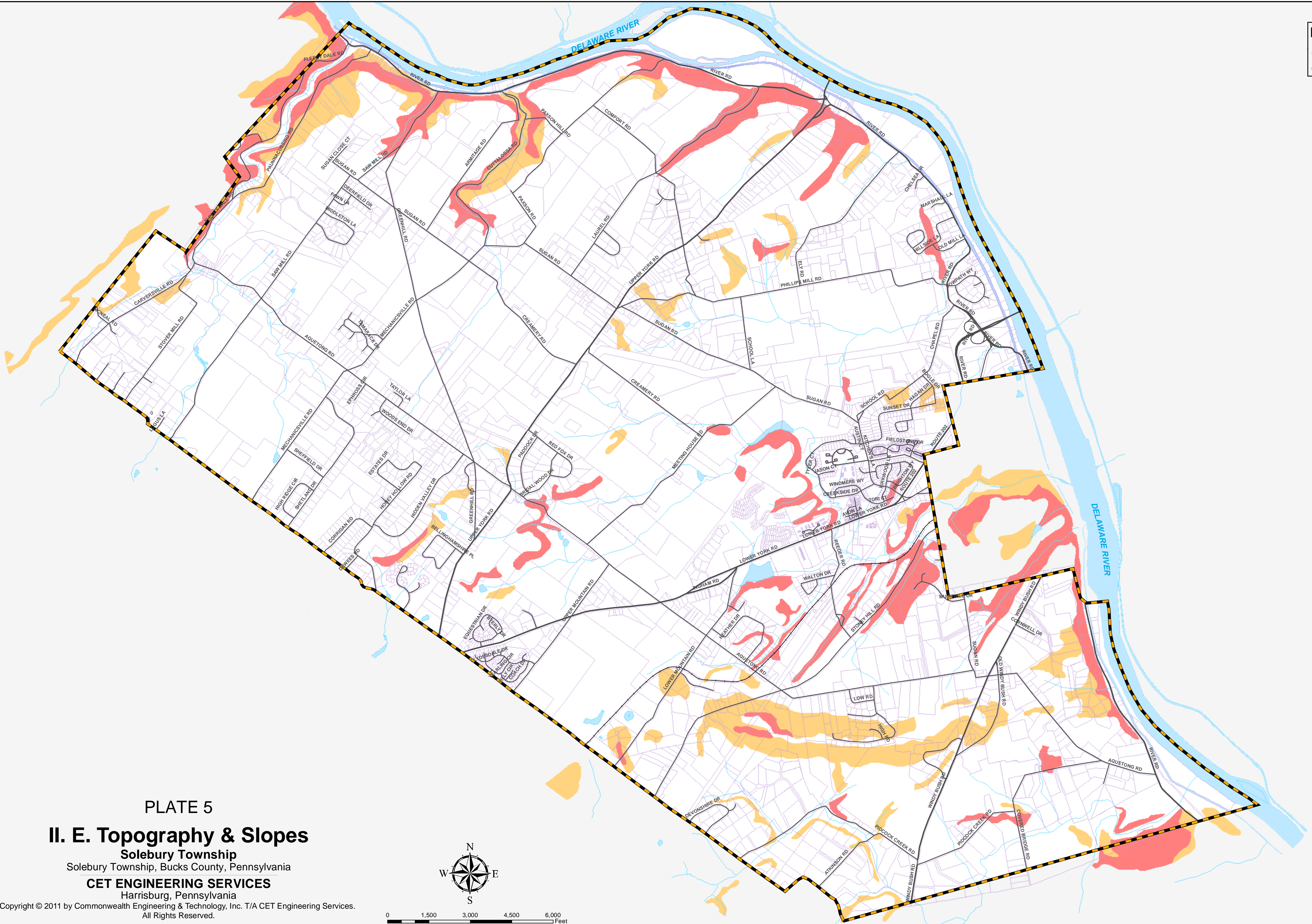


PLATE 5
II. E. Topography & Slopes
Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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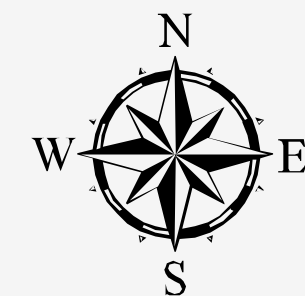


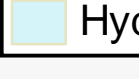
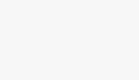



Plate 6
Wetlands & Floodplains

Legend

-  FEMA Floodplain
-  Water Body
-  Wetland
-  Hydric
-  Stream

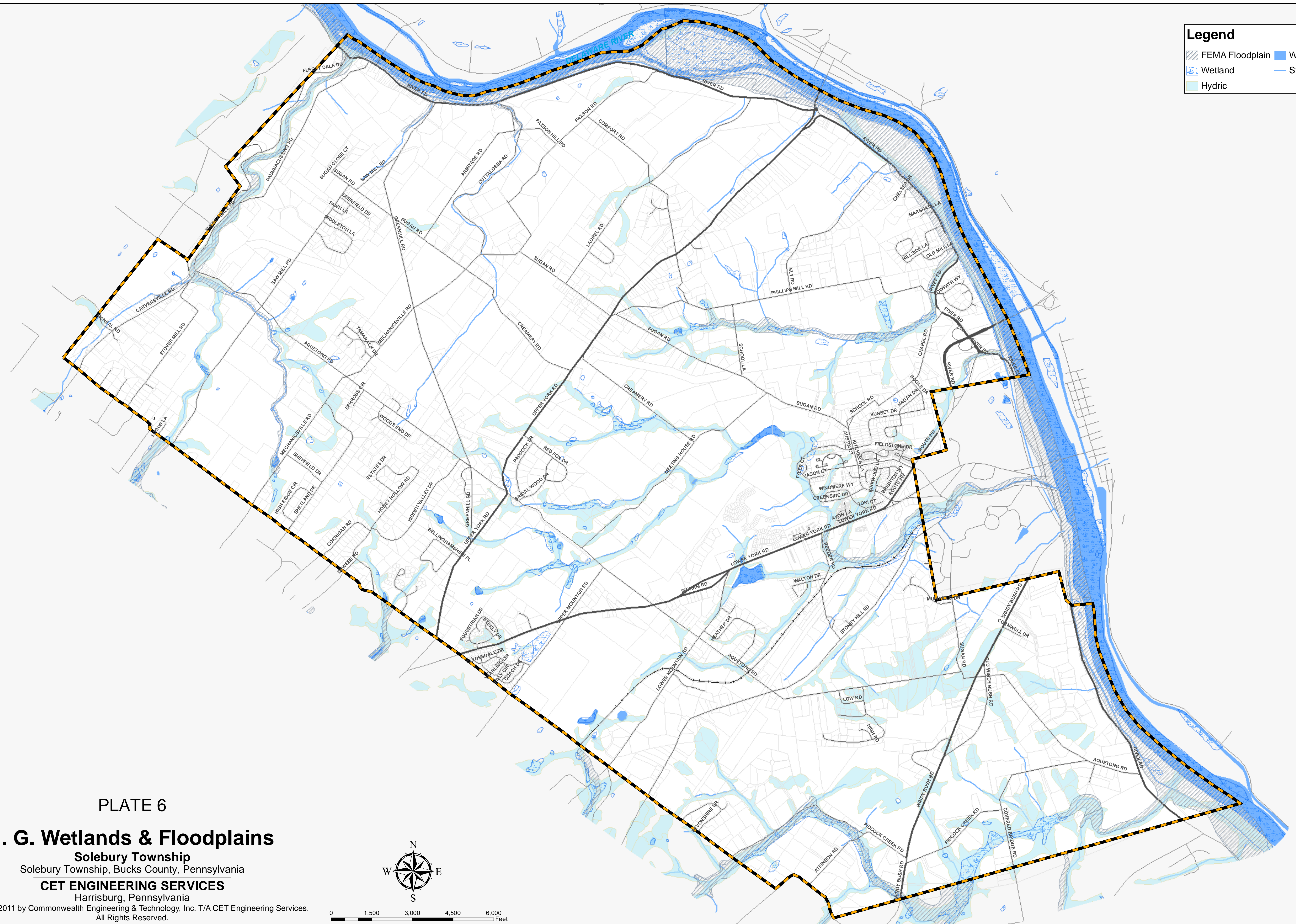


PLATE 6

II. G. Wetlands & Floodplains

Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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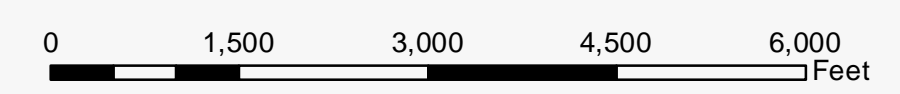
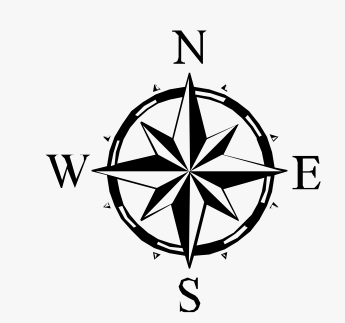


Plate 7
Sanitary & Well Water
Survey Results
Entire Township

Legend

Nitrates 2007	Malfuncions		Wetlands
			Floodplain
			Hydric Soils
			Carbonate Geology
			Water Body
			Streams

Study Areas

- 1 Carversville
- 2 Centre Bridge
- 3 Lumberville
- 4 Solebury
- 5 Solebury Mountain
- 6 New Hope Hills
- 7 Bridlewood
- 8 Cottageville
- 9 Aquetong Watershed
- 10 Hidden Valley
- 11 Pidcock Watershed
- 12 Primrose Watershed

INDEX - Not To Scale

PLATE 7

III. B. Sanitary & Well Water Survey Results

Solebury Township
Solebury Township, Bucks County, Pennsylvania

CET ENGINEERING SERVICES
Harrisburg, Pennsylvania

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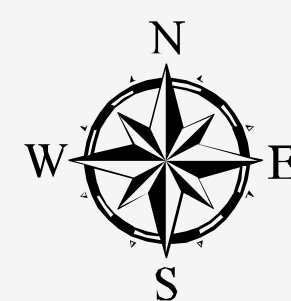
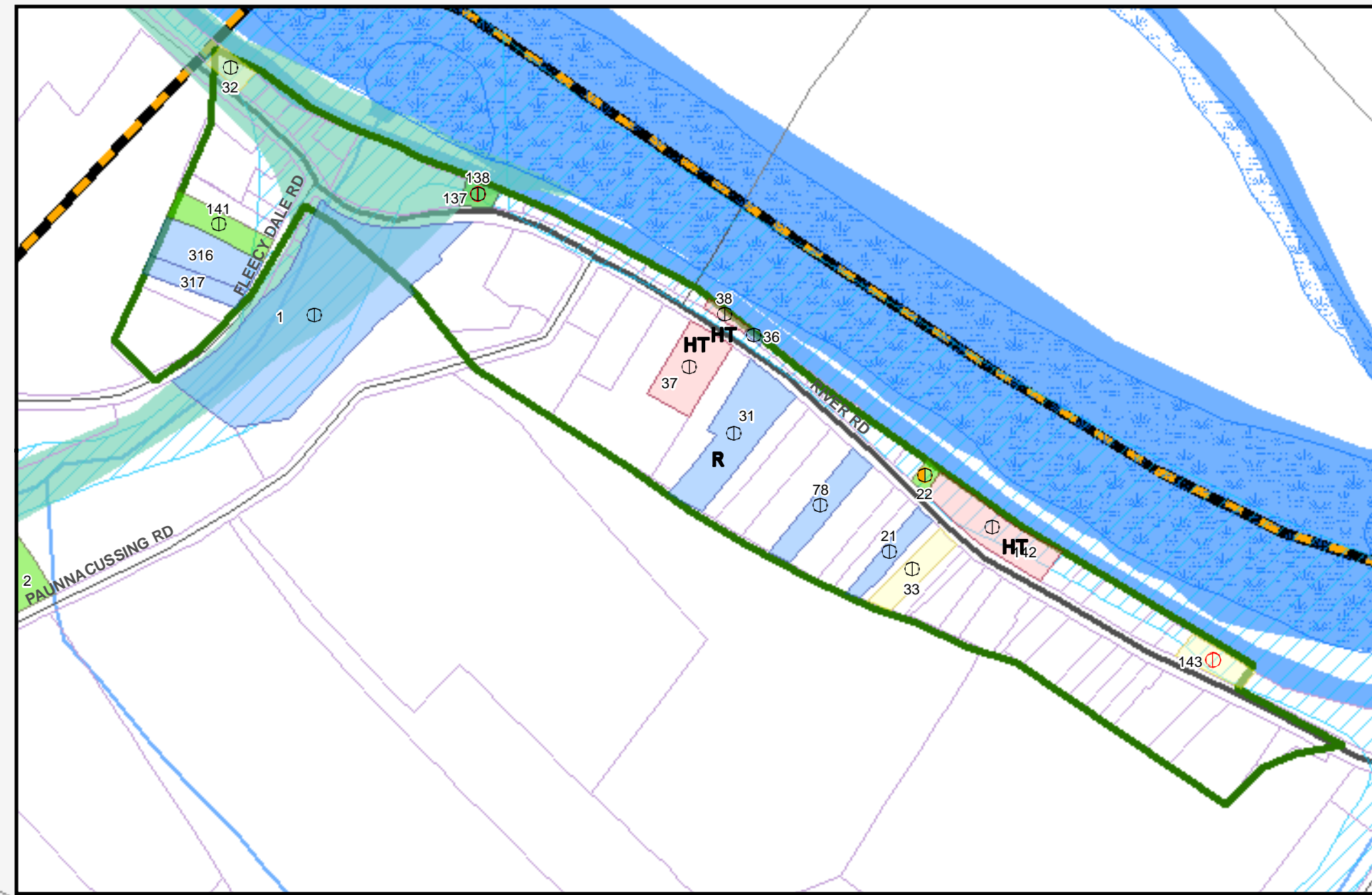
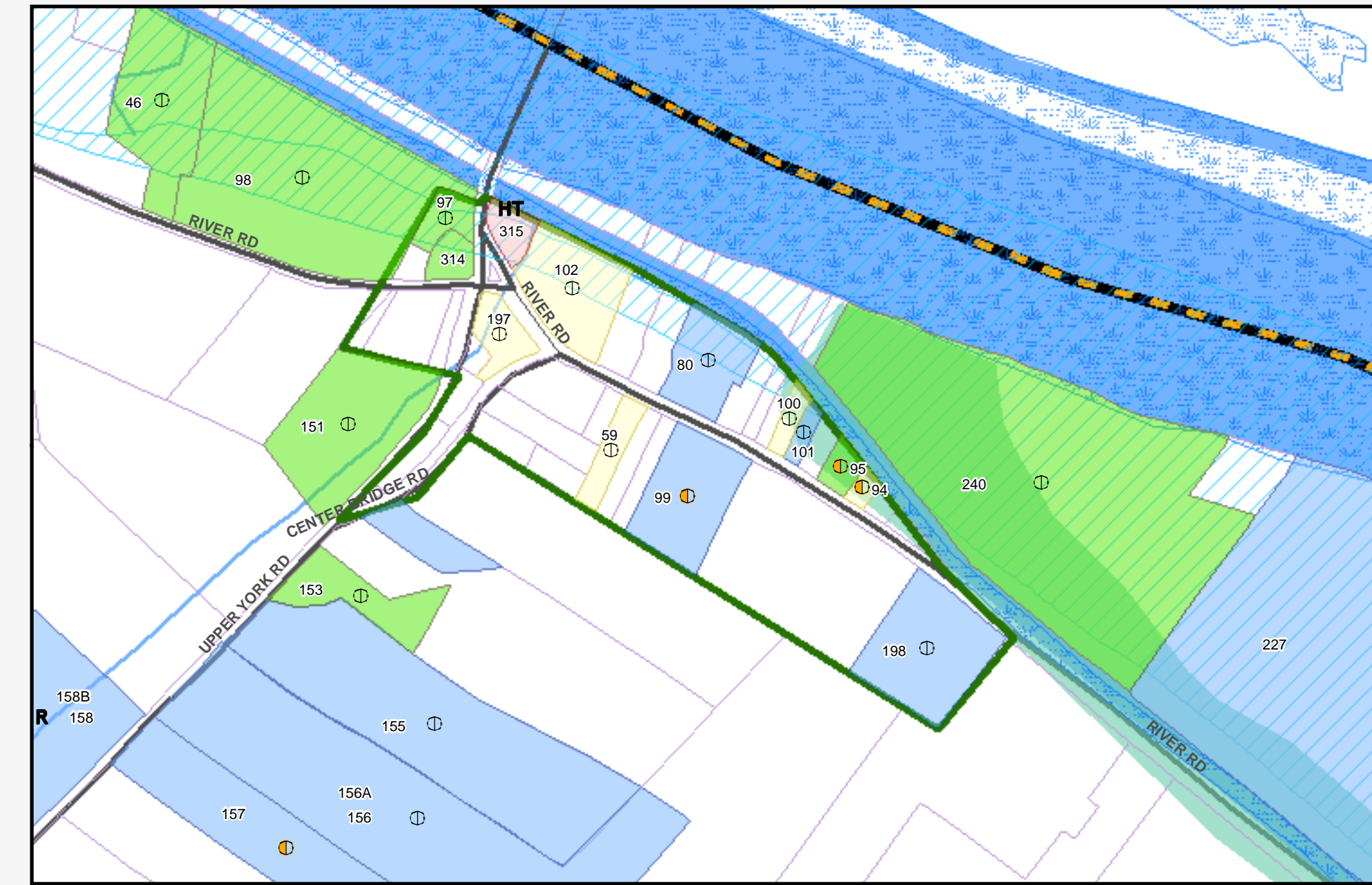


Plate 7a
Sanitary & Well Water
Survey Results
North



Lumberville Detail
1 inch = 400 feet



Centre Bridge Detail
1 inch = 400 feet

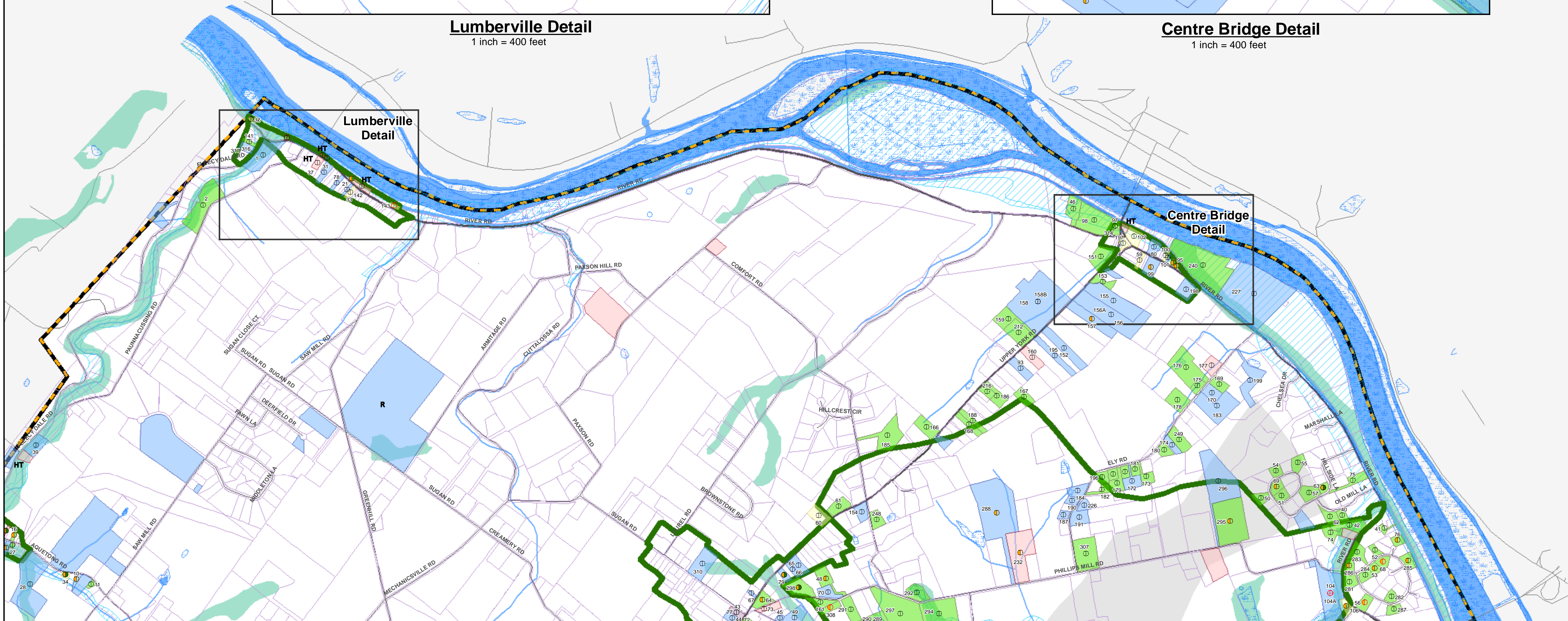
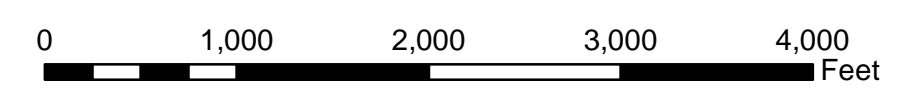
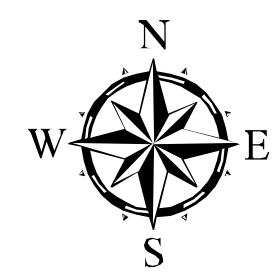


PLATE 7a
III. B. Sanitary & Well Water
Survey Results
Solebury Township
Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
Harrisburg, Pennsylvania
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Legend

Nitrates 2007	Malfunctions	Wetlands	Water Body
<5 mg/L	Confirmed	Floodplains	Streams
>5 mg/L	Suspected	Hydric Soils	Study Area
>10 mg/L	Potential	Carbonite Geology	
Fecal Coliform	None		
Total Coliform			

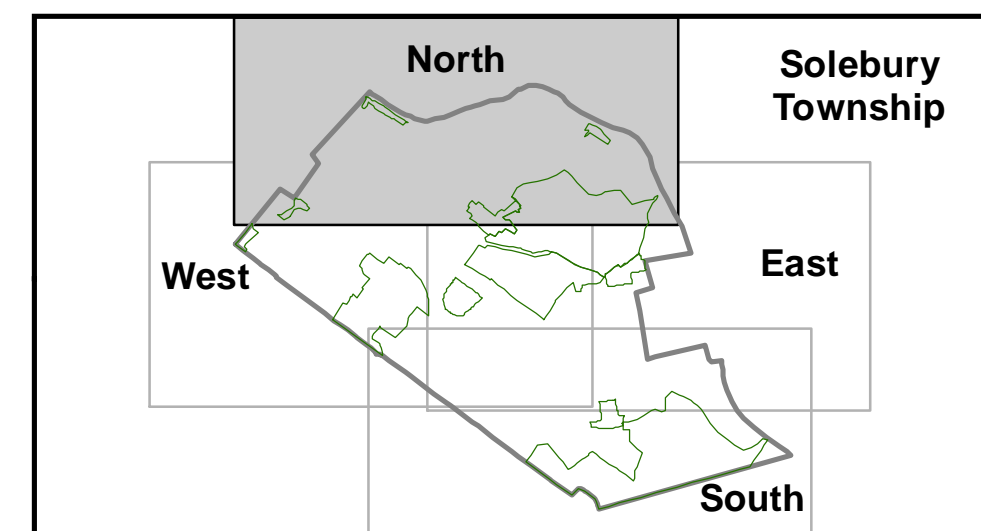
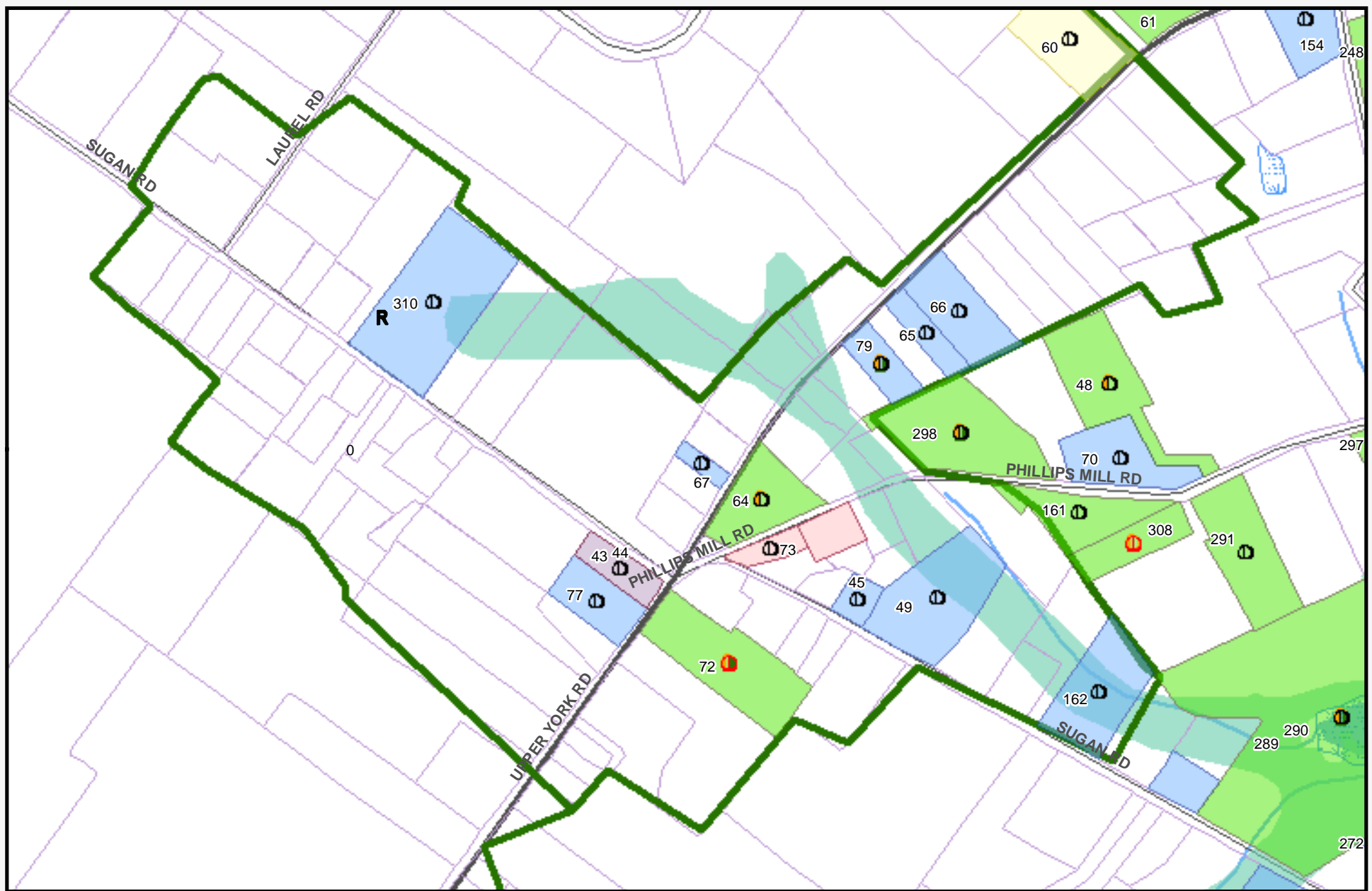
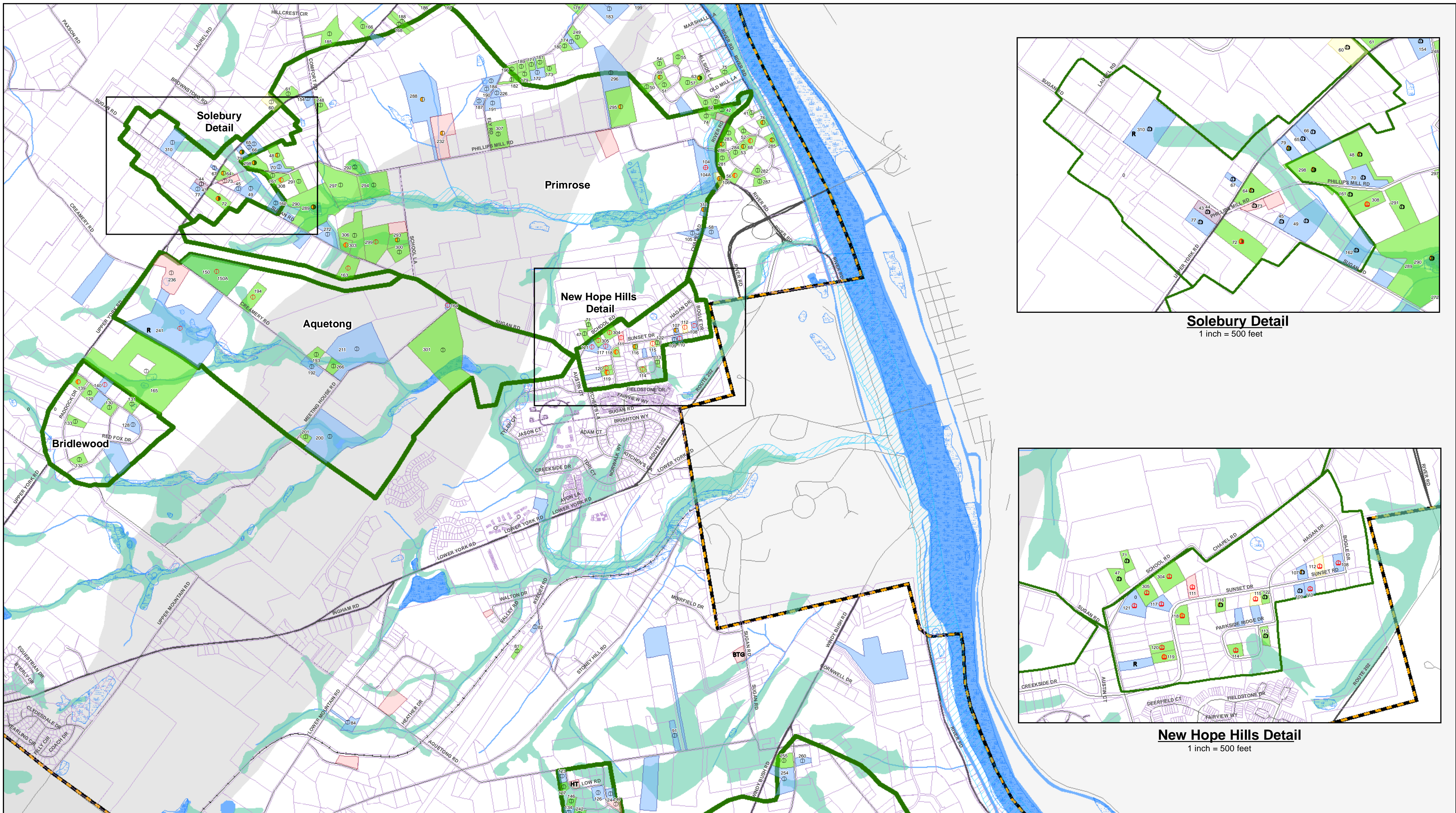
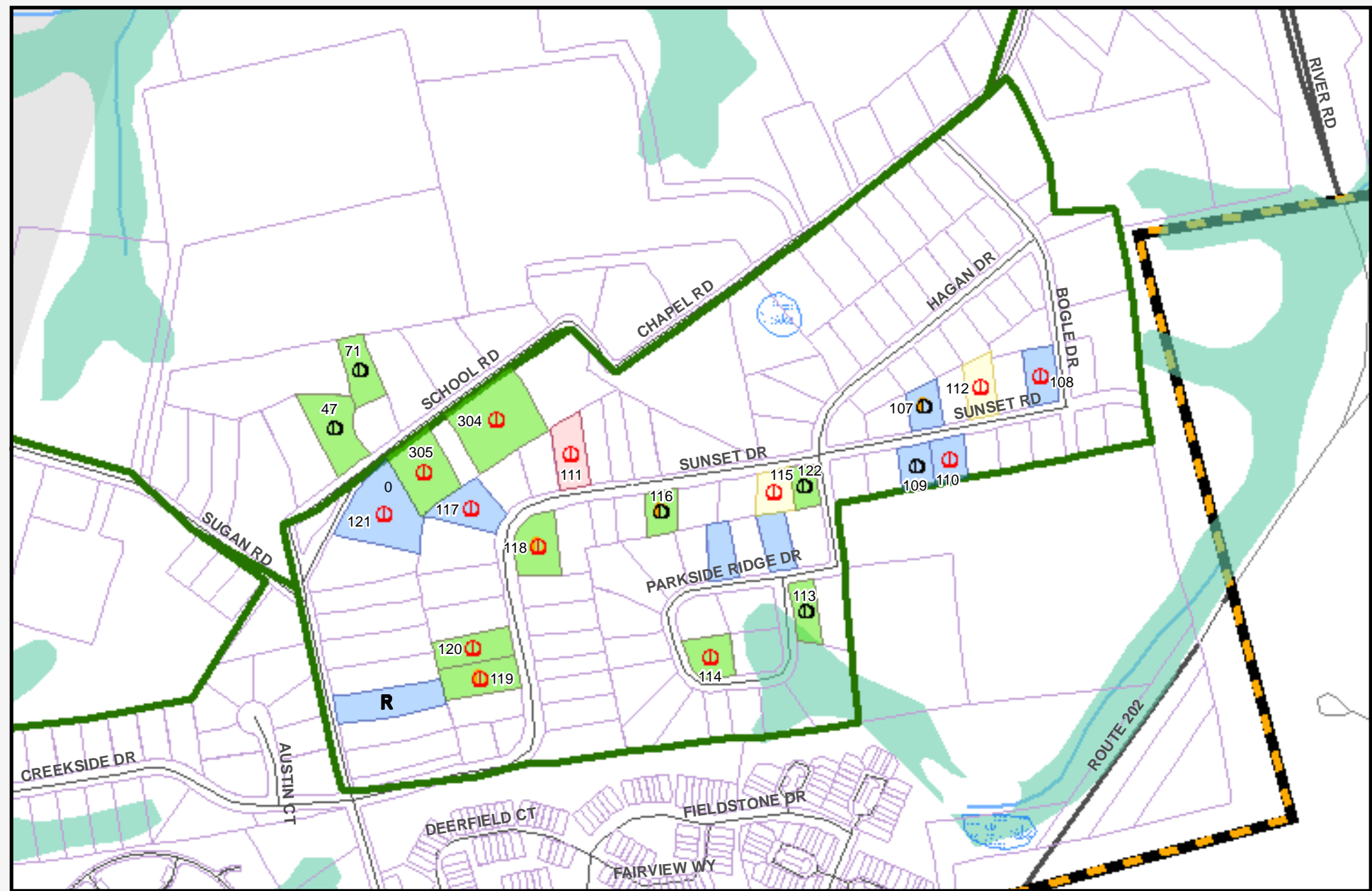


Plate 7b
Sanitary & Well Water
Survey Results
East



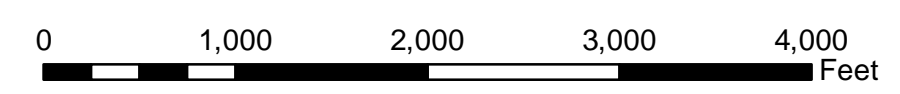
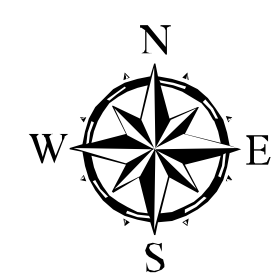
Solebury Detail
1 inch = 500 feet



New Hope Hills Detail
1 inch = 500 feet

PLATE 7b EAST
III. B. Sanitary & Well Water Survey Results
 Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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Legend			
Nitrate 2007	Malfunctions	Wetlands	Water Body
<5 mg/L	Confirmed	Floodplains	Streams
>5 mg/L	Suspected	Hydric Soils	Study Area
>10 mg/L	Potential	Carbonite Geology	
Fecal Coliform	None		
Total Coliform			

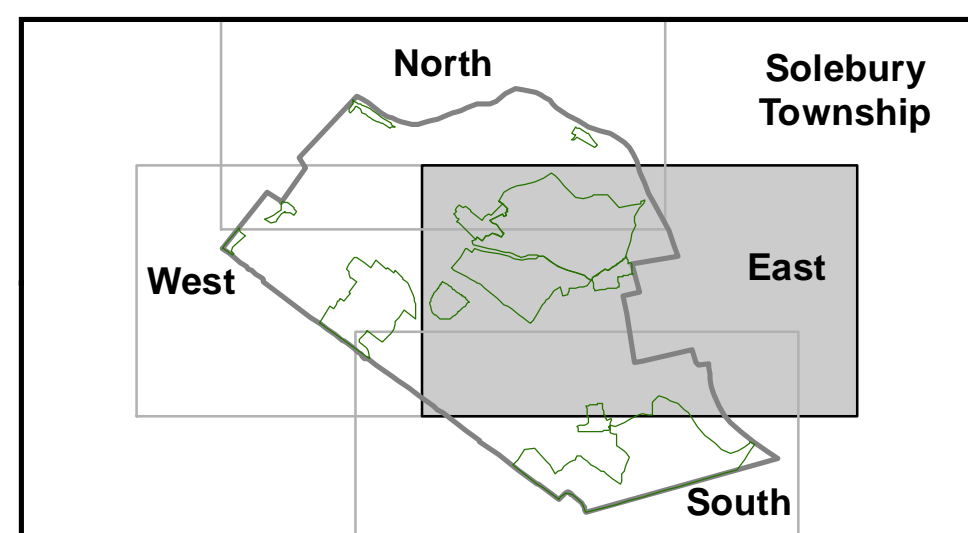
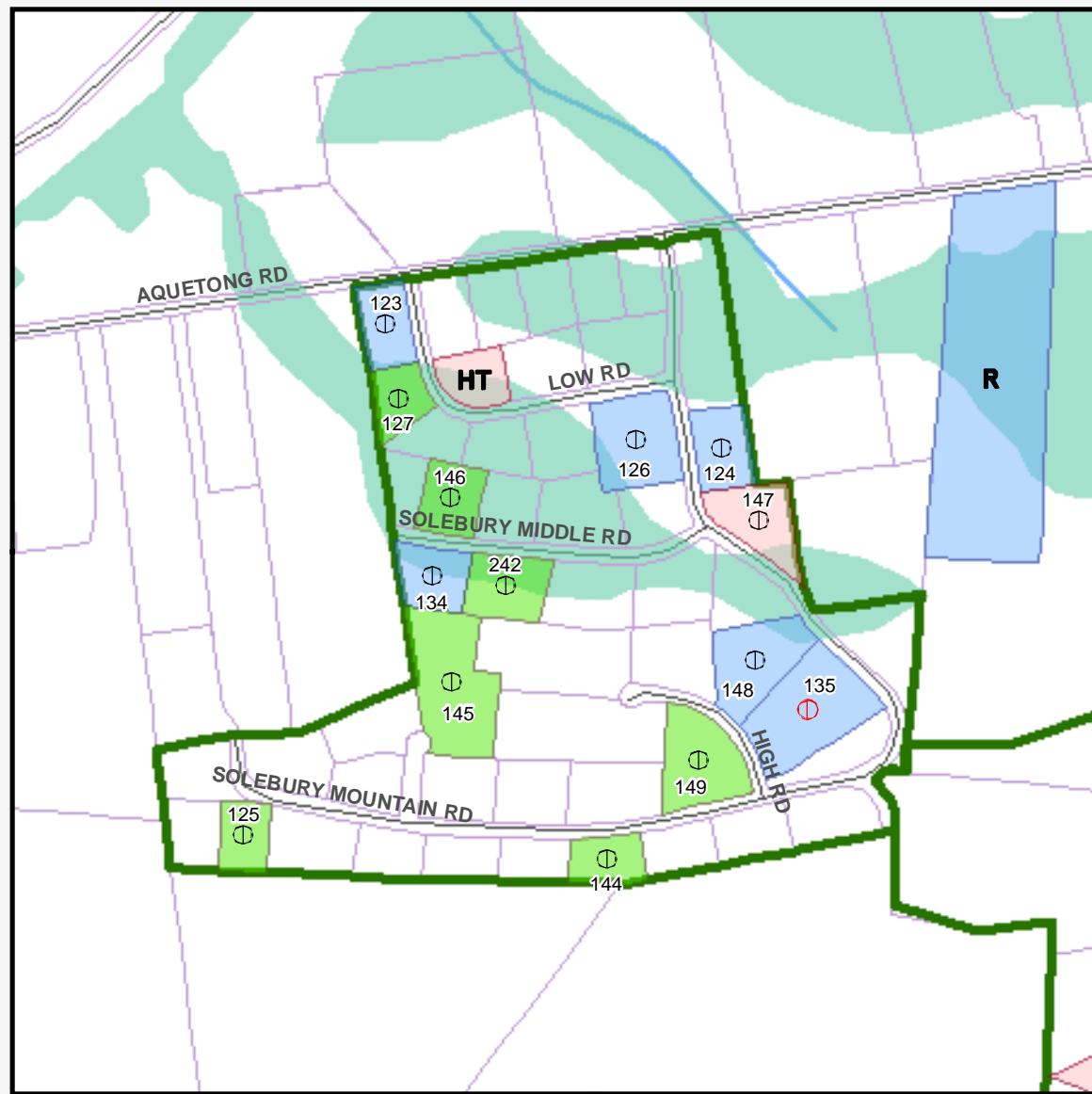
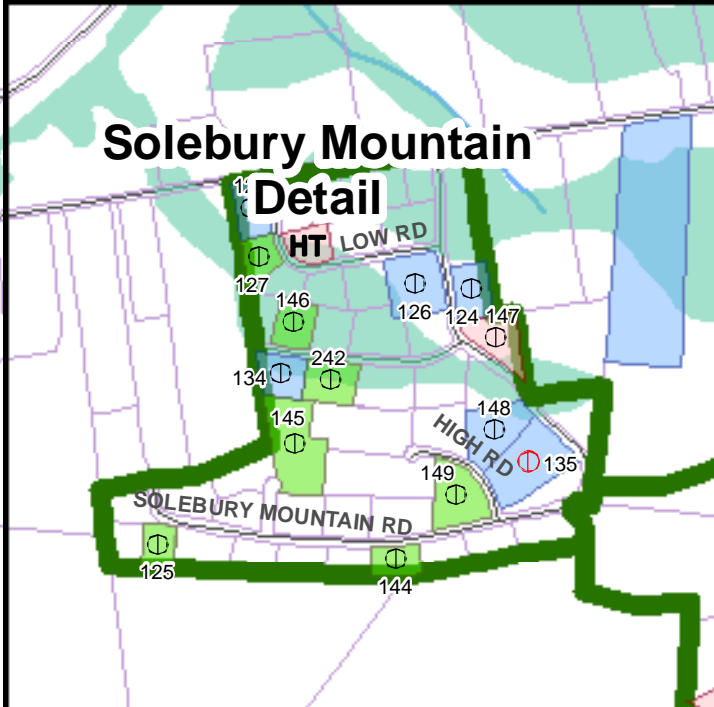
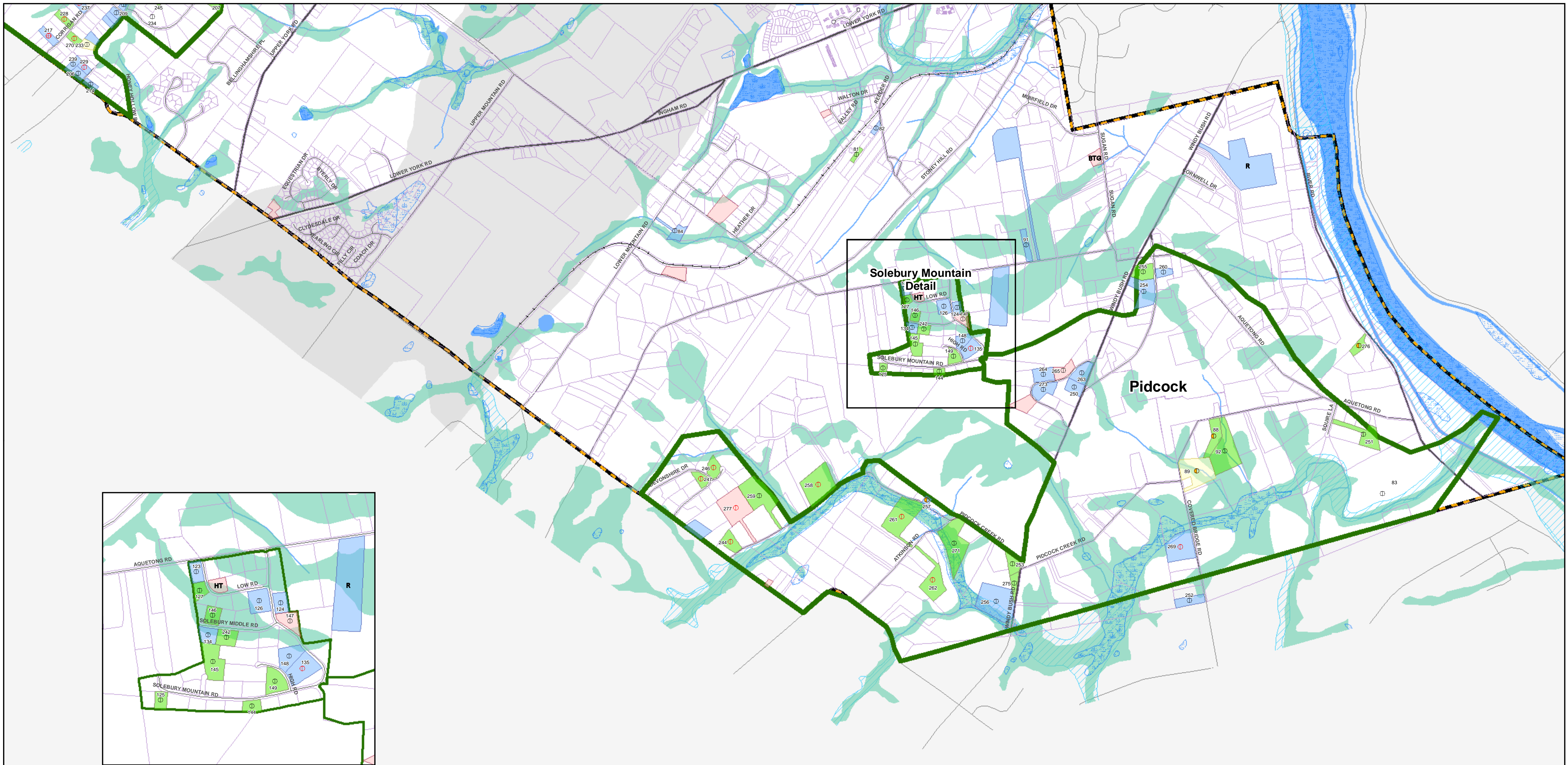


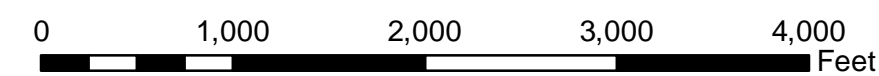
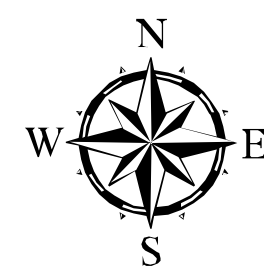
Plate 7c
Sanitary & Well Water
Survey Results
South



Solebury Mountain Detail
1 inch = 618.679775 feet

PLATE 7c SOUTH
III. B. Sanitary & Well Water Survey Results
 Solebury Township
 Solebury Township, Bucks County, Pennsylvania
CET ENGINEERING SERVICES
 Harrisburg, Pennsylvania

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Legend

Nitrates 2007	Malfunctions	Wetlands	Water Body
<5 mg/L	Confirmed	Floodplains	Streams
>5 mg/L	Suspected	Hydric Soils	Study Area
>10 mg/L	Potential	Carbonite Geology	
Fecal Coliform	None		
Total Coliform			

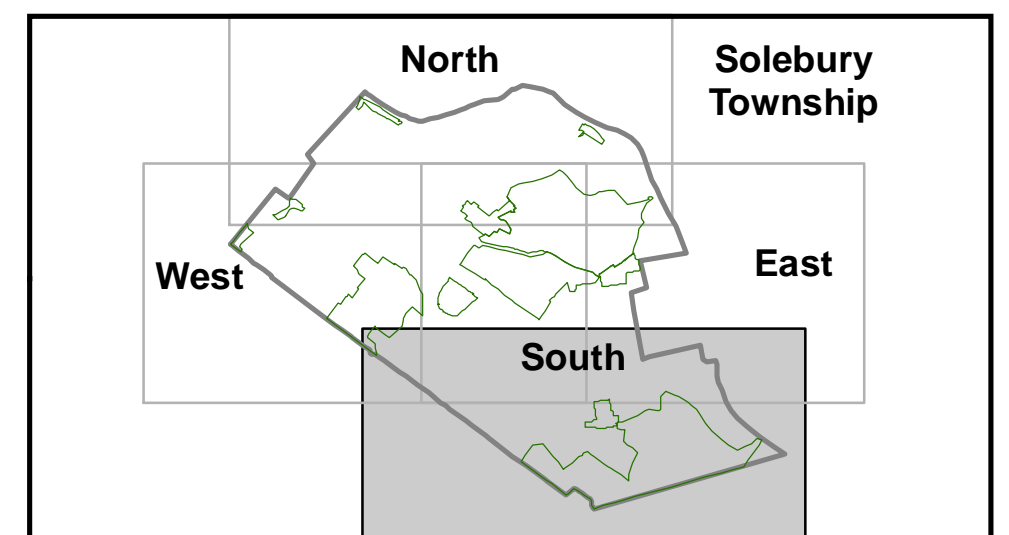
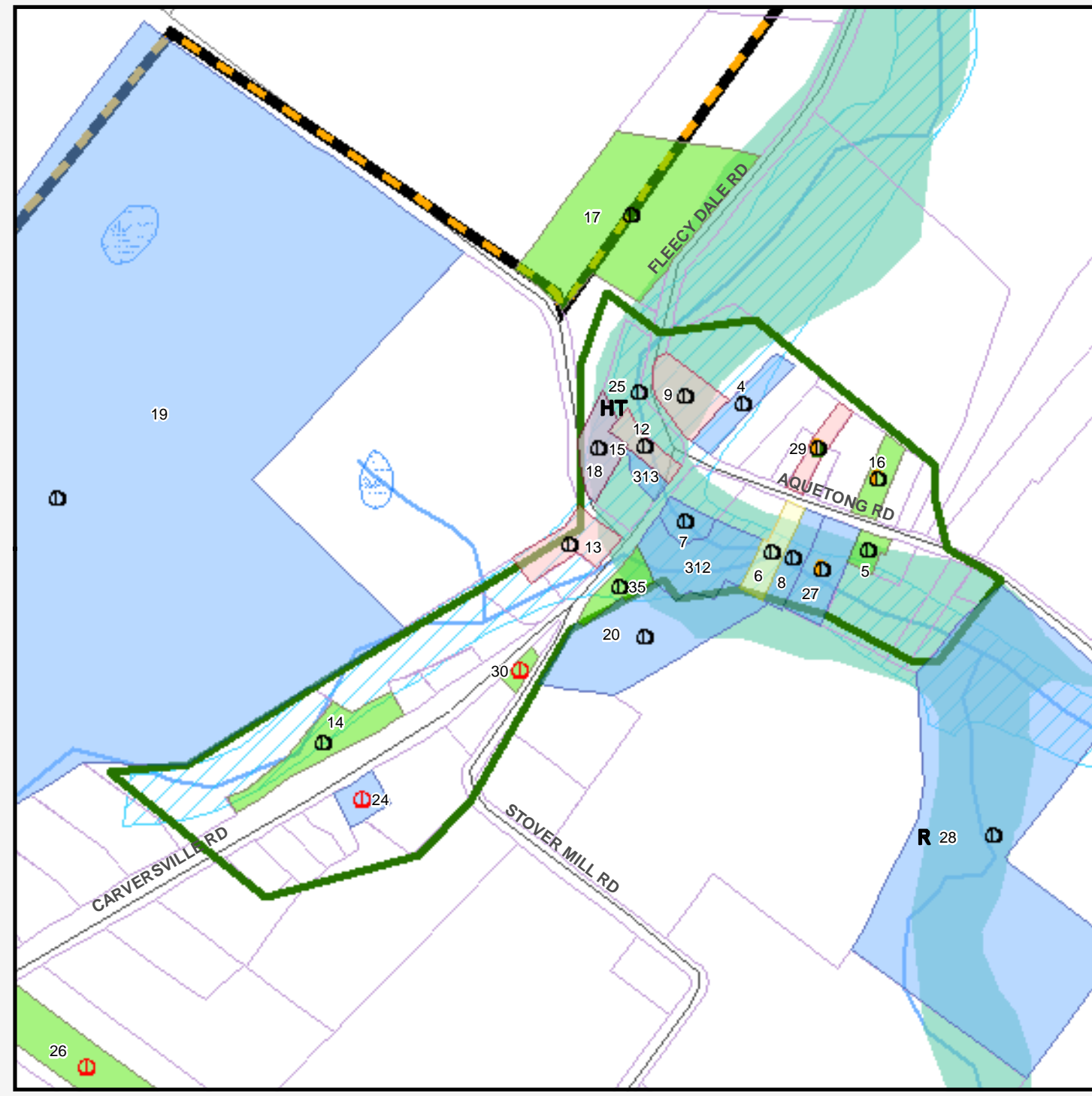
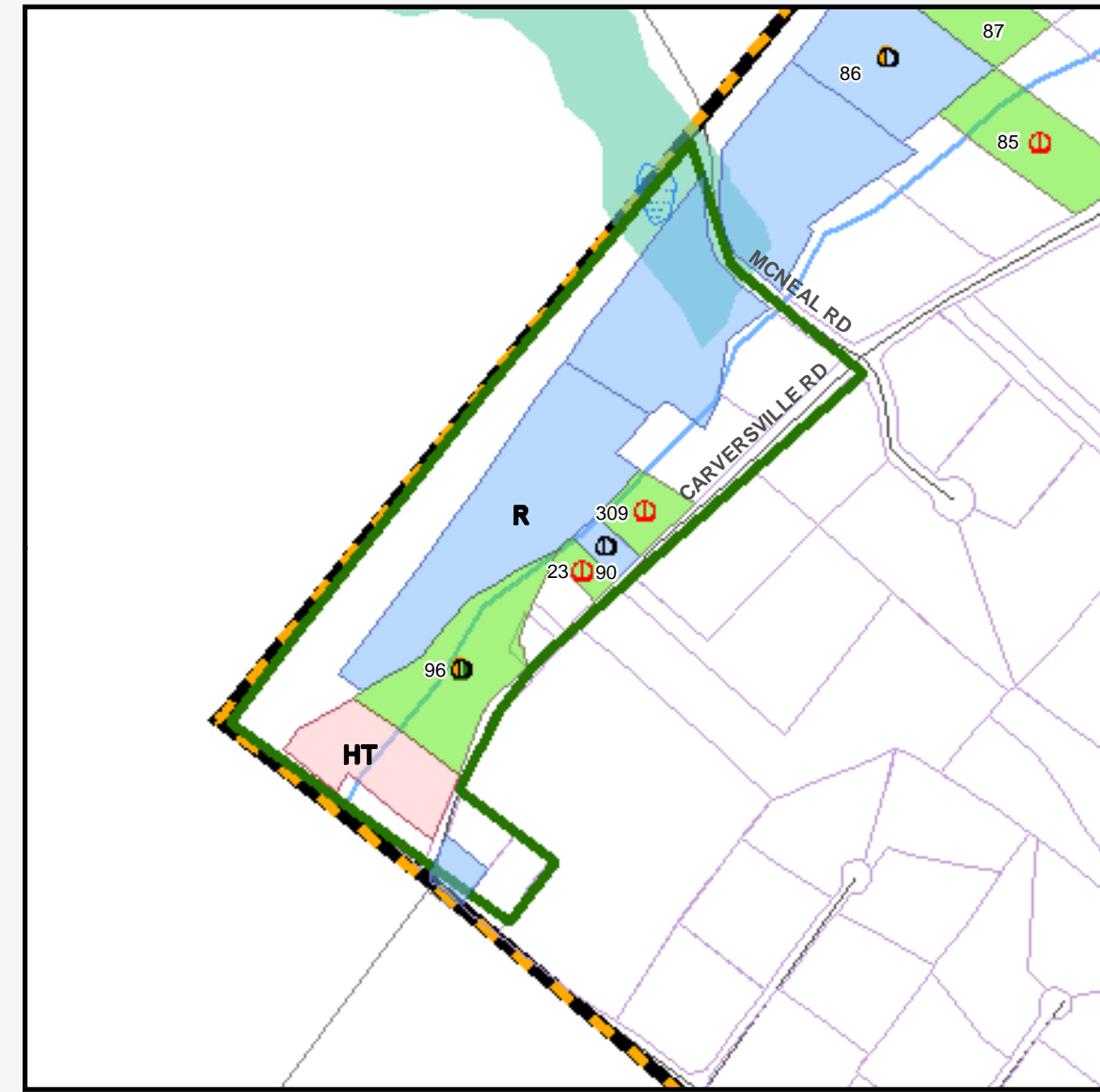


Plate 7d
Sanitary & Well Water
Survey Results
West



Carversville Detail
1 inch = 400 feet



Cottageville Detail
1 inch = 500 feet

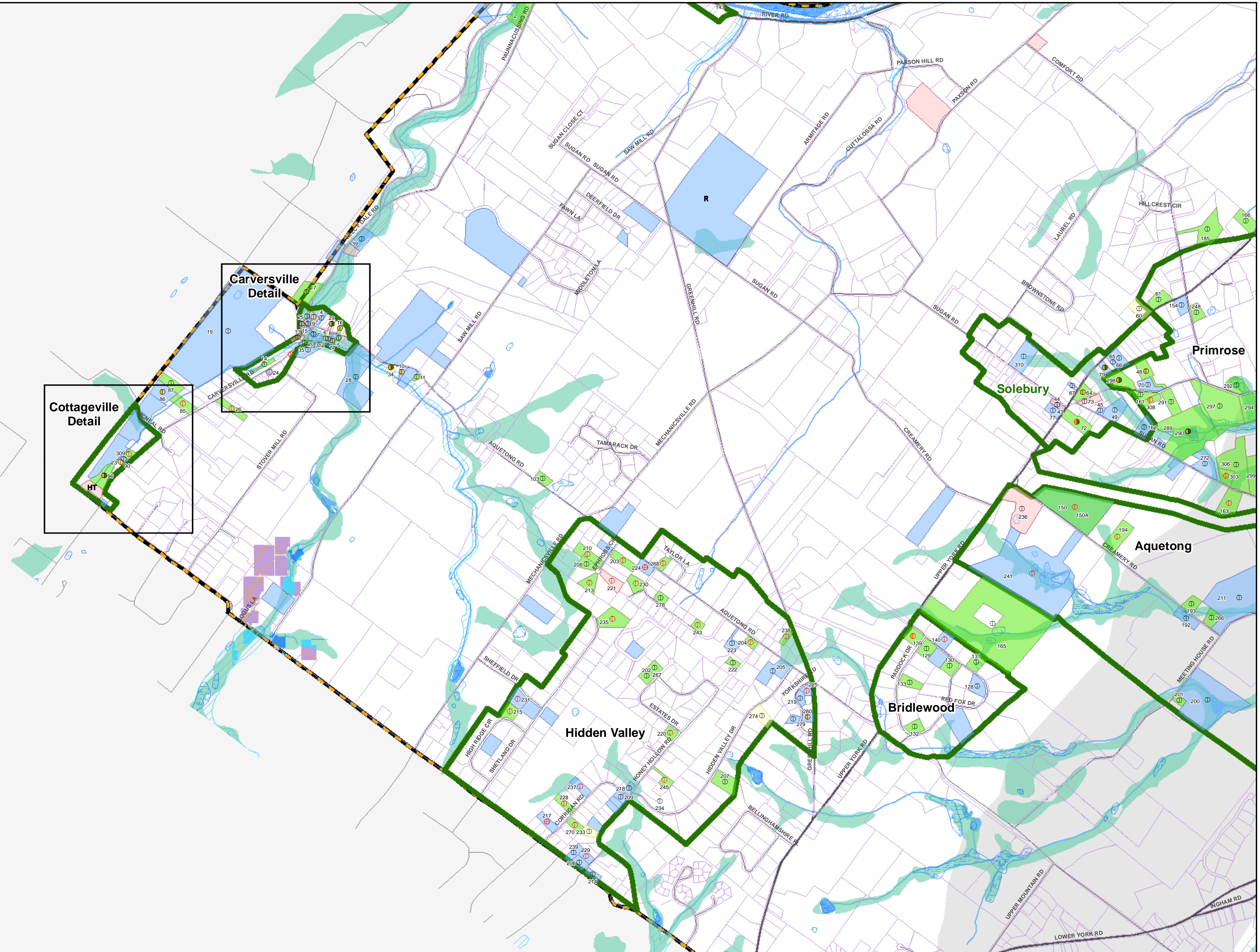
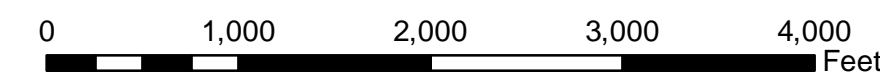
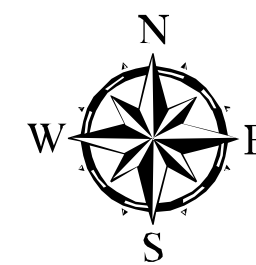


PLATE 7d WEST
III. B. Sanitary & Well Water Survey Results
Solebury Township
Solebury Township, Bucks County, Pennsylvania
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Harrisburg, Pennsylvania

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Legend

Nitrates 2007	Malfunctions	Wetlands	Water Body
<5 mg/L	Confirmed	Floodplains	Streams
>5 mg/L	Suspected	Hydric Soils	Study Area
>10 mg/L	Potential	Carbonite Geology	
Fecal Coliform	None		
Total Coliform			

